National Indigenous Eye Health Survey

Minum Barreng (Tracking Eyes)

Full Report

THE UNIVERSITY OF MELBOURNE

Centre for Eye Research Australia

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1 INTRODUCTION

1.1 Project Summary

The National Indigenous Eye Health Survey was designed to provide essential baseline evidence to be used to plan and prioritise the effective delivery of eye care for Indigenous Australians. The Survey was designed to assess the prevalence and main causes of vision impairment, as well as the utilisation of eye care services, barriers to health and the impact of vision impairment on Indigenous people.

The survey utilised and relied upon a broad spectrum of expertise within the Indigenous health and eye health sectors. The structure of the project, with its state and national participating organisations, has allowed the survey to produce meaningful information on the true extent of Indigenous eye health, the first of its kind in 30 years. This survey aimed to provide definitive and quantitative data from which organisations around the country could advocate and plan service delivery to enhance existing services and develop new referral services. The implementation of effective eye health services will improve the health status of Indigenous people.

The final results provide the necessary information for the Government's National Eye Health Framework. The ultimate goal has been to provide the evidence base for the provision of eye care services so they will be available, accessible and appropriate for ***all*** Australians.

1.2 Background and Rationale

Previous reports indicated that blindness was about 10 times higher in Indigenous Australians than in non-Indigenous Australians (1). Three decades ago trachoma blinded many older people and vision impairment from cataract occurred up to 10 times the rate of that found in the general Australian population. At that time, diabetes and diabetic eye disease was uncommon in Aboriginal people (2; 3). However, the last reliable ***national*** information was obtained 30 years ago from the National Trachoma and Eye Health Program, lead by Professor Fred Hollows (2).

Australia is the only developed country that still has trachoma, the leading infectious cause of blindness in some remote communities (4; 5; 6; 7; 8). In the last 30 years there have been major changes in health and diabetes has become highly prevalent in some Indigenous communities (9; 10; 11). Additionally, there have been high rates of under-corrected refractive error, ocular trauma, and pockets of trachoma and blinding cataract (4).

The true prevalence of eye disease and the areas of greatest need have not been known with any certainty. This has hampered the planning of effective eye care services for the Indigenous Australian populations. This Survey provides the essential baseline information that can be used to plan and prioritise the effective delivery of eye care to Indigenous Australians. This gap analysis informs both government and non-government organisations working in the area of Indigenous eye health, with a goal of making eye care services equitable for ***all*** Australians.

1.3 Project Objectives

The objectives of the National Indigenous Eye Health Survey:

1. To determine the prevalence and causes of vision impairment (cataract, macular degeneration, glaucoma, diabetic retinopathy, refractive error and trachoma) in Indigenous Australians.
2. To evaluate the access to, and utilisation of, health-care services in Indigenous communities and in large residential enclaves.
3. To provide the evidence base for the planning of effective eye care programmes for Indigenous Australians.

1.4 Study Design

1.4.1 The pilot study

A pilot study titled '*Evaluation of Selected Vision and Eye Conditions in Aboriginal and Torres Strait Islander Communities*', was conducted in Moree NSW. The purpose of this study was to develop the procedures and conduct the preliminary pilot studies for the National Indigenous Eye Health Survey. This was to ensure that the processes and protocols were both valid and culturally appropriate for Aboriginal Australian people. The ethics for the study had been approved by the Aboriginal Health and Medical Research Council of NSW. The rapid assessment methodology utilised was based on the Vision Initiative in Victoria, and was compared to a gold standard eye examination by an eye care practitioner.

The rapid examination was designed to detect the five predominant and significant eye conditions, including diabetic retinopathy, trachoma, glaucoma, refractive error and cataract. It was found that 90.4% of the retinal images obtained with the non-mydriatic camera were gradable, and that the rapid examination was able to detect proliferative diabetic retinopathy and macula oedema with very high sensitivity and specificity. The study found that the rapid examination was highly specific in correctly identifying normal vision in adults. The rapid assessment also showed high sensitivity in detecting cup to disc ratios greater than 0.6.

The rapid assessment method used in this study resulted in a validated, rapid examination methodology which was able to detect diabetic retinopathy, risk of glaucoma, trachoma, refractive error and visual impairment in Aboriginal and Torres Strait Islander populations in Australia, when compared to a gold standard eye care practitioner examination, with minimal staff training and equipment (12).

1.4.2 Survey design

The survey was designed to assess the prevalence of the main eye conditions causing vision loss including cataract, diabetic retinopathy, refractive error and trachoma/ trichiasis, as well as the prevalence of glaucoma and age-related macular degeneration. An additional component of the examination was a self-administered questionnaire adapted from that used in The Vision Initiative to obtain demographic information and information about the utilization of eye care services (13).

Participants with impaired vision (<6/12) were asked to complete an additional survey called 'The Impact of Vision Impairment' which was designed to assess the quality of life for people with impaired vision (14).

1.4.3 Demographic and sample collection

The Survey was designed to collect a representative population sample of 3000 Indigenous people. For this purpose, the total Indigenous Australian population was stratified according to their remoteness area zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian census data recently released by ABS. Five sites of each RAZ were randomly selected to participate in the Survey to ensure adequate population representation, bringing the total number to 30 sites.

The sample was constructed to have a population of approximately 50 children aged 5 to 15 years and approximately 50 people over the age of 40. Given the age distribution of Indigenous people in Australia, a community group of 400 people was estimated to contain these numbers (Table 1) As some identified sites had populations over 300 people, these were broken down to Statistical Local Areas (SLA) or further to Census Collection Districts (CCD) as reported by ABS in the 2006 census. This exercise enabled to identify cohesive community groupings of approximately 400 (range 300 to 400). The list of sites is detailed in Table 2 and Figure 1.

Table 1 Expected Age Demographic in Sample of 300 Participants from ABS.

Age Group	Percent (%)	Proportion of 300
0-4	14	41
5-15	28	85
16-40	32	97
40+	26	77
Total	100	300

Table 2 National Indigenous Eye Health Survey, Selected Indigenous Areas.

State	Indigenous Area (RAZ)*	Indigenous Population per Area	Centres of Indigenous Population
ACT	Tuggeranong/ ACT South (Inner Regional)	1,390	Wanniassa (120), Oxley (32), Gowrie (35), Monash (81), Isabella Plains (84). Total n=352.
NSW	Port Macquarie (Inner Regional)	1,022	Port Macquarie Collection of 9 CCDs. Total n=321.
	Parramatta (Major City)	1201	North-west, n=337.
	Doonside/ Woodcroft (Major City)	807	North East section of Area, n=285.
	Tamworth (Inner Regional)	3,186	Collection of 11 CCDs. Total n=340.
	Upper Murray (Outer Regional)	443	Urana (40), Corowa Shire (121), Lockhart (40), and Greater Hume Shire (37). Total n=238.
	Dubbo (Outer Regional)	3,910	Collection of 4 CCDs. Total n=320.
NT	Nguiu (Very Remote Coastal)	1,188	Nguiu, n=1189.
	Maningrida (Remote)	1,905	Maningrida, n=1906.
	Kalkarindji (Very Remote Inland)	268	Kalkarindji, n=268.
	Titjikala (Very Remote Inland)	206	Tapatjatjaka, n=206.

State	Indigenous Area (RAZ)*	Indigenous Population per Area	Centres of Indigenous Population
QLD	Gold Coast (Major City)	5677	East Gold Coast: Parkwood-Arundel (156), Molendinar (87) and Ashmore-Benowa (137). Total, n=380.
	Mount Isa (Remote)	3,268	Mount Isa, n=543.
	Aurukun (Very Remote Coastal)	956	Aurukun, n=955.
	West Central[+] Queensland (Very Remote Inland)	635	Winton (130), Aramac (24), Longreach (155). Total, n=309.
	Cherbourg (Outer Regional)	1,094	Cherbourg, n=1093.
	Torres Strait (Very Remote Coastal)	144	St Pauls (224) & Kubin (188). Total, n=412.
SA	Ceduna[+] (Remote)	734	Collection of 3 CCDs. Total, n=339.
	Davenport (Outer Regional)	182	Port Augusta Both locations were combined to a single SLA. Collection of 4 CCDs. Total, n=292.
	Port Augusta - Remainder (Outer Regional)	2,121	
TAS	Huon Valley[+] - Remainder (Remote)	958	Huon Valley Collection of 10 CCDs. Total, n=343.
VIC	Monash/ Kingston (Major City)	620	Kingston, n=287.
	Latrobe (Inner Regional)	868	Moe, n=234.
WA	Swan (Major City)	2,584	Swan Collection of 13 CCDs. Total n=332.
	Gosnells (Inner Regional)	2,407	Gosnells Collection of 12 CCDs. Total n=283.
	Broome - Pastoral Areas (Very Remote Coastal)	456	Lombadina, Djarindjin, One Arm Point. Total n=404.
	Albany (Outer Regional)	889	Albany Balance, n=339.
	Tom Price (Very Remote Coastal)	158	Tom Price (158) and Onslow (193). Total, n=351.
	Onslow (Very Remote Coastal)	193	
	Newman[+] (Very Remote Inland)	285	Newman, n=285.
	Esperance (Remote)	594	Esperance, n=298.
	Jigalong (Very Remote Inland)	255	Jigalong, n=255

*Remoteness Area Zone.
[+] Denotes areas where both the Indigenous and Non-Indigenous populations were screened.

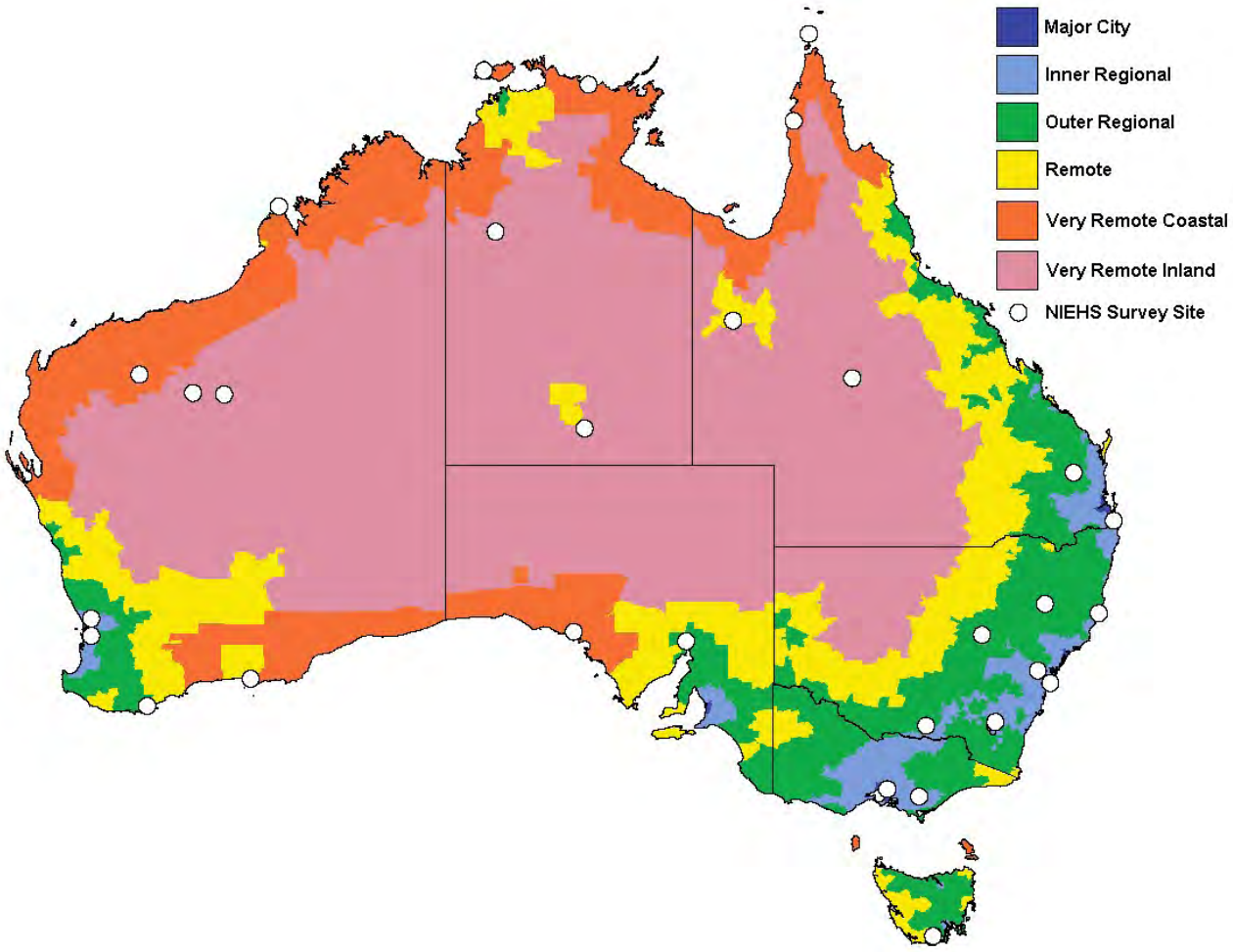

Figure 1 NIEHS Site Distribution in Australia.

2 THE TEAM, MANAGEMENT AND PARTICIPATING ORGANISATIONS

The Centre for Eye Research Australia has been the administering organisation and has liaised with the Survey's Steering Committee, comprising the following participating organisations that have committed staff and other support needed to see the project materialised:

- Vision Cooperative Research Centre (Vision CRC)
- Cooperative Research Centre for Aboriginal Health (CRCAH)
- International Centre for Eyecare Education (Australia) (ICEE)
- Lions Eye Institute (LEI)
- RANZCO Eye Foundation
- RANZCO Indigenous Special Interest Group – volunteer Ophthalmologists
- Orthoptic Association of Australia – volunteer Orthoptists
- RetVIC at CERA – evaluation and storage of visual image data

2.1 The Steering Committee

The primary role of the Steering Committee has been to provide day to day risk management. Other roles have included developing links and partnerships with Indigenous organisations or representatives. The Steering Committee was comprised of the following members:

- Dr Robert Casson
- Rowan Churchill
- Associate Professor Mark Gillies
- Dr William Glasson
- Dr Timothy Henderson
- Professor Brian Layland
- Dr Mark Loane
- Associate Professor Ian McAllister
- Dr Tharmalingam Mahendrarjah
- Dr Richard Mills
- Dr David Moran
- Dr Nigel Morlet
- Helen Morrissey
- Dr Henry Newlan
- Dr Dermot Roden
- Gerd Schlenther

2.2 The Advisory Group

The Advisory Committee has been responsible for providing advice on the strategic direction of the project, developing links and partnerships with relevant groups and stakeholders, monitoring and reviewing the project, ensuring quality assurance and milestones were achieved and that the project has been conducted ethically, with integrity and in a culturally acceptable manner. The Advisory Group was comprised of the following members:

- Professor Michael Wooldridge, Chair
- Professor Ian Anderson
- Sandra Bailey
- Stephanie Bell
- Joe Chakman
- Amanda Davis
- Dr William Glasson
- Mick Gooda,
- Elissa Greenham
- Belinda Sullivan
- Professor Debbie Sweeney

2.3 The NIEHS Team

- Professor Hugh R. Taylor AC
- Professor Jill Keeffe OAM
- Anna-Lena Arnold
- Ross A. Dunn
- Sarah Fox
- Dr Nicolas Goujon
- Dr Jing Xie
- Rebecca Still
- Anthea Burnett
- Mitasha Marolia
- Dr Tomer Shemesh
- Judy Carrigan
- Emma Stanford

2.4 Volunteers

2.4.1 Volunteers who assisted at two sites or more:

Stew Brilliant, Desley Culpin, Matthew Field, Dr Lucy Goold, Dr Peter Graham, Christina Jeschke, Dr Jelena Kezic, Anne Lamont, Nora Ley, Robyn Lilienthal, Dr Jan Lovie-Kitchin, Carmel McInally, Helen McKinley, Dr Sonia Moorthy, Helena Nardi, Barbara O'Connor, Rod O'Day, Barbara Selvay, Dr Atul Shah, Catherine Taylor, Janet Taylor, Phyllis Tighe, Dr Angus Turner, Leanne Wheat and Tom Wood.

2.4.2 Volunteers who assisted at one site:

Maria Addo, Dr Michelle Baker, Pam Blaszczynski, Worrelle Blow, Shirley Bott, Adrian Boulton, Adelaide Boylan, Annette Brilliant, Dr Bob Casson, Dr Mark Chehade, Dr Holly Chinnery, Carol Chu, Erin Clarke, Gilli Cochrane, Corrissa Combo, Dr Ben Connell, Louise Connely, Michelle Cutmore, Noel Dalgleish, Dr David Denman, Yolanda Deppeler, Vafa Derakshan, Margie Dimech, Matthew Ding, Dr Shane Durkin, Sharon Etlridge, Dr David Fabinyi, Patricia Farrell, Mish Farris, Jane N Forbes, Hugh C Forbes, Ryland Fox, Zarli French, Caitlin Fry, Dr Todd Goodwin, Dr Enrique Graue, Tim Greenwell, Kate Hanman, Vicky Heaton, Penny Hey, Alan Hoare, Patrick Howard, Katie Keene, Brad Kirkwood, Josephine Kneipp, Dr Andrew Laming, Katrina Lee, Shirley Loh, Elizabeth Louwdyk, Anna Macrae, Sara Mahdavi, Dr Anu Mathew, Andrew Mayer, Milford McAlistair, Kara Muecke, Jane Mullins, Dr Bruce Munro, Dr Henry Newland, Chu Luan Nguyen, David O'Brien, Jane Paterson, John Rowlands, Anna Start, Rebecca Still, Annie Taylor, Phoebe Taylor, Bihn Tran, Michelle Truong, Dr Catherine Turnbull, Dr Shane Turner, Dr Patricia Vadeseuva, Dr Sushil Vadeseuva, Dr Krisztina Valter, Pauline Wicks, Allison Willis, Robert Zahara and Jieyun Zhou.

2.4.3 Volunteers who helped to organise the surveys:

Cate Coffey, Lisa Coles, Lisa Helenius, Dr Tim Henderson, Tricia Keys, Carina Mayers, Jess Mayers, Cyril Oliver, Anita Phillips, Tess Presswell, Shaun Tatipata and Bev Woods.

2.4.4 Ethical clearance

All of the appropriate ethical approval was obtained. The ethical clearance processes for the survey resulted in contact with 73 organisations and groups. Ethical approval was obtained from: The Human Research Ethics Committee of the Royal Victorian Eye and Ear Hospital, Aboriginal Health and Medical Research Council of NSW, Aboriginal Health Council of South Australia, Menzies School of Health Research Human Research Ethics Committee, Central Australia Human Research Ethics Committee, Western Australian Aboriginal Health Information and Ethics Committee, ACT Health, Tasmania Scientific Research Advisory Committee, Tasmania Health and Medical Human Research Ethics Committee and the Queensland Aboriginal and Islander Health Council. The protocol was also reviewed and approved by the Board of the National Aboriginal Community Controlled Health Organisation and the appropriate organisation in each community. Permission was obtained as needed at the local, regional or State level to examine children in schools (15).

3 SCREENING PROCEDURES

3.1 Recruitment Process

3.1.1 Overview

At each location, CERA staff met with local Aboriginal Medical Services (AMS) and community health centres. Where relevant, schools, community councils and other Aboriginal and Torres Strait Islander Organizations were also consulted. All eligible people within the selected areas were invited to participate. At each location, CERA staff met with local community health workers and elders to identify the most efficient means of recruitment.

3.1.2 Local knowledge

Aboriginal Health Workers and/or community elders were recruited for utilisation of local knowledge to facilitate participant recruitment and community acceptance. They were the primary point of community contact, and guided the recruitment process.

> Based on this experience we suggest that for future nationwide projects, the survey team contact a variety of organisations to maximise recruitment. We found it was effective to have several points of contact within each community to ensure recruitment did not rest solely with one local person. It is also suggested that the project coordinators visit the community 3 days prior to the survey commencement.
>
> Furthermore, we suggest a strategy for engaging schools is devised in the early planning stages of the project. Each state/territory Department of Education and Catholic Education Board has different applications and requirements. The application process can require up to a week for completing the necessary paperwork, and up to 2 months of processing time and different regions within the same state/territory can have different application requirements. Further, it is important that sufficient time be allowed for the liaison officers to follow up with consent forms. It is recommended to allow at least 2 weeks for consent forms to be signed.

3.1.3 Contacting schools

The support of local schools was sought to recruit children aged 5-15 years via a phone call and a letter (appendix 10.1.1). In each location, the team liaised with the Department of Education's Regional Office to gain permission to visit the school to conduct the survey on site or to release the children from school (appendix 10.1.3).

Where relevant, the Catholic Board of Education Regional Offices were also contacted. The Aboriginal Community Liaison Officer (if applicable) at each school was engaged to facilitate participation and parental consent (appendix 10.1.2). In locations where few consent forms were returned, researchers obtained a contact list for the Aboriginal and Torres Strait Islander families, and obtained verbal consent on the phone to examine the children.

3.1.4 Distribution of flyers to communities

Flyers and posters were printed for the Aboriginal Medical Service (AMS) to distribute to community members within the sample area (appendix 10.1.4).

3.1.5 Door knocking

During the survey week, the community liaison person and CERA coordinator drove around the survey area and knocked on doors to invite every eligible person to participate.

3.1.6 Word of mouth

Word of mouth was the most effective recruitment strategy. Each participant was asked to encourage their friends and families to participate in the survey.

3.1.7 Advertisements

Advertisements were placed in local newspapers, Health Services newsletters, or local radio stations prior to the survey commencement (appendix 10.1.5).

3.2 Screening Venue Strategies

3.2.1 Overview

At each site, the AMS and/or local community health centres were contacted to contract rooms for this study. Where possible, 2-3 rooms with adequate seating and power supply was requested. All survey equipment was provided on-site by CERA (appendix 10.1.6).

3.3 Equipment Requirements

3.3.1 Overview

There were numerous pieces of equipment required to ensure the examination component of the study was performed successfully. The Centre for Eye Research Australia provided all the appropriate ophthalmic equipment and accompanying supports, including hygiene essentials (appendix 10.1.7).

The equipment was couriered by BHF Transport. Arrangements were made to store equipment in a secure area overnight at each of the 30 venues.

> It is suggested that for future nationwide projects, adequate planning time is allocated for equipment transport requirements. Transporting the equipment was found to often be the most difficult logistical task, and required 3-5 days of planning. A protocol should be established for measuring each box, labelling each box, booking the courier, and following up the booking. It is critical to confirm that each booking is picked up by the courier, particularly in remote locations.

3.3.2 Survey instruments

Two types of survey instruments were used. The first was a questionnaire that collected data on demographics and eye/ health care services utilisation. There were separate questionnaire forms for adults and children.

The second survey was for adults with presenting visual acuity of <6/12 that assessed quality of life with impaired vision. It is a new form of the Impact of Visual Impairment (IVI) instrument that is specifically being developed for use in Aboriginal and Torres Strait Islander peoples. Both questionnaires were administered by local staff, i.e. people from the community with knowledge of local language and customs.

List of survey equipment

1. Participant Information Sheet
2. Parent/Guardian Information sheet
3. Adult Consent Form
4. Child Consent Form
5. Adult Questionnaire
6. Child Questionnaire
7. CERA Vision Test and Pinhole
8. Auto-Refractor apparatus
9. Trial Lens Set and Frames
10. Frequency Doubling Technology (FDT) apparatus
11. Nikon Digital Camera with Macro Lens
12. Canon Non-Mydriatic Retinal Camera
13. Trachoma Grading Loupes
14. Pen Torch

15. Simplified Trachoma Grading System (World Health Organization)
16. Impact of Vision Impairment Questionnaire
17. Referral Forms

3.4 Staff Requirements

The principal investigators, Hugh Taylor and Jill Keeffe, have been responsible for all major scientific, administrative and policy decisions. Project staff included one optometrist (ICEE), one PhD student (ICEE), one project coordinator (CERA), one research assistant (CERA) and two data entry assistants (CERA).

The study procedures were divided into four segments: (a) planning and recruitment, (b) field work, (c) data management and (d) analysis. The planning phase began in early 2007; the fieldwork began in February 2008 and was completed in December 2008; and the analysis phase began in January 2009. The analyses on the prevalence and causes of vision loss and the prevalence of trachoma have been completed. Further analyses will continue through to the end of 2009.

Wherever possible, the eye examinations were conducted by state-based eye teams who normally provide eye care in these selected communities to ensure a continuum of care to those requiring further treatment and strengthen existing community linkages. The additional team members needed for the survey were decided on the basis of local resources and willingness to be involved. The study team from CERA worked with the eye care providers at each site to determine what additional staff were required and how they were provided. Prior to the survey, one or more community members were employed to assist in gaining community support; identifying and recruiting people in the community who were eligible for the survey.

A volunteer list was established, and the survey team was drawn from this list of volunteers. In each location, an optometrist or ophthalmologist was present. Efforts were made to recruit volunteers with eye health experience.

It is suggested that for future nationwide projects, a comprehensive strategy be devised for forming survey teams and training them. Establishing a list of volunteers, particularly optometrists and ophthalmologists requires a significant amount of time.

If possible, it is recommended that the same teams be used for each site - if different teams are to be used in each location, it is important to have 2-3 people who are experienced (e.g. one principal investigator, plus 2 research assistants). If this is not financially or logistically possible, sites should be scheduled with at least 3 weeks between them so that maximum recruitment planning can occur before the survey week.

Volunteers with no eye health experience should be given comprehensive training and exposure to all survey protocol; and given adequate time to use and become comfortable with all survey equipment before going into the field. This should include at least 2 days experience.

It is strongly recommended that each team be led by a minimum of 2 survey staff members, such that one can coordinate recruitment, and the other can ensure the integrity of the data in the clinic. It is also recommended that at least one member of every team has considerable experience using the retinal camera. Further, one team member should be experienced in trachoma grading.

In situations where communities were covered by eye care services, CERA provided a visiting eye specialist and other survey team members. To ensure smooth operation and minimal disturbances to routine activities at the clinic at the time of the survey, CERA provided additional staff to existing health care personnel where necessary. Local staff involved in the project were paid for their services according to circumstances in the field.

Table 3 Staff Requirements for Field Work.

Staff	Role	Procedures
Health Workers x 2	Recruitment Facilitation Transport	Information Consent Questionnaire
Volunteers x 3-4	Eye Examination	Questionnaire Visual Acuity, Pinhole, Auto Refraction FDT Retinal Photo, Lens Photo Trachoma grading
Study Coordinator x 1	Data integrity	Assist local staff
Optometrist or Ophthalmologist	Eye Examination Referral	Fundus Examination Refraction/ Other Dispensing/ Referral/ Discharge

When possible, community vehicles with local drivers were used to transport participants to and from the study site. CERA staff liaised with community workers to determine the most effective and appropriate transportation method (e.g. pick-ups from schools). Where community vehicles were unavailable, CERA organised rental vehicles.

4 VISION SCREENING PROCEDURES

4.1 Examination Overview

The survey was based upon the rapid assessment used in The Vision Initiative, found by Müller et al to be a cost and time efficient and effective screening method (16). Participants were given an information sheet, and the study was explained by a local health worker or nurse. The willing person signed a consent form and completed a questionnaire designed to assess the availability and utilisation of eye health services.

Consecutive standard eye tests followed: for adults, the eye examinations collected data on visual acuity using a standard E-chart and pinhole, auto-refractor testing for refractive error (e.g. short- and long-sightedness), FDT testing for visual field analysis (e.g. glaucomatous field loss), fundus camera imaging of the retina to detect neural and retinal diseases e.g. diabetic retinopathy, glaucoma, and AMD and digital photo imaging of everted eyelids to grade for the presence and severity of trachoma (appendix 10.1.8).

In a small proportion of adults (approximately 5% of the total adult population), the pupils are too small for retinal photo imaging, and therefore require dilation with one drop of tropicamide (0.5%) and one drop of phenylephrine hydrochloride (2.5%). The dosage and medications are used regularly for clinical eye examinations.

Participants with impaired vision (<6/12) were asked to complete the IVI, which was designed to assess the quality of life for people with impaired vision.

For children, the examination process only included distance visual acuity and trachoma grading, unless advised otherwise by the eye specialist at the time of examination (appendix 10.1.9).

4.2 Participant Identification Numbering System

A unique six-digit ID code was assigned to each participant. The first two digits corresponded to the site code (01-30); the third digit indicated participant age (1 = adult, 2 = child); the last three digits indicated the participant number (001-999) (appendices 10.1.10; 10.1.11; 10.1.12).

4.3 Participant Consent

4.3.1 Equipment/documentation

- Participant Information Sheet
- Parent/Guardian Information Sheet
- Eye Health Study Consent Form (adult)
- Eye Health Study Consent Form (children)
- Instructions

4.3.2 Procedures

Where possible, the information sheet (appendices 10.1.13; 10.1.14) consent form (appendices10.1.15; 10.1.16) and questionnaire were distributed prior to the study commencement. Participants were given an information sheet, and a local health care worker or nurse explained the study procedure. Willing participants signed a consent form, followed by the health worker as a witness (appendix 10.1.17).

4.4 Questionnaire

4.4.1 Equipment

- Health Services Questionnaire (adults)
- Health Services Questionnaire (children)
- Instructions
- Checklist

4.4.2 Questionnaire information

A self-administered questionnaire was adapted from that used in The Vision Initiative to obtain demographic information and information about the utilization of eye care services (16). Specific questions obtained information about previous visits to an eye specialist, including reasons for not visiting anyone.

Participants were asked for information about their general health status, and personal and family history (e.g. presence of diabetes, glaucoma or cataracts). Specific questions addressed how eyesight affected their quality of daily life and whether or not they wore sun protection (e.g. hat, sunglasses) when going out into the sun (appendices10.1.18 ; 10.1.19).

4.4.3 Questionnaire procedure

Where possible, the information sheet, consent form and questionnaire were distributed prior to the study commencement to be completed by the participant before arrival. For those who were unable to read and complete the questionnaire, a health worker or survey team member asked the participant each question exactly as was written, in a non-leading

fashion. Upon completion, the questionnaires were checked for any unanswered questions (appendix 10.1.20).

4.5 Presenting Visual Acuity Assessment (Distance)

4.5.1 Equipment

- CERA VISION TEST E chart
- Tape measure or 3 metre string
- Pen torch
- Tissues
- Instructions
- Reading Glasses
- Impact of Vision Impairment Profile Questionnaire

4.5.2 Visual acuity information

This is a simplified E test, developed by CERA for the World Health Organisation's Low Vision Kit (17).This test is appropriate for illiterate participants and those who do not know the Latin alphabet. The test uses Snellen E-optotypes and measures visual acuity at the level of 6/12, 6/18 and 6/60. Four E optotypes with fingers in different orientations are presented to the participant at the visual acuity levels. This instrument has high sensitivity (85%) and specificity (96%) as a screening tool for low vision (18). The tool was chosen because it met the requirements for a visual screening test and provides a simple and inexpensive tool for rapid population screening.

The use of the IVI to determine the rehabilitation needs of people with low vision has been described elsewhere (19). It has sufficient validity and reliability to measure the effect of vision impairment on daily activities. Its psychometric characteristics are sufficient to assess the vision rehabilitation needs of people with impaired vision (19; 20; 21).

4.5.3 Distance visual acuity procedure

The standard testing using the simplified E chart was followed (17).Testing of visual acuity was performed in well-illuminated rooms of the examination centres, tested either unaided or with the participant's presenting distance correction.

The right eye was tested first. The participant stood at 3 metres with one eye occluded and indicated the direction of the fingers of the four optotype E's. The visual acuity was recorded at the level that the participant correctly identified the direction of at least 3 of the 4 E optotypes. If the participant incorrectly identified 3 or all of the 4 E's at the 6/60 level, the person's ability to detect perception or projection of light was assessed. Visual acuity was

categorised into six groups: ≥6/12; <6/12 – 6/18; <6/18 – 6/60; <6/60; perception of light; no perception of light (appendix 10.2.1).

Participants with presenting vision <6/12 completed the Impact of Vision Impairment Profile Questionnaire (appendix 10.2.2). If participant indicated that they had trouble with distance vision and visual acuity was ≥6/12, 6/6 was tested for referral purposes.

4.5.4 Pinhole visual acuity assessment

Equipment

- Pinhole occluder
- CERA VISION TEST screening chart
- Tape measure or 3 metre string
- Tissues
- Alcohol swabs
- Instructions

Pinhole occluder information

The pinhole occluder is part of the Low Vision Kit, and is used as a simple method of testing best-corrected visual acuity without the use of electronic machinery (18).

Pinhole procedure

The pinhole occluder was used when visual acuity with usual distance correction was <6/12 in one or both eyes (appendix10.2.1). The pinhole occluder was placed over the presenting distance correction or held in front of the eye if no glasses were worn while procedure 4.5.3 was repeated.

4.5.5 Auto refraction and best corrected visual acuity (BCVA) assessment

Auto refraction equipment

- Righton Retinomax 3 - Hand Held Auto Refractor (Tokyo, Japan)
- Instructions
- Trial Frames
- Trial Lens Set

Auto refraction information

The Retinomax 3 Automatic Refractor is a hand-held electronic machine that can be used to objectively measure best-corrected visual acuity.

Auto refraction procedure

Auto-refraction: The Retinomax 3 Automatic Refractor was used when presenting visual acuity was <6/12 in one or both eyes and vision improved with the pinhole occluder. This test was performed without distance correction. The right eye was tested first. Participants were required to sit and look into the machine while a measure of their refraction was taken. Visual acuity was then reassessed and recorded using the same five categories as described for the E Test (procedure 4.5.3) for a measurement of best-corrected visual acuity (appendix 10.2.3).

Best corrected visual acuity (BCVA): Trial Lens Set: To measure BCVA, the printed automatic refraction results were converted into lenses to put into the trial frame. The first number represents the spherical lens power; the second number represents the cylindrical lens power; the third number represents the axis of the cylindrical lens. Once the correct lenses were in the frames, the frames were placed on the participant's head. Visual acuity was measured as in procedure 4.5.3 and recorded (appendix 10.2.4).

4.5.6 Presenting near visual acuity

Near visual acuity equipment

- CERA VISION TEST E chart
- Instructions
- Reading Glasses

Near visual acuity procedure

If the participant already had near vision glasses, their near visual acuity was assessed with their glasses. Their presenting correction was then recorded. To measure near visual acuity participants were asked to hold the near vision chart at their near working distance with both eyes open. The participant was asked to identify which of the smallest E optotypes they could clearly see and correctly identify the direction of for at least 3 of the E optotypes. The visual acuity was recorded at the level that the participant correctly identified the direction of at least 3 of the 4 E optotypes (22) (appendix 10.2.1). Table 4 shows the guide used to determine the appropriate lens power for the participants.

Table 4 Suggested Lens Power for Different Ages.

Person's age	Lens power
35 to 45	+1.00
45 to 50	+1.50
50 to 55	+2.00
Over 55	+2.50 or higher

To determine the appropriate readers for the participant, a pair of reading glasses was selected based on the above guide. Please note that this is only a rough guide and this guide is not applicable to all. A skilled eye specialist should be present to assist with determining the appropriate power lenses for the participants. The participant's near visual acuity was assessed again as outlined above with the new glasses. If the participant was still unable to see N8 with the new glasses, the next stronger power up was tried (22).

Please note that if a person can see N8 with or without reading glasses, they generally do not require new reading glasses. If the participant is unable to read N48 on the near vision chart with any power lenses, the participant requires further eye examinations (22).

4.6 Visual Field Assessment – Frequency Doubling Technology

4.6.1 Visual field assessment equipment

- Frequency Doubling Technology (FDT) (Welch Allyn/Humphrey Zeiss, San Leandro, California, USA)
- Skin cleansing swabs
- Tissues
- Instructions

4.6.2 FDT information

The FDT instrument was used in the C-20-1 screening mode. The application and the technological details of the machine have been described previously (23; 24). It has been demonstrated that FDT perimetry in the screening mode is specific and sensitive and can accurately determine the location and depth of scotomas when compared with full threshold Humphrey 24-2 (25).Further, Allen et al showed that the FDT in C-20-1 screening mode is useful and economical as a screening device (26).

