

Review of eye health of Indigenous peoples



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Introduction

It is probable that prior to European settlement of Australia the eye health of Indigenous people was excellent [1]. Presently, Indigenous people are at higher risk than non-Indigenous people for some eye conditions, and may have limited opportunities for efficient diagnosis, management and treatment [2]. Difficulties in accessing facilities and services may be due to factors such as economic disadvantage, lack of culturally appropriate services, lack of transport and geographical location. For children, apart from trachoma, patterns of common vision problems in the Indigenous population appear to be similar to those in the general Australian population [3].

A major review of Indigenous eye health in 1997 included attention to refractive error, cataract, diabetic retinopathy and trachoma [2]. The review reported that blindness occurred up to 10 times more frequently in the Indigenous population than the non-Indigenous, with most blindness among Indigenous people due to corneal scarring from trachoma or un-operated cataract. Due to the prevalence of diabetes in the Indigenous population, it is likely that diabetic retinopathy will be a much more prominent cause of blindness in the future.

The 2001 National Health Survey (NHS) included approximately 3,700 Indigenous people who were surveyed about aspects of their health. Eye problems were among the most commonly reported conditions [4]. Among people living in non-remote areas, similar proportions of Indigenous (49%) and non-Indigenous people (51%) reported having some eye disorder as a long-term health condition. For Indigenous people living in a remote area, the proportion was slightly lower (38%). Total or partial loss of vision was reported in 4% of Indigenous people (age-adjusted), compared with 3% of non-Indigenous people. Differences between Indigenous and non-Indigenous people were highest in the middle adult years, with total or partial loss of vision being twice as commonly reported by Indigenous than by non-Indigenous people. As expected for people aged 55 years or older reporting total or

partial loss of vision, the proportions were higher with an increase to 6% for both Indigenous and non-Indigenous people.

Types of eye conditions

Refractive error

The 1997 eye health review reported that urban Aboriginal and Torres Strait Islander populations have vision and refractive problems similar to the general population [2]. According to the 2001 NHS, levels of hyperopia were similar for Indigenous people (23%) and non-Indigenous people (22%) and the level of myopia reported by Indigenous people was slightly less (17% age-adjusted prevalence) than that reported by non-Indigenous people (21%) [4].

Main issues related to refractive error and spectacles include access to and utilisation of testing, cost, the administrative difficulty of dispensing, and the repair of spectacles [3]. The 1997 eye health review found that access and utilisation of State and Territory schemes providing low cost glasses (to which many Indigenous people are eligible) were poor because of in-built barriers [2]. The review recommended that State and Territory Governments should evaluate their low-cost spectacle schemes.

In the *Review of the implementation of the National Aboriginal and Torres Strait Islander Eye Health Program (2002-2003)*, regional eye health coordinators reported that many people use self-selected ready-made spectacles [3]. Cheap self-serve spectacles purchased from community or urban stores are acceptable and do not do any harm. In 2000-2001, the Nganampa Health Council made self-serve magnifier spectacles available through community stores. These have proven to be popular, even after improved access to subsidised prescription spectacles had been organised. The Health Council covers the 'gap' payment between the price and the state subsidy for one pair of low cost prescription spectacles per person per year – if these are broken or lost many people turn to the ready-made store spectacles.

In its submission to the review, the International Centre for Eyecare Education (ICEE) identified an increase in the optometrical services it provides as a direct result of the National Aboriginal and Torres Strait Islander Eye Health Program (NATSIEHP) [3]. In 2002, ICEE optometrists examined 4,000-5,000 Aboriginal people and provided an estimated 3,000 to 3,500 spectacles, contact lenses and low-vision aids.

Diabetic retinopathy

The high levels of diabetes among Indigenous people have caused concern that diabetic retinopathy could become a major cause of blindness [5]. At present, the crude prevalence of diabetic retinopathy among Indigenous people with diabetes appears to be similar to that documented for the general Australian diabetic population [6].