4.6.3 FDT procedure

All adult participants that were able to maintain fixation on the fixation target underwent automated visual field testing with the FDT. This test was performed with presenting distance correction. The right eye was tested first.

Instructions were given to participants before testing each eye to ensure reliable performance. Participants were required to sit and look into the machine, focussing on the fixation target. Each time a flashing point was seen (often best described as a 'lightening flash'); they were asked to press a button on the handheld device.

Results were recorded as points missed, regardless of severity, and categorised into three groups: 0 points missed; 1 point missed; ≥ 2 points missed.

The test was repeated if any points were missed, regardless of the severity. Participants missing more than one point of any severity after repeating the test were considered abnormal for screening purposes (27; 28).Visual fields were not tested in cases where the participants could not respond reliably to the instructions necessary for completion of the test because of language, mental or physical constraints, or if the participant could not see the fixation target (appendix 10.2.5).

4.7 Retinal and Lens Assessment

4.7.1 Non-mydriatic equipment

- Non-mydriatic fundus camera (Canon CR-DGi, Tokyo, Japan)
- Canon digital camera (EOS-40D, Japan)
- Dilating drops
- Foam piece for lens photo
- Skin cleansing swabs
- Tissues
- Instructions
- Dell Laptop D630

4.7.2 Retinal and lens imaging information

The Canon CR-DGi is a wide-angle non-mydriatic fundus camera with a 45-degree angle of view. Mounted on the non-mydriatic fundus camera will be a Canon digital camera, which has a resolution of 10.1 mega pixels. The software used for the digital camera is Digital Healthcare Image Management Systems (Version 2.6). The software was installed on the laptop with 1280 x 800 pixel resolution. All photos will be viewed on the laptop's Liquid Crystal Density screen (15 inch screen) at the examination centres.

4.7.3 Retinal and lens imaging procedure

After visual field assessment, digital photography of the retina (fundus) and lens (if VA <6/12) was performed. Participants were required to sit and look into the machine focussing on the fixation target. Both photos were taken without distance correction. The right eye was photographed first.

Retinal photography:

Digital photography of the fundus was attempted on all adult participants. Photographs taken were centred on a point between the macula and the temporal edge of the optic disc. Two photos from each eye were taken. All photos were taken in a darkened room. All participants were required to spend a few minutes in the darkened room to induce physiological mydriasis. Pharmacologic dilating agents Minims Tropicamide and Minims Phenylephrine Hydrochloride were used on participants with small pupils.

Lens photography:

Participants with presenting visual acuity <6/12 in either eye had one photograph taken of the lens of that eye, using the same camera as for the fundus photography. To take a photograph of the lens, it was necessary to utilise the plus ten dioptre lens on the camera. This feature is usually designed to allow fundus photography of high hypermeteropes. Participants were required to tilt their forehead back so the focal point could be adjusted to the lens. Photos were taken in a darkened room (appendices 10.2.6; 10.2.7; 10.2.8; 10.2.9).

4.8 Trachoma Grading

4.8.1 Trachoma equipment

- World Health Organization (WHO) Simplified Trachoma Grading Classification System
- Q-tips
- Antiseptic hand wash
- Pen torch
- Nikon D40X Digital Camera and flash
- Nikon AF Nikkor 85mm 1:1.8D lens
- X 2.5 magnification binocular loupes

4.8.2 Trachoma information

Thylefors et al developed a simplified trachoma grading system for the World Health Organization to facilitate the assessment of trachoma in the field by non-specialist health personnel (29).

4.8.3 Trachoma procedure

The lid was observed for trichiasis and the cornea was then observed for opacities. The right upper eyelid was everted first, graded for trachoma, followed by the left upper eyelid which was then photographed together with the subject's identification number (appendix 10.3).

4.9 Referral Procedures

4.9.1 Referral equipment

- Instructions
- Letter of referral

4.9.2 Referral procedure

There was one standard referral letter produced by CERA for distribution to participants in the study. The letter was appropriate for both participants who did have an existing eye doctor and for those who did not. One copy of the letter was given to the participant, one

copy to the Health Worker or Aboriginal Eye Health Coordinator, and one kept for the study records (appendix 10.1.21).

4.10 Occupational Health and Safety Requirements

4.10.1 Training

All project staff were provided with Occupational Health and Safety (OH&S) documents, and attended a debriefing session before the screening began (appendices 10.4; 10.4.1; 10.4.2; 10.4.3; 10.4.4).

Ophthalmic equipment training sessions were run by a qualified internal staff member. All staff involved in the project attended this.

4.10.2 VMIA Insurance

Contact CERA for further information on CERA's VMIA Insurance (Table 5).

4.11 Additional Administrative Tasks

4.11.1 Staff rostering

Staff rostering was done on a per-site basis. The number of staff required at each site depended on the availability/willingness of local volunteers. Therefore, the number of CERA staff required at each location was determined after liaising with local health care services (appendix 10.1.22).

4.11.2 Courtesy letters

Acknowledgement – local health services thank you

A thank you letter was produced by CERA for those local health services that provided support during the study, either through participant recruitment or providing support staff (appendix 10.1.23).

Acknowledgement – venue thank you

A thank you letter was produced by CERA for those screening venues that provided rooms free of charge (appendix 10.1.24).

4.12 Other

- Media Consent forms (appendix 10.1.25).
- Community Assessment Form (appendix 10.1.26).

5 DATA PROCEDURES

5.1 Data Storage and Disposal

Data will be kept securely for 5 years after publication of results and will then be destroyed. Signed consent forms will be stored separately from the data to protect the confidentiality of the survey's participants. Paper copies will be shredded and electronic copies will be deleted from all electronic services, including CDs.

5.2 Data Grading

5.2.1 Grading of digital photographs

Digital photographs of the fundus of adult participants were taken using a Non-Mydriatic Retinal Camera. Grading of all digital photographs took place following the data collection phase at each site. A 21 inch computer monitor with a resolution of 1600x1200 pixels was used to undertake the grading stage. Two photos of each eye were taken. Posterior retinal images were taken and graded for diabetic retinopathy, age-related macular degeneration, glaucoma and other retinal abnormalities using images of the retina and disc. If vision was <6/12 a photo of the anterior segment was taken to asses for the presence of cataract (appendices 10.7; 10.8).

Retinal photos: A trained examiner graded the retinal photos in a masked fashion and the Principal Investigators adjudicated any discrepancies between the graders.

Lens photos: A trained examiners graded lens photos and the Principal Investigators adjudicated any discrepancies between the graders.

Disc photos: A trained examiner plotted the contour line (masked and in random order) that defined the disc margin for computerised topographic analysis of the optic nerve head.

5.2.2 Diabetic retinopathy

Diabetic retinopathy (DR) was graded using the International Clinical Diabetic Retinopathy and Diabetic Edema Disease Severity Scales (30). The non-mydriatic fundus camera was used for this assessment.

Retinal photos were assessed for absence or presence of DR. Mild/moderate Non-Proliferative Diabetic Retinopathy (NPDR) includes at least one definite haemorrhage or microaneurysm. Severe NPDR includes any: haemorrhages or microaneurysms in all four quadrants; severe Intra-Retinal Microvascular Abnormalities (IRMAs) in one or more quadrants; venous beading in two or more quadrants. Proliferative diabetic retinopathy includes any: New Vessels on the Disc (NCD) or New Vessels Elsewhere (NVE), vitreous/pre-retinal haemorrhages and NVE <1/2 disc area without NVD.

Macular oedema was recorded separately. The criteria for the diagnosis of macular oedema were retinal thickening within 2 disc diameters of macular centre and definite hard exudate (due to or associated to DR) within 1 disc diameter from centre of the macula on digital photos.

5.2.3 Age-related macular degeneration

Age-related macular degeneration was graded using the International Classification of Grading System for Age-related Maculopathy and Age-related Macular Degeneration (31). The non-mydiriatic fundus camera was used for this assessment.

Retinal photos were assessed for absence or presence of AMD. Early AMD included drusen >125 microns and/or pigment changes within 1500 microns of macular centre. Late AMD includes geographic atrophy or evidence of neovascular AMD. Other ocular abnormalities were also recorded using the Wisconsin Age-related Maculopathy grading system. If fundus photography showed disease or an eye condition that required attention, participants were referred to their usual health care provider.

5.2.4 Glaucoma

The non-mydriatic fundus camera and FDT were used for this assessment.

Retinal and disc photos were assessed for absence or presence of Glaucoma. Vertical cup to disc ratio on retinal images were classified into two groups: less than 0.6 and greater than or equal to 0.6 (32). An overlay transparency sheet was used to determine whether the vertical cup to disc ratio on these retinal images was greater than 0.6. The overlay transparency sheet consisted of 4 dividing lines spaced so that the upper and lower lines could be placed on the upper and lower edges of the optic disc and the two inner lines were defined a 60% cup. Reliability measures were established using intraclass and interclass correlation coefficients.

A Glaucoma diagnosis was originally assigned if a participant had a CDR > 0.6 and missed ≥2 points on the FDT. However, the grading of the cup disc ratios showed that the disc sizes in the Indigenous population were generally larger in size than those for non- Indigenous people; this has also been confirmed by other studies (33; 34; 35). Based on this discovery, the grading criteria for Glaucoma was redefined to CDR >0.7 and ≥ 2 points missed on FDT or CDR >0.8.

5.2.5 Cataract

A pilot study undertaken prior during The Vision Initiative demonstrated good sensitivity, specificity and inter-observer reliability in assessing the presence and absence of cataract causing visual impairment using a non-mydriatic fundus camera in comparison to dilated biomicroscopy examination. The study also showed that when visual acuity was <6/12 or in

the presence of severe cataract, both graders reported a perfect agreement (36). The non-mydriatic fundus camera will be used for this assessment.

Lens photos were taken in participants with VA <6/12. The photos were assessed for absence or presence of cataract and categorised into three groups: no cataract, probable cataract and definite cataract.

5.2.6 Trachoma grading

Digital photographs of the everted eyelids of participants were taken on site. Trachoma was graded according to the WHO Trachoma Simplified Grading System (29). The photos were graded for TF, TI and TS. TT and CO were assessed clinically and where photographs were unavailable, the clinical grade was used. All photos were graded twice by the same experienced grader using a fine grading system (37). Grading was conducted in a blind fashion. Where there was a discrepancy between the 2 photo grades, the photo was matched for a third time and a final adjudication assigned.

5.2.7 Questionnaire analysis

Completed questionnaires were entered into a Microsoft Access 2000 database designed at CERA. Three research assistants entered data into separate databases. A random sample was double entered for each research assistant to evaluate data for consistency. An error rate of less than 0.5% was considered acceptable. Refer to section 10.5 in the appendix for data entry procedures.

> Based on our experience we suggest that the data be entered by research assistants who have either a background in eye health or who have an interest in eye health. It is also strongly suggested that the whole dataset be double entered.

5.3 Data analysis

A STATA master Do file provides the instructions/commands for all of the NIEHS analyses. This master list is located at CERA; please contact NIEHS Project Team at CERA if access is required.

6 RESULTS

6.1 Dissemination of Results

Results were reported to participants during the eye examination. Final results have been reported to all of the communities in writing. De-identified data have been and will continue to be published in scientific meetings and scientific journals.

6.2 Participant Response Rates

Overall response rates were good, 2883/3662 (78.7%) of eligible Indigenous people and 136/163 (83.4%) eligible non Indigenous adults were examined. Recruitment was more successful in remote and very remote areas due to the community constructs (appendix 10.9; 10.10). Recruitment was more difficult in urban areas as there were less defined community groups and people were more dispersed. There was an unexpected variation between expected population numbers as predicted by the ABS and participation rates. These could be explained partly by local circumstances, degree of urbanisation, interpretations of the definition of an Indigenous person and time constraints (38). A detailed summary of each site visited can be found in section 10.10 of the appendices.

The target population for the Indigenous children aged between 5 -15 was 2007, of whom 1694 (84.4%) were recruited. The target population for Indigenous adults was 1655, of whom 1189 (71.8%) were recruited. The target for the non-Indigenous population in the 4 communities was 163, of whom 136 (83.4%) were recruited. An additional 402 ineligible Indigenous children and 425 ineligible Indigenous adults who lived outside of the defined sample area were screened, and a further 73 ineligible Indigenous children and 311 ineligible Indigenous adults who were outside of the age range and who lived outside of the defined sample areas were also examined.

6.3 Missing Data

Overall, there was little missing data. There was an attempt to follow up on missing data through contacting the local health workers who assisted with the survey during the field work, which proved to be successful. In summary, the questionnaire data was 96% complete, the visual acuity data 99.7%; visual field data 96%; trachoma grading was 99% and retinal photography 89% compete.

6.3.1 Survey data

Table 8 illustrates the response rates for each survey question for the whole survey sample population. Overall, 96% of the questionnaire items were complete for the eligible sample population.

6.3.2 Visual acuity data

Distance visual acuity

There were 10 eligible Indigenous participants who could not complete the distance visual acuity examination. Of these 10 participants with missing visual acuity data, 3 children and 2 adults could not complete the test due to cognitive difficulties; 1 child and 2 adults refused testing; 1 child could not complete the test due to a language barrier and 1 child could not comprehend the test for unknown reasons (Table 9).

Near visual acuity

There was missing near visual acuity data for 13 eligible adult participants: 12 Indigenous and 1 non Indigenous participant. Of the Indigenous participants, 5 did not complete the near visual acuity test for unknown reasons; 3 were not able to complete the test owing to cognitive difficulties; 3 were unable due to physical limitations; 1 refused, and 1 non Indigenous participant was unable to complete the test due to having retinitis pigmentosa

Of the Indigenous participants, 3 had reading glasses and were satisfied and 9 reported that they did not normally wear reading glasses. The one non Indigenous participant had reading glasses and was satisfied (Table 10).

6.3.3 FDT missing data

FDT results were missing for both eyes for 53 eligible Indigenous adults, 38 of whom were bilaterally vision impaired and 15 of whom had normal bilateral vision. Of the 38 vision impaired participants, 9 were unable to complete the test due to cognitive difficulties; 8 due to physical limitations; 15 due to poor vision; 3 due to a language barrier, 2 refused, and 1 for unknown reasons.

There were 15 participants who were not vision impaired but who were unable to complete the FDT test, 5 because of a language barrier; 4 due to physical limitations; 3 due to cognitive difficulties and 3 for unknown reasons.

There were 18 eligible Indigenous participants and one eligible non Indigenous participant who were unable to complete the FDT examination in one eye only and this was because of poor vision (Table 11).

6.3.4 Retinal missing data

Retinal images were completely gradable in both eyes for 1094 participants (966 eligible Indigenous and 128 eligible non Indigenous participants).

Retinal images were completely gradable in one and partially or not gradable in the other eye for 95 participants (91 eligible Indigenous adult and 4 eligible non Indigenous adults).

Retinal images were partially gradable for both eyes in 68 eligible participants (67 eligible Indigenous adults and 1 eligible non Indigenous adult).

Of the Indigenous group, 57 of these were partially gradable due to cataracts; 6 due to poor image quality; 2 due to other eye complications; 1 due to small pupils and 1 due to physical limitations, and for the one non Indigenous participant the retinal images were partially gradable for both eyes because of the presence of cataracts.

There were no gradable retinal images for either eye for 68 participants (65 eligible Indigenous adults and 3 eligible non Indigenous adults). The 65 eligible Indigenous adult's retinal images were not gradable for following reasons: 43 instrument malfunction; 7 physical difficulties; 6 cognitive difficulties; 6 refusals; 2 small pupils and 1 language barrier.

For the 3 eligible non Indigenous adults, their retinal images were not gradable for either eye because 2 were as a result of instrument malfunction and 1 due to cataracts (Table 12).

7 KEY FINDINGS

7.1 Causes and Prevalence of Vision Loss

7.1.1 Vision loss in children

The crude rate of low vision in children was 1.5 (95% CI: 0.9%-2.1%). The sampling adjusted rate was 2.0% (95% CI 1.3-2.9). Rates of low vision in children were higher in the City and Inner Regional areas (4.5% and 2.6% respectively) and lower in the other areas (ranging from 1.5% in Outer Regional to 0.3% in Very Remote Inland). The State-based rates reflected this regional trend.

The major causes of low vision in children were refractive error (56%), unknown causes (40%) and congenital causes (40%).

Blindness rates in children were 0.2% (95% CI: 0.04%-0.5%). The sampling adjusted rate was 0.2 (95% CI 0.01 – 0.7). Overall, there were 3 children who were blind; 1 was blind due to refractive error and the other 2 were blind for unknown reasons. Blindness rates did not vary significantly between states and regions (appendix 10.11.2).

7.1.2 Vision loss in adults

The crude rate of low vision in adults was 9.4% (95% CI: 7.8%-11.1%). The sampling adjusted rate was 8.6% (95% CI 6.9 – 10.7). Rates of low vision for adults were lower in the City and Regional areas (6.6% - 7.8%) but higher in the Remote and Very Remote areas (9.54% - 12.7%).

The major causes of low vision in adults were refractive error (54%), cataract (27%), and diabetic retinopathy (12%) (Table 55).

The rate of blindness in adults was 1.9% (95% CI: 1.1%-2.6%) and the sampling adjusted rate was 1.8% (95% CI 0.1 – 3.3).The major causes of blindness in adults were cataract (32%), optic atrophy (14%), refractive error (14%), diabetes (9%) and trachoma (9%).These rates did not vary significantly between states or regions (appendix 10.11.2).

These results show that there is an unnecessarily high occurrence of avoidable causes of vision loss in Indigenous Australians.

7.1.3 Refractive error

Uncorrected refractive error caused half of low vision in both children (50%) and adults (54%) and caused 14% of blindness in adults. Blinding uncorrected refractive error occurs 5 times more frequently compared to non-Indigenous adults (appendix 10.13).

7.1.4 Cataract

Cataract was the cause of 32% of blindness and 27% of low vision in the Indigenous participants examined, and occurs 12 times more commonly in Indigenous adults compared to non-Indigenous adults.

Vision loss caused by cataract occurred more commonly in very remote areas: Very Remote Inland (5.3%); Very Remote Coastal (3.8%); Major City (2.6%); Outer Regional (2.4%); Remote (2.1%); Inner Regional (1.8%).

Cataract was the principal cause of vision loss in 3% of the Indigenous adults and results showed that only 65% of those with vision loss from cataract had received surgery (appendix 10.14).

7.1.5 Diabetes

There were 37.4% of Indigenous adults who reported having diabetes with no significant variation between regions. The average age of onset was reported to be 44 years, with an average duration time of 11 years. Twelve percent of those with diabetes had visual impairment and of those with diabetes, only 20% had had an eye examination within the last year. Of those with diabetes, 25% had mild / moderate non-proliferative retinopathy, 0.45% had severe non-proliferative retinopathy, 8.6% had clinically significant macular edema and 2.5% proliferative retinopathy with only 39% having received at treatment.

There were an additional 9% of those with mild or moderate retinopathy who had received treatment. These results have shown that blinding diabetic retinopathy occurs 30 times higher than that for mainstream (appendix 10.15).

7.1.6 Near visual acuity

A high proportion of participants (39%) could not read normal size print with a reported 62% of participants who recorded that they normally wore reading glasses for near work (Table 58).

7.1.7 Rates of vision loss - Indigenous compared with non-Indigenous people

The vision loss rates for children were age standardised and compared to age standardised vision loss rates reported from the Sydney Myopia Study (41; 42; 43). Comparison of these 2 studies indicated that low vision was 0.22 times less common in Indigenous children and blindness was 0.64 times less common in Indigenous children compared to mainstream Australia (appendix 10.11.3).

For adults, the weight adjusted rates of vision loss were age standardized to the Australian population (39) and compared to the combined age standardized rates reported by the combined Melbourne Visual Impairment Project and the Blue Mountain Eye Study (40). This

comparison showed that the rate of low vision in Indigenous adults was 2.8 times higher than rates from the combined studies, and the rate of blindness was 6.2 times higher than the rates reported by the combined studies (appendix 10.12).

7.2 Prevalence of Trachoma

The overall rate of active trachoma (TF) in children was 3.8%. By regions the rates were: Major City (0.6%); Inner Regional (1.1%); Outer Regional (1.0%); Remote (1.6%); Very Remote Coastal (7.2%); Very Remote Inland (7.3%). In Very Remote areas, 50% of communities had endemic rates (>5%) of TF.

Scarring (TS) occurred in 15.7% of adults, trichiasis (TT) in 1.4%, and corneal opacity (CO) in 0.3%. TS was found in all regions and TT in all regions except for Major Cities and Inner Regional areas. The highest community rates of TS were 53%, for TT 14.6% and 3.3% for CO.

Blinding endemic trachoma remains a major public heath problem in many Aboriginal and Torres Strait Islander Communities. The scarring and blinding sequelae still occur in Indigenous people across the country (appendix 10.16).

8 STATUS OF NIEHS MANUSCRIPTS AS OF 28 SEPTEMBER 2009

Published Manuscripts	**Lead Author**	**Status**
1. Ethical Hurdles in Indigenous Research	Hugh Taylor	Published in Australian and New Zealand Journal of Public Health
Submitted Manuscripts	**Lead Author**	**Status**
2. Sampling and Recruitment Methodology for a National Eye Health Survey of Indigenous Australians	Sarah Fox	Submitted May 2009 to Australian and New Zealand Journal of Public Health
3. The Prevalence of Vision Loss in Indigenous Australians	Hugh Taylor	Submitted July to The Medical Journal of Australia
4. The Prevalence of Trachoma in Indigenous Australians	Hugh Taylor	Submitted July to The Medical Journal of Australia
5. National Indigenous Eye Health Survey – Pilot Paper	Anthea Burnett	Submitted
6. Ethics Review of Multi-site Studies: The Difficult Case of Community Based Indigenous Health Research	David Studdert	Submitted September 09
Manuscripts in Progress	**Lead Author**	**Status**
7. Quality of Life Questionnaire The National Indigenous Eye Health Survey x2	Anthea Burnett	Analysis in progress
8. The National Indigenous Eye Health Survey: Socio-demographic, Self-Reported Vision and General Characteristics	Nicolas Goujon	First draft completed
9. Community Assessment	Angus Turner	First draft completed
10. Diabetic Retinopathy in Indigenous Australians	Jing Xie	First draft completed
11. Access to and utilisation of Eye Health Services / Barriers to Access to Eye care in Indigenous Australians	Nicolas Goujon/Anna-Lena Arnold	Analysis in progress
12. Glaucoma in Indigenous Australians	Brian Chua	In preparation
13. Cataract in Indigenous Australians	Hugh Taylor	In preparation
14.Low Vision and IVI Questions – What is the Real Target?	Anna-Lena Arnold	In preparation

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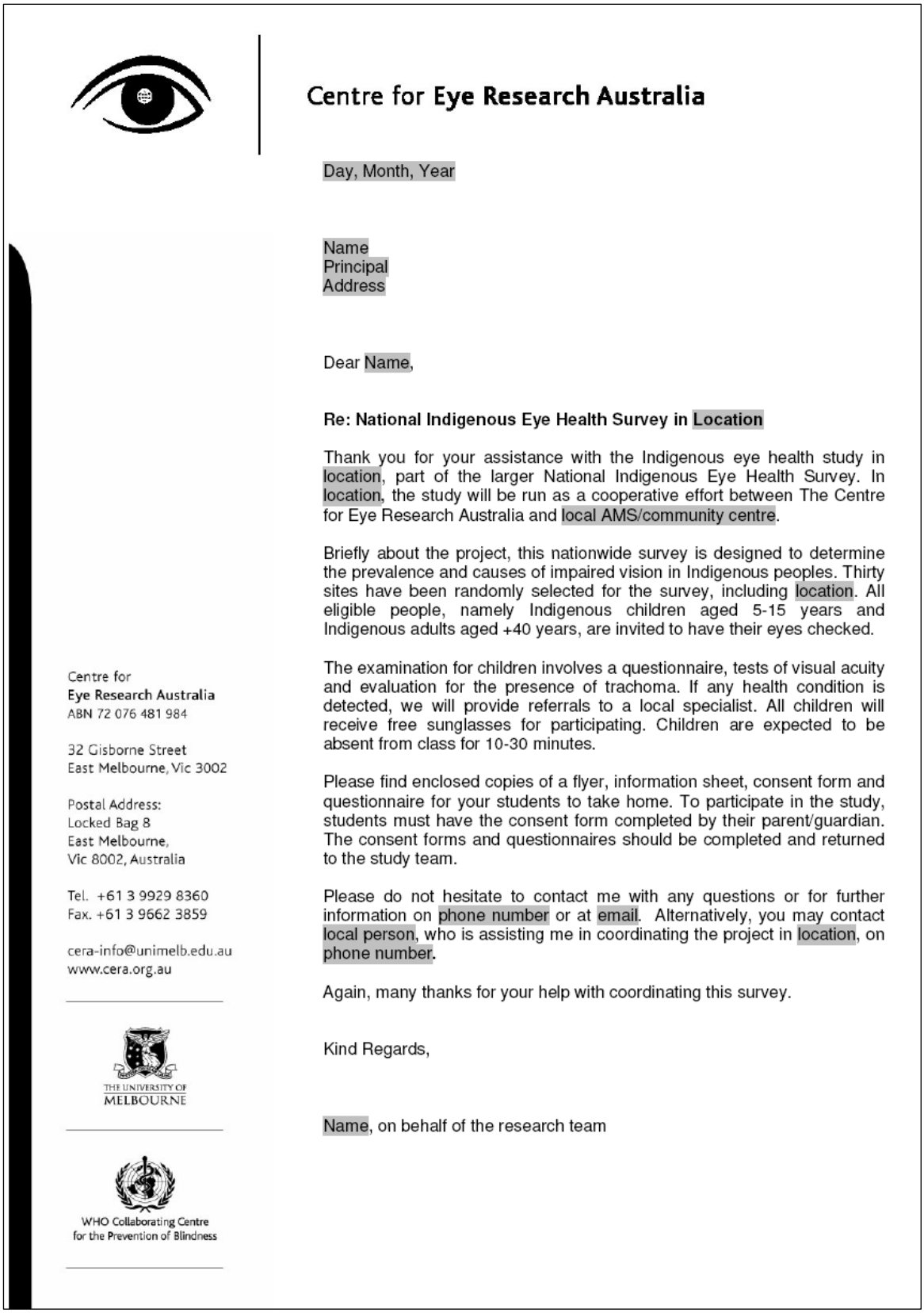
Note: The Appendices are printed as a separate section..

10 APPENDICES

TABLE OF CONTENTS FOR APPENDICES

10.1 Screening Procedures / Recruitment Process

10.1.1 Letter to schools



Centre for **Eye Research Australia**

Day, Month, Year

Name
Principal
Address

Dear Name,

Re: National Indigenous Eye Health Survey in Location

Thank you for your assistance with the Indigenous eye health study in location, part of the larger National Indigenous Eye Health Survey. In location, the study will be run as a cooperative effort between The Centre for Eye Research Australia and local AMS/community centre.

Briefly about the project, this nationwide survey is designed to determine the prevalence and causes of impaired vision in Indigenous peoples. Thirty sites have been randomly selected for the survey, including location. All eligible people, namely Indigenous children aged 5-15 years and Indigenous adults aged +40 years, are invited to have their eyes checked.

The examination for children involves a questionnaire, tests of visual acuity and evaluation for the presence of trachoma. If any health condition is detected, we will provide referrals to a local specialist. All children will receive free sunglasses for participating. Children are expected to be absent from class for 10-30 minutes.

Please find enclosed copies of a flyer, information sheet, consent form and questionnaire for your students to take home. To participate in the study, students must have the consent form completed by their parent/guardian. The consent forms and questionnaires should be completed and returned to the study team.

Please do not hesitate to contact me with any questions or for further information on phone number or at email. Alternatively, you may contact local person, who is assisting me in coordinating the project in location, on phone number.

Again, many thanks for your help with coordinating this survey.

Kind Regards,

Name, on behalf of the research team

Centre for
Eye Research Australia
ABN 72 076 481 984

32 Gisborne Street
East Melbourne, Vic 3002

Postal Address:
Locked Bag 8
East Melbourne,
Vic 8002, Australia

Tel. +61 3 9929 8360
Fax. +61 3 9662 3859

cera-info@unimelb.edu.au
www.cera.org.au

THE UNIVERSITY OF MELBOURNE

WHO Collaborating Centre
for the Prevention of Blindness

10.1.2 Letter to parents/guardians

Centre for **Eye Research Australia**

Day, Date 2008

Dear Parents/Guardians,

Re: National Indigenous Eye Health Survey in Location.

Thank you for your interest in participating in the National Indigenous Eye Health survey. With your permission, the eye team would like to visit School name to test your child's/children's eye health as part of the national survey. The test involves a questionnaire, tests of visual acuity and evaluation for trachoma. Your child will receive free sunglasses for participating, and are expected to be absent from class for no more than 30 minutes.

Please complete the study consent form and questionnaire and return them to Name, the Aboriginal Education Officer. Please note that without the consent form and your permission, your child/children will not be able to have their eyes checked.

If you are aged 40+ years and live in the area, you are also invited to participate in the study, and we welcome you to come along. We will be screening for the major eye diseases from dates in location. You will receive free reading glasses (if you need them) for participating. Please refer to the flyer for further information.

Thank you very much for your interest and participation in this exciting survey. Please do not hesitate to contact the survey team on number with any questions.

Kind Regards,

Name, on behalf of the survey team

Centre for
Eye Research Australia
ABN 72 076 481 984

32 Gisborne Street
East Melbourne, Vic 3002

Postal Address:
Locked Bag 8
East Melbourne,
Vic 8002, Australia

Tel. +61 3 9929 8360
Fax. +61 3 9662 3859

cera-info@unimelb.edu.au
www.cera.org.au

THE UNIVERSITY OF MELBOURNE

WHO Collaborating Centre
for the Prevention of Blindness

10.1.3 Permission slip (for schools)

PERMISSION TO LEAVE SCHOOL:

I, _____, give school permission for my child/children, _____

_____ to leave school on date with person from AMS/community centre, to be driven to location to participate in the National Indigenous Eye Health Survey.

If you have Enquiries about your rights as a research study participant or concerns about the conduct of this research project you can contact the Research/Medical Administration, Royal Victorian Eye and Ear Hospital on (03) 9929 8525.

10.1.4 NIEHS flyer

WOULD YOU LIKE A FREE EYE EXAMINATION?

YOU MAY BE ENTITLED TO A FREE PAIR OF GLASSES!

ARE YOU:

- **An Indigenous person?**
- **Aged +40 or 5-15 years?**
- **Living in <<location>>?**

The **Centre for Eye Research Australia** and **<<local centre(s)>>** invite you to come have a free eye check-up and answer some questions related to eye health.

If you join us, you will receive:

- **Free sunglasses for all children**
- **Free reading glasses, if required**
- **Referrals to appropriate health services, if required**

This survey will provide important information about what causes bad eyesight and blindness in Aboriginal and Torres Strait Islander peoples in Australia, and the access to eye care services in your community. If you would like to have your eyes checked, but do not wish to participate in the study, you are still welcome to come along.

WHERE: **<<location>>**

WHEN: **<<date>>**

For more information please phone the study team on (03) 9929 8392, visit our website: http://www.cera.org.au/niehs/index.html, or phone the <<local health services>>.

Centre for Eye Research Australia

10.1.5 Advertisement

Centre for Eye Research Australia

MEDIA ALERT Day Month Year

National Indigenous Eye Health Survey

Indigenous children (5 to 15 years) and adults (40 years and older) are invited to participate in a national public health survey about the eye health of Aboriginal and Torres Strait Islander peoples.

The 'National Indigenous Eye Health Survey' aims to determine the prevalence of major eye diseases affecting Indigenous communities throughout Australia, and evaluate their access to and utilisation of eye health services. 30 sites across Australia are being visited as part of the survey known as 'Minum Barreng' (the Wurundjeri name for 'eye tracking').

Centre for Eye Research Australia is conducting the survey and seeks to better understand:

- The extent of eye disease in the community
- How much do people already know about caring for their eyesight
- What stops people getting the eye care they need
- How can we provide better eye care service for Aboriginal people

Survey coordinator, Sarah Fox (from Centre for Eye Research Australia's Population Health Unit), says eye disease is a significant contributor to the health and wellbeing of people.

"With new and updated information, we hope to identify potential barriers to eye care and highlight localities where more focus on eye care delivery may be required," she says.

"Many eye conditions are chronic. You may not be able to tell you have eye problems developing, and it is very important to have your eyes examined regularly, particularly after the age of 40."

The survey includes a non-invasive eye examination and questionnaire about participants' eye health. It is supported by the Eye Foundation, affiliated with the Royal Australian and New Zealand College of Ophthalmologists.

Eligible participants will receive complimentary reading glasses and children will receive free sunglasses. If doctors recommend participants see a specialist, Centre for Eye Research Australia staff will provide a referral.

More information about the National Indigenous Eye Health Survey telephone Contact or visit: http://www.cera.org.au/niehs/index.html

Media contact:

Media Contact, Centre for Eye Research Australia, External Relations Unit
Contact telephone, Email Web www.cera.org.au

10.1.6 Screening of venue requirements

NIEHS SCREENING VENUE REQUIREMENTS CHECKLIST

Survey Dates & Location: _____

Venue: _____
Name Address

Hours of Operation: _____

Contact Person: _____
Name Phone email

Keys / access cards from: _____
Name Phone

	Total Min. Req.	Number Available
Working Space		
1 large room (min. 4.5m x 4.5m) **-OR-** 1 small room + 1 well-lit corridor/veranda	1	
1 waiting area	1	
1 small room that can be darkened	1	
Power supply (1 per piece of equipment)	3	
Equipment		
Chairs – screening	8	
Adjustable Chairs on wheels	2	
Chairs – waiting area	10	
Tables – medium (questionnaires/consent forms)	1	
Tables – small (equipment)	2-3	
Rubbish bins	2	
Handwashing facilities	1	

Other Requirements/Considerations	
Bus or van + driver	Y N
Parking	Y N
Disability access ramp	Y N
Kitchen facilities	Y N
Toilets	Y N
Hot water urn	Y N

Other Available Equipment

_____

_____

_____

_____

National Indigenous Eye Health Survey
May 2008 - Version 2 1

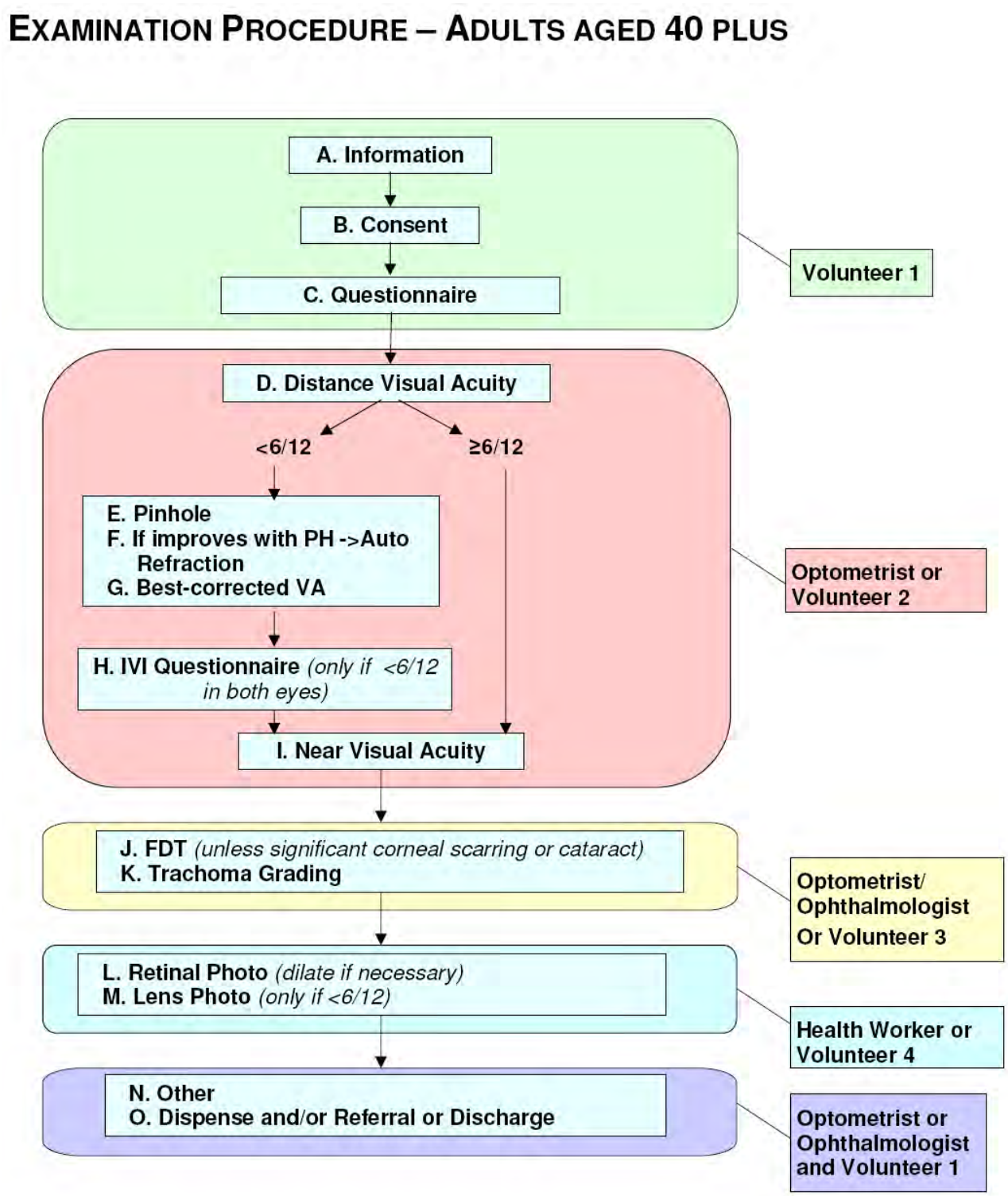
10.1.7 Equipment checklist

NIEHS EQUIPMENT CHECKLIST

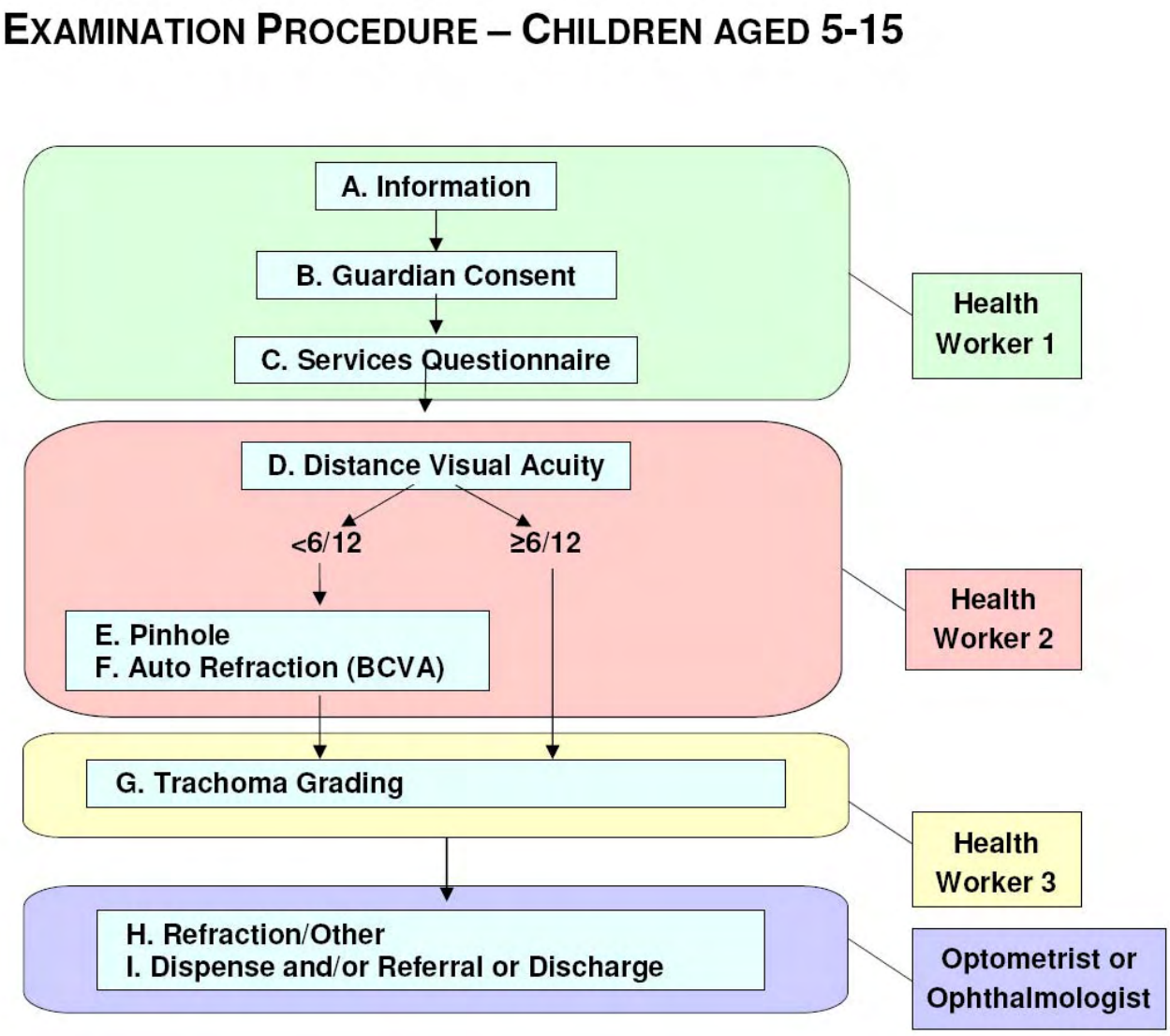
Area/Procedure	Item	
Waiting Area	☐ Information Sheets	☐ Participant Log
	☐ Participant Consent forms	☐ Serviettes & Spoons
	☐ Questionnaires (adult/child)	☐ Milk, Tea, Coffee & Milo
	☐ IVI Questionnaire	☐ Biscuits & Fruit
	☐ Clipboards	☐ Cups & Coffee urn
	☐ Pens & stapler	☐ Rubbish disposal bag or bin
	☐ User Instructions	☐ Tissues
Visual Acuity	☐ E-Test	☐ Reading glasses
	☐ Pinhole	☐ Tissues
	☐ Pen Torch	☐ User Instructions
	☐ Measuring tape or string	☐ Pens & paper clip (pointer)
	☐ Masking tape	
Auto Refraction	☐ Hand held auto-refractor	☐ Skin cleansing swabs
	☐ Chair	☐ Trial Lenses & frames
	☐ extension cord	☐ User Instructions
	☐ Paper for results printout	☐ Clipboard & pens
Visual Field Testing	☐ Frequency Doubling Technology	☐ Skin cleansing swabs
	☐ Adjustable stool or chair	☐ Tissues
	☐ extension cord	☐ Pens
	☐ Paper for results printout	☐ User Instructions
Retinal Photography	☐ Non-mydriatic Fundus Camera	☐ Power board
	☐ Memory stick/external hard drive	☐ Alcohol swabs
	☐ User Instructions	☐ Tissues
	☐ Pens	☐ Styrofoam (for lens photo)
	☐ Adjustable chair	☐ Dilating drops
	☐ Adjustable table	☐ Computer (w/ DH client)
Trachoma Grading	☐ Binocular loupe, 2.5x mag.	☐ Pens
	☐ Cotton buds	☐ Rubbish disposal bag or bin
	☐ Hand sanitizer	☐ WHO trachoma grading system
	☐ Pen Torch	☐ Lollies for kids
	☐ Digital Camera w/ Macro lens & flash	☐ spare rechargeable batteries
Results Area	☐ Referral letters	☐ Admin checklist
	☐ Pens	☐ Sunglasses for children
Miscellaneous	☐ Vehicles: equipment, participants	☐ Equipment fuses
	☐ Mobile phone	☐ Extension leads (3-5 metres)
	☐ Blue Tack	☐ Transport trolleys
	☐ Black plastic to block out light	☐ First-aid kit
	☐ Scissors and adhesive	☐ Disposal bins
	☐ Telephone contacts for team	☐ Name badges
	☐ Publicity banner	☐ Misc. signage
Other considerations	☐ OH&S requirements	☐ Insurance of equipment
	☐ Equipment: Service & calibration	☐ Safety/eng check of equipment
	☐ Public liability insurance	☐ Personal cover (non-work hours)
	☐ First-aid training	☐ Filing system for paperwork

National Indigenous Eye Health Survey
Version 1 – May 2008 1

10.1.8 Examination procedure adults



10.1.9 Examination procedure children



10.1.10 Participant ID numbering system

NIEHS – PARTICIPANT NUMBERING

PARTICIPANT ID CODES:

01-30 Site Code
1 Adult
2 Child
001-999 Participant Identification Number

State	Code	Site	Participant Numbers Adult	Child
NSW	01	Port Macquarie	011001-011999	012001-012999
	02	Paramatta	021001-021999	022001-022999
	03	Doonside	031001-031999	032001-032999
	04	Tamworth	041001-041999	042001-042999
	05	Upper Murray	051001-051999	052001-052999
	06	Tuggeranong ACT	061001-061999	062001-062999
	07	Dubbo	071001-071999	072001-072999
VIC	08	Monash	081001-081999	082001-082999
	09	Moe	091001-091999	092001-092999
QLD	10	Gold Coast	101001-101999	102001-102999
	11	Mount Isa	111001-111999	112001-112999
	12	Aurukun	121001-121999	122001-122999
	13	Winton	131001-131999	132001-132999
	14	Cherbourg	141001-141999	142001-142999
	15	Moa	151001-151999	152001-152999
SA	16	Ceduna	161001-161999	162001-162999
	17	Port Augusta	171001-171999	172001-172999
WA	18	Swan	181001-181999	182001-182999
	19	Gosnells	191001-191999	192001-192999
	20	Broome	201001-201999	202001-202999
	21	Albany	211001-211999	212001-212999
	22	Ashburton	221001-221999	222001-222999
	23	Newman	231001-231999	232001-232999
	24	Esperance	241001-241999	242001-242999
TAS	25	Huon Valley	251001-251999	252001-252999
NT	26	Nguiu	261001-261999	262001-262999
	27	Maningrida	271001-271999	272001-272999
	28	Kalkarindji	281001-281999	282001-282999
	29	Titjikala	291001-291999	292001-292999
	30	Jigalong	301001-301999	302001-302999

10.1.11 Adult participant log book

Centre for Eye Research Australia

LOCATION STATE [##] Date, 2008

ADULTS Participant Log

National Indigenous Eye Health Survey

INSTRUCTIONS:

Before Examination

1. Record name and allocate the next sequential 'Unique ID Number'
2. Tick when consent form has been completed and signed appropriately
3. Circle Y or N if media consent form has been completed.

After Examination

4. Check that EVERY survey question has been completed, and that Distance VA, Near VA, Trachoma Grading, Retinal Imagery, and FDT have been performed. Tick box if complete; if not complete return participant to station.
5. If participant has low vision, check whether IVI has been performed and circle Y/N.
6. Record results from referral. Write referral letter and give white copy to participant, yellow to eye health coordinator or Aboriginal Health Worker and keep one on file.
7. Mark in the first and second columns whether the participant's data is to be included in the study and whether they are Indigenous.

CONFIDENTIAL

National Indigenous Eye Health Survey – Participant Tracking Log **Site: ## [Location]**

Indigenous?	Eligible?	Participant ID			Name	Consent	Media Consent	Survey	Dist VA	Near VA	Trachoma	Retinal Image	FDT	IVI	Referral
		Site	*Adult*	*ID*											
Y N	Y N		1	001			Y N							Y N	NO OT GP OPH
Y N	Y N		1	002			Y N							Y N	NO OT GP OPH
Y N	Y N		1	003			Y N							Y N	NO OT GP OPH
Y N	Y N		1	004			Y N							Y N	NO OT GP OPH
Y N	Y N		1	005			Y N							Y N	NO OT GP OPH
Y N	Y N		1	006			Y N							Y N	NO OT GP OPH
Y N	Y N		1	007			Y N							Y N	NO OT GP OPH
Y N	Y N		1	008			Y N							Y N	NO OT GP OPH
Y N	Y N		1	009			Y N							Y N	NO OT GP OPH
Y N	Y N		1	010			Y N							Y N	NO OT GP OPH
Y N	Y N		1	011			Y N							Y N	NO OT GP OPH
Y N	Y N		1	012			Y N							Y N	NO OT GP OPH
Y N	Y N		1	013			Y N							Y N	NO OT GP OPH

Referral: NO=None OPH=Ophthalmologist
OT=Optometrist GP=General Practitioner

/

2

10.1.12 Child participant log book

Centre for Eye Research Australia

LOCATION STATE [##] Dates, 2008

CHILD Participant Log

National Indigenous Eye Health Survey

INSTRUCTIONS:

Before Examination

1. Record name and allocate the next sequential 'Unique ID Number'
2. Tick when consent form has been completed and signed appropriately
3. Circle Y or N if media consent form has been completed.

After Examination

4. Check that EVERY survey question has been completed, and that Distance VA and Trachoma Grading have been performed. Tick box if complete; if not complete return participant to station.
5. Record results from referral. Write referral letter and give white copy to parent/guardian, yellow to eye health coordinator or Aboriginal Health Worker and keep one on file.
6. Mark in the first and second columns whether the participant's data is to be included in the study and whether they are Indigenous.

CONFIDENTIAL

National Indigenous Eye Health Survey – Participant Tracking Log

Site: ## [Location]

Indigenous?	Eligible?	Participant ID			Name	Consent	Media Consent	Survey	Dist VA	Trachoma	Referral
		Site	*Child*	*ID*							
Y N	Y N		2	001			Y N				NO OT GP OPH
Y N	Y N		2	002			Y N				NO OT GP OPH
Y N	Y N		2	003			Y N				NO OT GP OPH
Y N	Y N		2	004			Y N				NO OT GP OPH
Y N	Y N		2	005			Y N				NO OT GP OPH
Y N	Y N		2	006			Y N				NO OT GP OPH
Y N	Y N		2	007			Y N				NO OT GP OPH
Y N	Y N		2	008			Y N				NO OT GP OPH
Y N	Y N		2	009			Y N				NO OT GP OPH
Y N	Y N		2	010			Y N				NO OT GP OPH
Y N	Y N		2	011			Y N				NO OT GP OPH
Y N	Y N		2	012			Y N				NO OT GP OPH
Y N	Y N		2	013			Y N				NO OT GP OPH

Referral: **NO**=None **OT**=Optometrist **OPH**=Ophthalmologist **GP**=General Practitioner

/

10.1.13 Adult participant information sheet

NATIONAL SURVEY OF INDIGENOUS EYE HEALTH

PARTICIPANT INFORMATION SHEET

EXPLANATION OF STUDY

You are invited to participate in a study performed by the Centre for Eye Research Australia in collaboration with the Aboriginal Health and Medical Research Council, the International Centre for Eyecare Education and Vision Cooperative Research Centre. The purpose of this study is to provide information about the major causes of blindness and low vision in Aboriginal and Torres Strait Islander peoples in Australia and the influence that access to eye care services has on the status of eye health.

STUDY PROCEDURES, DURATION OF PARTICIPATION AND VISIT SCHEDULE

If you decide to participate in this survey, you are giving us permission to review your medical records, if necessary, and we will take the following basic measurements of your eyes:

- We will ask you about your eye health history and your knowledge and use of eye health services.
- We will check your vision (visual acuity) by asking you to read letters or shapes on a chart.
- We may place lenses in front of each of your eyes and ask you to tell us which lens gives you the best vision.
- We may put a drop into your eyes that will relax the eye muscles. This will help us to check the health of your eyes by looking into the eye with a light for a short time.
- We will ask you how your eyesight affects your ability to go about your daily activities.

The above procedures test for eye health and are routinely used by optometrists or ophthalmologists for general eye examinations. The tests cause no harm to the eye and give you and us important information about your eye health.

RISKS AND PRECAUTIONS

Testing your eye health has no risks. The drops that we put in your eye may cause temporary discomfort, such as feeling sick, blurry vision, stinging sensation and sensitivity to light. These are all short lasting, and will not cause permanent damage. A trained optometrist will be close by at all times.

There are no known increased risks to pregnant or lactating mothers, foetus, or nursing child. If you are pregnant and have additional questions, please ask the doctor or the nurse of the study team.

ILLNESS AND INJURY RELATING TO THE STUDY

We have insurance to cover you in the event of any illness or injury that was directly related to the study. Compensation for injury will be in accordance with the Australian Pharmaceutical Manufacturers Associate Compensation Guidelines. The study team has a copy of these guidelines if you wish to read them in detail.

BENEFITS OF THE STUDY, EXPENSES AND COMPENSATION

The eye examination will check your vision and the health of your eyes. If you need glasses, we will provide you with a prescription. If you require other eye care, we will offer referral to an eye doctor for you to go have a

check-up. There will be no cost for you to participate in this study. However, we can not guarantee or promise that you will receive any benefits to your health from the study. Also, if the study shows that you need further heath care, the costs of that additional health care will not be reimbursed by the study. To summarise, we offer initial eye care treatment or referral to an eye specialist at the time of diagnosis, and we will take reasonable steps to initiate appropriate management.

CONFIDENTIALITY/ ANONYMITY AND DATA SECURITY

All of the personal information we collect about you in this study will be kept confidential. Your name will not be shown or identified with the information that we collect, and it will not be published. Summary findings from the project will be presented at scientific meetings and published in scientific journals once the participating Aboriginal Community Controlled Health Service has been consulted and given permission. The data from this study will be stored securely for 7 years by the Vision CRC, and will then be disposed of by shredding or erasure.

ABORIGINAL COMMUNITY CONSENT

We invite you to participate in this study with permission by your Community and the Aboriginal Community Controlled Health Services.

All of the information that we collect about you will be de-identified and we will only publish this data once we have written permission of the Community through the relevant Aboriginal Community Controlled Health Service.

ETHICAL PROVISIONS

We have received endorsement by your Community and from the Ethics committee to conduct this study. We comply with the National Aboriginal Community Controlled Health Organisation, National Health and Medical Research Council and AH&MRC publications about the ethical provisions relating to conducting a study about the health of Aboriginal and Torres Strait Islander peoples.

VOLUNTARY PARTICIPATION / WITHDRAWAL

You decide if you want to do this study or not. You can withdraw from this study at any time. If you do not want to participate in the study, or if you want to withdraw from the study, you can do so at any time. There will be no penalty involved, and you will not lose any benefits to which you are entitled.

QUESTIONS OR PROBLEMS

Enquiries about your rights as a research study participant or concerns about the conduct of this research project can be directed to the Research/Medical Administration, Royal Victorian Eye and Ear Hospital, Tel: (03) 9929 8525.

When you sign the consent form you indicate to us that you have read the information sheet, that you understand what the study is about and that you want to participate in the study.

This information sheet is for you to keep. Please do not forget that you can ask us as many questions as you like about this study.

10.1.14 Parent/guardian information sheet

NATIONAL SURVEY OF INDIGENOUS EYE HEALTH

PARENT/ GUARDIAN INFORMATION SHEET

EXPLANATION OF STUDY

You are invited to permit your child to participate in a study performed by the Centre for Eye Research Australia in collaboration with the Aboriginal Health and Medical Research Council, the International Centre for Eyecare Education and Vision Cooperative Research Centre. The purpose of this study is to provide information about the major causes of blindness and low vision in Aboriginal and Torres Strait Islander peoples in Australia and the influence that access to eye care services has on the status of eye health.

STUDY PROCEDURES, DURATION OF PARTICIPATION AND VISIT SCHEDULE

If you decide to permit your child to participate in this survey, you are giving us permission to review your child's medical records, if necessary, and we will take the following basic measurements of your child's eyes:

- We will ask you about your child's eye health history and your knowledge and use of eye health services.
- We will check how good your child's vision is (visual acuity) by asking your child to read letters or shapes on a chart.
- We may place lenses in front of each of your child's eyes and ask the child to tell us which lens gives the best vision.
- We may put a drop into your child's eyes that will relax the eye muscles. This will help us to check the health of the eyes by looking into the eye with a light for a short time.
- We will ask the child how his/ her eyesight affects the ability to go about the daily activities.

The above procedures test for eye health and are routinely used by optometrists or ophthalmologists for general eye examinations. The tests cause no harm to the eye and will give you, your child and us important information about your child's eye health.

We may ask your child to repeat some of the above procedures so that we can test the reliability of our testing procedures.

RISKS AND PRECAUTIONS

Testing the health your child's eyes has no risks. The drops that we put in the eye may cause temporary discomfort, such as feeling sick, blurry vision, stinging sensation and sensitivity to light. But these are all short lasting and will not cause permanent damage. Also, a trained optometrist will be close by at all times.

ILLNESS AND INJURY RELATING TO THE STUDY

We have insurance to cover your child in the event of any illness or injury that was directly related to the study. Compensation for injury will be in accordance with the Australian Pharmaceutical Manufacturers Associate Compensation Guidelines. The study team has a copy of these guidelines if you wish to read them in detail.

Centre for Eye Research Australia

Centre for Eye Research Australia
32 Gisborne Street, East Melbourne VIC 3002
Ph: (03) 9929 8368 Fax: (03) 9662 3856

BENEFITS OF THE STUDY, EXPENSES AND COMPENSATION

The eye examination will check the vision and health of your child's eyes. If your child needs glasses, we will provide you with a prescription. If your child requires other eye care, we will offer referral to an eye doctor to have your child checked up. There will be no cost for you or your child to participate in this study. However, we can not guarantee or promise that you or your child will receive any health benefits from the study. Also, if the study shows that you or your child need further heath care, the costs of that additional health care will not be reimbursed by the study. To summarise, we offer initial eye care treatment or referral to an eye specialist at the time of diagnosis and we will take reasonable steps to initiate appropriate management.

CONFIDENTIALITY/ ANONYMITY AND DATA SECURITY

All the personal information we collect about you or your child in this study will be kept confidential. Your name or the child's name will not be shown or identified with the information that we collect, and it will not be published. Summary findings from the project will be presented at scientific meetings and published in scientific journals once the participating Aboriginal Community Controlled Health Service has been consulted and given permission. The data from this study will be stored securely for 7 years by the Vision CRC and then will be disposed of by shredding or erasure.

ABORIGINAL COMMUNITY CONSENT

We invite your child to participate in this study with permission by your Community and the Aboriginal Community Controlled Health Services.

All the information that we collect about you or your child will be de-identified, and we will only publish this data once we have written permission of the Community through the relevant Aboriginal Community Controlled Health Service.

ETHICAL PROVISIONS

We have received endorsement by your Community and from the Ethics Committee to conduct this study. We comply with the National Aboriginal Community Controlled Health Organisation, National Health and Medical Research Council and AH&MRC publications about the ethical provisions relating to conducting a study about the health of Aboriginal and Torres Strait Islander peoples.

VOLUNTARY PARTICIPATION / WITHDRAWAL

You decide if you want your child to participate in this study or not. You can withdraw your child's participation from this study at any time. If you do not want your child to participate in the study, or if you want to withdraw your child from the study, you can do so at any time. There will be no penalty involved, and your child will not lose any benefits to which he/she is entitled.

QUESTIONS OR PROBLEMS

Enquiries about your rights as a research study participant or concerns about the conduct of this research project can be directed to the Research/Medical Administration, Royal Victorian Eye and Ear Hospital, Tel: (03) 9929 8525.

When you sign the consent form you indicate to us that you have read the information sheet, that you understand what the study is about and that you want the child to participate in the study.

This information sheet is for you to keep. Please do not forget that you can ask us as many questions as you like about this study.

10.1.15 Eye health study consent form (child)

Eye Health Study Child Consent Form ID: | | | | | | |
Checking *children* for their vision.

This form means you can say NO

Many communities across Australia are participating in a national survey of vision and eye health services. We are offering eye examinations for adults and children to look at eye health in your community. With your permission, we would like to:

1. Check your children for their vision? ---------- Yes ☐ No ☐
2. Take a photo of your children's eyes? ---------- Yes ☐ No ☐
3. Collect the name and address of your children? ---------- Yes ☐ No ☐

If we find that your children have vision problems, we will offer initial eye care treatment or referral to an eye specialist, and we will take reasonable steps to initiate appropriate management and treatment through the Aboriginal Health Service.

You do not have to agree to do these things if you do not want to. You can withdraw your consent at any time, and it will not affect you, your child or your family. All information that we collect will be confidential and no identifiable information will be released.

The survey has been explained to me, and I understand why it is being conducted. As parent/legal guardian, I give permission for my child/children to participate in the national eye health survey:

..... Child #1	...../...../..... DOB	..... Parent/guardian's relationship to child #1
..... Child #2	...../...../..... DOB	..... Parent/guardian's relationship to child #2
..... Child #3	...../...../..... DOB	..... Parent/guardian's relationship to child #3
..... Name of Parent/Guardian	..... Signature of Parent/Guardian	...../...../..... Date
...../...../..... DOB of Parent/Guardian	..... years Age of Parent/Guardian	
..... (Name of Researcher/Witness who explained study)	..... (Signature of Researcher/Witness)	...../...../..... Date

Centre for Eye Research Australia
32 Gisborne Street, East Melbourne VIC 3002
Ph: (03) 9929 8368 | Fax: (03) 9662 3856

10.1.16 Eye health study consent form (adult)

ID: | | | | | | |

Eye Health Study Adult Consent Form

Checking *adults* for their vision and localeye health services.

This form means you can say NO

Many communities across Australia are participating in a national survey of vision and eye health services. We are offering eye examinations for adults and children to look at eye health in your community. With your permission, we would like to:

1. Check your vision
2. Take photos of your eyes to look at your eye health
3. Collect demographic information about you (your name and your address)

If we find that you have vision problems, we will offer initial eye care treatment or referral to an eye specialist, and we will take reasonable steps to initiate appropriate management and treatment through the Aboriginal Health Service.

You do not have to agree to do these things if you do not want to. You can withdraw your consent at any time, and it will not affect you, your child or your family. All information that we collect will be confidential and no identifiable information will be released.

The survey has been explained to me and I understand why it is being conducted.

I, _____ date of birth ____/____/____,

Yes ☐ ------give permission to check my vision

Yes ☐ ------give permission to take photographs of my eyes

Yes ☐ ------give permission to collect demographic information about me.

…../…../…..
Date

……..
(Signature)

……
(Name of Researcher/Witness who explained study)

……..
(Signature of Researcher/Witness)

Centre for Eye Research Australia

ICEE

Centre for Eye Research Australia
32 Gisborne Street, East Melbourne VIC 3002
Ph: (03) 9929 8368 | Fax: (03) 9662 3856

10.1.17 Consent & questionnaire instructions

INSTRUCTIONS: INFORMATION & CONSENT & QUESTIONNAIRE

INFORMATION & CONSENT

Forms:
1) Information Sheet (Adults)
2) Consent form (Adults)
3) Information Sheet (Children)
4) Consent form (Children)

Give participant/guardian the Information sheet.
If the participant is unable to read the form, read it to them.

Explain: This study forms part of a larger survey designed to provide important information on the vision and eye health of Aboriginal and Torres Strait Islander peoples in Australia. We would like to ask you to participate if you meet the inclusion criteria (age/location).

If participant is eligible, explain: The specific procedures: questionnaire; near and distance vision test; visual field testing; retinal imaging (photo of the back of the eye); trachoma grading. There are no potential risks, the tests will take approximately 30 minutes, and we need you to sign a consent form indicating that you understand and have agreed to participate in the study.

Give participant/guardian the Consent Form.
If the participant is unable to read the form, read it to them.

Ask:
- *Do you have any questions?*
- *Will you please sign the consent form, indicating that you understand the study and are willing to participate?*

- **Sign and date the space for the witness on the consent form.**
- **Write participant's details in the LOG BOOK and assign an ID number. Write the appropriate ID number on the front of the consent form and the back of the questionnaire.**
- **Give the participant the yellow copy of the consent form to keep.**

INSTRUCTIONS: INFORMATION & CONSENT & QUESTIONNAIRE

QUESTIONNAIRE

Forms:
6) Health Services Questionnaire (Adults)
7) Health Services Questionnaire (Children)

Give participant/guardian the Questionnaire.
If the participant is unable to read the form, read it to them. It is important to ask the questions in a non-leading manner and use the prompt cards provided, when relevant.

Explain: The purpose of the questionnaire: to collect demographic information, personal and family eye health history, and information about use and access to eye health services.

Ask: Please fill out as much of the questionnaire as possible. Do not hesitate to ask me any questions. I am happy to help you complete the questionnaire if you would like.

When the participant is finished, check for unanswered questions.
For any unanswered questions:
- Ask the participant each question exactly as it is written.
- Ask the participant to choose from one of the listed responses, when available.

- **Write the appropriate ID number on the back of the questionnaire.**
- **Tick appropriate boxes in INCLUSION CRITERIA section.**

If the participant indicates that they do not want to participate at any stage ask them if they would mind telling us why, and then thank them for their time.

10.1.18 NIEHS questionnaire (adult)

MINUM BARRENG*

QUESTIONNAIRE FOR ADULTS

Please answer ALL 14 questions. Please place an X in the box ☒.

Personal Details

1. a) Name: _____ ☐ Male ☐ Female
Given Family

Date of Birth: __/__/__

b) Address: _____ Age: _____ years

2. a) Do you speak a language other than English at home?

No ☐ go to 2b Yes ☐ → Please specify: _____

b) What is the highest level of education you have completed? *(Please tick ONE box that applies)*

- ☐ Did not go to school
- ☐ Year 8 or below
- ☐ Year 9 to Year 12
- ☐ Certificate or Diploma (including trade certificate)
- ☐ Bachelor Degree (from college or university)
- ☐ Graduate Certificate/Postgraduate Degree

Eye Health

3. a) Have you **EVER** had a problem with your eyes or vision? Yes ☐ No ☐ → go to 4

If Yes

b) Did you see somebody about your eye or vision problem? Yes ☐ No ☐ → go to 3f

If Yes

c) Where did you go for treatment? *(Please tick ALL boxes that apply)*:

- ☐ Hospital
- ☐ Aboriginal Medical Service
- ☐ Community Health Centre
- ☐ General Practitioner (GP)
- ☐ Optometrist
- ☐ Ophthalmologist
- ☐ Other: _____

d) How long ago did you last see someone about your eyes or vision? _____ months *OR* _____ years ago

e) Is the problem ok now? Yes ☐ No ☐ → go to 4

If No

f) Why didn't you go somewhere for treatment? (Please tick ALL boxes that apply):

- ☐ Cost
- ☐ Discrimination
- ☐ Language problems
- ☐ Transport/distance
- ☐ Service not culturally appropriate
- ☐ Not available in area
- ☐ Felt it would be inadequate
- ☐ Decided not to seek care
- ☐ Waiting time too long or not available at time required
- ☐ It is normal for eyesight to get worse
- ☐ It was not severe enough
- ☐ Too expensive
- ☐ Too busy/haven't gotten around to it
- ☐ Other: _____

NATIONAL SURVEY OF INDIGENOUS EYE HEALTH

* 'Minum Barreng' is the Wurundjeri name for 'tracking of eyes.'

Page 1 of 4

Eye Health — continued

4. a) Do you normally wear glasses or contact lenses (***APART*** from reading)? ☐ No ☐ Yes → go to 4c

If No

b) How satisfied are you with the quality of your vision? ☐ Very Dissatisfied ☐ Dissatisfied ☐ Satisfied ☐ Very Satisfied

If Yes

c) How satisfied are you with the quality of your vision while wearing glasses or contact lenses (***APART*** from reading)? ☐ ☐ ☐ ☐

d) Where did you get your glasses or contact lenses from (***APART*** from reading glasses)? ☐ Local Optometrist ☐ Other: _____

e) How old were you when you **FIRST** started wearing glasses or contact lenses (***APART*** from reading glasses)? Age: _____

f) Do you wear your glasses or contact lenses **ALL** (or nearly all) of the time? ☐ No ☐ Yes → go to 5

If No

g) What is the reason that you don't wear them all the time? *(Please tick ALL boxes that apply)*

- ☐ I don't need to wear them all the time
- ☐ They are uncomfortable
- ☐ Can't see properly wearing them
- ☐ New pair too expensive
- ☐ Embarrassed
- ☐ Other: _____

5. a) Do you normally wear glasses for near work (i.e. reading)? ☐ Yes ☐ No → go to 6

If Yes

b) How satisfied are you with the quality of your vision while wearing your glasses for near work (e.g. reading)? ☐ Very Dissatisfied ☐ Dissatisfied ☐ Satisfied ☐ Very Satisfied → go to 5c

c) Where did you get your glasses for near work (e.g. reading)? ☐ Local Optometrist ☐ Other: _____

6. a) Have you been told that you have cataract(s)? ☐ Yes ☐ No ☐ Don't know → go to 7

If Yes

b) Have you had cataract surgery? ☐ No ☐ Yes → go to 7

If No

c) If you have **NOT** had an operation for your cataract, what is the reason?

- ☐ Cataract not advanced enough for operation yet
- ☐ On waiting list
- ☐ Could not get transport to hospital
- ☐ Does not bother me
- ☐ Not medically fit to have the operation
- ☐ Worried about the operation going wrong or not working
- ☐ Concerned it will cost too much
- ☐ Other: _____

7. Have you been told that you have **ANY** of the following eye problems? *(Please answer ALL questions)*

	Yes	**No**	**Don't know**
a) Glaucoma or high pressure in the eye?	☐	☐	☐
b) Diabetic eye disease of diabetic retinopathy?	☐	☐	☐
c) Age-related macular degeneration/AMD?	☐	☐	☐
d) Other: _____	☐		

Eye Health — continued

8. Have **ANY** of your immediate family (parents, brothers or sisters) ever suffered from any of the following eye problems? *(Please answer ALL questions)*

	Yes	No	Don't know
a) Cataract	☐	☐	☐
b) Glaucoma or high pressure in the eye?	☐	☐	☐
c) Diabetic eye disease of diabetic retinopathy?	☐	☐	☐
d) Age-related macular degeneration/AMD?	☐	☐	☐
e) Other: _____	☐		

9. Please answer about your eyesight with glasses, contact lenses of magnifiers, if you use them *(please tick one box that applies in each row)*.

IN THE PAST MONTH:

a) How often has your eyesight made you go carefully to avoid falling or tripping?	Not at all ☐	A little ☐	A fair amount ☐	A lot ☐	Don't do this for other reasons ☐
b) How much has your eyesight interfered with reading ordinary size print (e.g. newspapers)?	Not at all ☐	A fair amount ☐	A lot ☐	Don't do this for other reasons ☐	
c) How often have you worried about your eyesight getting worse?	Not at all ☐	A little of the time ☐	A fair amount of the time ☐	A lot of the time ☐	
d) How often has your eyesight stopped you doing the things you want to do?	Not at all ☐	A little of the time ☐	A fair amount of the time ☐	A lot of the time ☐	

General Health

10. a) Have you ever been told by a Doctor or Nurse that you have Diabetes? Yes ☐ No ☐ → go to 11

If Yes

b) At what age were you first told that you had Diabetes? Age: _____ years

11. Have you ever had a stroke? Yes ☐ No ☐ → go to 12

12. a) Have you had any falls in the last 12 months? Yes ☐ go to 12b No ☐ → go to 13

If Yes

b) Please specify: _____ falls in the last 12 months

13. a) Over your lifetime, would you have smoked at least 100 cigarettes or a similar amount of tobacco? Yes ☐ go to 13b No ☐ → go to 14

If Yes

b) Do you currently smoke? Yes ☐ No ☐

14. When you go out in the sun do you wear:

	Always	Sometimes	Never
a) A hat?	☐	☐	☐
b) Sunglasses?	☐	☐	☐

Thank you for completing this questionnaire and participating in the National Indigenous Eye Health Survey.