A review of six studies of diabetic retinopathy in the general Australian population found that the prevalence in people who present to diabetic clinics was between 35%

and 49%, and between 22% and 36% in people with diabetes in the community, and there was an overall prevalence of 1.1% to 2.2% among older Australians [7]. The prevalence of vision-threatening retinopathy was between 6% and 13% among diabetics in the community.

A 1995 WA study of Indigenous diabetic patients evaluating the use of a non-mydratic fundus camera to identify retinopathy found that among the 164 people (328 eyes) examined, 74 eyes (23%) were diagnosed with retinopathy, with 35 (11%) of eyes assessed as requiring laser treatment [8]. In the 1996 Katherine Region Diabetic Retinopathy Study, slightly lower levels of retinopathy and vision threatening retinopathy were found [9].

Diabetic retinopathy screening is a cost-effective intervention with a number of techniques [3]. For people with diabetes, screening is recommended every one or two years, with more frequent review for those with more advanced retinopathy. Screening with retinal cameras has been successfully implemented in a number of Indigenous settings. In the ICEE submission to the review of the NATSIEHP, it was stated that the program had been able to bring Indigenous people who have been diagnosed with diabetes into an organised eye health recall system.

View the Office for Aboriginal and Torres Strait Islander Health, [Specialist Eye Health Guidelines - Part 2 - Diabetic Retinopathy](#)

Cataract

In the 2001 NHS, the overall proportion of Indigenous people who reported having cataracts was 3% (age-adjusted), compared with 2% of non-Indigenous people [4]. Cataract was reported more frequently by Indigenous males (5%) than by Indigenous females (2%). It had been estimated that only 200 to 250 cataract operations were performed annually for Indigenous people – around one-tenth of the estimated 2,500 operations per year needed to clear the backlog of cataract blindness and to treat new cases [1]. As a result of the NATSIEHP [3] the backlog is being addressed. Community consultation for the NATSIEHP review found that complaints about eye health services included delays in cataract surgery of up to two years and deteriorating eye health during that time [3].

For some Indigenous people, surgical treatment can be a daunting prospect and they may require extensive support [5]. They may experience difficulties due to: language barriers; financial cost; anxiety about the hospital environment; and being isolated from family and land. They may have different expectations about the need for surgery, and understanding of compliance with the necessary requirements. Follow-up after surgery is important and feedback from Indigenous people who have undergone surgery is necessary for assessing the impact it has had on their lives.

View the Office for Aboriginal and Torres Strait Islander Health, [Specialist Eye Health Guidelines - Part 1 – Cataract](#)

Trachoma

In Australia, trachoma is found almost exclusively within the Indigenous population [2] and remains endemic in large areas of WA, SA and the NT [3]. One of the aims of the initial National Trachoma and Eye Health Program (NTEHP) was to eliminate trachoma. The program found that trachoma was the major cause of blindness among Indigenous people. There is little recent information about trachoma, however, and what is available reports either follicular or inflammatory trachoma. The more severe form of trachoma, trachomatous inflammation intense, is very rarely reported.

Periodic surveys, undertaken almost exclusively in areas of high trachoma prevalence, provide some evidence of the current levels of trachoma. Caution should be exercised, however, when interpreting the evidence, mainly because most of the surveys have been undertaken as a guide for providing services rather than as precise epidemiological investigations. Methodological issues that should be taken into account include: lack of standardisation of diagnostic criteria; observer variation; lack of consistency in age groups surveyed; selection of survey participants; seasonal factors; and time relationship between surveys and treatment activities [1].

A review of surveys in the NT from 1940 to 1986 found that there had been a decrease in the prevalence of trachoma in the coastal communities, but not in inland arid regions [10]. Screening in the Top End of the NT in the 1990s showed high rates of trachoma in some communities – in the Katherine region there was a prevalence of 38% for children up to 10 years [10]. More recently, 26% of 849 children aged 4-15 years living in East Arnhem Land in 2002 were found to have trachoma [11].