Inclusion Criteria — **Office Use Only - *Do not complete***

Consent form signed ☐ Community resident ☐
Aboriginal Person ☐ Torres Strait Islander ☐
Self administered ☐ Interviewer ☐

ID: ☐☐1☐☐☐

Date: _____

1. Presenting Correction:

	RE:	LE:
No Correction	☐	☐
Spectacles	☐	☐
Contact Lenses	☐	☐
Other ▼	☐	☐

Please state: _____

2. Distance Visual Acuity:

Use presenting correction.

VA:	RE:	LE:	→ **PINHOLE:**	RE:	LE:	→ *If VA improves with PH* **BCVA:**	RE:	LE:
≥6/12	☐	☐	≥6/12	☐	☐	≥6/12	☐	☐
<6/12-6/18	☐	☐	<6/12-6/18	☐	☐	<6/12-6/18	☐	☐
<6/18-6/60	☐	☐	<6/18-6/60	☐	☐	<6/18-6/60	☐	☐
<6/60	☐	☐	<6/60	☐	☐	<6/60	☐	☐
PL	☐	☐						
NPL	☐	☐						

3. Near Visual Acuity:

Reading glasses ☐
No correction ☐

≥N8 ☐
<N8-N20 ☐
<N20-N48 ☐
<N48 ☐

4. Trachoma Grading:

	RE:	LE:
Clear	☐	☐
TT	☐	☐
CO	☐	☐
TF	☐	☐
TI	☐	☐
TS	☐	☐

Photos taken? Yes ☐ No ☐

5. Retinal Photo:

Yes ☐ No ☐ → *Reason:* _____

Dilation Drops Required?
No ☐ Yes ☐ → _____ *drops used*

☐ Lens photo taken

6. FDT:

	RE:	LE:
0 Points Missed	☐	☐
1 Point Missed	☐	☐
≥2 Points Missed	☐	☐
Test not done	☐	☐

7. Referral:

None ☐
GP ☐
Optometrist ☐
Ophthalmologist ☐

Reason: _____

8. Other:

	Yes	No	▶Reason:	Examiner
Consent Form Signed	☐	☐	_____	
Questionnaire Complete	☐	☐	_____	
Distance Visual Acuity	☐	☐	_____	
Near Visual Acuity	☐	☐	_____	
Trachoma Grading	☐	☐	_____	
Retinal/Lens Photo	☐	☐	_____	
FDT	☐	☐	_____	
Referral	☐	☐	_____	

Centre for **Eye Research Australia**

LCEE SIGHT

VISION CRC

10.1.19 NIEHS questionnaire (child)

MINUM BARRENG*

QUESTIONNAIRE FOR CHILDREN

Please answer ALL 6 questions. Please place an X in the box ☒.

Personal Details

1. a) Name: _____ ☐ Male ☐ Female
(Given) (Family)
Date of Birth: __/__/__
b) Address: _____ Age: _____ years

2. Do you speak a language other than English at home? No ☐ Yes ☐ → Please specify: _____

Eye Health

3. a) Have you **EVER** had a problem with your eyes or vision? Yes ☐ No ☐ → go to 4

If Yes
b) Did you see somebody about your eye or vision problem? Yes ☐ No ☐ → go to 3d

If Yes
c) Where did you go for treatment? *(Please tick ALL boxes that apply)*:

- ☐ Hospital
- ☐ Aboriginal Medical Service
- ☐ Community Health Centre
- ☐ General Practitioner (GP)
- ☐ Optometrist
- ☐ Ophthalmologist
- ☐ Other: _____

d) Is the problem ok now? Yes ☐ No ☐

4. a) Have you ever been told that you should wear glasses or contact lenses? Yes ☐ No ☐ → go to 5

If Yes
b) Do you wear your glasses or contact lenses **ALL** (or nearly all) of the time? No ☐ Yes ☐ → go to 4d

If No
c) What is the reason that you don't wear them all the time? *(Please tick ALL boxes that apply)*

- ☐ I don't need to wear them all the time
- ☐ They are uncomfortable
- ☐ Can't see properly wearing them
- ☐ New pair too expensive
- ☐ Embarrassed
- ☐ Other: _____

d) How old were you when you **FIRST** started wearing glasses or contact lenses? Age: _____

General Health

5. Have you ever been told by a Doctor or Nurse that you have Diabetes? Yes ☐ No ☐

6. When you go out in the sun do you wear:

	Always	Sometimes	Never
a) A hat?	☐	☐	☐
b) Sunglasses?	☐	☐	☐

Thank you for completing this questionnaire and participating in the National Indigenous Eye Health Survey.

*'Minum Barreng' is the Wurundjeri name for 'tracking of eyes.'

Centre for Eye Research Australia

Inclusion Criteria — **Office Use Only - *Do not complete***

Consent form signed ☐ Community resident ☐
Aboriginal Person ☐ Torres Strait Islander ☐
Self administered ☐ Interviewer ☐

ID: ☐ ☐ 2 ☐ ☐ ☐

Date: _____

1. Presenting Correction:

	RE:	LE:
No Correction	☐	☐
Spectacles	☐	☐
Contact Lenses	☐	☐
Other ▼	☐	☐

Please state: _____

2. Distance Visual Acuity:

Use presenting correction.

VA:	RE:	LE:	→ **PINHOLE:**	RE:	LE:	→ *If VA improves with PH* **BCVA:**	RE:	LE:
≥6/12	☐	☐	≥6/12	☐	☐	≥6/12	☐	☐
<6/12-6/18	☐	☐	<6/12-6/18	☐	☐	<6/12-6/18	☐	☐
<6/18-6/60	☐	☐	<6/18-6/60	☐	☐	<6/18-6/60	☐	☐
<6/60	☐	☐	<6/60	☐	☐	<6/60	☐	☐
PL	☐	☐						
NPL	☐	☐						

4. Trachoma Grading:

	RE:	LE:
Clear	☐	☐
TT	☐	☐
CO	☐	☐
TF	☐	☐
TI	☐	☐
TS	☐	☐

Photos taken? Yes ☐ No ☐

7. Referral:

None ☐
GP ☐
Optometrist ☐
Ophthalmologist ☐

Reason: _____

8. Other:

	Yes	No	▶Reason:	Examiner
Consent Form Signed	☐	☐	_____	☐
Questionnaire Complete	☐	☐	_____	☐
Distance Visual Acuity	☐	☐	_____	☐
Trachoma Grading	☐	☐	_____	☐
Referral	☐	☐	_____	☐

Centre for **Eye Research Australia**

COMPLETE

10.1.20 Admin checklist

ADMIN CHECKLIST

Consent & Questionnaire

- ☐ Write participant name in ID log and assign ID number.
- ☐ Write ID number on Questionnaire *and* Consent Forms.
- ☐ Stamp date on Questionnaire *and* Consent Forms.
- ☐ Ensure that participant understands the study completely BEFORE you sign the consent form as a witness.
- ☐ On Questionnaire, tick YES and Initial the section at the bottom for Consent Form Signed.

Inclusion Criteria

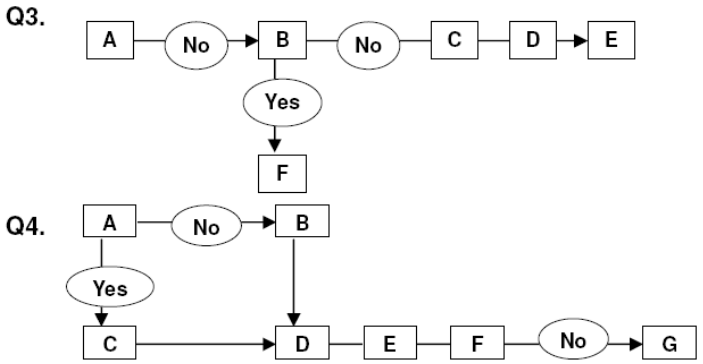
- ☐ MUST have 4/6 boxes checked (minimum).

Personal Details

- ☐ Address MUST include suburb or postcode (for inclusion criteria).
- ☐ Ensure this ENTIRE section is complete.

Eye Health

- ☐ Ensure that ALL questions are answered ENTIRELY – follow directives where necessary, e.g.



Compulsory questions:

ADULTS:

1 a-b*	4 a & b/c	7* a-d	10 a	13 a
2 a-b	5 a	8* a-e	11	14 a-b
3 a	6 a	9 a-d	12 a	

* frequently skipped questions

CHILDREN:

1 a-b	4 a
2 a	5
3 a	6 a-b

If ***ANY*** questions are incomplete, please read the question to the participant and ensure that it is answered entirely.

ADMIN CHECKLIST

Office Use Only

TEST	BOXES TICKED	OTHER
1. Presenting Correction	☒ RE ☒ LE	
2. VA	☒ RE ☒ LE	PH: ☒ RE ☒ LE BCVA: ☒ RE ☒ LE
3. NVA	☒ Correction ☒ N	
4. Trachoma Grading	☒ RE ☒ LE ☒ Y/N Photos	Reason listed if test not done
5. Retinal Photos	☒ Y/N ☒ Drops Y/N	☒ lens photo *(**only** if BCVA <6/12)*
6. FDT	☒ RE ☒ LE	Reason listed if test not done
7. Referral	☒ None/doctor	Reason listed if referred

☐ Ensure that ALL sections have been completed *and* initialed by examiner at bottom. If *any* tests were not done, ensure that there is a reason listed at the bottom.

☐ Record in Log book.

☐ Initial Questionnaire in Questionnaire Complete section.

Referral

☐ Tick appropriate box on Questionnaire *and* initial.

☐ Complete LETTER OF REFERRAL, give one copy to the participant and one to the Health Worker and THANK participant for their time and interest.

☐ Please ask all participants to invite their family and friends who live in the survey area to participate!

Other

☐ Please ensure that hot water, snacks and milk remain stocked throughout screening and that waiting area remains tidy.

10.1.21 Referral letter

Centre for Eye Research Australia

Date: _____

National Survey of Indigenous Eye Health

Dear _____,

As you may be aware, the Centre for Eye Research Australia (CERA), in conjunction with participating state and national organisations, is conducting a National Survey of Indigenous Eye Health. The survey is designed to assess the prevalence and main causes of vision impairment, as well as the utilization of eye care services, barriers to health and the impact of vision impairment on Indigenous Australian peoples.

_____ participated in the National Survey of Indigenous Eye Health today. During the eye examination, we detected a *potential* abnormality, and are therefore referring the participant to you for further assessment.

For this participant:

Left Eye	Right Eye	
☐	☐	**Presenting vision was <6/12** _____
☐	☐	**An abnormality was detected on FDT (visual field instrument)**
☐	☐	**There was evidence of trachoma** _____
☐	☐	**Other:** _____

If you have any questions or concerns, please do not hesitate to contact the study team on (03) 9929 8377.

Thank you in anticipation of your cooperation.

Sincerely,

The National Indigenous Eye Health Survey Team
Centre for Eye Research Australia (CERA)

Centre for
Eye Research Australia
ABN 72 076 481 984

32 Gisborne Street
East Melbourne, Vic 3002

Postal Address:
Locked Bag 8
East Melbourne,
Vic 8002, Australia

Tel. +61 3 9929 8360
Fax. +61 3 9662 3859

cera-info@unimelb.edu.au
www.cera.org.au

THE UNIVERSITY OF MELBOURNE

WHO Collaborating Centre for the Prevention of Blindness

Referral instructions

Indications:

Visual Acuity	VA <6/12 in either eye	Optometrist
FDT	≥2 points missed in either eye (for best result)	Ophthalmologist or GP
Trachoma Grading	TF / TI TT / CO	GP, Community Health Ophthalmologist
Retinal Photos	Diabetic retinopathy or other	Ophthalmologist
Other	Any other issue the examiner feels should be addressed by eye care practitioner (e.g. headaches, flashing lights)	GP

Action:

- Where available, referrals will be made directly to a local bulk-billing GP, optometrist or ophthalmologist. Place sticker with doctor's details on the letter (if participant does not have a current practitioner).
- Tick appropriate box on letter, and fill in any relevant details.
- Fill in the date, practitioner's name (if known) and participant's name on letter.
- Advise participant to take letter to Optometrist/GP/Ophthalmologist.
- Make sure participant understands it is only a potential problem detected by screening and that a full examination is recommended.

10.1.22 NIEHS roster & site set up

Centre for Eye Research Australia

Site, State
Date

TRANSPORT/ACCOMMODATION
Hotel:
Flights:
Hire Car:

EQUIPMENT
From:
To:

Booking made:
Reference number:
Contact person:

Additional glasses/forms shipped on: carried on plane

SCREENING VENUE
Venue: Organization Address Phone Contact
Rooms available:
Vehicle:
Driver:

RECRUITMENT

Schools
Dept of Education – **Approved on DATE**
Schools - School Address Phone/Fax/email Principal Aboriginal liaison officer

Media
Radio: Organization Address Phone/Fax Contact Person Media release sent on DATE
Flyer/Poster:
Door Knocking:

TEAM
Local Team
Clinic - Name Organization Phone Mobile email
Local coordinator:
Local support staff:
Eye Health Coordinator:
Health Worker 1:
Health Worker 2:

Study Team
CERA Coordinator:
Volunteer 1:
Volunteer 2:

Volunteer 3:
Optometrist:
Ophthalmologist:

REFERRAL PATHWAYS (ensure bulk-billing)

Ophthalmologist(s): Name Organization Address Phone
Optometrist(s):
GP(s):

PAYMENT DETAILS

Contact person:

ROSTER

	Coordinator/ Recruitment	Qx	VA	FDT	Trachoma	Retinal Photo
Mon						
Tues						
Wed						
Thurs						
Fri						
Sat						
Sun						

10.1.23 Thank you letter

Centre for **Eye Research Australia**

Insert Date

<<Name>>
<<Address_1>>
<<Address_2>>
<<Suburb>> <<State>> <<Postcode>>

Dear <<Name>>,

Re: The National Indigenous Eye Health Survey
Vision Screening - <<location>> <<date>>

Thank you for your support and assistance during the National Indigenous Eye Health Survey in <<location>>. We had a fantastic week; such a great turn-out would not have been possible without your assistance.

Overall, we screened # adults and # children. As you know, we rely heavily on local knowledge to make the survey successful. Your assistance during the week was absolutely essential, and we greatly appreciate it.

Your kind hospitality is much appreciated.

We look forward to working with you again in the future.

Yours sincerely,

Name, on behalf of the study team

Centre for
Eye Research Australia
ABN 72 076 481 984

32 Gisborne Street
East Melbourne, Vic 3002

Postal Address:
Locked Bag 8
East Melbourne,
Vic 8002, Australia

Tel. +61 3 9929 8360
Fax. +61 3 9662 3859

cera-info@unimelb.edu.au
www.cera.org.au

THE UNIVERSITY OF MELBOURNE

WHO Collaborating Centre
for the Prevention of Blindness

10.1.24 Thank you letter for venue

Centre for **Eye Research Australia**

Insert Date

<<Name>>
<<Address_1>>
<<Address_2>>
<<Suburb>> <<State>> <<Postcode>>

Dear <<Name>>,

Re: The National Indigenous Eye Health Survey Vision Screening - <<date>>

Thank you for allowing The Centre for Eye Research Australia to conduct their vision screening at your venue free of charge.

Your kind hospitality is much appreciated.

We look forward to working with you again in the future.

Yours sincerely,

Name, on behalf of the study team

Centre for
Eye Research Australia
ABN 72 076 481 984

32 Gisborne Street
East Melbourne, Vic 3002

Postal Address:
Locked Bag 8
East Melbourne,
Vic 8002, Australia

Tel. +61 3 9929 8360
Fax. +61 3 9662 3859

cera-info@unimelb.edu.au
www.cera.org.au

WHO Collaborating Centre
for the Prevention of Blindness

10.1.25 Media consent form

Centre for Eye Research Australia

MEDIA CONSENT

Name (parent/ guardian if applicable):

_____

Address:

_____

Telephone:

_____

I hereby consent to the reproduction of:

☐ **photograph/s** ☐ **audio vision** ☐ **comment**

relating to the activity detailed herein, by the Centre for Eye Research Australia/ Eye Research Australia Foundation, for broadcast and/ or print in a public forum for promotional purposes.

Details of activity:

National Indigenous Eye Health Survey

_____

_____

Reproduction in:

☐ Media (television, radio, print, online)

☐ Centre for Eye Research Australia Annual Report

☐ VISION news

☐ Centre for Eye Research Australia website

☐ Other _____

Signature: _____ Date ___/___/___

10.1.26 Community assessment form

COMMUNITY ASSESSMENT FORM

Community: _____ Date___/___/___ Name: _____

Eye Care Services

1. Who provides eye care services in this area?

	Optometrist 1	Optometrist 2	Optometrist 3
Name			
Address			
Phone			
Email			
EFT per year			
Bulk bill Y/N			

	Ophthalmologist 1	Ophthalmologist 2	Ophthalmologist 3
Name			
Address			
Phone			
Email			
EFT per year			
Bulk bill Y/N			

2. Is there an eye care coordinator? ☐ Yes ☐ No

3. Frequency of Service:

☐ Intermittent: _____times per year to_____
clinic, location

☐ Permanent

Clinics

1. Clinic Name:_____

2. Service:

☐ Community Clinic
☐ Aboriginal Medical Services (AMS)
☐ Eye Clinic (Private Practice)

3. Is the Clinic located in the community? ☐ Yes ☐ No, distance away: _____km

1

COMMUNITY ASSESSMENT FORM

4. Overall condition of centre:
☐ Good ☐ Fair ☐ Poor

	Present?		Working?	
	Yes	No	Yes	No
Amenities				
Air –conditioning				
A reliable power supply (including functioning power sockets)				
A functional surgery (Sterile equipment/ environment/ consumables)				
Clinic Support (admin, users)				
Trained eye care staff				

Transportation to Eye Clinic

1. Mode of transportation: ☐ Car ☐ Airplane ☐ Train ☐ Bus ☐ Tram ☐ Other_____

2. Travel time:_____ **Distance:**_____**km**

Patient Care

1. Average waiting time for an eye appointment:
☐ < 1 month ☐ < 1-3 months ☐ < 3-6 months ☐ < 6-12 months ☐ > 12 months

2. Average time to surgery:
☐ < 1 month ☐ < 1-3 months ☐ < 3-6 months ☐ < 6-12 months ☐ >12 months

3. Type of surgery provided:
☐ Cataract ☐ Lid/ extraocular ☐ Retinal Laser

4. Location where surgery is done
☐ In community
☐ In a nearby hospital: _____ City:_____
Name Location

5. Prescription of glasses available? ☐ Yes ☐ No

6. Are glasses purchased if prescribed? ☐ All ☐ Most ☐ Few

7. Average waiting time for follow-up after treatment:_____

8. Availability of prescribed devices/medicines:_____

Comments

e.g. Safety for staff; maintenance of equipment; accommodation details; other comments:

_____

_____

_____

_____

_____

10.2 Equipment Instructions

10.2.1 E-test instructions

INSTRUCTIONS: VISUAL ACUITY USING THE E CHART

Testing Presenting Visual Acuity (VA) Using the E Chart

1. Ensure good lighting.
2. E chart to be held at 3 metres from where participant will be standing/sitting (ensure no window light or overhead light is reflecting on chart).
3. Participant to be standing or sitting at eye level with chart.
4. Greet participant and explain test. ***"Today I will be testing your long distance vision. If you normally wear glasses for the distance (i.e. those you use when you are driving or watching TV) please put them on."*** Tick the box on the results section of the Questionnaire stating whether the participant is wearing glasses or not.
5. Cover left eye with an occluder or tissue, explaining this to participant.

The visual acuity is recorded as the line at which the participant can successfully identify the direction of 3 Es correctly.

6. Ask participant ***"Can you look at the chart and tell me what direction the E's are facing. Please start with the top left."*** Start with **6/12**.
7. If the participant correctly identifies three or more E directions, the VA testing is complete. Record VA as ≥ 6/12 (equal to or better than 6/12). Go to Step 9.
8. If the participant identifies 2 or less of the Es on the 6/12 line, move onto the 6/18 Es. If they still don't successfully identify 3 or more Es correctly, repeat the procedure with 6/60 Es. If the participant can't identify 3 Es on the 6/60 line, determine whether they are able to see light (using a pen torch). If the participant has no perception of light, record presenting VA as NPL (note: if this occurs there is no need to test pinhole acuity).
9. Record the final presenting VA on the results section of the Questionnaire.

Visual Acuity Using Pinhole (PH)

10. Return to the line of acuity that the participant successfully identified 3 or 4 directions of the Es. Ask the participant to look through the pinholes and determine their PH VA as above.
11. Occluder or tissue is moved from left to right eye, explaining to participant "I am now going to test the vision in your left eye" and this process (steps 1 –8) is repeated for the left eye.
12. If presenting VA in both eyes is <6/12 ask the participant the 'low vision' questions on the Questionnaire, and record the results.

NEXT

- For adults test NVA.
- If presenting VA is less than 6/12 in right or left eye, participant needs to go to auto-refraction, to determine their best-corrected VA (BCVA).
- If presenting VA ≥6/12, participant is sent to FDT.

Testing Near Visual Acuity (VA) Using the E Chart

Participant should wear reading glasses. Please offer a pair if they've forgotten theirs.

1. Have the person hold the near vision test card at their preferred reading distance, and begin with the medium sized Es (middle row – N20).
2. If able to see ¾ of the Es, test with the smallest row (N8). If participant can see ¾ Es, NVA is N8.
3. If not able to see ¾ Es, test with the largest Es (N48). If participant cannot identify ¾ Es, NVA is <48.
4. Record NVA.

INSTRUCTIONS: VISUAL ACUITY USING THE E CHART

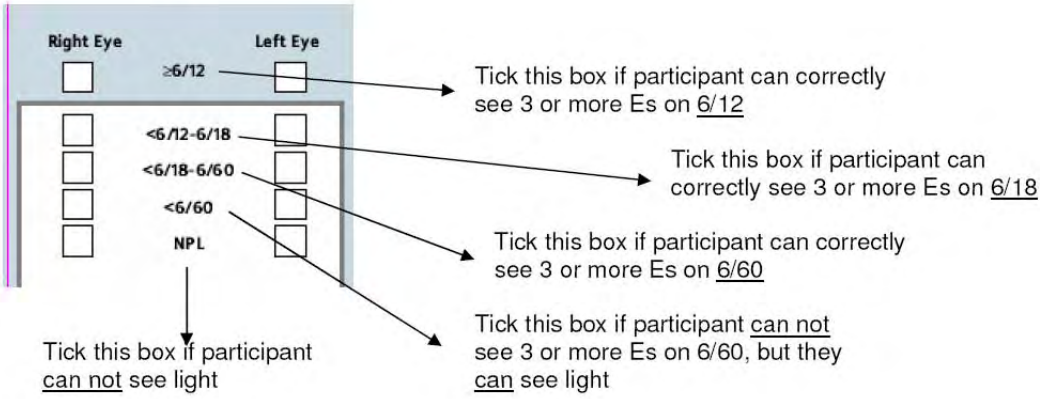
SUMMARY

1. Participant should wear glasses, if they usually wear them (indicate on results section of Questionnaire).
2. Cover left eye. E chart to be held at 3 metres from the participant.
3. Start with 6/12 E's on the right eye. VA is taken if participant identifies 3 or more correctly. If unable to see, show participant larger Es or light if 6/60 Es can't be identified.
4. Record presenting VA on results section of Questionnaire.
5. If presenting VA <6/12, test the VA with a pinhole in front of their right eye. Start at the last Es they identified correctly. Again, VA is taken if participant identifies 3 or more correctly.
6. Record pinhole (PH) vision on results section of Questionnaire.
7. Start at Step 1 again with the left eye.
8. If presenting vision in both eyes is <6/12 ask the participant the 'low vision' questions on Questionnaire, and record the results.

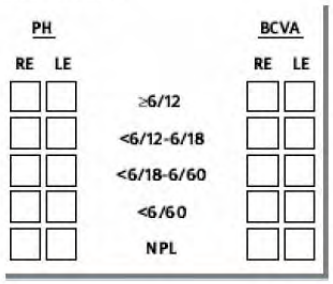
NEXT

- **If VA is < 6/12 in right or left eye, participant is directed to auto-refraction for BCVA.**
- **If VA ≥ 6/12 participant is directed to FDT.**
- **For ALL adults, test NVA as well.**

VA

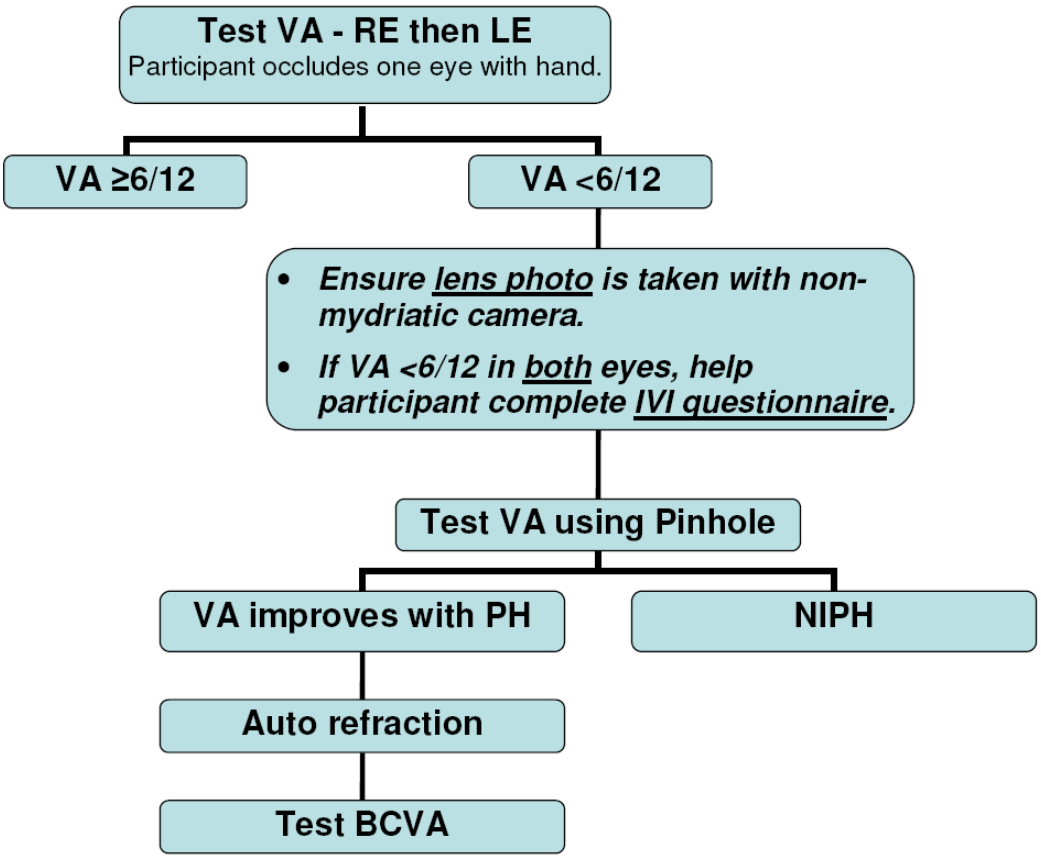


PH and BCVA

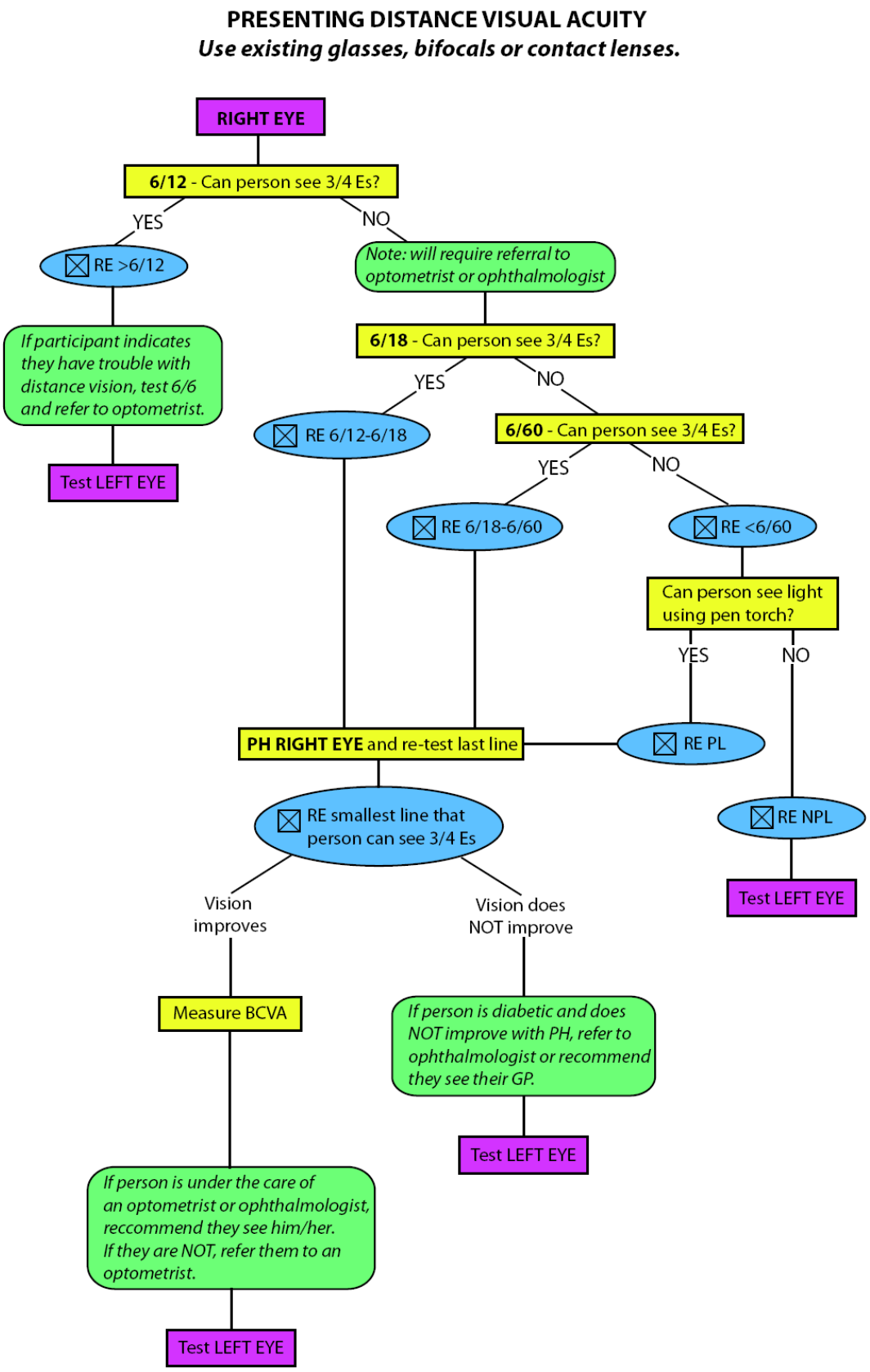


PH = Pinhole (*E Test*)
BCVA = Best-corrected visual acuity (*Auto-refractor*)
RE = Right eye
LE = Left eye

Distance visual acuity summary



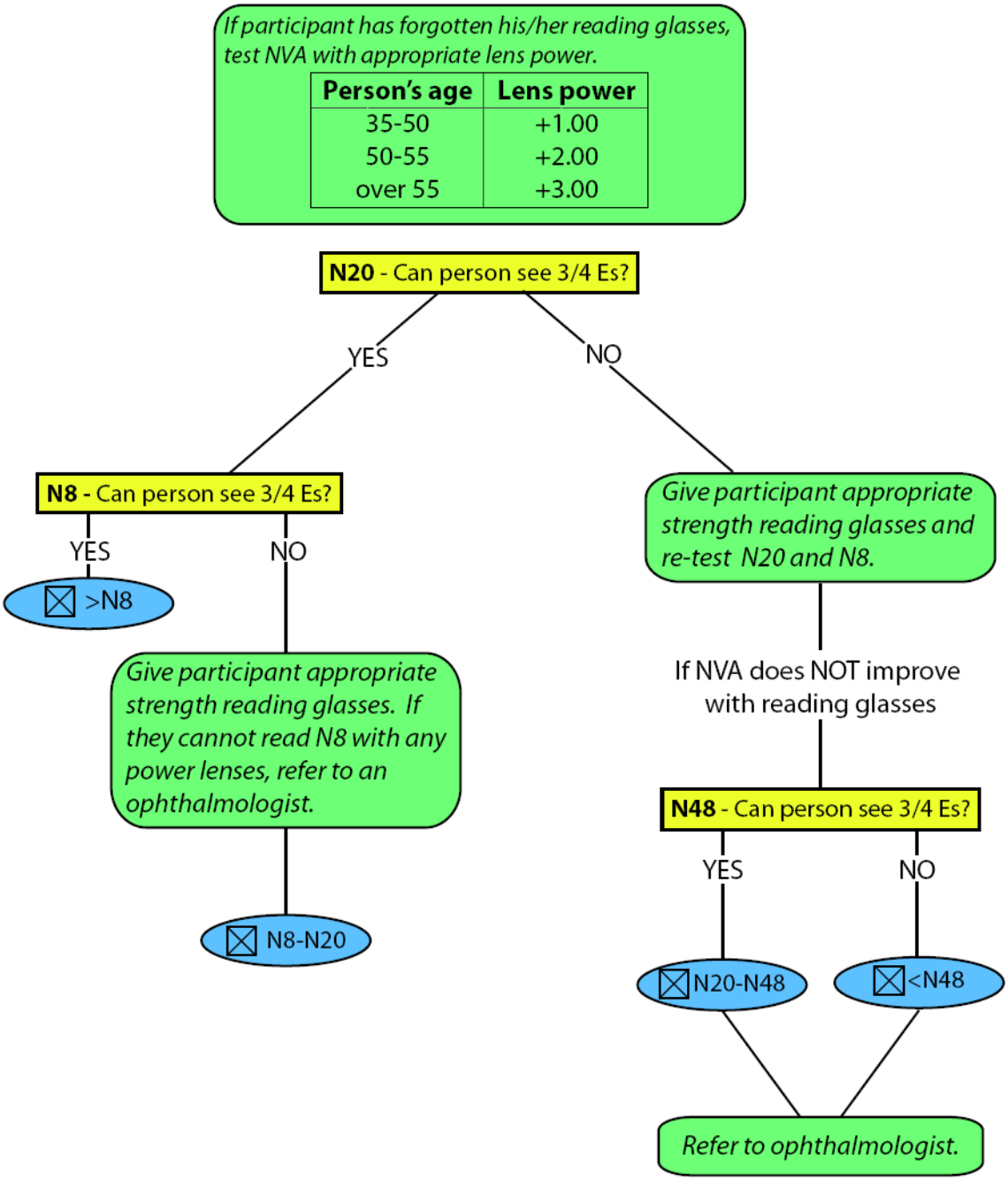
Distance visual acuity flow chart



Near visual acuity flow chart

PRESENTING NEAR VISUAL ACUITY

Use existing reading glasses, bifocals or contact lenses.



10.2.2 Impact of Vision Impairment questionnaire

Impact of Vision Impairment Profile (IVI)

Put a tick on each row. Please do not leave any rows blank.

ID ☐☐1☐☐☐

Centre for Eye Research Australia

Please answer about YOUR eyesight with GLASSES, CONTACT LENSES, or MAGNIFIERS, if you use them.

In the PAST MONTH, how much has YOUR EYESIGHT INTERFERED with the following activities:	Not at all	A little	A fair amount	A lot	Don't do this for other reasons
1. Your ability to see and enjoy T.V?	☐	☐	☐	☐	☐
2. Taking part in recreational activities?	☐	☐	☐	☐	☐
3. Shopping? (finding what you want and paying for it)	☐	☐	☐	☐	☐
4. Visiting friends or family?	☐	☐	☐	☐	☐
5. Recognising or meeting people?	☐	☐	☐	☐	☐
6. Generally looking after your appearance? (face, hair, clothing etc.)	☐	☐	☐	☐	☐
7. Opening packaging? (for example, around food, medicines)	☐	☐	☐	☐	☐
8. Reading labels or instructions on medicines?	☐	☐	☐	☐	☐
9. Operating household appliances and the telephone?	☐	☐	☐	☐	☐
10. How much has your eyesight interfered with getting about outdoors?	☐	☐	☐	☐	☐
11. In the past month, how often has your eyesight made you go carefully to avoid falling or tripping?	☐	☐	☐	☐	☐
12. In general, how much has your eyesight interfered with traveling or using transport?	☐	☐	☐	☐	☐
13. Going down steps, stairs, or curbs?	☐	☐	☐	☐	☐

Please answer about YOUR eyesight with GLASSES, CONTACT LENSES, or MAGNIFIERS, if you use them.

In the PAST MONTH, how much has YOUR EYESIGHT INTERFERED with the following activities:	Not at all	A fair amount	A lot	Don't do this for other reasons
14. Reading ordinary size print? (for example newspapers)	☐	☐	☐	☐
15. Getting information that you need?	☐	☐	☐	☐

Please answer about YOUR eyesight with GLASSES, CONTACT LENSES or MAGNIFIERS, if you use them.

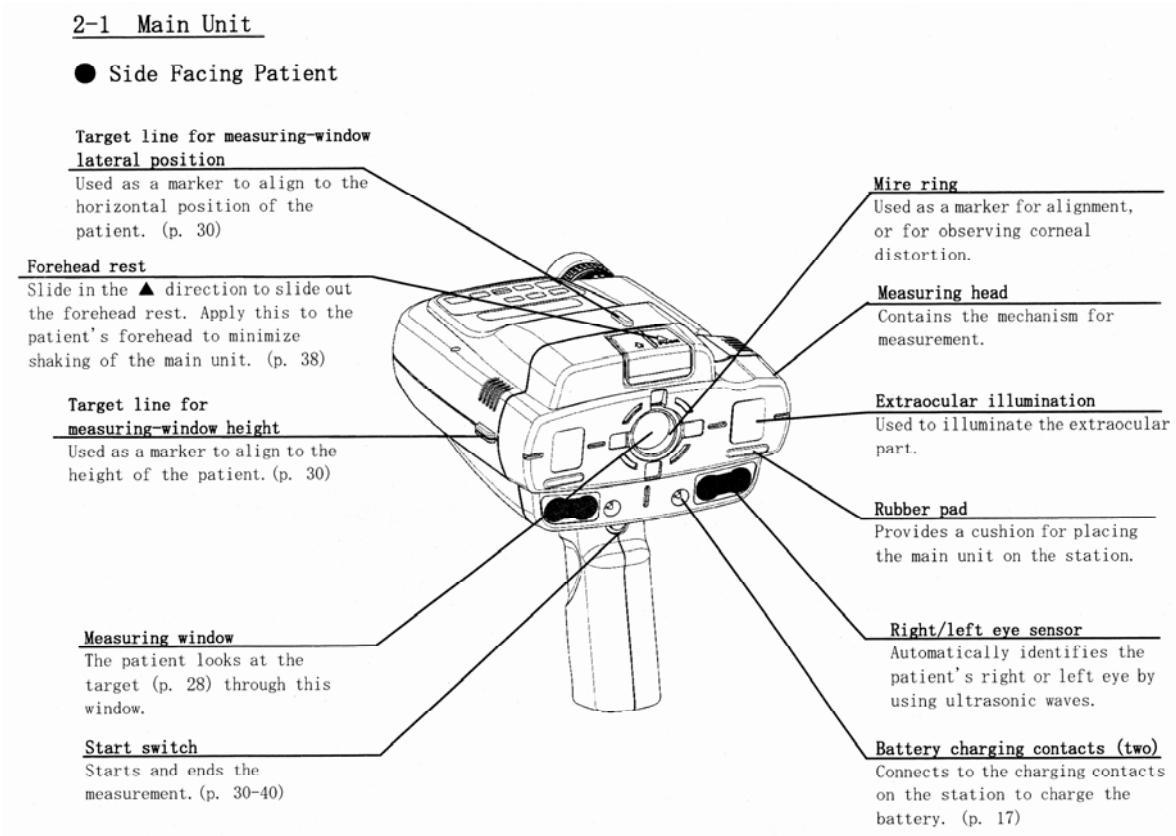
In the PAST MONTH, how often has YOUR EYESIGHT MADE YOU CONCERNED OR WORRIED about the	Not at all	A little of the time	A fair amount of the time	A lot of the time
16. Your general safety at home?	☐	☐	☐	☐
17. Spilling or breaking things?	☐	☐	☐	☐
18. Your general safety when out of your home?	☐	☐	☐	☐
19. In the past month, how often has your eyesight stopped you doing the things you want to do?	☐	☐	☐	☐
20. In the past month, how often have you needed help from other people because of your eyesight?	☐	☐	☐	☐

Please answer about YOUR eyesight with GLASSES, CONTACT LENSES or MAGNIFIERS, if you use them.

Think about how YOUR eyesight has made you FEEL in the PAST MONTH.	Not at all	A little of the time	A fair amount of the time	A lot of the time
21. Have you felt embarrassed because of your eyesight?	☐	☐	☐	☐
22. Have you felt frustrated or annoyed because of your eyesight?	☐	☐	☐	☐
23. Have you felt lonely or isolated because of your eyesight?	☐	☐	☐	☐
24. Have you felt sad or low because of your eyesight?	☐	☐	☐	☐
25. In the past month, how often have you worried about your eyesight getting worse?	☐	☐	☐	☐
26. In the past month how often has your eyesight made you concerned or worried about coping with everyday life?	☐	☐	☐	☐
27. Have you felt like a nuisance or a burden because of your eyesight?	☐	☐	☐	☐
28. In the past month, how much has your eyesight interfered with your life in general?	☐	☐	☐	☐

Please check that all the questions have been answered and Thank you!

10.2.3 Auto refraction instructions

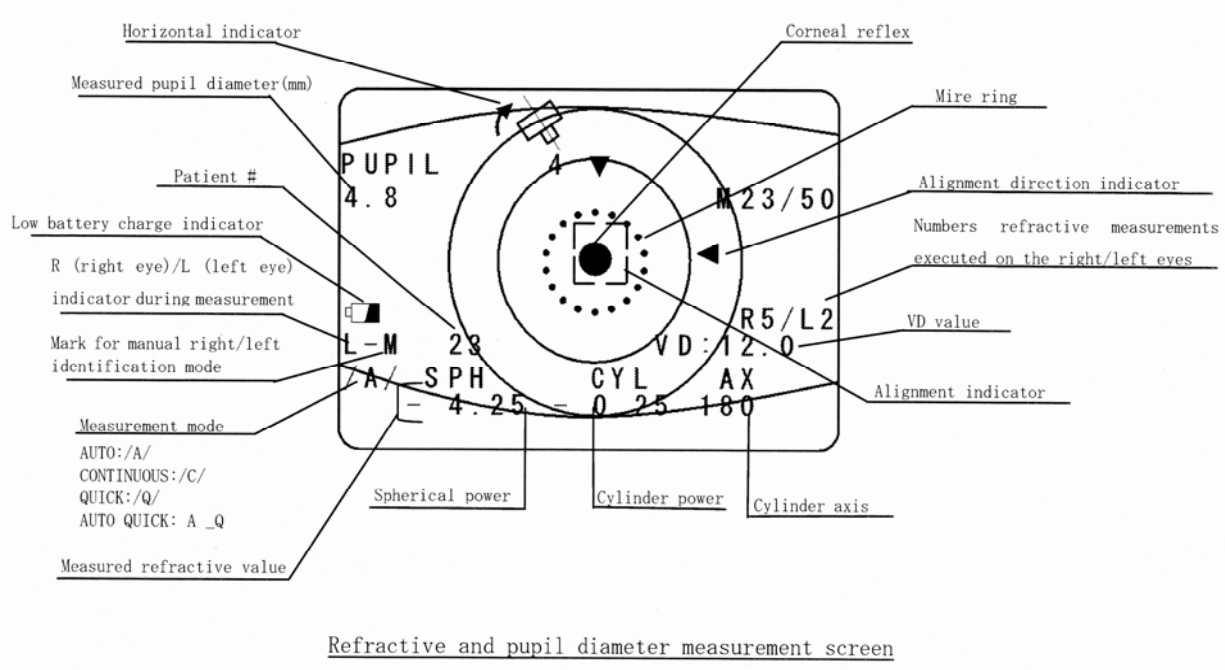


1. Connect power cord, then set power switch to ON (“I”). Install battery pack onto main unit and mount the main unit on the station to charge the battery pack (~120 min from 0 to full charge). Using the optional DC cable, the Retinomax 3 can be operated without battery power.
2. Install the print paper roll and connect printer to the station, then turn on power on both station and printer. Press ‘feed’ button.

Turn on the main unit and extend the forehead rest.

READING should be set to AUTO (/A/ on the screen), and MODE should be in “R mode”.

3. ***Positioning the participant***
4. Say: ***“This instrument automatically measures your eyes to determine the spectacle lenses that best suit you. I am going to look at your right eye followed by the left eye. Please relax, and look at the centre, focusing on the flower, and try to keep your eye as still as possible.”***



Refractive and pupil diameter measurement screen

5. Position the measuring window approximately 50 mm away from the eye. It may help to place your hand on the participant's forehead. Bring the participant's eyebrow in to contact the forehead rest and look into the viewfinder
6. The horizontal indicator (top, middle of the screen) will say *OK* above it if positioning is correct (if incorrect, the box will appear tilted and have a number e.g. 45 to indicate that the unit is tilted 45°).
7. When the participant's eye appears on the screen, align the pupil to the centre, then move the unit back or forth until the image of the dots of the mire ring appear clearly.
8. To begin the measurement, press and release the green start switch on the main unit (the front of the handle). Align the brackets [ ] over the participant's pupil, and ensure that the centre dot is in focus.
9. When the bright spot enters the alignment mark, the measurement starts, and each time a measurement is made, you will hear a beep.
1. Encourage the participant to keep focussing on the fixation target (flower in Retinomax 3).
2. When the measurement ends, the measured refractive value will appear at the bottom of the screen (R8/L0).
3. Repeat the procedure with the other eye. When both eyes are measured, representative values appear in the viewfinder.
4. Press "PRINT" for a hard copy of the results. If the readings taken do not have a confidence value of 8 or greater, you must take the readings again.
5. Place participants ID number sticker on the printout, and staple it to the back page of the questionnaire.

Summary

1. Begin with right eye.
2. READING should be set to AUTO (/A/).
3. MODE should be in “R mode”.
    a. Say: ***“This instrument automatically measures your eyes to determine the spectacle lenses that best suit you. I am going to look at your right eye followed by the left eye. Please relax, and look at the centre, focusing on the flower, and try to keep your eye as still as possible.”***
    b. Align the horizontal indicator.
    c. Align the pupil to the centre; adjust until dots of the mire ring appear clearly.
    d. Press and release the green start switch.
    e. Align brackets over the pupil.
    f. Repeat the procedure with left eye.
    g. Press “PRINT”. If confidence value ≥8, take the readings again.
    h. Place ID sticker on printout; staple it to the back page of the questionnaire.

VA Conversion	
20/15	6/4.5
20/20	6/6
20/25	6/7.5
20/30	6/9
20/40	6/12
20/50	6/15
20/60	6/18
20/80	6/24
20/100	6/30
20/120	6/36
20/160	6/48
20/200	6/60

VA Conversion	
≥20/40	≥6/12
<20/40-20/60	<6/12-6/18
<20/60-20/200	<6/18-6/60
<20/200	<6/60

10.2.4 Trial lens instructions

INSTRUCTIONS: TRIAL FRAME AND TRIAL LENS SET

1. To measure the BCVA, you first need to convert the printed auto-refractor results into lenses to put in the trial frame.

   The printout will contain information that looks similar to: **RE: +3.00/-1.50 x 80**

RE: +3.00 / -1.50 x 80

This is for the right eye.

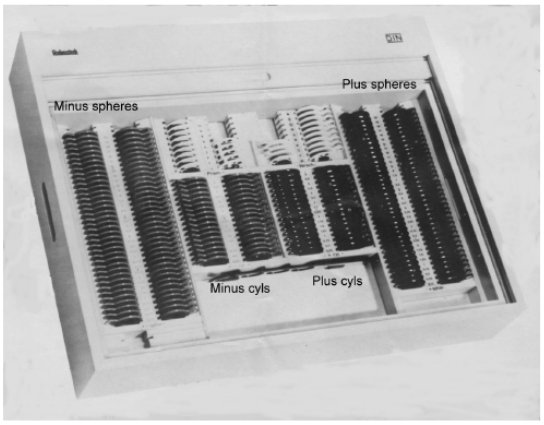
The **third number** represents the ***axis of the cylindrical lens***.

The **first number** represents the ***spherical lens power***.

- Plus spheres are usually found on the right hand side of the trial set, and have a "+" sign and the power of the lens marked on the lens rim.
- Minus spheres are usually found on the left side of the trial set, and have a "–" sign and the power of the lens marked on the lens rim.
- In some trial sets, the plus spheres are different colours to the minus spheres.

The **second number** represents the ***cylindrical lens power.***

- Cylindrical lenses are usually found between the plus and minus spherical lenses.
- Cylindrical lenses also have a "+" or "–" sign (or colour code) and the lens power.
- But cylindrical lenses also have a mark to show the direction of the axis. You only need to use "-" cyls.

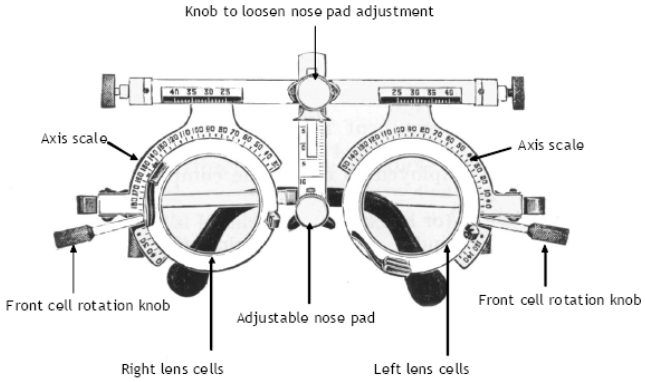


National Indigenous Eye Health Survey
Version 2 – May 2008

1

INSTRUCTIONS: TRIAL FRAME AND TRIAL LENS SET

2. The trial frame is used to hold the trial lenses in front of the person's eyes. There are many different types of trial frames, and all have a number of places to hold trial lenses. These are called lens cells. They may be in the front as well as on the back of the frame.
3. The lenses in the front cells of the trial frame can be rotated or turned, and there is a round scale for the axis of cylindrical lenses placed in the front cells.



4. If the person needs a cylindrical lens, the axis marking on the lens must line up with the correct number on the scale in the frame. e.g., in the example, the cylindrical lens marking must be rotated to 80 on the scale
5. Make sure you put the correct lenses into the correct side of the frame. For example, when you are looking at the front of the trial frame, the lens cells on the left hand side are for the right eye, and vice versa.
6. Once the correct lenses are on both sides of the frame, place the frame on the person's head. Make sure it sits comfortably by adjusting the temple length, nose pad, and space between the eyes.
7. Measure the VA with the person wearing the trial frame. Record this in the BCVA section on the questionnaire.
8. Remember to still only check one eye at a time, and occlude the other eye. Within the accessory lenses of the trial set, there is a small occluder that can be used.

10.2.5 FDT instructions

INSTRUCTIONS: FREQUENCY DOUBLING TECHNOLOGY (FDT)

PARTICIPANT INSTRUCTIONS:

- ***Please make sure you can see the entire screen and keep both eyes open.***
- ***Focus on the black square in the centre*** of the screen ***during the entire test.***
- ***You will see flickering black and white vertical lines that will briefly appear in different areas of the screen. The pattern will sometimes be very faint and at other times be very distinct. You are not expected to see the bar patterns at all times.***
- ***Each time you see something flickering, press the button once.***
- ***Can you see these patterns in the demonstration running now? You may practice now by pressing the button to respond to the patterns.***
- ***A good time to blink is when you press the button.***
- ***If you need to rest or ask questions during the test, you can pause the test by holding down the response button.***
- ***Do you have any questions? I will now start the test. There will be a brief flash and then the test will begin. Don't forget to stare at the black square in the centre of the screen during the entire test.***

PREPARING THE PARTICIPANT

The FDT test should be administered using the participant's normal distance correction (glasses or contact lenses or trial frames (BCVA)). Bifocals can be used. Do not perform FDT if reduced vision is associated with corneal scarring or cataract.

1. Slide the participant visor to the right eye test position (slide visor to the right).
2. Ask the participant to place their forehead on the forehead rest and look into the participant eyepiece at the video screen with *both eyes open*. Adjust the height of the chair or table (or both) to obtain a comfortable position for the participant.
3. Confirm that the participant can see the entire lit video screen, including all four corners in the participant eyepiece and the black dot in the middle of the screen. Make sure the participant is properly aligned with the instrument by asking them to look to each of the four corners of the display to make sure that the display is not obscured.

FREQUENCY DOUBLING TECHNOLOGY SCREEN:

4. Select **RUN PATIENT TESTS** from the **FDT MAIN MENU** to prepare for a **SCREENING C-20 TEST.** Start giving the participant instructions (above) whilst doing the next stage.
   - Enter the participants' age. The unit will start at 50 years.
   - Select +10 years (top blue button) increase the AGE by 10-year increments.
   - Select –10 years (2nd blue button from top) to decrease AGE by 10-year increments.
   - Select +1 year (3rd blue button from the top) to increase age in 1-year increments to adjust to the exact age of the participant.
   - Select ACCEPT SETTING (bottom, blue button) when the correct age is displayed.
5. Select **RUN SCREENING C-20** (test starts at this stage).
6. The Operator LCD Display will indicate if there is too much ambient light to perform a reliable test. Lower the room lighting or change the test location until a suitable test conditions is achieved. If the participant response button is not connected or the participant visor is in the wrong eye, this will be indicated on the operator LCD display.
7. During the test the target will move. The display will inform the technician of the change (usually when the test is about 80% completed). Let the participant know that the target is moving and that the test is close to completion.
8. At the end of the right eye, the operator LCD display will prompt for a left eye test. Slide the participant visor to the left eye test position and explain to participant that:

   "I will now test your left eye, you need to continue looking at the centre dot again and press response button when you see the flickering."
9. At the end of the test, select PRINT REPORT. Write participant ID on the results, and record the results on the Questionnaire. Do not remove results from the FDT machine; results will be rolled up and stored at the end of the day.

INSTRUCTIONS: FREQUENCY DOUBLING TECHNOLOGY (FDT)

CRITERIA FOR REPEATING THE TEST:

- If one or more points are missed upon administering second test (per table), the test will need to be repeated for that eye.
- Record the better of the two tests (eg: if two points are missed in the first test, and three in the second test, then the result of the first test should be recorded in the FDT results section on the Questionnaire).

Points Missed	Fixation Errors	False Positive	Solution (single eye)
0	1	0	Do not repeat
1+	0	0	Repeat Test
1+	1+	0	Repeat Test
0	2	0	Repeat Test
0	0	2	Repeat Test

FREQUENCY DOUBLING TECHNOLOGY SCREEN

1. Select RUN PATIENT TESTS from the FDT MAIN MENU.
2. Enter the participant's age.
3. Select RUN SCREENING C20 TEST.
4. Ensure that participant looks at the black dot on the screen the whole time.
5. At the end of the test, operator display will prompt for a left eye test.
6. Slide the participant visor to the left eye test position and then repeat previous steps.
7. At the end of the test, press 'print' & write ID code on the printout. Do NOT remove the printout from the roll.
8. Repeat test if necessary and record the best result.
9. Record results onto the Questionnaire.

INSTRUCTIONS: FREQUENCY DOUBLING TECHNOLOGY (FDT)

SUMMARY

PREPARING PARTICIPANT:

Participant's normal distance correction (glasses, bifocals, contact lenses) should be worn.

10. Slide visor to the right eye test position.
11. Ask the participant to place their forehead on the forehead rest and look into the participant eyepiece at the video screen.
12. Confirm that the participant can see the entire lit video screen.
13. Start giving participant instructions:

- ***Make sure you can see the entire screen.***
- ***Keep both eyes open.***
- ***Focus on the black square in the centre*** of the screen ***during the entire test.***
- ***You will see flickering black and white vertical lines that will briefly appear in different areas of the screen. Each time you see something flickering, press the button once.***
- ***A good time to blink is when you press the button.***
- ***You can pause the test by holding down the response button.***

Points Missed	Fixation Errors	False Positive	Solution (single eye)
0	1	0	Do not repeat
1+	0	0	Repeat Test
1+	1+	0	Repeat Test
0	2	0	Repeat Test
0	0	2	Repeat Test

10.2.6 Non–mydriatic camera instructions

INSTRUCTIONS: NON-MYDRIATIC DIGITAL CAMERA

CARE OF CAMERA

Two people must move the camera. Keep the camera covered when not in use and store in case. Wipe lens in circular motion with lens tissue. Use a blower brush to gently brush away dust on the lens. Wipe cover of camera with cloth soaked in dilute dishwashing detergent and wring dry.

CAMERA SET-UP

1. Use a room that can be darkened (dim is ok).
2. Place non-mydriatic camera (CR-DGI) on adjustable table; plug in cords.
3. Remove the lens cap. Do **not** turn on yet.
4. Gently attach digital camera (EOS-40D) in slot on user side of camera. Press small black button whilst twisting clockwise. Do **not** turn on yet.
5. Insert HASP key into the laptop USB port **before** computer is turned on.
6. **Plug in laptop cords to the camera (CR-DGI) and power. Do not turn on yet**
7. **Turn equipment ON in this order:**
   i) The digital camera (EOS-40D).
   ii) The non-mydriatic camera (CR-DGI).
   iii) The laptop.
   iv) Open Digital Healthcare.
8. **Turn equipment OFF in this order:**
   i) Close Digital Healthcare.
   ii) The non-mydriatic camera (CR-DGI).
   iii) The digital camera (EOS-40D).

LAPTOP SETTINGS

9. **Username**: Canon **Password**: Password
10. Open Digital Healthcare (DH). If DH requires a username and password, use: **X** and **X.X** (it should not require this).

TAKING RETINAL PHOTOS

Ensure flash is set to 5 (4 for dilated pupils)

If pupils are quite small, dilate. If participant refuses dilation (e.g. if they have to drive), ensure small pupil function is turned on (small black knob on right side of camera).

You will take 3 photos of each eye:

i) Fundus – participant focal point in centre

ii) Optic disc – focal point to the side

iii) Lens – only if VA <6/12

1. Create new database: From patient file screen, click configure ► click database ► click advanced ► type X.X ► click create new.
2. Type in participant surname, given name and ID number. To search for a participant (i.e. if already added): Search ► Type in family name ► click Add ► Search.

Stage 1 - Adjusting Camera Setting to Participant

"Please focus on the orange flashing light, relax and stay as still as possible."

1. During this stage patient will see orange flashing light.
2. Start with right eye. Patient places chin on rest and forehead against the strap. Adjust table height or chin rest so the eye is in line with the black mark on the side bar.
3. Move the main joystick with one hand and turn the dial at the base of the main joystick with the other hand (this is for adjustments up & down/left & right).

INSTRUCTIONS: NON-MYDRIATIC DIGITAL CAMERA

4. Ensure participant is looking straight ahead. Align the black circle around the iris and the three dots in the centre of the pupil.
5. Align the split in the non-mydriatic centre of the pupil (vertically) by moving the non-mydriatic camera up and down by adjusting the dial at the base of the main joystick.
6. Line up the split image of the eye so that the pupil is exactly round, by moving the non-mydriatic camera backward and forward using the main joystick.
7. Press the square button on the base of the camera (alignment button) behind the main joystick to view the fundus (back of the eye) when the circle and dots are aligned.

Stage 2 - Taking Fundus Photos

"Please focus on the green flashing square, relax and stay as still as possible. You will see a bright flash as I take the picture."

8. During this stage participants will see a green flashing square.
9. Two white dots should appear on either side of the circle screen near the notches & two small split lines on the focusing bar in the middle of the circle screen.
10. Participant to focus on the flashing green square. If green square is not visible, participant should look straight ahead (small joystick on base of camera will move the green square).
11. Align the two small split lines on the focusing bar (using large black knobs on either side of the camera).
12. Locate the two white dots on either side of the circle screen and centre them in the notches on the sides of the circle screen.
13. Focus these white dots by gently moving main joystick.
14. To take picture - press button on top of main joystick.
15. To take picture of fundus with macula centered - keep green flashing square in centre of circle screen and ask participant to focus on green flashing square and take picture.
16. To take picture of optic disc - ask participant to focus on and follow the green flashing square while you move square flashing box to side of the circle screen (using small joy stick on base of camera). Once flashing square is to side of screen and optic disc can be seen at the centre take picture.
17. After picture has been taken screen will return to normal view and an image will appear on laptop.
18. If photo has a shadow on the macula, re-take photo using small pupil function or dilate
19. Wait at least 10 sec for the pupils to re-dilate before taking the second photograph.

TAKING LENS PHOTOS *(if VA<6/12)*

Note: Participant will not have a focal point. Ask them to look straight ahead.

1. Place styrofoam at the forehead rest. Forehead must contact the styrofoam to tilt head back.
2. Pull out the diopter lens as far as it will go – it is located in front of the black large knobs on the right side of the camera.
3. Participant to look straight head.
4. Press the square button (alignment button) behind the main joystick.
5. Align the camera by focusing on the iris and adjust until the iris is in clear focus.
6. Take the photo, by pressing the button on the main joystick.

DIGITAL HEALTHCARE CLIENT

Capture Screen:

1. The screen will display the four most recent images.

INSTRUCTIONS: NON-MYDRIATIC DIGITAL CAMERA

   a. To examine photo at full screen size - click Examine Last. To magnify part of the image, click and hold on part of the image.
   b. Press spacebar to resume taking photos.

2. After taking all photos, click End – the images are saved at this point. You will now be in 'Contact Strip' where you can see and review all of the images taken (except those deleted in the previous screen).
3. When photos have been reviewed, click Quit.
   a. To capture more images of the same patient, click Continue photographing this visit.
   b. To review images of the same patient click Go back to this Patient's visit list.
   c. To capture or review images of a different patient, click Start a New patient or search.
4. To exit DH Client, click End Program and Yes and Quit.

SAVING IMAGES AT THE END OF THE DAY:

1. From the 'Identify a Patient' screen, click on Reports
2. Select the range of dates you want to save.
3. Check the boxes 'Save to disc' and 'Include images' then click 'Create'
4. Choose 'report' as report name (e.g. Moe Vic 2-6 Feb 2008).
5. Create a folder for the patient's images and create a name of the HTML index file (same name as report name).

Exporting database list in .CSV format

1. From the 'Identify a patient screen', click 'Configure'
2. Click 'Database' then click 'OK'
2. Click on 'Database Links' then click 'Export as CSV'
3. Create file name, then click 'Save'

INSTRUCTIONS: NON-MYDRIATIC DIGITAL CAMERA

SUMMARY

Camera and Laptop Set Up

1. Insert HASP key *before* turning on computer.
2. Turn on digital camera (EOS-40D).
3. Turn on non-mydriatic camera (CR-DGI).
4. Turn on laptop & open DH client.
5. Create new database.
6. Enter participant ID number, surname & given name.

Taking Retinal Photos

You will take 3 photos of each eye:

1) Fundus– participant focal point in centre
2) Optic disc – focal point to the side
3) Lens – only if VA <6/12

"Please focus on the orange flashing light, relax and stay as still as possible."

1. Start with right eye.
2. Align the black circle around the iris and the three dots in the centre of the pupil.
3. Align the split in centre of the pupil.
4. Press the square button when the circle and dots are aligned.

"Please focus on the green flashing square, relax and stay as still as possible. You will see a bright flash as I take the picture."

5. Participant to focus on the flashing green square.
6. Align the two small split lines on the focusing bar with black knob on side of camera.
7. Locate the two white dots on either side of the circle and centre them in the notches on the sides of the circle using main joystick.
8. Press button on top of main joystick to take picture.

Taking Lens Photos *(if VA <6/12)*

1. Ensure head is tilted using attachment.
2. Adjust dioptre setting (pull black tab out on side of camera).
3. Press square button (alignment button) behind the main joystick.
4. Focus on iris by pulling stage back and turning black knob on side of camera.
5. Press button on top of main joystick to take a picture.

SAVING IMAGES AT THE END OF THE DAY:

1. From the 'Identify a Patient' screen, click on Reports.
2. Select the range of dates you want to save.
3. Check the boxes 'Save to disc' and 'Include images' then click 'Create'.
4. Choose 'report' as report name (e.g. Moe Vic 2-6 Feb 2008).
5. Create a folder for the images and name the HTML index file.

Exporting database list in .CSV format

1. From the 'Identify a patient screen', click 'Configure'; click 'Database' then click 'OK'.
2. Click on 'Database Links' then 'Export as CSV'.
3. Create file name, then click 'Save'.

10.2.7 Digital health care creating report

Centre for Eye Research Australia

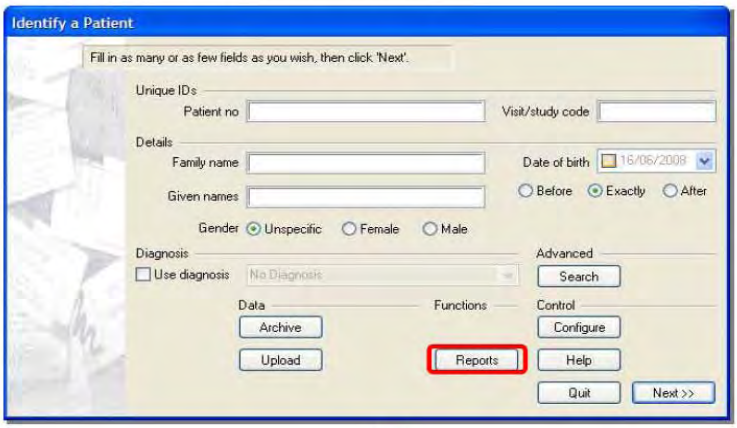
Retinal & Vascular Imaging Centre (RetVIC)

Digital Healthcare - Exporting all images to separate patient folders

This method is used to export unarchived patients and all their images to separate patient folders. Images are generally exported in high quality JPEG format. A 'HTML' index is also generated, lising the patients' surname, first name, ID number and number of images.

Images are exported in JPEG format with 96% quality ie 10MP image would result in approximate file size of 1.54 Mb.

From the 'Identify a Patient' screen, perform the following:

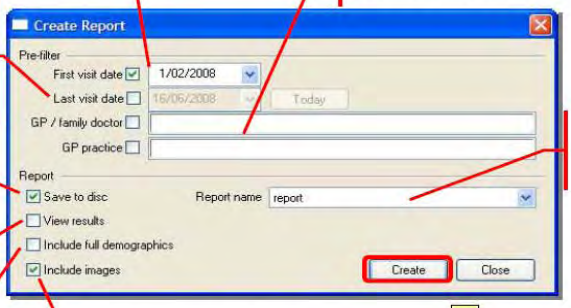


Select the first day of the date range of visits you would like to include in the export report.

Select the last day (inclusive) of the date range of visits you would like to include in the export report.

Default is today's date, and usually appears grey unless otherwise changed.

Choose GP fields if you wish to filter patients according to these fields. This information must have been entered in the Patient details screen for each patient.



Report name: Always choose 'report'.

Save to disc: check box to save report to a directory.

View results: check box to view report after creating.

View results: check box to view report after creating.

Include images: check box to export all images for each patient within the date range.

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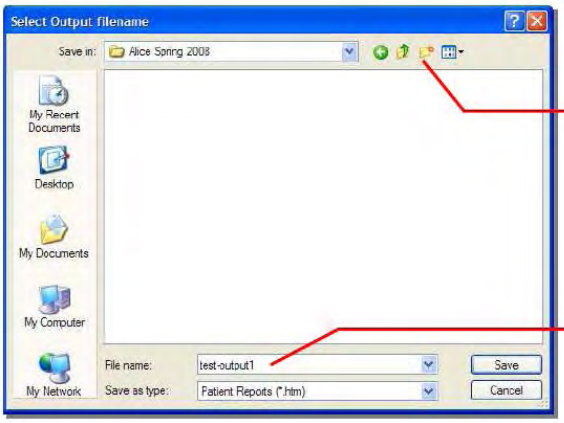
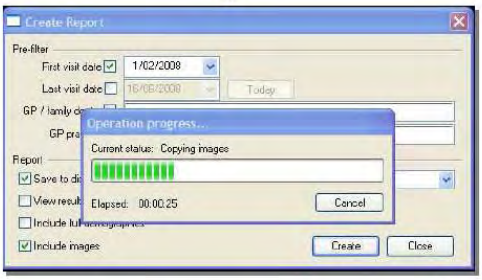


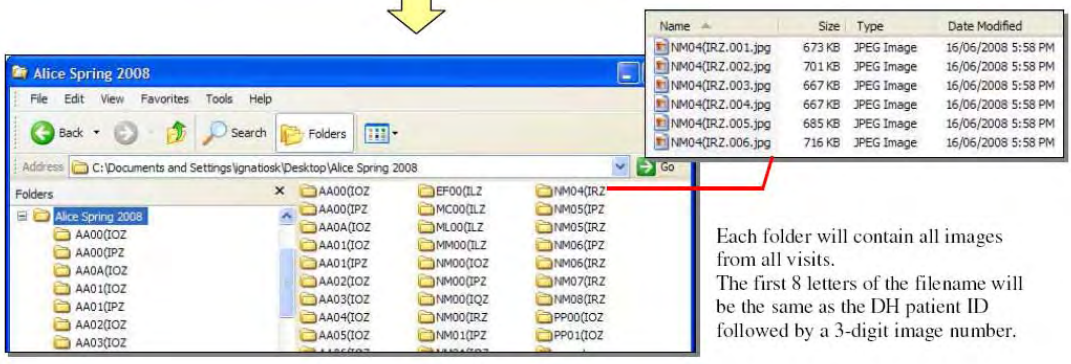
Create a folder to export the patient folders and images to.

Key in a name for the HTML index file.

Copying of images progresses at a rate of approximately 100 images per minute.

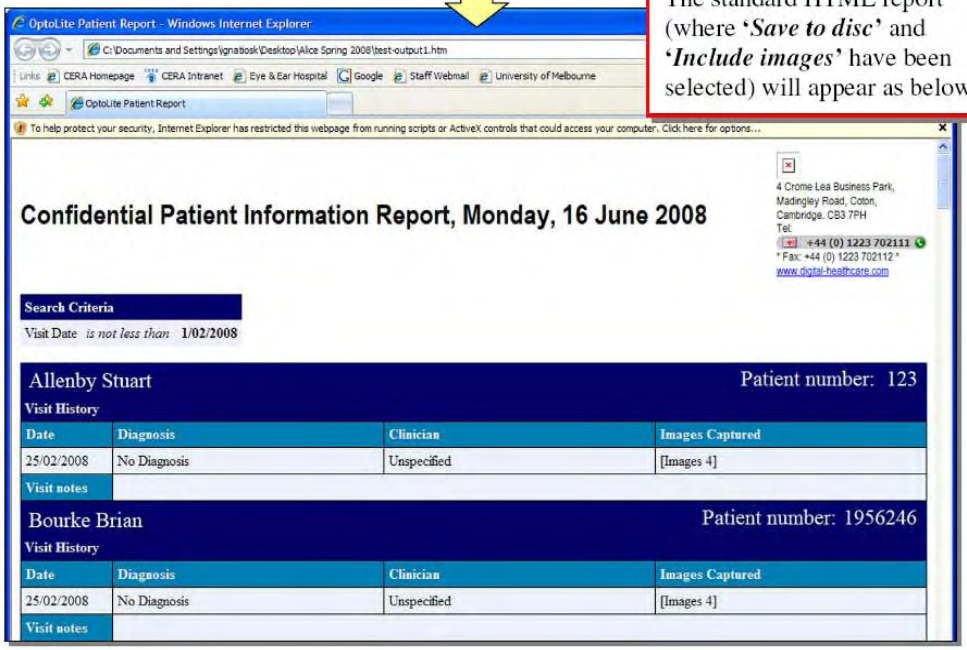
The status bar at the bottom of the screen will also display the images being copied (at fast rate).