Follicular trachoma remains endemic in some communities of northern and central Australia. Surveys in WA have reported a prevalence of follicular trachoma ranging from 14% (for schoolchildren aged 5 to 16 years in the Kimberley region in 2000) [12] to 55% (for children in the Pilbara region in 1996) [1], but differences in the age groups surveyed and the years of the surveys need to be taken into account. Levels of trachoma have declined in wealthier regions like Broome, Derby and Kununurra [13]. The decline among the Anangu Pitjantjatjara people of SA from 1976-1990 has been attributed to improvements in socioeconomic conditions, community development and increased access to medical care.

In interpreting the results of the various surveys, it needs to be borne in mind that most screening has been conducted in the dry season. A recent study of preschool and school-aged children in three communities in the Kimberley region of WA found that the prevalence of trachoma was higher in the wet season than in the dry season in two communities in the west Kimberley [14]. There was no difference in prevalence for the east Kimberley community, but this could have been due to a reduced re-screening rate (only 65% were examined in the dry season as the community was away on business). In respect to the possible role of flies as vectors for the transmission of trachoma, this study found that fly populations were so low during the dry season that they were un-trappable, but that numbers increased significantly during the wet season. A similar study in Gambian villages in the wet and dry seasons found that flies were important vectors of trachoma [15].

Trachoma control programs are based on the Surgery, Antibiotic, Facial cleanliness, Environment (SAFE) strategy, although it has been recommended that further research and evaluation should be carried out to refine this strategy in the Australian context [3]. In areas with high population mobility, trachoma control programs need to be organised on a regional rather than an individual community level.

Azithromycin, a long-acting antibiotic that has been found to be an effective therapy for trachoma, was listed on the Pharmaceutical Benefits Schedule in 1998 [16]. It has been made available to remote Indigenous community controlled health services under the provisions of section 100 of the National Health Act 1953, which allows remote Aboriginal and Torres Strait Islander communities to access treatment free of charge at the point of consultation. Remote services operated by State and Territory governments can also participate in this scheme.

Scarring trachoma and trichiasis

Nearly all the recent data on trachoma reports follicular or inflammatory trachoma, and rarely mentions scarring trachoma (TS) and trichiasis (TT). Recent data for trichiasis is available from the Kimberley region of WA, where 597 Indigenous people aged 50 years or more (42% of the estimated population in that age group) were screened in 1998 [17]. Trichiasis was suspected in 40 people and ophthalmological assessment of 28 of these people confirmed 17 cases of trichiasis, giving a minimum prevalence of 2.8%.

An earlier study, undertaken in 1990 among 1,514 people living in the Anangu Pitjantjatjara lands of SA, reported a prevalence of 25% for cicatricial trachoma (including TS and TT) [18]. Less than 6% of people aged 19 years or younger had any scarring (most of which was mild), but the prevalence increased with age to a peak of almost 90% in those aged 60 years or older. Only 39 (2.6%) of the 1,514 people surveyed had evidence of trichiasis. Of these 39 people, 26 were aged 60 years or older, with 19% in that age group being affected.

- View the Office for Aboriginal and Torres Strait Islander Health, [Specialist eye health guidelines - part 3 - trachoma](#)
- View the Communicable Disease Network Australia, [Guidelines for the public health management of trachoma in Australia](#)

Ocular trauma

Ocular trauma is a variable problem in Indigenous communities – in some, it may be due to occasional corneal foreign bodies, while in others it may be related to violence and alcohol abuse [2].

Gonococcal conjunctivitis

There have been several outbreaks of gonococcal conjunctivitis in Indigenous populations in central Australia [19]. A widespread outbreak of gonococcal conjunctivitis occurred in 1997 with a total of 447 cases. Active surveillance and early laboratory confirmation are important in identifying and controlling outbreaks.