Each folder will contain all images from all visits.
The first 8 letters of the filename will be the same as the DH patient ID followed by a 3-digit image number.

The standard HTML report (where '***Save to disc***' and '***Include images***' have been selected) will appear as below:



OptoLite Patient Report - Windows Internet Explorer

C:\Documents and Settings\ignatiosk\Desktop\Alice Spring 2008\test-output1.htm

Links | CERA Homepage | CERA Intranet | Eye & Ear Hospital | Google | Staff Webmail | University of Melbourne

OptoLite Patient Report

To help protect your security, Internet Explorer has restricted this webpage from running scripts or ActiveX controls that could access your computer. Click here for options...

Confidential Patient Information Report, Monday, 16 June 2008

4 Crome Lea Business Park,
Madingley Road, Coton,
Cambridge. CB3 7PH
Tel:
+44 (0) 1223 702111
* Fax: +44 (0) 1223 702112 *
www.digital-healthcare.com

Search Criteria

Visit Date *is not less than* **1/02/2008**

Allenby Stuart — Patient number: 123

Visit History

Date	Diagnosis	Clinician	Images Captured
25/02/2008	No Diagnosis	Unspecified	[Images 4]
Visit notes			

Bourke Brian — Patient number: 1956246

Visit History

Date	Diagnosis	Clinician	Images Captured
25/02/2008	No Diagnosis	Unspecified	[Images 4]
Visit notes			

If '***Include full demographics***' is checked in the report options, the follow HTML output will appear as below:

Search Criteria

Visit Date *Is not less than* **1/02/2008**

Smith, John — Patient number: 123

Address: street	Unspecified	Address: town	Unspecified
Address: county	Unspecified	Post code	Unspecified
Tel no	Unspecified	Date of birth	Unspecified
Place of birth	Unspecified	Nationality	Unspecified
Sex [M/F]	Unspecified	Marital status	Unspecified
Occupation	Unspecified	GP / family doctor	Unspecified
GP practice	Unspecified	Pre-diagnosis	Unspecified
New diagnosis	Unspecified	Comments	Unspecified
Clinician	Unspecified	Not used 1	Unspecified
Not used 2	Unspecified		

Visit History

Date	Diagnosis	Clinician	Images Captured
25/02/2008	No Diagnosis	Unspecified	[Images 4]
Visit notes			

END

10.2.8 Digital health care data base list in CSV format

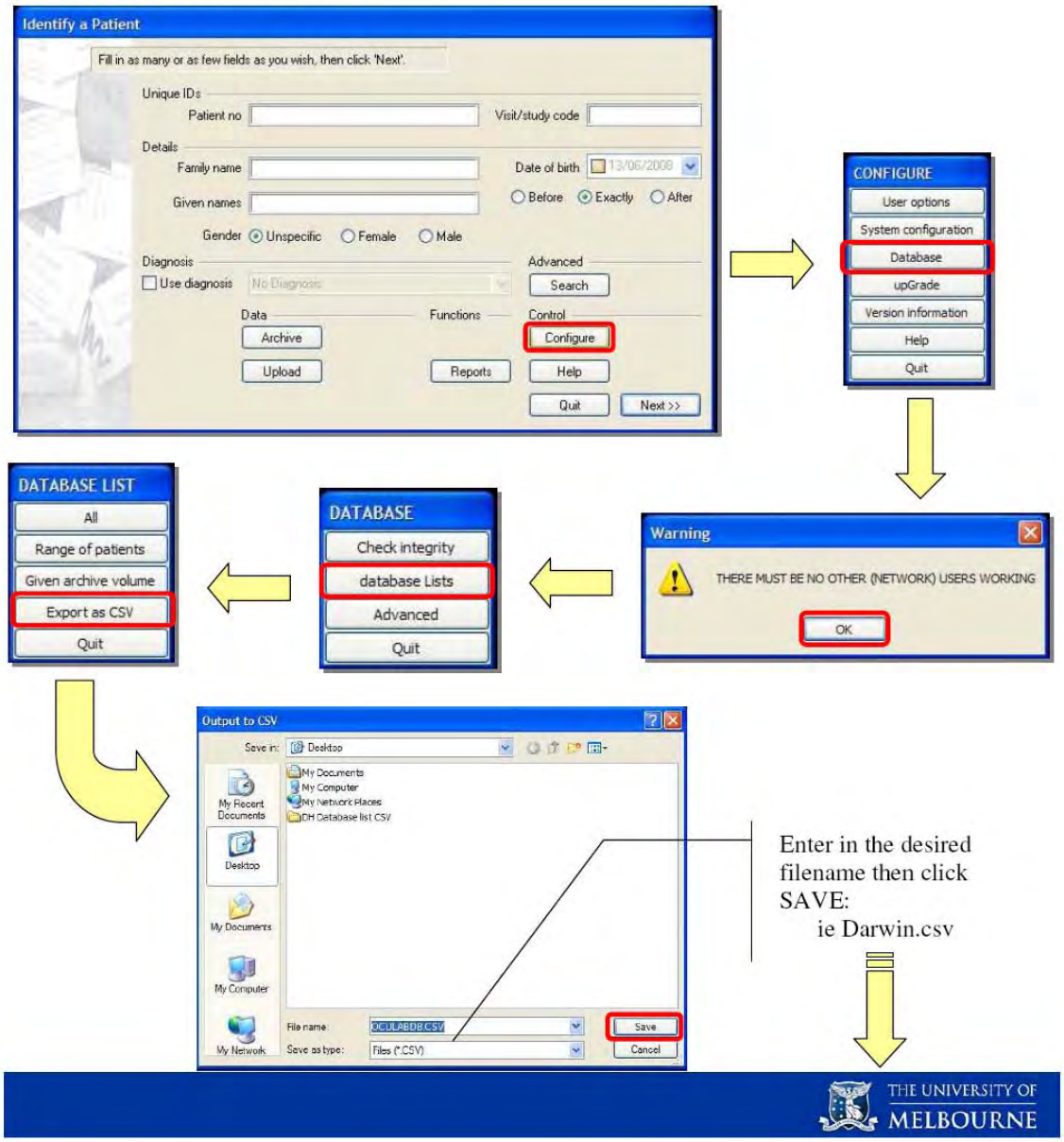
Centre for Eye Research Australia — Retinal & Vascular Imaging Centre (RetVIC)

Digital Healthcare - Exporting Database list in .CSV format

The database list provides an output of all Digital-Healthcare (DH) patient ID's and the corresponding patient details. This is useful when attempting to link patient IDs with the patient names, and should be supplied with the exported images.

This file is NOT created automatically when exporting images in DH, hence it must be generated manually as follows:

From the* 'Identify a Patient' *screen:



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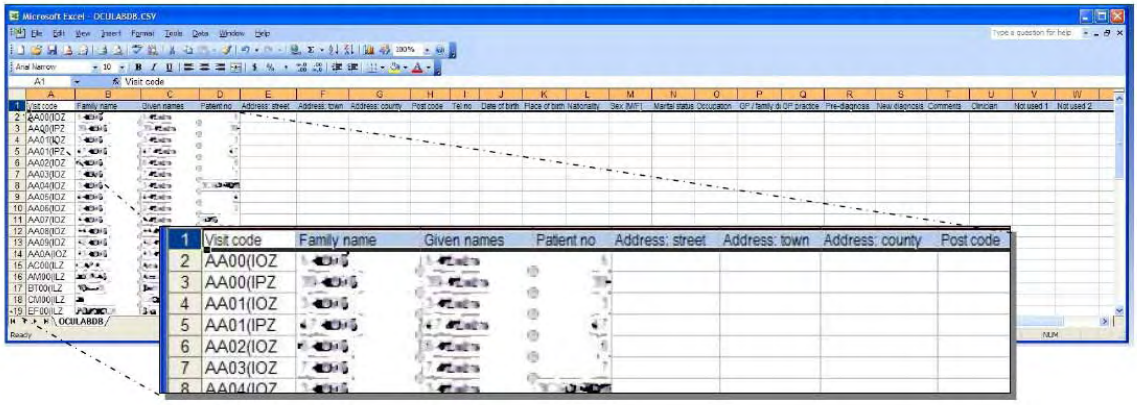
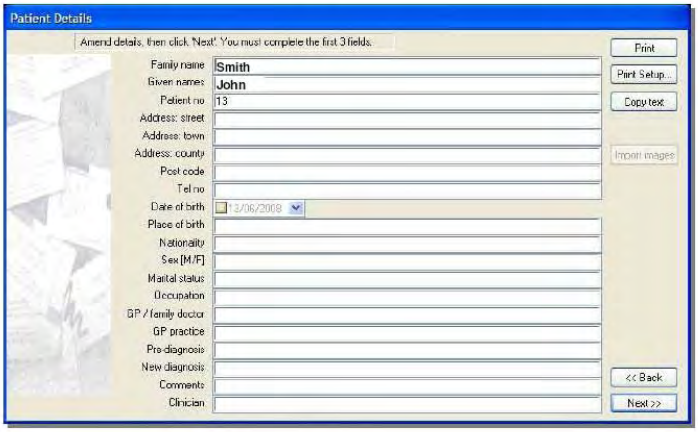
The *.CSV file can be viewed in Microsoft Excel, and should appear in the following format:



The information in the CSV file is derived from the Patient details entered into DH prior to image capturing:



END

10.2.9 Digital health care archiving

Digital Healthcare – Archiving to disc

This method is used to archive selected patients visits or an entire database to disc. When 'patients' are *archived*, encrypted images and patient details are moved from the **'…classic/db'** and **'…classic/ims'** folders to 'CD-R / DVD-R', the local 'C:\' drive, or a network drive. The patient details and images are still accessible for review, but can no longer be edited, as they are now 'protected'.

The benefit of archiving to disc is that all images and details can easily be re-imported to the Digital Healthcare Client (DHC) for grading.

Once the database or patient visits are *archived*, the RAW, encrypted images and patient details are transferred to 'disc' (C:\ or CDR/DVD) and separated into monthly folders. The folders are of the form of 'C:\YYYYMM\'.

For example: 'C:\200802'
'C:\200803'

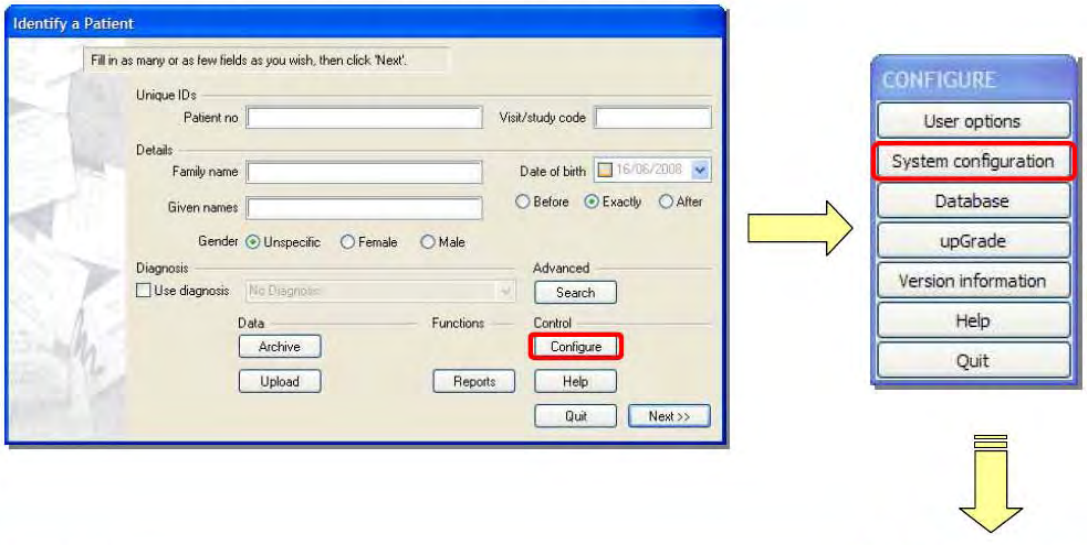
Represents all images taken in the year 2008 in February (02) and March (03).

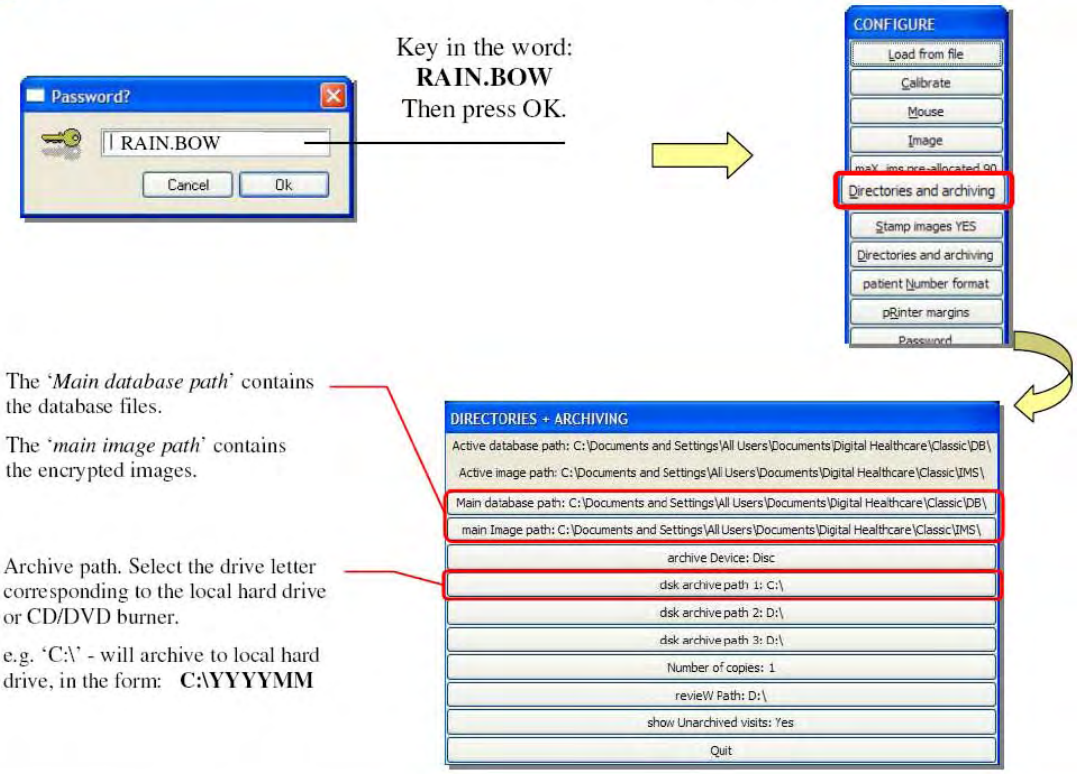
NB: It is possible for the same patient to have image records in two separate monthly folders, depending on the date they were photographed.

IDENTIFYING DATABASE AND IMAGE DIRECTORIES

In most cases these two folders are located on the local hard drive (HDD), especially where the capturing computer is mobile. Where a capture station is permanent, the database files may be stored on a network drive.

To identify where the database files are stored, perform the following:

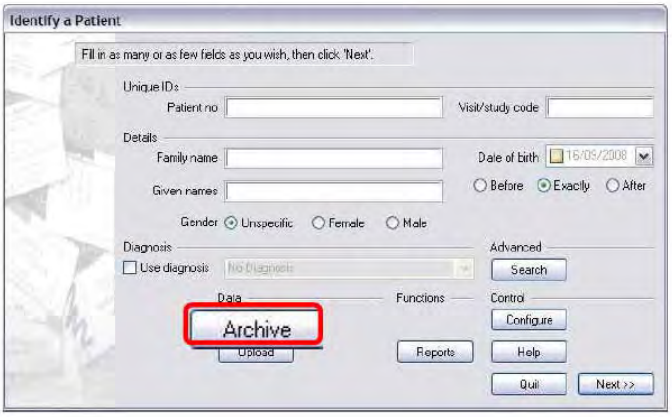




ARCHIVING TO LOCAL HARD DRIVE

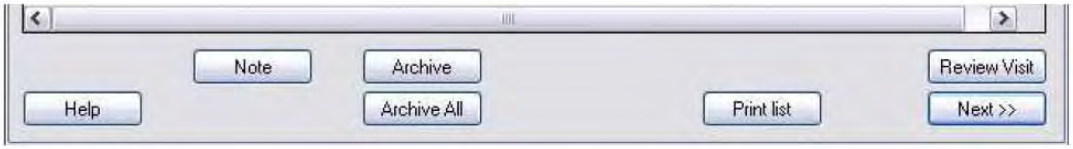
If archiving to the local hard drive (e.g. C:\), the images will be store in Digital Healthcare (DH) format with the corresponding patient details. The archive process will generate one folder for each month. The archived information is still accessible to the DH Client application as long as the folder remains on the hard drive. These folders can later be burnt to CDR/DVDR as 'data'.

1. Select 'Archive'.



2. To archive selected patients only:
   Hold the 'Ctrl' key, and left-mouse-click on the desired patients.
   Then select 'Archive'.

2.1 To archive all un-archived visits, simply select 'Archive All'.



Archiving progress is displayed at the bottom of the screen on the status bar.

Once images are archived, they can be found locally in monthly folders at 'C:\', depending on the local drive letter (see below).

ARCHIVING TO CD/DVD DISC

To archive to CDR or DVDR, change the 'disk archive path' to the corresponding drive letter of the CD burner. i.e. 'D:\'.

Upon selecting 'Archive' a prompt will appear for a disc to be inserted. Insert a blank writable disc and click OK. If the archive exceeds the disc space, a further prompt will appear requesting removal of the completed disc and to insert another disc. Each disc will be labelled with a sequential volume number.

TROUBLESHOOTING

IF ARCHIVE CANNOT BURN STRAIGHT TO CDR/DVDR…

If the data cannot be archived straight-to-disc, access the 'Directories + Archiving' screen, then change the archive path to the local hard drive, and proceed to archive using the 'Local Hard Drive Method' and later burn the folders to CDR/DVDR in 'data' format.

END

10.3 WHO Simplified Trachoma Grading Instructions

Camera Settings:
Manual (M)
Image size M

Lens Settings:
16 ∞

Wash hands with soap and water or an alcohol-based hand wash before every person. Use 2.5x magnification loupes and good lighting

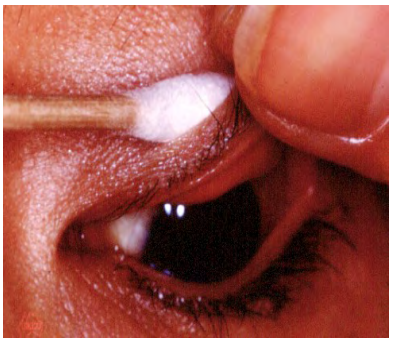
Observe facial cleanliness (i.e. is there 'sleep', dirt or crusting around the

Examine the cornea for

Examine for trichiasis *(in-turned lashes or evidence of previously removed lashes)*

Evert the right upper eyelid.

- *Ask: "Please look down, but do not close your eye."*
- *Take hold of the upper eyelid lashes with thumb and first finger, then with your other hand gently press a cotton bud near the crease of the upper eyelid.*



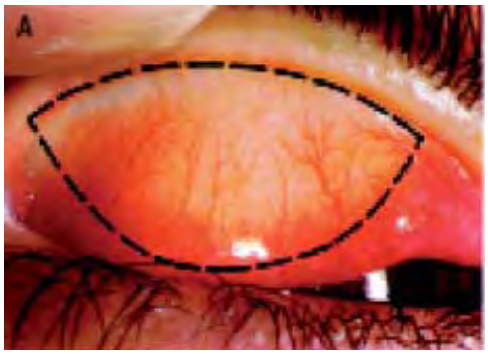
Trachoma Grading:

- *Signs must be clearly seen if trachoma is to be reported as present.*
- *Refer to the WHO simplified trachoma grading classification system below.*
- *Examine the everted lid and record the presence of TF, TI, TT, CO and TS.*

Repeat for left upper eyelid

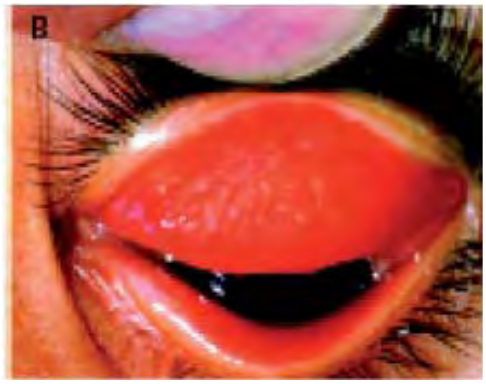
10.3.1 WHO simplified trachoma grading classification system

Normal



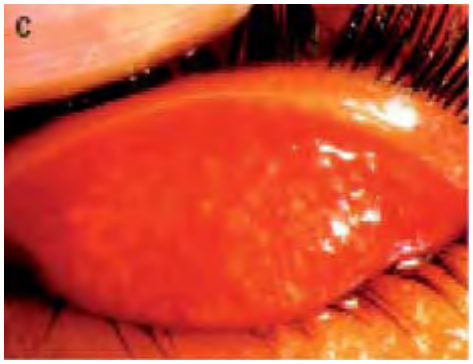
- Normal everted upper tarsal conjunctiva.

Trachomatous inflammation – FOLLICULAR (TF)



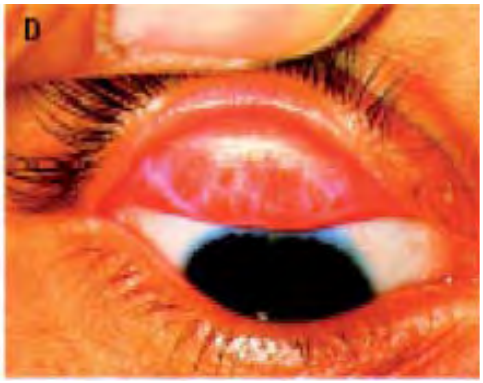
- The presence of five or more follicles in the upper tarsal conjunctiva.
- Follicles are round swellings that are paler than the surrounding conjunctiva, appearing white, grey or yellow.
- Follicles must be at least 0.5mm in diameter to be considered.

Trachomatous inflammation – INTENSE (TI)



- Pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels.
- The tarsal conjunctiva appears red, rough and thickened.
- There are usually numerous follicles, which may be partially or totally covered by the thickened conjunctiva.

Trachomatous SCARRING (TS)

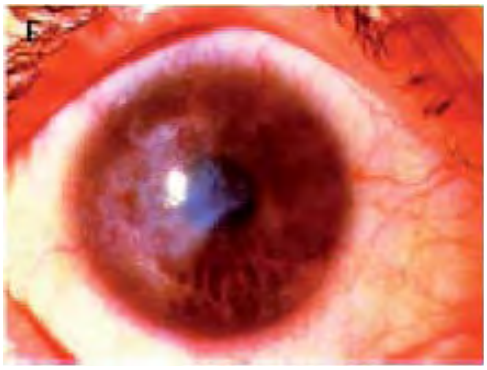


- The presence of scarring in the tarsal conjunctiva: scars are easily visible as white lines, bands, or sheets in the tarsal conjunctiva, and are glistening and fibrous in appearance.
- Scarring, especially diffuse fibrosis may obscure the tarsal blood vessels.

Trachomatous TRICHIASIS (TT)

- At least one eyelash rubs on the eyeball.
- Evidence of recent removal of inturned eyelashes should also be graded as trichiasis.

CORNEAL OPACITY (CO)



- Easily visible corneal opacity over the pupil; the pupil margin is blurred viewed through the opacity.
- Such corneal opacities cause significant visual impairment (less than 6/18 or 0.3 vision), and therefore visual acuity should be measured if possible.

Source: World Health Organisation, 1987

10.4 Occupational Health & Safety Overview

1. **Generic venue risk assessment:**
   - Emergency contact details
   - Variable Risk Assessment Form
   - EHS Management – Protocol and guidelines
   - EHS Management – Risk Register Checklist
2. **Incident report form:**
   - http: //www.pb.unimelb.edu.au/ehs/ehs/incidentreporting/
3. **Training:**
   - Emergency management
   - Equipment training
4. **Information poster to place at site stating:**
   - Who is in charge
   - Emergency contacts (i.e. police, fire, ambulance)
   - Address & location
5. **Public liability insurance:**
   - Please contact CERA.
6. **Items to be checked at each location:**
   - Fire blanket
   - Fire Extinguisher
   - First aid kit
7. **Driving policy:**
   - CERA: located on CERA Intranet.
   - PPP: http://www.unimelb.edu.au/ppp/docs/14.html#14.1
   - EHSM: http://www.unimelb.edu.au/ehsm/7.html#7.4
8. **Power cords:**
   - Ensure power cords are taped down if they run across the floor to equipment.
9. **Biohazards:**
   - Bags should be available to place used swipes, Q-tips, etc.
10. **University of Melbourne contact person:**
    - Alison Hunt-Sturman, Faculty EHS Officer, Faculty of Medicine, Dentistry & Health Sciences
      - phone: +613 8344 9982
      - fax: +613 9347 7854

10.4.1 EHS project guidelines

Activity 1 Protocol – Screening participants at local community health centre

1. Contact Community Health Centre by phone to arrange:
   a. Time and date program
   b. Rooms and chairs
   c. Ensure location with street address
   d. Request information about access and unloading training materials
2. Travel to study locations
   a. Aim for normal business hours to conduct study
   b. Travel plan by checking the route in the Vicroads maps

    c. Ensure there is no more than 6 hours of diving per day
    d. Arrange vehicle (personal, CERA or University vehicle)
3. Screening process
    a. Ensure participant is comfortable with the process during the screening
    b. Cease screening if participant becomes hostile or upset
    c. Contact 000 for Ambulance if needed
4. Collate consent forms and completed questionnaires
    a. Secure in locked bag at all times
5. Workplace visits
    a. Sign in at reception always
    b. Check evacuation routes at any other workplaces visited
    c. Keep personal belongings secure at all times
    d. Take a coffee break after 1.5 hours or if feeling fatigued
6. Contact the Centre for Eye Research at any time if there are concerns on 03 9929 8360
7. Contact the Centre for Eye Research if there is an incident
8. Complete an Incident report form if an incident occurs (completed on Themis)
9. Always have a copy of the emergency contact details on hand and ensure mobile phone is available and charged in case of emergency

Protocol – travel & accommodation

1. Contact Tourist Office to arrange accommodation if required:
    a. Minimum 3 star accommodation
    b. Ensure breakfast is provided
    c. Receipt any other meals
2. Prepare for rural/metropolitan travel:
    a. Travel plan by checking the route in the Vicroads maps
    b. Ensure there is no more than 6 hours of driving per day
    c. Arrange vehicle provisions (either personal, CERA or University vehicle)
    d. Contact another project staff to inform them of arrival at destination and departure
3. Packing of vehicle:
    a. Ensure training materials are packed in carry bags (no more than 10 kg per bag)
4. Complete CERA travel log and refer to CERA travel policy.
5. Contact the Centre for Eye Research if at any time there are concerns
6. Contact the Centre for Eye Research if there is an incident

7. Complete an Incident report form if an incident occurs (completed on Themis), and a Vision Australia report form, which can be obtained from a Vision Australia staff member
8. Ensure mobile phone is available in case of emergency

Project guidelines

1. Driving safety:
    a. A current Drivers licence has been copied to the Department
    b. Complete permission to drive CERA car form: http://cera-intranet.unimelb.edu.au/admin/forms/car_permission.pdf
2. Car pack:
    a. First aid kit
    b. A Melbourne metropolitan road map
    c. A Victorian rural road map
3. Emergency contacts:
    a. Police, Fire, Ambulance……. 000
    b. Reception CERA……. 9929 8360

10.4.2 Variable risk assessment form EHSM risk management

Select a Consequence that is a foreseeable outcome if the hazard were to cause an injury:

Consequence Type	Score	Definitions
Insignificant	**1**	Insignificant – no injuries
Minor	**2**	Minor first aid treatment, immediate containment
Moderate	**3**	Medical treatment required, assisted containment
Major	**4**	Major injuries, Area shut down for investigation
Catastrophic	**5**	Death(s) , Detrimental effect to community

Select a Likelihood that is foreseeable for the hazard to actually cause an injury:

Likelihood Type	Score	Definitions
Very Likely	**A**	Expected to occur in most circumstances
Likely	**B**	Will probably occur in most circumstances
Possible	**C**	Might occur at some time
Unlikely	**D**	Could occur but is unlikely at some time
Rare	**E**	May occur only in exceptional circumstances

Calculate a Risk Score by matching up the selected Consequence and Likelihood using the matrix below:

	1	**2**	**3**	**4**	**5**
A	M	H	H	VH	VH
B	M	M	H	H	VH
C	L	M	H	H	H
D	L	L	M	M	H
E	L	L	M	M	H

Activity: National Indigenous Eye Health Survey

Location: ☐Metropolitan ☐Rural ☐ Remote **(> 200 km from a city)**

Vehicle travel: ☐ YES ☐ NO

Date:

Risk Assessed by:

Activity 1 – Interviewing participants in local community health centres

.

No.	Task	Hazard	Like	Cons	Risk	Controls
1A	Driving	Collision with another vehicle or pedestrian	D	2	Low	Licensed drivers only to participate University/CERA vehicle has regular service Discourage use of own car First aid kits fitted to university vehicles
2A	Moving boxes from vehicle to program location	Manual Handling – carrying unstable loads	D	2	Low	Maximum weight of boxes 10 kg Use carrying bags with handles
2B		Personal Safety	E	2	Low	Policy to call in pre and post interview
3A	Entering another workplace	Slip / Trip / Fall hazard	E	2	Low	No controls at this stage Locate maximum distance to first aid Re-assess for persons with disabilities
3B		Office Environment	E	1	Low	Sign in policy in place at some locations Take a visitor emergency guide if available Note emergency exits Keep personal belongings secure
4A	Interviewing participants	Participant becomes hostile	E	2	Low	Policy to call counsellors from Vision Australia Mobile phones available to all interviewers Emergency numbers documented Use only the approved questionnaire Cease if participant becomes hostile
4B		Participant becomes ill	C	2	Med	Contact the first aider at Vision Australia Call ambulance if necessary
4C		Participant becomes upset	E	2	Low	Use only the approved questionnaire Cease if participant becomes hostile Policy to call counsellors from Vision Australia
4D		Fatigue	C	1	Low	Coffee/toilet break is suggested Food and drink is taken to interview
5A	Privacy of Documentation	Loss of information	E	1	Low	Questionnaires are already coded Consent forms are separated from questionnaires Notes are stored in lockable bags

10.4.3 Site list

State	Area	Additional Risk Assessment Req.
ACT	Tuggeranong/ACT South	☐ **YES** ☒ **NO**
NSW	Port Macquarie	☐ **YES** ☒ **NO**
	Parramatta	☐ **YES** ☒ **NO**
	Doonside	☐ **YES** ☒ **NO**
	Tamworth	☐ **YES** ☒ **NO**
	Upper Murray	☐ **YES** ☒ **NO**
	Dubbo	☐ **YES** ☒ **NO**
NT	Nguiu	☐ **YES** ☒ **NO**
	Maningrida	☐ **YES** ☒ **NO**
	Kalkarindji	☐ **YES** ☒ **NO**
	Titjakala	☐ **YES** ☒ **NO**
QLD	Gold Coast	☐ **YES** ☒ **NO**
	Mount Isa	☐ **YES** ☒ **NO**
	Aurukun	☐ **YES** ☒ **NO**
	Winton	☐ **YES** ☒ **NO**
	Cherbourg	☐ **YES** ☒ **NO**
	Moa Island	☐ **YES** ☒ **NO**
SA	Ceduna	☐ **YES** ☒ **NO**
	Port Augusta	☐ **YES** ☒ **NO**
TAS	Huon Valley	☐ **YES** ☒ **NO**
VIC	Monash	☐ **YES** ☒ **NO**
	Moe	☐ **YES** ☒ **NO**
WA	Swan	☐ **YES** ☒ **NO**
	Gosnells	☐ **YES** ☒ **NO**
	Broome	☐ **YES** ☒ **NO**
	Albany	☐ **YES** ☒ **NO**
	Ashburton	☐ **YES** ☒ **NO**
	Newman	☐ **YES** ☒ **NO**
	Esperance	☐ **YES** ☒ **NO**
	Jigalong	☐ **YES** ☒ **NO**

10.4.4 Sign off sheet

Centre for Eye Research Australia

1.5 EHS Management
National Indigenous Eye Health Survey

By signing this form, I verify that I have received, read, and understood all of the Occupational Health & Safety information about the National Indigenous Eye Health Survey

in _____ and have participated in on-site
location state

OH&S training with _____.
person

	Please print name:	Please sign name:	Date:
1)			/ /
2)			/ /
3)			/ /
4)			/ /
5)			/ /
6)			/ /
7)			/ /
8)			/ /
9)			/ /
10)			/ /

Table 5 Centre for Eye Research Australia Insurance Summary.