Glaucoma

Glaucoma, particularly primary glaucoma, appears to be rare among Indigenous people [2]. There is, however, little information available on glaucoma for the Indigenous population.

Addressing eye health problems among Indigenous people

The National Aboriginal and Torres Strait Islander Trachoma and Eye Health Program

The initial National Trachoma and Eye Health Program (NTEHP) ran from 1976 to 1978 under the direction of Fred Hollows [2]. Funding of \$1.4 million was provided by the Commonwealth to the Royal Australian College of Ophthalmologists (RACO). The program involved the screening, diagnosis and treatment of eye disease for 102,000 people (60% Indigenous) in rural and remote parts of Australia.

Recommendations from the program gave direction for the continuation of a national program with regular scheduled visits of ophthalmologists, and suggested improvements to socio-economic conditions for Indigenous people [2]. Visits from a range of other specialists to rural and remote areas were also recommended to monitor, treat, direct and advise on the prevention of skin, ear and respiratory diseases. The project was a model in that Indigenous participation and employment were encouraged from the beginning and the environmental basis of ill health was highlighted [20].

The National Aboriginal and Torres Strait Islander Eye Health Program

The report Eye health in Aboriginal and Torres Strait communities [2], which detailed a major national review undertaken in 1997, recommended comprehensive strategies to address the management of eye health. In 1998, the Commonwealth Government responded by committing to a National Aboriginal and Torres Strait Islander Eye Health Program through the Office for Aboriginal and Torres Strait Islander Health (OATSIH) to improve access to eye health care, particularly for people living in remote and rural areas [16].

One of the recommendations of the review was to develop evidence-based clinical practice guidelines – in response, OATSIH commissioned the Centre for Eye Research Australia (CERA) in collaboration with NACCHO (National Aboriginal Community Controlled Health Organisation) to produce Specialist eye health guidelines for use in Aboriginal and Torres Strait Islander populations [5]. The guidelines, published in 2001, provide information about the treatment and management of the eye health conditions: cataract; diabetic retinopathy; and trachoma. CERA has also adapted the National Health and Medical Research Council's clinical practice guidelines for the management of diabetic retinopathy for use with Indigenous communities.

A regional public-private model was recommended for the provision of specialist eye services – the model combines public funding for infrastructure and hospital services and Medicare bulk-billing for specialist eye services [2]. Of particular concern was access to services for people who live in remote areas. A study in Queensland, for example, reported that only a small proportion of optometrists provided services to rural communities [21]. An overall assessment of eye health in rural Australia found that the number of patients per optometrist was more than 12,700 in remote areas and around 2,700 in rural areas compared with the national average of around 1,180 [22]. There was also an under-supply of ophthalmologists in these areas. To encourage optometrists to visit remote regions of Australia and deliver eye care to Indigenous communities the Australian Government offered a subsidy in the Visiting Optometrists Scheme (VOS) [3].

The National Aboriginal and Torres Strait Islander Eye Health program (NATSIEHP), based on a regional model of eye health service delivery, comprised three strands: regional eye health services coordination; access to specialised equipment; and training assistance [3]. It was aimed to increase eye health services (particularly specialist support) in Aboriginal and Torres Strait Islander primary health care settings, and included the provision of infrastructure and resources. The program aimed to address eye health problems such as: cataract; diabetic retinopathy; trachoma; and refractive error through increasing access to specialist eye health services within the context of comprehensive primary health care. The program also sought to promote the World Health Organization (WHO) SAFE strategy for trachoma control (Surgery, Antibiotic, Facial cleanliness, Environment). Major components of the program included the establishment of eye health coordinator positions nationally within Indigenous primary health care settings, training for coordinators and workers in identified Indigenous community controlled health services, and provision of ophthalmic equipment.