Type of Policy	Policy Number	Sum Insured	Premium (inc GST & Stamp Duty)	Coverage	Insured with
Combined Public & Product Liability	PHP-PPL - 2007	Public Liability: $750,000,000 any one claim (subject to sub-limits as per VMIA's re-insurance policy)	$1,208.06	1/7/07 – 30/6/08	Victorian Managed Insurance Authority
Industrial Special Risks/Consequential Loss (formerly known as Material Damage/Business Interruption)	PHP- ISR/CL – 2007	$1,5 Billion Limit any one loss (subject to sub-limits as per VMIA's re-insurance policy)	$1,795.76	1/7/07 – 30/7/08	Victorian Managed Insurance Authority
Medical Indemnity	PHP-MI -2007	Medical Indemnity $20,000,000 any one claim, subject to an annual aggregate of $100 million over all Named Insured	$5,844.30	1/7/07 – 30/6/08	Victorian Managed Insurance Authority
Combined Directors & Officers/Company Reimbursement and Professional Indemnity	PHP-DOPI-2007	D & O - $20,000,000 any one claim – nil excess PI - $20,000,000 each and every claim inclusive of costs, excess $5000.00 each claim inclusive of costs. Both exclude USA & Canada	$5,962.44	1/7/07 – 30/6/08	Victorian Managed Insurance Authority
Personal Accident	PHP-PA-2007	Lump Sums Insured: Board Members $100,000 Volunteer Workers $75,000 Work Experience Students $75,000 Allied Health Professionals $75,000 Subject to an annual aggregate limit of liability of $2 million	$413.22	1/7/07 – 30/6/08	Victorian Managed Insurance Authority
Workcover	12 08304407/1	All CERA staff	$10,643.45	1/7/07 – 30/6/08	QBE Mercantile Mutual
Travel Insurance		For staff business trips covered for both injury and illness , and for a number of other risks	Nil. Covered under UOM travel policy	1/7/07 – 30/6/08	Ace Insurance Ltd

10.5 Data entry procedures

10.5.1 Questionnaire database

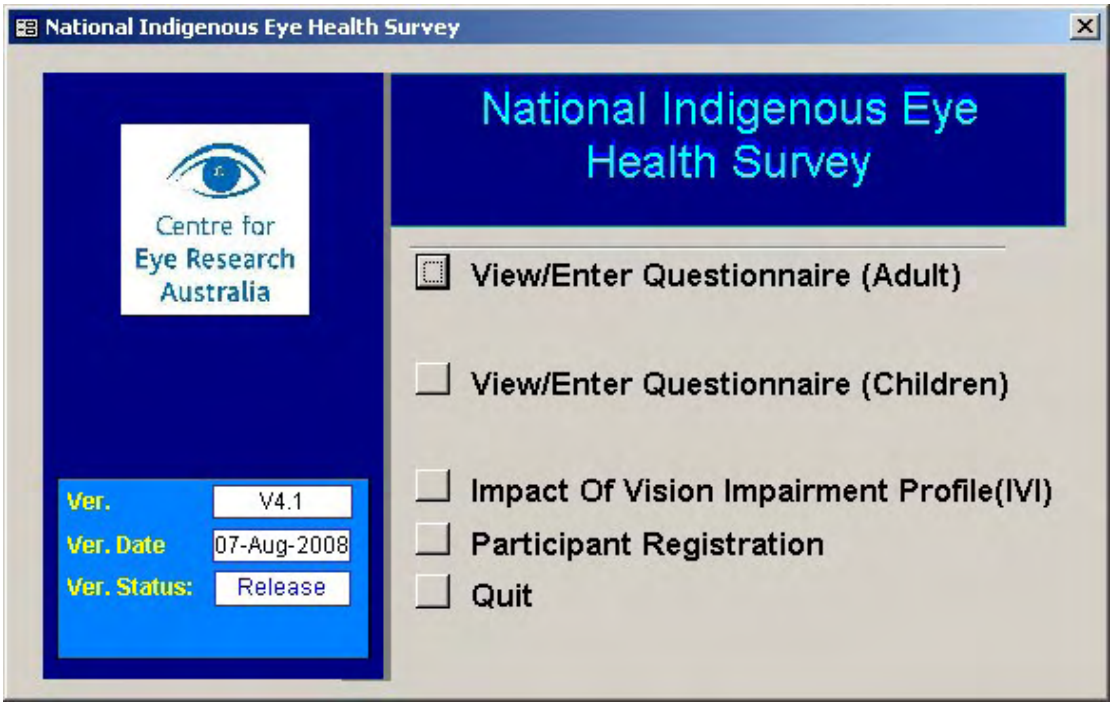
Data entry rules

Cases	Database is not case sensitive.
Dates	To be entered as DAY / MONTH / YEAR.
Age	If age and date of birth conflict, use date of birth. If only age is given, default 1st January with year corresponding to age.
ID Number	Cross check ID number on screen with ID number on survey.
Missing Data	Enter the number 99 where there is missing data. Flag ALL missing data on hard copy questionnaire
Question Instructions	Follow question/answer prompts only. Always include any additional information written on the survey in the comments box where applicable.
Drop down selection	One selection only can be made from the drop down box. The options vary for each question so ensure that the most appropriate option/number is selected each time.
Demographic	Adults aged 40+; Children aged 5-15 years.
Number-only Fields:	Only whole numbers may be entered in these fields. Where an age range is given, choose the middle number. If for instance 3-4 years is written down, enter the greater of the two, if for instance 40+ is given, enter 40.
Additional Information	Any information provided anywhere in the survey that does not have a specified field should be entered in the “OTHER” comments box in Section 8 of Clinical Eye Examination section. Include all information written on survey.
Lens Photo Taken box	If this box is checked, select 1. YES in the database. If it is not checked, select 2. No.
Transcription	It is important that information is transcribed accurately from the questionnaire to the database. At times, handwriting may be difficult to read. In this instance consult the appropriate site coordinator. Flag any uncertainties.

Data entry process:

1. Enter all eligible adults into adult log, from adult log hard copy.
2. Enter Indigenous Adults into database. Flag all missing data points. Note: Indigenous adults are numbered with a one.
3. Enter Non-Indigenous Adults into database (where applicable). Flag all missing data points. This step only applies to Ceduna, Winton, Huon Valley and Newman. Note: Non-Indigenous adults are numbered with a three.
4. Enter all eligible children into children log, from children log hard copy.
5. Enter Indigenous Children into database. Flag all missing data points. Note: Children are numbered with a two.
6. Consult CERA about missing data points. The relevant coordinator is listed in Data Entry Log Data Entry and Missing Data Log.xls for each site.

7. Type a list of all missing data in a Word doc. Save on P drive in Missing Data Lists folder Missing Data Lists and email this document to the Project Leader. Ensure that any questions that follow on from the questions missed are also included in the list.
8. Relevant coordinator will advise when missing data has been completed.
9. Enter missing data into database when received.
10. Update the Missing Data Log as necessary.
11. Complete corresponding forms (hard copy).



10.5.2 Instructions for Questionnaire Entry

1. Open Microsoft access database file **NIEHS_V4.mdb** (location of this file is specified by the Database Manager).
2. Observe the Main Menu.

Participant details

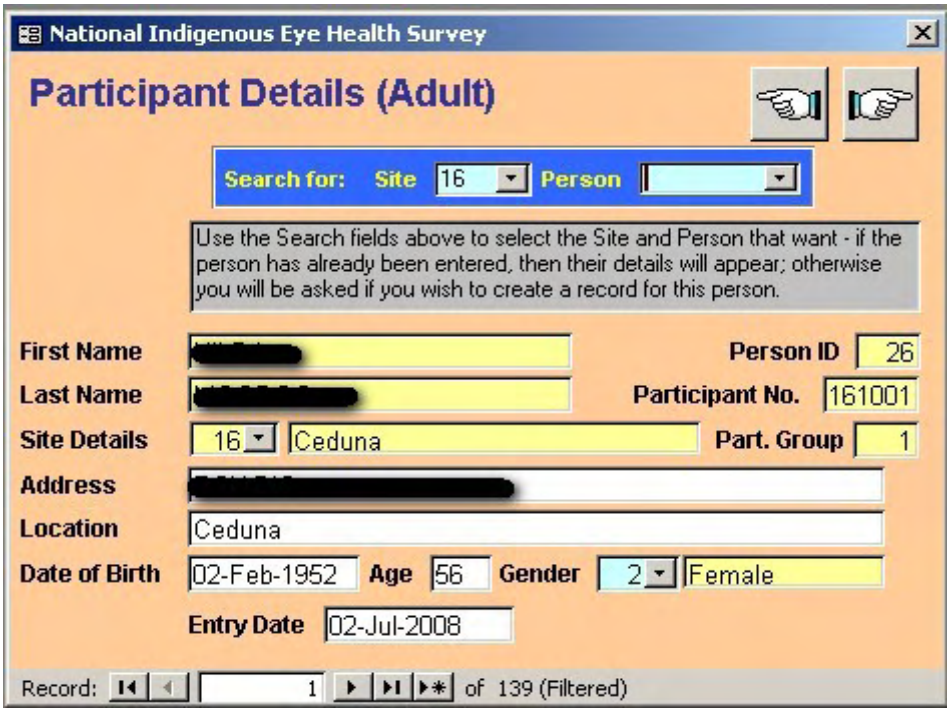
1. Click on “Participant Registration”.
2. Add participant details from participant log hard copy.
3. Select site for entry from drop down box (e.g. 13 Winton)
4. Enter site number, stream – 1 for indigenous adult, 2 for child, 3 for non-indigenous adult, first name and surname.
5. Use TAB to move to next field.

Questionnaire entry

1. Return to main menu by clicking on the red cross in the top right hand corner.
2. The information stores automatically.
3. Click on “View/Enter Questionnaire. Choose between Adult or Children according to data.

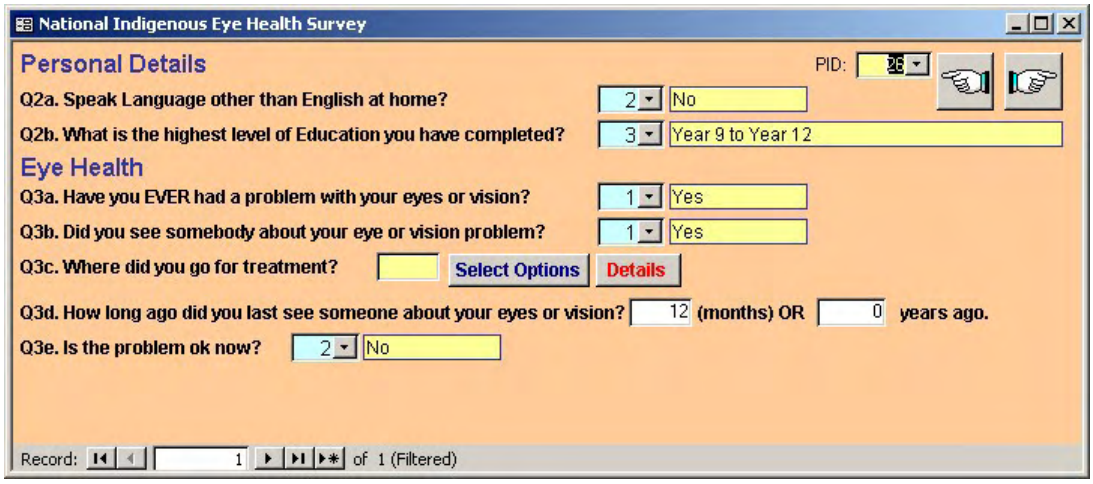
Adult questionnaire

1. Click on “View/Enter Questionnaire (Adult).



Personal details

1. Name and ID number will automatically load from Participant Log.
2. Check this against the details on survey to be entered.
3. ID number is located on the back of the Questionnaire; Name is located on the front.
4. Address - Enter street number and name in first line, enter suburb/town in “Location” field.
5. Date of Birth - Enter DAY / MONTH / YEAR.
    - Age will automatically register.
6. Gender - Select option 1. Male OR 2. Female.
7. Entry Date - Date of data entry to database.
8. Click right hand icon in top right corner to move to the next screen.



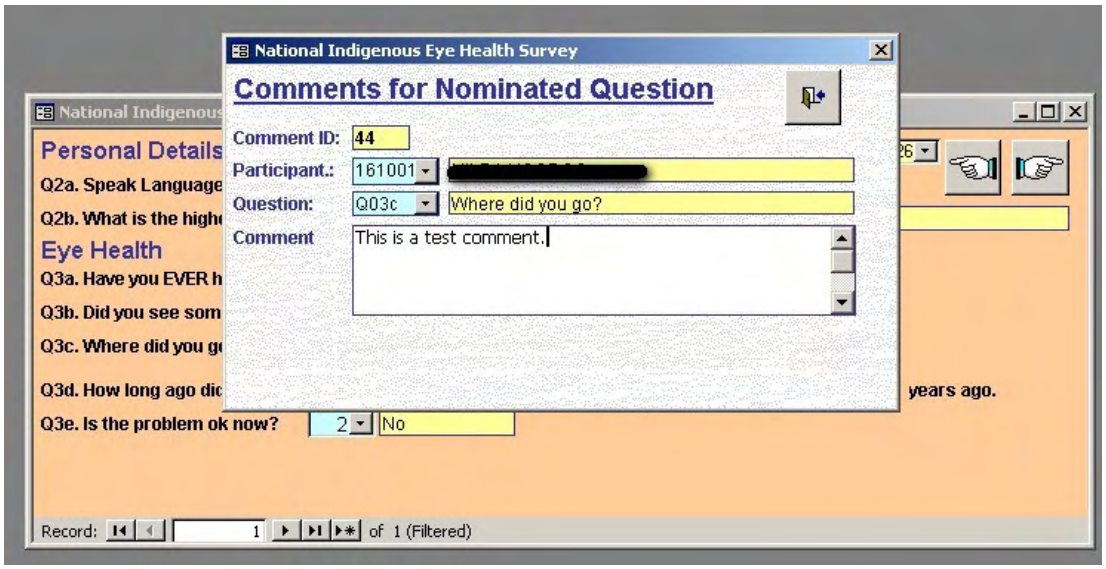
Question 2

- **Q2a**. Select 1 = YES or 2 = NO.

If option 1 is selected, a “comment” box will appear.
Enter language other than English in the box provided as specified on the survey.
If the participant does not specify, flag the question for missing data follow-up.

- **Q2b**. Select the appropriate option for education.

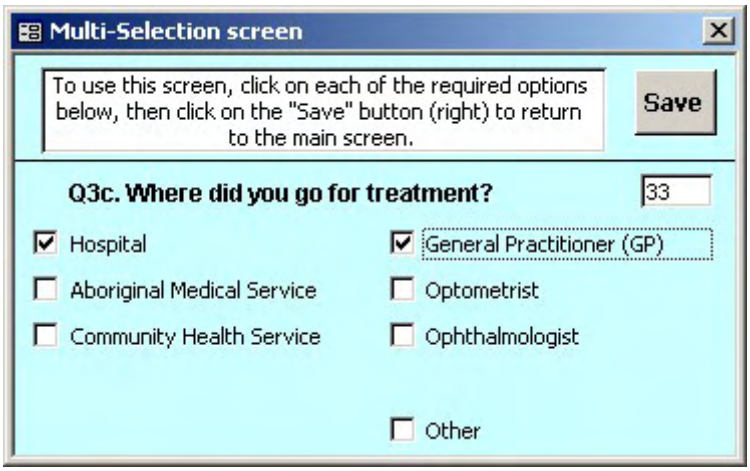
Only one option may be selected, if the participant has ticked more than one box, select the highest order of education chosen.



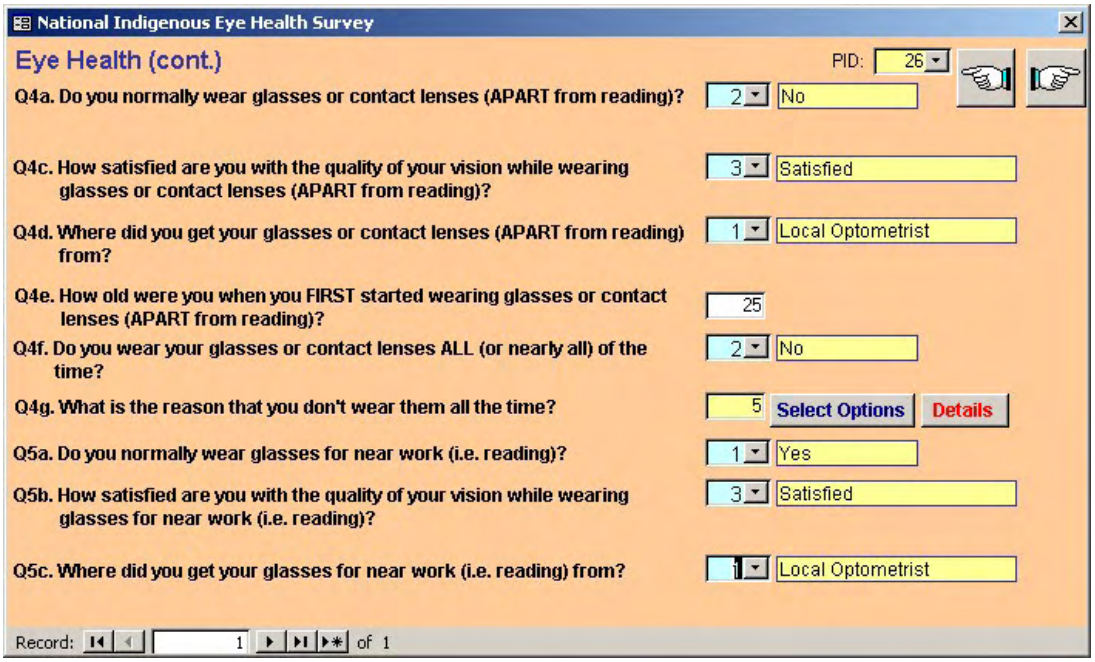
Eye health

Question 3

- **Q3a.** Select option 1 = Yes, OR 2 = No. If no is selected, follow instructions and proceed to Question 4. If 1 = Yes is selected, proceed to 3b.
- **Q3b.** If part 3a was answered YES, go to Q3b and select either option 1 = YES or 2 = NO. If YES is selected, follow instructions and proceed to 3c. If NO is selected, follow instructions and proceed to 3f. 3f will only appear if NO is selected for 3b.
- **Q3c.** Click on “select options” box. A Multi-Selection screen will appear. Select ALL appropriate boxes. Click “Save” to resume entry. If “Other” is selected, click “Details” icon adjacent to “Select Options” box, to enter details provided.



- **Q3d.** Enter number of months OR years. Only whole numbers can be entered in this field.
- **Q3e.** Select option 1 = YES or 2 = NO. Then proceed to Q4 using the right hand icon.
- **Q3f.** If NO is selected in Q3 b), a Multi-Selection screen will appear. Select ALL boxes that apply.
    - Click the right hand icon to right hand icon to proceed to the next screen.



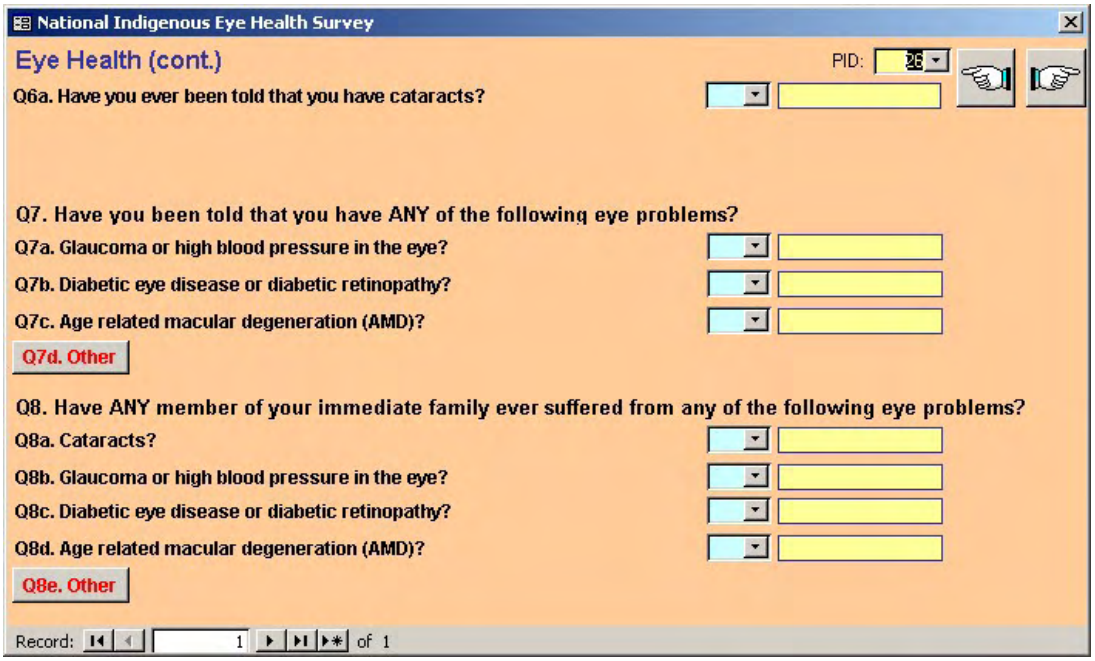
Question 4

- **Q4a**. Select option 1 = YES or 2 = NO. If NO is selected, part 4b) will appear.
- **Q4b**. Select one option from list, 1 = Very Satisfied 2 = Satisfied etc ONLY IF “NO” is selected for 4a). Then proceed to Q5 as per instruction.
- **Q4c**. Choose one option from list 1 = Very Satisfied 2 = Satisfied etc ONLY IF “YES” was selected in part 4a).
- **Q4d**. Select 1 = Local Optometrist or 2 = Other. If “other” is selected, a comment box will appear for entry of data. If details are not specified, flag question for missing data follow-up.
- **Q4e**. Enter numerical age.
- **Q4f**. Select 1 = YES or 2 = NO. If YES is selected, proceed to Q5. If NO is selected, proceed to part 4g).
- **Q4g**. Click on “select options” icon and click ALL appropriate boxes. If “other” is selected, click on “details” and enter information specified in comments box. If details are not specified, flag question for missing data follow-up.

Question 5

- **Q5a.** Select 1 = YES or 2 = NO. If NO is selected, proceed to question 6. If YES is selected, proceed to part 5b).
- **Q5b.** Select from list 1 = Very Satisfied etc.

- **Q5c.** Select 1 = Local Optometrist or 2 = Other. If “other” is selected, enter details in comments box as prompted.
    - Click on right hand icon to proceed to next screen.



Question 6

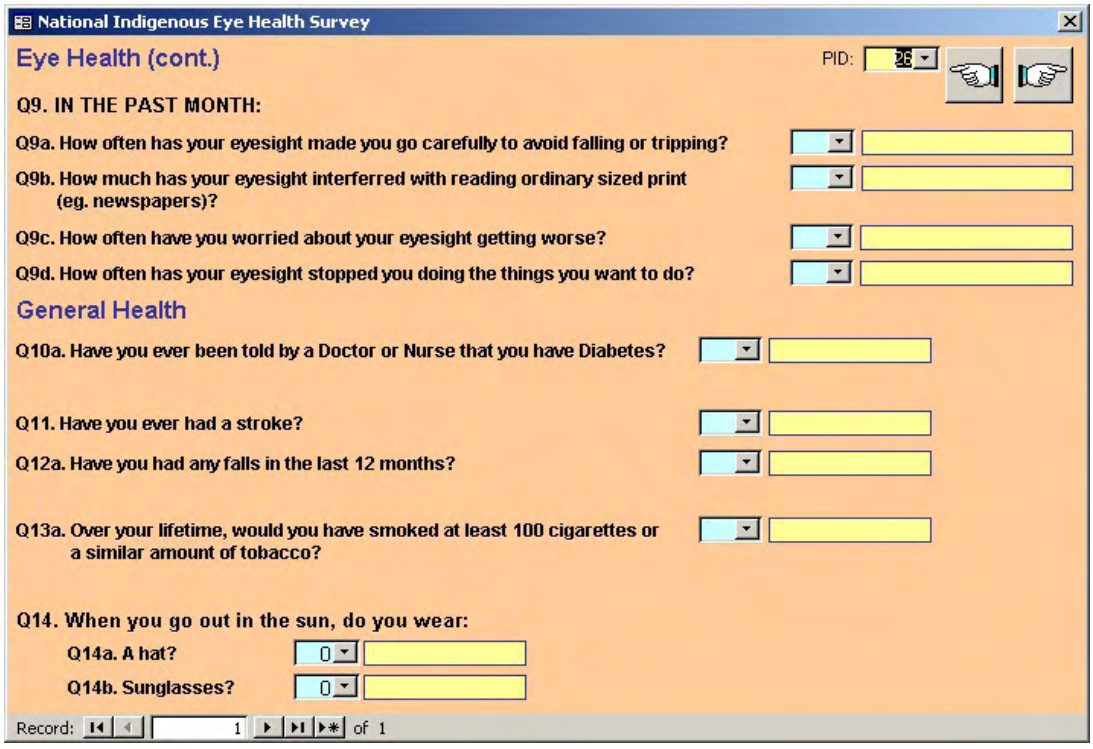
- **Q6a**. Select 1 = YES or 2 = NO or 77 = CANT SAY (don’t know). If option 2 or 3 are selected, proceed to question 7. If option 1 is selected, proceed to part 6b).
- **Q6b**. Select option 1 = YES or 2 = NO. If option 1 is selected, proceed to question 7. If option 2 is selected, proceed to part 6c).
- **Q6c**. Click on “select options” icon and click ALL appropriate boxes. If “other” is selected, click on “details” and enter information provided in comments box.

Question 7

1. For each part, a), b) and c), select option 1 = YES or 2 = NO or 77 = CAN’T SAY (don’t know).
2. To enter details in “other” field, click “Q7d other” and enter details in comments box as prompted.

Question 8

1. For each part, a), b), c) and d) select option 1 = YES or 2 = NO or 3 = DON’T KNOW.
2. To enter details in “other” field, click “Q8e other” and enter details in comments box as prompted.
    - Click on right hand icon to proceed to next screen.



Question 9

For each part, a), b), c) and d), select appropriate option from list 1 = NOT AT ALL 2= A LITTLE etc.

General health

Question 10

- **Q10a.** Select 1 = YES or 2 = NO. If option 1 is selected, proceed to part 10b). If option 2 is selected, proceed to question 11.
- **Q10b.** Enter numerical age. If details are not specified, flag question for missing data follow-up.

Question 11

Select option 1 = YES or 2 = NO.

Question 12

- **Q12a.** Select option 1 = YES or 2 = NO. If option 1 is selected, proceed to part b). If option 2 is selected, proceed to question 13.
- **Q12b.** Enter number of falls. If details are not specified, flag question for missing data follow-up.

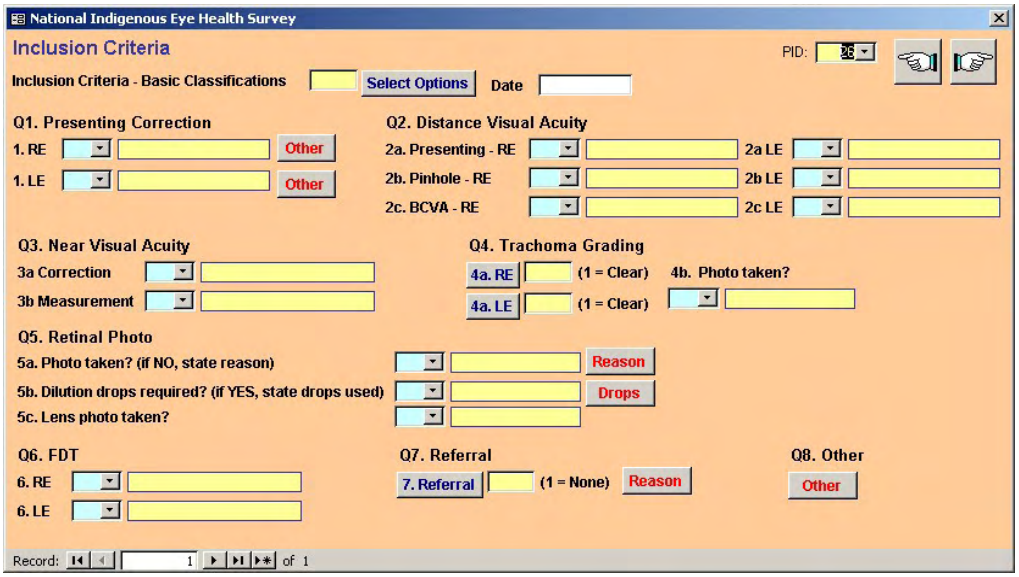
Question 13

- **Q13a.** Select option 1 = YES or 2 = NO. If option 1 is selected, proceed to part 13b). If option 2 is selected, proceed to question 14.
- **Q13b.** Select option 1 = YES or 2 = NO

Question 14

- **Q14a.** Select from list 1= ALWAYS, 2 = SOMETIMES, 3 = NEVER
- **Q14b.** Select from list 1 = ALWAYS, 2 = SOMETIMES, 3 = NEVER
  - Click right hand icon to proceed to next screen.

Inclusion criteria



Basic classifications:

1. Click on “select options” icon.
2. Select ALL appropriate boxes.
3. Click “save” to return to screen.
4. If the survey does not indicate whether consent for was signed in the inclusion criteria, consult the checklist on the second half of the back page.
5. If consent form signed is checked, then include this in the inclusion criteria in the multi-selection box of the database.
6. Date: Enter date (day/month/year) that participant completed the survey. All surveys were completed in 2008.

10.5.3 Clinical eye examination

Section 1 - Presenting correction:

For each of RE and LE, select option from list:

- No Correction
- Spectacles
- Contact Lenses
- Other (Please State)
- To enter details of “other”, click on “other” icon for each of LE and RE where appropriate, and enter details in comments box as prompted.

Section 2 – Distance visual acuity:

VA:

- **Q2a.**. For each of RE and LE, select option from list:
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60
  - PL
  - NPL

Pinhole:

- **Q2b.** For each of RE and LE (where applicable) select option from list
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60

BCVA:

- **Q2c.** For each of RE and LE (where applicable) select option from list:
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60

*Please note: When VA does not improve with pinhole the BCVA option box will not appear. There will be situations where VA does not improve with pinhole but does improve with BCVA – DO NOT FORGET TO ENTER THIS EXTRA INFORMATION EVEN THOUGH THE DATABASE DOES NOT GIVE YOU THE OPTION TO ENTER IT INTO APPROPRIATE BCVA BOXES. ENTER IT INTO THE 'OTHER' COMMENTS BOX IN SECTION 8 AND TELL DATABASE MANAGER OR A COORDINATOR SO THAT THE DATA CAN BE NOTED ACCORDINGLY. THIS EXTRA BIT OF INFORMATION IS VERY IMPORTANT.

Section 3 – Near visual acuity:

- **Q3a.** Select option 1 =Reading Glasses or 2 = No Correction
- **Q3b.** Select from list:
  - ≥ N8
  - < N8 – N20
  - < N20 – N48
  - < N48

Section 4 – Trachoma grading:

- **Q4a.** For each of RE or LE, click on "Q4a. RE / Q4a LE". A Multi-Selection screen will appear. Select appropriate box. Click on save to return.
- **Q4b.** Select option 1 = YES or 2 = NO.

Section 5 – Retinal photo:

- **Q5a.** Select option 1 = YES or 2 = NO. If option 2 is selected, click on “Reason” icon and enter details in comments box as prompted.
- **Q5b.** Select option 1 = YES or 2. NO. If option 1 is selected, click on “Drops” icon and enter details in comments box provided.
- **Q5c.** Select option 1 = YES if box is checked, or 2 = NO if the box is not checked. If the box has a strike through (crossed out), then select 2 = NO

Section 6 – FDT:

For each of RE and LE, select from list:

- 0 Points Pissed
- 1 Point Missed
- ≥ 2 Points Missed
- Test Not Done

Section 7 – Referral:

- Click on “7. Referral” icon and select ALL appropriate boxes. Click “save” to return.

Section 8 – Other:

- Click on “other” icon to enter any other information that may be provided but cannot be entered in any other field.

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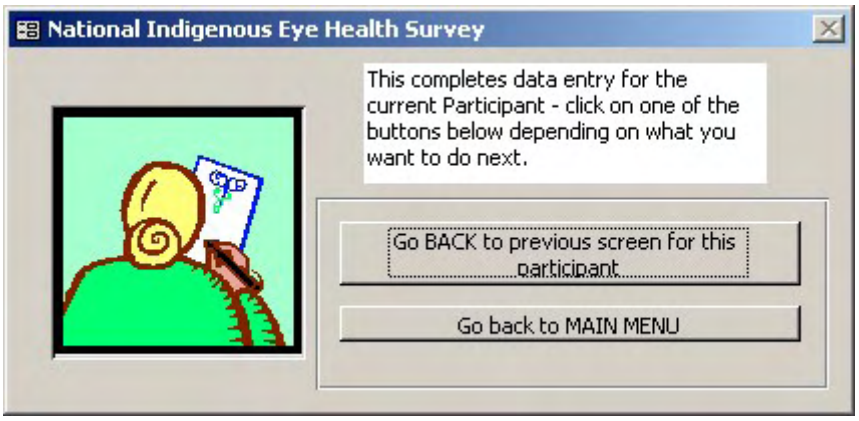
- Click on the right hand icon to proceed to the next screen.



- The data entry for the adult questionnaire is now complete.
- Your work is automatically saved to the database as you progress, so there is no need to actively save your work.
- If you wish to review the data, click on the button “Go BACK to previous screen for this participant” and using the right and left hand icons, move back through the screens as required.
- If you wish to move on to the next participant, click “Go back to MAIN MENU”.

10.6 Child Questionnaire

The questionnaire for the children is shorter than the adult questionnaire, but in much the same format.

1. Return to the Main Menu.
2. Click on “View/Enter Questionnaire (Children)

10.6.1 Personal details

1. The Name and ID Number will automatically load from the Participant Log.
2. Check this against the details on survey to be entered. ID number is located on the back of the Questionnaire; Name is located on the front.
3. Address - Enter street number and name in first line, enter suburb/town in “Location” field.
4. Date of Birth - Enter DAY / MONTH / YEAR. Age will automatically register.
5. Gender - Select option 1 = MALE or 2 = FEMALE
6. Entry Date - Date of data entry to database
7. Click right hand icon in top right corner to move to the next screen.

Question 2

1. Select option 1 = YES or 2 = NO. If option 1 is selected, use the comments box to provide details.

10.6.2 Eye health

Question 3

- **Q3a.** Select option 1 = YES or 2 = NO. If option 2 is selected, proceed to question 4 by clicking on the right hand icon at the top of the screen. If option 1 is selected, proceed to part 3b).
- **Q3b.** Select option 1 = YES or 2. NO. If option 2 is selected, proceed to part 3d). If option 1 is selected, proceed to part 3c).
- **Q3c.** Click on “select options” box. A Multi-Selection screen will appear. Select ALL appropriate boxes. Click save to resume entry. If “other” is selected, click “details” icon adjacent to “select options” box, to enter details provided.
- **Q3d.** Select option 1 = YES or 2 = NO.
  - Click on the right hand icon to proceed to the next screen.

Question 4

- **Q4a.** Select option 1 = YES or 2 = NO. If option 2 is selected, proceed to question 5 by clicking on the right hand icon at the top of the screen. If option 1 is selected, proceed to part 4b).
- **Q4b.** Select option 1 = YES or 2 = NO. If option 2 is selected, proceed to part 4c). If option 1 is selected, proceed to part 4d)
- **Q4c.** Click on “select options” box. A Multi-Selection screen will appear. Select ALL appropriate boxes. Click save to resume entry. If “other” is selected, click “details” icon adjacent to “select options” box, to enter details provided.
- **Q4d.** Enter numerical age.

10.6.3 General health

Question 5

Select option 1 = YES or 2 = NO.

Question 6

- **Q6a.** Select from list 1 = ALWAYS, 2 = SOMETIMES, 3 = NEVER
- **Q6b.** Select from list 1 = ALWAYS, 2 = SOMETIMES, 3 =NEVER

Click on the right hand icon to proceed to the next screen.

Inclusion Criteria

The question numbers in this section correspond with the question numbers in the same section as the Adult Questionnaire.

1. Click on “select options” icon. Select ALL appropriate boxes. Click “save” to return to screen.
2. Date: Enter date that participant completed the survey.

10.6.4 Clinical eye examination

Section 1 – Presenting correction:

For each of RE and LE, select option from list:

- No Correction
- Spectacles
- Contact Lenses
- Other (Please State)
- To enter details of “other”, click on “other” icon for each of LE and RE where appropriate, and enter details in comments box as prompted.

Section 2 – Distance visual acuity:

- **VA: Q2a.** For each of RE and LE, select option from list:
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60
  - PL
  - NPL
- **Pinhole : Q2b.** For each of RE and LE (where applicable) select option from list:
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60

- **BCVA: Q2c.** For each of RE and LE (where applicable) select option from list:
  - ≥ 6/12
  - < 6/12 – 6/18
  - < 6/18 – 6/60
  - < 6/60

*Please note: When VA does not improve with pinhole the BCVA option box will not appear. There will be situations where VA does not improve with pinhole but does improve with BCVA – DO NOT FORGET TO ENTER THIS EXTRA INFORMATION EVEN THOUGH THE DATABASE DOES NOT GIVE YOU THE OPTION TO ENTER IT INTO APPROPRIATE BCVA BOXES. ENTER IT INTO THE 'OTHER' COMMENTS BOX IN SECTION 8 AND TELL DATABASE MANAGER OR A COORDINATOR SO THAT THE DATA CAN BE NOTED ACCORDINGLY. THIS EXTRA BIT OF INFORMAITON IS VERY IMPORTANT.

Section 4 - Trachoma grading:

- **Q4a.** For each of RE or LE, click on "Q4a. RE / Q4a LE". A Multi-Selection screen will appear. Select appropriate box. Click on save to return.
- **Q4b.** Select option 1=YES or 2 = NO.

Section 7 – Referral:

- Click on "7 Referral" icon and select ALL appropriate boxes. Click "save" to return.

Section 8 – Other:

- Click on "other" icon to enter any other relevant information that may be provided but does not have a specified field.