The Review of the Implementation of the National Aboriginal and Torres Strait Islander Eye Health Program

The Centre for Remote Health in Alice Springs was commissioned by the Office for Aboriginal and Torres Strait Islander Health to undertake a Review of the Implementation of the National Aboriginal and Torres Strait Islander Eye Health Program [3]. The review was conducted in 2002-2003 to determine the current state of the implementation of the NATSIEHP and make recommendations about further directions for the program. The review team included Indigenous and non-Indigenous people with experience in Indigenous primary health care, epidemiology, the community-controlled sector, non-government and government health administration, ophthalmology, public health and eye health research. The final review report was published in October 2003.

The review team surveyed Indigenous eye health coordinators, visited six regions, analysed available data on eye health, reviewed the relevant literature, surveyed ophthalmologists and ophthalmology registrars and sought input from key stakeholder organisations and individuals [3]. A national workshop was held in May 2003 to: present and check major findings of the review; seek comment from the eye coordinators and provide them with opportunities to raise issues that the review team

may not have identified; and to provide coordinators with an opportunity for networking and training. Twenty-six regional coordinators attended the workshop.

Findings of the Review of the Implementation of the National Aboriginal and Torres Strait Islander Eye Health Program

There were 24 recommendations in the review spanning State, Territory and Australian government responsibilities and areas of the health system, including primary health care professionals, public health units, hospitals, specialists and other eye health providers, and their professional organisations [3]. The review, which found the implementation of the NATSIEHP has been quite different across Australia, highlighted the strengths, weaknesses and lessons from various regions.

It was reported that the NATSIEHP involved a number of different aspects of primary health care under specialist-driven programs, including chronic disease management, infectious disease control, health information and patient recall systems, and coordination of specialist services [3]. The NATSIEHP appeared to have improved optometry and ophthalmology services to many regions. It was recommended that the gains should be preserved while pursuing the goal of making the NATSIEHP part of the broader chronic disease management capacity within primary health care.

It was found that the program had not been well integrated with existing primary health care services [3]. This was explained as partly due to the specialist nature of the program and partly due to the limited capacity of primary health care services to support the desired integration of the specialist eye health program. Consequently, key components of eye health care were not incorporated into regular primary health care practice – an example is the linkage of retinopathy screening programs with well person's checks and the early detection of diabetes,.

Overall, the program had gained minimal benefits from mainstream programs or services [3]. It was recommended that there needed to be considerably more linkages between the NATSIEHP and other mainstream programs at a national, state and regional level. The capacity to monitor and quantify key aspects of the NATSIEHP was found to be limited. The need to improve the functionality of the existing Patient Information and Recall Systems (PIRS) would be essential for good monitoring and implementation of eye health programs. It would also be necessary to provide support for primary health care services to collect data and manage computer systems – to analyse, report, do quality assurance, and to use the information locally.

The role of the coordinators was found to have been underestimated and under-supported in terms of the complexity of the role and the skills needed [3]. It was recommended that the role of people holding these positions should become that of facilitator/developer of improved primary health care capacity for chronic disease and eye health management and the optimal integration of specialist services with primary health care. It was expected that this would require coordinators to do less clinical work and more strategic development and management. There would be a need to support primary health care services in order to take on the clinical work currently done by the coordinators.

Aspects of remuneration for the optometrists and ophthalmologists were found to vary between regions and were possibly not sustainable in the longer term [3]. Ensuring the future supply of these specialists would involve the professional colleges and training systems.

Regional eye equipment supplied by OATSIH had made a material, although unquantifiable, difference to the availability of eye care to Indigenous people [3]. It was identified that there was a need for OATSIH to review its management of NATSIEHP equipment in terms of: purchase, distribution, utilisation, impact on service and outcomes, and maintenance, insurance, storage, redeployment and replacement. A visit to all regions would be required to gather the information necessary to provide such details and this was outside the scope of the review. It was recommended that this should be done soon after the review, as a redistribution of unused equipment could mean that further purchases be deferred.

Australian Government response to the review of the implementation of the National Aboriginal and Torres Strait Islander Eye Health Program

The Australian Government response to the review of the implementation of the National Aboriginal and Torres Strait Islander Eye Health Program supported a majority of the review recommendations [16]. The response set out future directions for the program, to strengthen its integration within primary health care and to improve mainstream health system responses to the eye health needs of Indigenous peoples. Principles were included to set the scene for future directions. It was stipulated that mainstream programs and services, including specialist services, should have the same responsibility to address the health needs of Indigenous people as other Australians and at all levels of the health system.

It was envisaged that eye health should be addressed as a component part of comprehensive primary health care and that existing capacity in eye health in the Indigenous primary health care setting should be preserved [16]. Regional approaches to eye health were expected, over time, to place more emphasis on strengthening the capacity of local primary health care services in an organised approach to chronic disease detection and management. Trachoma control in endemic regions would require public health responses with the involvement of public health units, primary health care services, and housing and essential services. It would be necessary for program development and implementation to be based on the best available evidence.

Future implementation of the program will occur in the context of the implementation of the National Strategic Framework for Aboriginal and Torres Strait Islander Health [16].

Vision 2020

Vision 2020: the Right to Sight is a global initiative involving the participation of UN agencies, governments, eye care organisations, health professionals, philanthropic institutions and individuals working in partnership to accomplish goals addressing

eye disease by the year 2020 [23]. Vision 2020 Australia, launched in 2000, currently has almost 50 partners including: non-government organisations; university departments; research organisations; rehabilitation groups; special interest and support groups, eye industry providers (including hospitals) and the Royal Australian and New Zealand College of Ophthalmologists. There are three main activities: (i) building public awareness to encourage people to protect their eyes and have the appropriate eye checks; (ii) encouraging professional best practice and prepare the services for the number of cases they need to cover; and (iii) evaluating the process and its impact and refining the techniques to deal with this. For Indigenous eye health in particular, Vision 2020 Australia's main concerns are:

- performance of cataract surgery routinely at regional level;
 - provision of adequate screening programs for trachoma and support of an integrated primary health approach to manage trachoma;
 - provision of access to ready-made reading glasses in Indigenous communities and improved access to low-cost glasses through existing schemes;
 - review of the effectiveness of visiting optometrist schemes in meeting refraction needs, particularly in remote areas; and
 - encouragement of regular eye screening and appropriate regionally based equipment and training for the management of diabetic retinopathy.
- For further information:
 - [Vision 2020 Australia](#)

Developments in eye health

Advances in eye health will be made with improvements in and access to technology. Telemedicine offers potential benefits to patients in remote areas and can be used for diagnosis, management of acute conditions and post-operative review. There have been developments and trials for adapting photographic diabetic retinopathy (DR) screening to telemedicine formats, including rural outreach and mobile unit programs [3]. There are also developments in the equipment that can be used for DR screening photography. Many services could benefit from computer-based systems for patient recall and management [2]. The provision of a national information network in the future, as suggested by Professor Hugh Taylor, would improve: the collection and collation of data; access to information; the documentation of program achievements and best clinical practice; the planning of eye care services and the accuracy of monitoring progress in Indigenous eye health.

There have been strategies implemented specifically for Indigenous people to improve access to preventive and treatment techniques and to provide culturally sensitive support and follow up for procedures. Steps have also been taken to address the disadvantage in the socioeconomic conditions which often underlie susceptibility to some eye conditions (such as trachoma) or which limit the ability to access corrective eyewear. Government funding specifically for Indigenous eye health has been essential for reviews, screening and treatment services. Global, national and community linkages have been developed between supportive organisations to improve the prospect of attaining eye health goals and reduce unnecessary suffering. With predictions of a rise in eye health conditions within the

ageing Australian population generally, the focus on research to prevent eye health conditions should increase.

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