DO NOT LEAVE ANY INFORMATION OUT. ALL INFORMATION, WRITTEN WITHIN THE STRUCTURED QUESTIONS OR WRITTEN IN ADDITION TO WHAT IS REQUIRED, WHETHER IT APPEARS RELEVANT OR NOT SHOULD ALWAYS BE ENTERED

- Click on the right hand icon to proceed to the next screen.
- The data entry for the children questionnaire is now complete. Your work is automatically saved to the database as you progress so no need to actively save your work.
- If you wish to review the data, click on the button "Go BACK to previous screen for this participant" and using the right and left hand icons, move back through the screens as required.
- If you wish to move on to the next participant, click "Go back to MAIN MENU".

10.6.5 Photo grading database

Data entry rules:

1. One set of photo grading data per participant number
2. Comments must be recorded in the comments box
3. Access saves the input automatically so it is not important to save your work.
4. Ensure that if participant does not have a photo taken, the photo grading is marked "Absent". Likewise if photo taken is not gradable, ensure that photo grading is marked "Ungradable".

Data entry process – everted eyelid photos

1. Photos must be matched accurately to participants.
2. Photocopy grading sheet and use for entry. File the original in the Trachoma Photo Grading folder.
3. Begin entry with the lowest participant number for a particular site working towards the highest, to ensure that no participant numbers are missed.
4. Take note of any numbering issues that may have occurred.
5. Enter adults first, then children, then non-indigenous adults.
6. Check the appropriate boxes.
7. Tab across to create a new field for entry of next participant.
8. Once site is complete, file away the grading sheet photocopy and begin next site. Complete all sites.
9. The search option is available for locating particular participants. Type in participant number and press enter. Ensure that correct number is displayed in the drop down box. If the participant number that is typed in is not eligible, then the first participant will remain displayed as default. This is important to note especially when altering data.
10. Please note: Retinal photo grading for each site is recorded into an excel spreadsheet which is uploaded to database by the database manager and so does not require entry into the database.

Photo matching

The matching process involves identifying the correct participant number to each of the photos taken. If it is noted on the questionnaire that photos have been taken, then it is important to ensure that such photos exist and are numbered accurately, referring to the participant to whom they belong.

Process for everted eyelid photos

1. Cross-check the participant numbers of eligible participants in the log book with the numbers on the grading sheet.
2. Once the number is located on the grading sheet, mark the log book to note that the participant has a photo(s) and it has been graded. Also mark the grading sheet for that number.
3. In the instance that the number cannot be found on the grading sheet, check the folders on the computer to see if the photo exists.
4. If the photo exists and has not been graded, send the photo off to be graded. This is done by copying the required photos to be graded onto a CD and sending it to Hugh Taylor to grade.
5. If the participant number and its corresponding photo cannot be located in the folder, check the hard copy questionnaire in case of incorrect numbering. Please note: in many cases of misnumbering, the number is corrected after the lid photos have been taken and is noted on the back of the questionnaire and can therefore be matched to a photo in the folder which is numbered with the previous number.
6. If two or more sets of photos exist with the same participant number, check the hard copy questionnaire for number changes and match accordingly.
7. Once all eligible participants in a particular site have been accounted for, the grading data may be entered.

Process for retinal photos

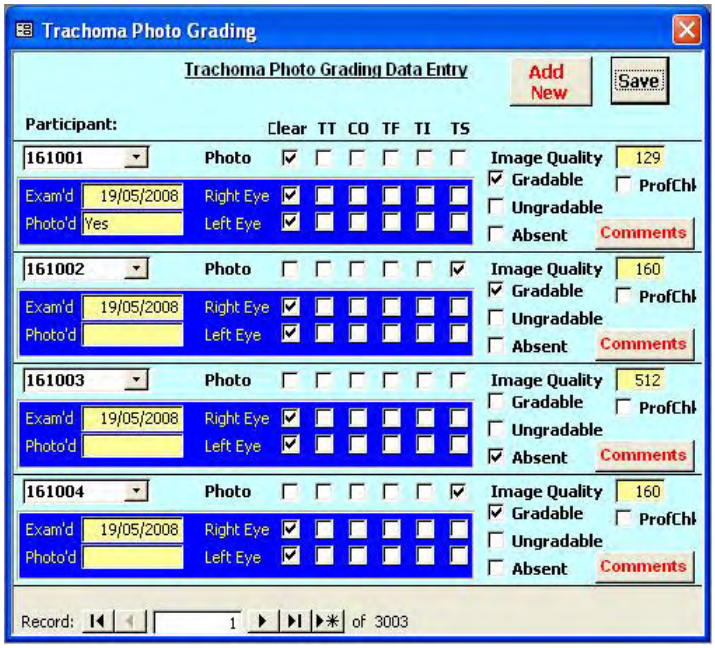
For completed retinal photo grading, access file here: P:\NIEHS DATA\NIEHS - DATA IMAGES\NIEHS Retinal Photo Grading

1. Open file (e.g. NIEHS_Grading_Albany).
2. Go to file -> save as -> rename file with site number and name (e.g. 21-Albany-Retinal Photos)
3. Using adult log, cross-match patient numbers to ensure that there are graded photos for every eligible adult.
4. Adjust any incorrect patient numbers. Note that all numbers should have 6 digits as follows: aabccc where aa = site number (e.g. 21), b = 1 or 3 (1 for indigenous adults; 3 for non-indigenous adults), and ccc = unique code between 001-999. Please check all participant numbers carefully to ensure that they are correct (especially for the non-indigenous sample). The non-indigenous sample only applies for: Ceduna, Winton, Newman & Huon Valley.
5. Ensure that every eligible adult has photos. Create a list of people for each site with missing photos. Consult their survey form to see if there was a reason (e.g. handicapped, ran off, etc). If a reason was listed for not taking a photo, please add their patient number to the list, and under image qlty choose absent. Consult Sarah or Anna-Lena or Mitasha about anyone with missing photos who do not have a reason listed on their questionnaire for why the photo is missing.
6. Move old file (e.g. NIEHS_Grading_Albany) into ‘old’ folder.
7. Once missing photos or queries have all been found or clarified, open .xls file ‘Data Entry and Missing Data Log’. Under matching/entry, write complete and initial.
8. Email the Project Leader to notify them that the site is ready to be linked into the database (please attach the file).

10.6.6 Instructions for photo data entry

Everted eyelid photos

1. Open Microsoft Access file **NIEHS_Photo_V.4.mdb** (location of this file is specified by the Database Manager)..
2. Select “View/Enter Photo Grading Data”
3. Type in participant number.
4. Select grading according to results on grading sheet.
5. Enter comments in comments box where appropriate.
6. Tab to create new field for entry.
7. Enter consecutive participant.



10.7 NIEHS Retinal Photo Assessment Procedure

Step one:
Enter participant ID code

Step two:
Please assess right eye and left eye

For each eye condition, choose result from option list:

FUNDUS	**Right Eye**	**Left Eye**
Fundus gradable?	Gradable	Gradable
	Not gradable	Not gradable
	Clinical information?	Clinical information?
	Missing	Missing
Fundus grade	Normal	Normal
	Abnormal	Abnormal

AMD	**Right Eye**	**Left Eye**
	No AMD	No AMD
	Early AMD	Early AMD
	Late AMD	Late AMD

DIABETIC RETINOPATHY	**Right Eye**	**Left Eye**
Presence of Diabetic Retinopathy	No diabetic retinopathy	No diabetic retinopathy
	Mild/Moderate NPDR	Mild/Moderate NPDR
	Severe NPDR	Severe NPDR
	Proliferative DR	Proliferative DR
Presence of Macular Oedema	No macular oedema	No macular oedema
	Macular oedema	Macular oedema
Previous Laser Treatment	Macular	Macular
	PRP	PRP

OTHER PATHOLOGY	Right Eye	Left Eye
	No pathology	No pathology
	Possible diabetic retinopathy	Possible diabetic retinopathy
	Chorioretinal scar >1500u from centre	Chorioretinal scar >1500u from centre
	Chorioretinal scar <1500u from centre	Chorioretinal scar <1500u from centre
	Optic atrophy	Optic atrophy
	Other	Other

CATARACT	Right Eye	Left Eye
	No cataract	No cataract
	Definite	Definite
	Probable	Probable
	Non-assessable	Non-assessable
	Missing photo	Missing photo
	Intra-Ocular lens (IOL)	Intra-Ocular lens (IOL)
	Corneal Scar	Corneal Scar
	Other	Other

FUNDUS PHOTO – Disc Assessment	Right Eye	Left Eye
Methods overlay	Ungradable	Ungradable
	Missing	Missing
	<0.6	<0.6
	≥0.6	≥0.6

10.8 Photographic Assessment

National Indigenous Health Study

Retinal Photography grading outline

Image Quality

Image quality is based upon image clarity, luminance and field definition. Images are graded based upon field F1 & F2. Where a portion of a field is obscured, reference may be made to alternate field. Force grading is permitted, whereby brightness, contrast, gamma, colour correction and red-free digital image manipulation is applied to enhance image quality.

Gradable	70% of F2 field visible
Not Gradable	<70% of F2 visible; most of macular obscured.
Absent	

Age-related Macular Degeneration

AMD grading is based upon the International Classification by the International ARM Epidemiological Study Group. Lesions are assessed using a transparent overly consisting of a macular grid of concentric circles of 1000, 3000, and 6000 diameter. The digital image

No AMD	
Early AMD	Soft indistinct drusen; pigmentary changes; soft distinct + pig.changes.
Late AMD	Geographic atrophy in the absence of neovascular AMD; or neovascular AMD (RPE detachment, heammorhages, and scars).

Diabetic Retinopathy

No DR	
Mild/Mod NPDR	ETDRS level 20 - 47
Severe NPDR	ETDRS level 51 - 53
Prolif NPDR	ETDRS level 65 - 85
Ungradable	ETDRS level 88
N/A	Not assessable i.e. Only used if image absent.

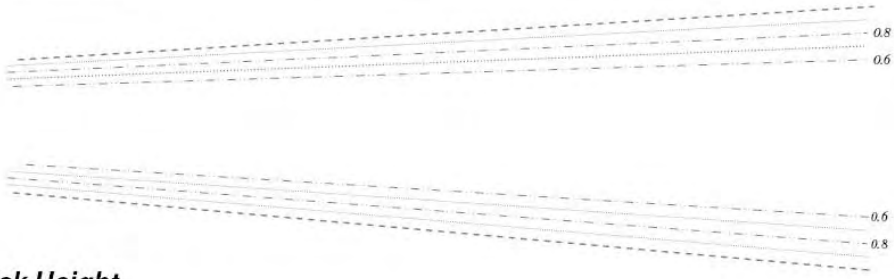
Macular Oedema

No MO	
CSME / CSMO	- Thickening of the retina at or within 500µ of the center of the macula. - Hard exudates at or within 500µ of the center of the macula, if associated with thickening of the adjacent retina (*not residual hard exudates remaining after the disappearance of retinal thickening*). - A zone or zones of retinal thickening one disc area or larger, any part of which is within one disc diameter of the center of the macula.

Cup-disk-ratio (overlay method)

The vertical Cup-to-disk (CDR) ratio is measure using a transparent overlay in 0.1 increments (see below). The superior and inferior disk rim is based upon the identifiable scleral ring, excluding any β-PPA. Images are graded using the clearest field image F1 or F2. Images may also be verified in stereo, by merging F1 & F2 images in the image viewer.

<0.6 or >0.6	As measured using transparent overlay.
0.1 to 1.0 in 0.1 increments	As measured using transparent overlay.



Optic Disk Height

As all images are of a 45-degree field, the image width is estimated to be 12mm, from edge to edge of each field. The image width is measured in pixels (edge-to-edge), then disk height is measured in pixels. Using the assumed width of 12mm the pixel height is converted into millimetres, as below:

OD Height in 'mm' = ((12mm / Width in pixels) x OD height in pixels.

Other pathology

No pathology	No other pathology
PRP scars	Pan-retinal-photocoagulation
Focal scars	Focal photocoagulation scars
Asteroid hyalosis	Asteriod hyalosis
CHIRPE	Congenital hypertrophy of the retinal pigement epithelium
Nevus	Choroidal nevus
RVO/RAO	Existing or previousretinal vein/artery occlusion.
ERM/SWR	Epiretinal membrane or surface wrinkling retinopathy.
Chorioretinal lesion	Any choretinal lesion non-classifiable.
Other	Any other pathology.

10.9 Response Rates

Table 6 Participant Response Rates by States

States	Indigenous Adults	Indigenous Children	Non–Indigenous Adults
New South Wales	247 (20.8%)	277 (16.4%)	
Victoria	29 (2.4%)	33 (2.0%)	
Queensland	259 (21.8%)	344 (20.3%)	60 (95%)
South Australia	129 (10.9%)	168 (9.9%)	56 (79%)
Western Australia	284 (23.9%)	596 (35.2%)	7 (50%)
Tasmania	43 (3.6%)	32 (1.9%)	13 (87%)
Northern Territory	198 (16.7%)	244 (14.4%)	
Total	1189 (100%)	1694 (100%)	136 (83%)

Table 7 Participant Response Rates by Regions

Regions	Indigenous Adults	Indigenous Children	Non–Indigenous Adults
Major City	117 (9.8%)	156 (9.2%)	
Inner Regional	167 (14.1%)	271 (16.0%)	
Outer Regional	168 (14.1%)	204 (12.0%)	
Remote	245 (20.6%)	325 (19.2%)	69 (80%)
Very Remote Coastal	263 (22.1%)	361 (21.3%)	
Very Remote Inland	229 (19.3%)	377 (22.3%)	67 (87%)
Total	1189 (100%)	1694 (100%)	136 (83%)

Table 8 Response Rates for Each Survey Question for all NIEHS Participants.

Adult Q.No.	Child Q.No.	Question (abbreviated)	Validation		TOTAL Responses			Eligible Responses		
			Condition	Dependency	Possible	Actual	Rate	Possible	Actual	Rate
Q02a	**Q02a**	**Spoken Language**	<99		**4239**	4115	97.1%	**3019**	3007	99.6%
Q02b		**Highest Level of education**	<99		**2070**	2070	100.0%	**1325**	1325	100.0%
Q03a	**Q03a**	**Eye Problem Ever?**	<99		**4239**	4146	97.8%	**3019**	3018	100.0%
Q03b	**Q03b**	**See anyone regarding problem?**	<99	Q03a = 1	**1960**	1939	98.9%	**1374**	1371	99.8%
Q03c	**Q03c**	**Where did you go?**	Not Null	Q03b = 1	**1516**	1516	100.0%	**1072**	1072	100.0%
Q03d		**How long ago?**	<99	Q03b = 1	**1277**	705	55.2%	**885**	608	68.7%
Q03e	**Q03d**	**Problem ok now?**	<99	Q03b = 1	**1516**	1461	96.4%	**1072**	1068	99.6%
Q03f		**Why not go elsewhere?**	Not Null	Q03b = 2	**422**	254	60.2%	**298**	163	54.7%
Q04a	**Q04a**	**Normally wear DISTANCE glasses?**	<99		**4239**	4079	96.2%	**3019**	3017	99.9%
Q04b		**Satisfied with Distance Vision Quality?**	<99	Q04a = 2	**3372**	1348	40.0%	**2509**	951	37.9%
Q04c		**Satisfied with DV Glasses?**	<99	Q04a = 1	**537**	530	98.7%	**373**	373	100.0%
Q04d		**Where did DV glasses come from?**	<99	Q04a = 1	**537**	519	96.6%	**373**	372	99.7%
Q04e	**Q04d**	**Age when started wearing glasses?**	Not Null	Q04a = 1	**707**	704	99.6%	**508**	507	99.8%
Q04f	**Q04b**	**Wear glasses ALL the time?**	<99	Q04a = 1	**707**	689	97.5%	**508**	506	99.6%
Q04g	**Q04c**	**Why not wear glasses?**	Not Null	Q04f = 2	**301**	299	99.3%	**214**	212	99.1%
Q05a		**Normally wear glasses for NEAR work**	<99		**2070**	1915	92.5%	**1325**	1323	99.8%
Q05b		**How satisfied with NV glasses?**	<99	Q5a = 1	**1127**	1107	98.2%	**826**	824	99.8%
Q05c		**Where did NV glasses come from?**	<99	Q5a = 1	**1127**	1076	95.5%	**826**	805	97.5%
Q06a		**Ever told you have cataracts?**	<99		**2070**	1883	91.0%	**1325**	1323	99.8%
Q06b		**Had cataract surgery?**	<99	Q6a = 1	**218**	209	95.9%	**164**	157	95.7%
Q06c		**Why not have surgery?**	Not Null	Q6b = 2	**104**	103	99.0%	**76**	76	100.0%
Q07a		**Ever had Glaucoma?**	<99		**2070**	1875	90.6%	**1325**	1324	99.9%
Q07b		**Ever had Diabetic Retinopathy?**	<99		**2070**	1874	90.5%	**1325**	1322	99.8%
Q07c		**Ever had AMD?**	<99		**2070**	1869	90.3%	**1325**	1322	99.8%
Q07d		**Ever had Other eye problem?**	Comment		**70**	70	100.0%	**44**	44	100.0%
Q08a		**Any family Cataract?**	<99		**2070**	1874	90.5%	**1325**	1321	99.7%

Adult Q.No.	Child Q.No.	Question (abbreviated)	Validation		TOTAL Responses			Eligible Responses		
			Condition	Dependency	Possible	Actual	Rate	Possible	Actual	Rate
Q08b		**Any family Glaucoma?**	<99		**2070**	1863	90.0%	**1325**	1316	99.3%
Q08c		**Any family DR?**	<99		**2070**	1875	90.6%	**1325**	1320	99.6%
Q08d		**Any family AMD?**	<99		**2070**	1860	89.9%	**1325**	1316	99.3%
Q08e		**Other family eye problem?**	Comment		**34**	34	100.0%	**19**	19	100.0%
Q09a		**IVI-11 Go carefully?**	<99		**2070**	1858	89.8%	**1325**	1319	99.5%
Q09b		**IVI-14 Reading ordinary print?**	<99		**2070**	1851	89.4%	**1325**	1320	99.6%
Q09c		**IVI-25 Worried about getting worse?**	<99		**2070**	1853	89.5%	**1325**	1320	99.6%
Q09d		**IVI-19 Stopped you doing things?**	<99		**2070**	1849	89.3%	**1325**	1319	99.5%
Q10a	**Q05**	**Told you have diabetes?**	<99		**4239**	4071	96.0%	**3019**	3014	99.8%
Q10b		**Age when told (diabetes)**	Not Null	Q10a=1	**616**	571	92.7%	**460**	432	93.9%
Q11		**Ever had a stroke?**	<99		**2070**	1878	90.7%	**1325**	1322	99.8%
Q12a		**Falls in last 12 months?**	<99		**2070**	1876	90.6%	**1325**	1322	99.8%
Q12b		**Number of falls?**	Not Null	Q12a=1	**226**	226	100.0%	**164**	164	100.0%
Q13a		**Smoked at least 100 cigarettes?**	<99		**2070**	1883	91.0%	**1325**	1323	99.8%
Q13b		**Currently smoke?**	<99	Q13a=1	**1209**	1199	99.2%	**868**	868	100.0%
Q14a	**Q06a**	**In sun, wear hat?**	<99		**4239**	4020	94.8%	**3019**	3012	99.8%
Q14b	**Q06b**	**In sun, wear sunglasses?**	<99		**4239**	4027	95.0%	**3019**	3012	99.8%
		Total			**78,207**	**71,023**	**90.8%**	**53,272**	**51,129**	**96.0%**

Group	Eligible	Ineligible	Total
Ind. Adult	1189	736	1925
Non Ind Adult	136	9	145
Sub-Total (Adults)	**1325**	745	**2070**
Ind. Child	1694	475	2169
Total	**3019**	1220	**4239**

Table 9 Distance Visual Acuity Response Rates.

	Eligible Indigenous Adults	Eligible Indigenous Children	Eligible Non-Indigenous Adults
Missing Distance Visual Acuity Test	4 (0.33%)	6 (0.35%)	0 (0%)
Available	1185 (99.6%)	1688 (99.6%)	136 (100%)
Total	1189 (100%)	1694 (100%)	136 (100%)

Table 10 Near Visual Acuity Response Rates.

	Eligible Indigenous Adults	Eligible Non-Indigenous Adults
Missing Near Visual Acuity Results	12 (1.0%)	1 (0.74%)
Available Near Visual Acuity Results	1177 (99%)	135 (99%)
Total	1189 (100%)	136 (100%)

Table 11 FDT Response Rates.

	Eligible Indigenous Adults	Eligible Non-Indigenous Adults
Missing FDT Test Both Eyes	53 (4.5%)	0 (0%)
Available FDT Results	1136 (96%)	136 (100%)
Total	1189 (100%)	136 (100%)

Table 12 Retinal Data Response Rates

Gradable Quality of Retinal Images	Eligible Indigenous Adults	Eligible Non-Indigenous Adults
Gradable in Both Eyes	966 (81%)	128 (94%)
Gradable in One Eye and Partially or Not Gradable in the Other Eye	91 (7.7%)	4 (2.9%)
Partially Gradable in Both Eyes	67 (5.6%)	1 (0.74%)
Missing Images	65 (5.5%)	3 (2.2%)
Total	1189 (100%)	136 (100%)

Table 13 Trachoma Response Rates.

Trachoma response rates	Adult	Child	Total
Total Best Estimate	1655	2007	**3662**
Participants Surveyed	1189	1694	**2883**
Examined for Trachoma	1171	1667	**2838**
Refused Examination	18	27	**45**
Graded using Photo/Clinical Grading	1097	1566	**2663**
Upgradeable Photo	20	39	**59**
No photo Taken	54	62	**116**
Graded Using Clinic Only	74	101	**175**
Total	***71.8%***	***84.4%***	**78.7%**

10.10 Survey Site Summary Data and Descriptions

10.10.1 Summary data by region

Table 14 Remoteness Area Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			Major City	Inner Regional	Outer Regional	Remote	Very Remote Coastal	Very Remote Inland
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		9 (7.7%)	13 (7.8%)	11 (6.6%)	25 (10%)	25 (9.5%)	29 (13%)
	Blindness (<6/60)		3 (2.6%)	4 (2.4%)	1 (0.6%)	2 (0.8%)	3 (1.1%)	9 (3.9%)
	Poor Near Vision (<N8)		56 (48%)	60 (36%)	69 (41%)	76 (31%)	111 (42%)	96 (42%)
	Wearing Distance Glasses		38 (32%)	37 (22%)	23 (14%)	38 (16%)	30 (11%)	20 (8.7%)
Causes of Vision Loss (<6/12)	Refractive Error		7 (6.0%)	7 (4.2%)	5 (3.0%)	16 (6.6%)	11 (4.2%)	17 (7.5%)
	Cataract		3 (2.6%)	3 (1.8%)	4 (2.4%)	5 (2.1%)	10 (3.8%)	12 (5.3%)
	Diabetic Eye Disease		1 (0.9%)	2 (1.2%)	3 (1.8%)	2 (0.8%)	5 (1.9%)	2 (0.9%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.4%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	1 (0.4%)	1 (0.4%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.4%)	3 (1.3%)
	Other		1 (0.9%)	5 (3.0%)	0 (0%)	3 (1.2%)	0 (0%)	3 (1.3%)
Prevalence	Diabetes (self reported)		41 (35%)	51 (31%)	55 (33%)	94 (38%)	105 (40%)	98 (43%)
	Diabetic Eye Disease		18 (16%)	20 (14%)	23 (14%)	36 (16%)	31 (14.1%)	32 (16%)
	Age-related Macular Degeneration		4 (3.7%)	3 (2.1%)	5 (3.1%)	11 (4.8%)	5 (2.3%)	8 (4.0%)
	Glaucoma		2 (1.7%)	4 (2.4%)	3 (1.8%)	2 (0.8%)	6 (2.4%)	4 (1.8%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.4%)	1 (0.4%)
		Scarring	6 (5.2%)	8 (4.8%)	22 (13)	40 (17%)	18 (7.1%)	90 (40%)
		Trichiasis	0 (0%)	0 (0%)	1 (0.6%)	1 (0.4%)	1 (0.4%)	13 (5.7%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (1.3%)
Coverage Rate	Near Vision[1]		42 (75%)	40 (67%)	48 (70%)	49 (64%)	66 (59%)	48 (50%)
	Diabetic Eye Disease[2]		2 (50%)	6 (46%)	3 (27%)	8 (36%)	6 (38%)	5 (33%)
	Cataract Surgery[3]		4 (57%)	9 (75%)	6 (60%)	10 (67%)	19 (66%)	7 (64%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 15 Remoteness Area Results Summary for Eligible Indigenous Children.

Results Summary for Children			Major City	Inner Regional	Outer Regional	Remote	Very Remote Coastal	Very Remote Inland
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		7 (4.5%)	7 (2.6%)	3 (1.5%)	3 (0.9%)	4 (1.1%)	1 (0.3%)
	Blindness (<6/60)		1 (0.6%)	0 (0%)	0 (0%)	0 (0%)	1 (0.3%)	1 (0.3%)
	Wearing Distance Glasses		0 (0%)	6 (2.2%)	0 (0%)	4 (1.2%)	3 (0.8%)	5 (1.3%)
Causes of Vision Loss	Refractive Error		4 (2.6%)	3 (1.1%)	1 (0.5%)	3 (0.9%)	2 (0.6%)	1 (0.6%)
	Other		4 (2.6%)	4 (1.5%)	2 (1.0%)	0 (0%)	3 (0.8%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	1 (0.6%)	3 (1.1%)	2 (1.0%)	5 (1.6%)	26 (7.2%)	27 (7.3%)
		Scarring	0 (0%)	0 (0%)	0 (0%)	1 (0.3%)	3 (0.8%)	2 (0.5%)

10.10.2 Summary data by states

Table 16 State Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			NSW	NT	QLD	SA	TAS	VIC	WA	Australia
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		14 (5.7%)	18 (9.1%)	30 (12%)	12 (9.3%)	2 (4.7%)	2 (6.9%)	34 (12%)	**112 (9.4%)**
	Blindness (<6/60)		6 (2.4%)	6 (3.0%)	1 (0.4%)	2 (1.6%)	0 (0%)	2 (6.9%)	5 (1.8%)	**22 (1.9%)**
	Poor Near Vision (<N8)		107 (43%)	79 (40%)	57 (22%)	54 (42%)	6 (14%)	9 (31%)	156 (55%)	**468 (39%)**
	Wearing Distance Glasses		60 (24%)	6 (3.0%)	56 (22%)	17 (13%)	13 (30%)	6 (21%)	28 (9.9%)	**186 (16%)**
Causes of Vision Loss (<6/12)	Refractive Error		10 (4.1%)	12 (6.1%)	16 (6.2%)	8 (6.2%)	2 (4.7%)	1 (3.5%)	14 (5.0%)	**63 (5.3%)**
	Cataract		3 (1.2%)	8 (4.1%)	10 (3.9%)	2 (1.6%)	0 (0%)	0 (0%)	14 (5.0%)	**37 (3.1%)**
	Diabetic Eye Disease		3 (1.2%)	0 (0%)	4 (1.5%)	2 (1.6%)	0 (0%)	1 (3.5%)	5 (1.8%)	**15 (1.3%)**
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.4%)	**1 (0.1%)**
	Age-related Macular Degeneration		0 (0%)	1 (0.5%)	1 (0.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	**2 (0.2%)**
	Trachoma		0 (0%)	2 (1.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (0.7%)	**4 (0.3%)**
	Other		4 (1.6%)	1 (0.5%)	0 (0%)	2 (1.6%)	0 (0%)	2 (6.9%)	3 (1.1%)	**12 (1.0%)**
Prevalence	Diabetes (self reported)		60 (24%)	81 (41%)	97 (37%)	66 (51%)	6 (14%)	14 (48%)	120 (42%)	**444 (37%)**
	Diabetic Eye Disease		24 (10%)	17 (10%)	43 (19%)	27 (22%)	2 (4.9%)	5 (18%)	42 (17%)	**160 (15%)**
	Age-related Macular Degeneration		7 (3.0%)	4 (2.4%)	7 (3.1%)	8 (6.5%)	1 (2.4%)	2 (7.4%)	7 (2.8%)	**36 (3.4%)**
	Glaucoma		5 (2.0%)	0 (0%)	8 (3.3%)	1 (0.8%)	0 (0%)	1 (3.4%)	6 (2.1%)	**21 (1.8%)**
	Trachoma	Active Trachoma	0 (0%)	1 (0.5%)	1 (0.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	**4 (0.3%)**
		Scarring	15 (6.1%)	66 (34%)	17 (6.7%)	27 (21%)	0 (0%)	0 (0%)	59 (21%)	**184 (16%)**
		Trichiasis	0 (0%)	10 (5.1%)	1 (0.4%)	1 (0.8%)	0 (0%)	0 (0%)	4 (1.4%)	**16 (1.4%)**
		Corneal Opacity	0 (0%)	1 (0.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (0.7%)	**3 (0.4%)**
Coverage Rate	Near Vision[1]		79 (74%)	39 (49%)	39 (68%)	35 (65%)	5 (83%)	3 (33%)	93 (60%)	**293 (63%)**
	Diabetic Eye Disease[2]		3 (25%)	2 (25%)	10 (43%)	3 (23%)	0 (0%)	1 (50%)	11 (48%)	**30 (37%)**
	Cataract Surgery[3]		4 (57%)	11 (58%)	22 (69%)	7 (78%)	0 (0%)	2 (100%)	22 (61%)	**68 (65%)**

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 17 State Results Summary for Eligible Indigenous Children.

Results Summary for Children			NSW	NT	QLD	SA	TAS	VIC	WA	Australia
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		9 (3.3%)	2 (0.8%)	3 (0.9%)	0 (0%)	0 (0%)	0 (0%)	11 (1.9%)	**25 (1.5%)**
	Blindness (<6/60)		1 (0.4%)	0 (0%)	1 (0.3%)	0 (0%)	0 (0%)	0 (0%)	1 (0.2%)	**3 (0.2%)**
	Wearing Distance Glasses		6 (2.2%)	2 (0.8%)	5 (1.5%)	0 (0%)	1 (3.1%)	0 (0%)	4 (0.7%)	**18 (1.1%)**
Causes of Vision Loss (<6/12)	Refractive Error		3 (1.1%)	2 (0.8%)	2 (0.6%)	0 (0%)	0 (0%)	0 (0%)	8 (1.3%)	**15 (0.9%)**
	Other		7 (2.5%)	0 (0%)	2 (0.6%)	0 (0%)	0 (0%)	0 (0%)	4 (0.7%)	**13 (0.8%)**
Prevalence	Trachoma	Active Trachoma	3 (1.1%)	18 (7.5%)	12 (3.6%)	3 (1.8%)	0 (0%)	0 (0%)	28 (4.8%)	**64 (3.8%)**
		Scarring	0 (0%)	3 (1.3%)	2 (0.6%)	0 (0%)	0 (0%)	0 (0%)	1 (0.2%)	**6 (0.4%)**

10.10.3 Remoteness Area Zone: Major City

Table 18 Major City Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
1-1	62 (94%)	66	45 (62%)	73
1-2	14 (48%)	29	16 (62%)	26
1-3	44 (86%)	51	25 (63%)	40
1-4	1 (100%)	1	4 (80%)	5
1-5	35 (78%)	45	27 (47%)	57
Regional Total	**156 (81%)**	**192**	**117 (58%)**	**201**

Table 19 Major City Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		3 (19%)	1 (25%)	3 (12%)	1 (3.7%)	1 (2.2%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (6.7%)
	Poor Near Vision (<N8)		1 (6.3%)	0 (0%)	13 (52%)	14 (52%)	28 (62%)
	Wearing Distance Glasses		6 (38%)	0 (0%)	8 (32%)	14 (52%)	10 (22%)
Causes of Vision Loss (<6/12)	Refractive Error		1 (6.2%)	1 (25%)	2 (8.0%)	1 (3.7%)	2 (4.4%)
	Cataract		2 (13%)	0 (0%)	1 (4.0%)	0 (0%)	0 (0%)
	Diabetic Eye Disease		0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2.2%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2.2%)
Prevalence	Diabetes (self reported)		4 (25%)	2 (50%)	18 (72%)	3 (11%)	14 (31%)
	Diabetic Eye Disease		2 (13%)	1 (25%)	6 (26%)	1 (3.8%)	8 (18%)
	Age-related Macular Degeneration		0 (0%)	1 (25%)	0 (0%)	0 (0%)	3 (7.1%)
	Glaucoma		1 (6.3%)	0 (0%)	0 (0%)	0 (0%)	1 (2.2%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Scarring	1 (6.7%)	0 (0%)	1 (4.0%)	1 (3.7%)	3 (6.7%)
		Trichiasis	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Coverage Rate	Near Vision[1]		1 (100%)	0 (0%)	11 (85%)	11 (79%)	19 (68%)
	Diabetic Eye Disease[2]		0 (0%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)
	Cataract Surgery[3]		1 (33%)	0 (0%)	2 (67%)	1 (100%)	0 (0%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 20 Major City Results Summary for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		0 (0%)	0 (0%)	3 (6.8%)	1 (2.9%)	3 (4.8%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1.6%)
	Wearing Distance Glasses		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		0 (0%)	0 (0%)	3 (6.8%)	1 (2.9%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (6.5%)
Prevalence	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1.6%)
		Scarring	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Parramatta, NSW, Major City

Site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Parramatta located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Major City remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be a "Y" shaped area approximately 8 km from north to south and around 10 km wide, with Parramatta Park near the centre. The area of the survey site was in the western (left) branch of the "Y" (Figure 2).

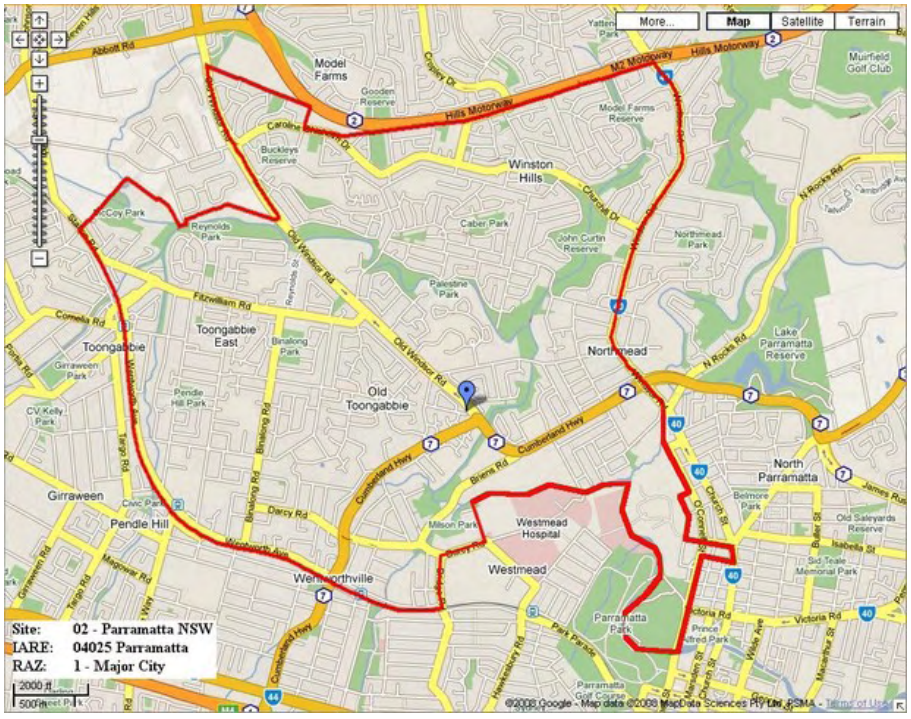


Figure 2 The area of Parramatta survey site located within the red boundary - survey area 15.1 Km²; Indigenous Area 60.9 Km².

Survey participation

The survey was conducted during the 26 - 30 May 2008. The number of eligible adults and children screened is shown in Table 18. An additional 10 children and 26 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with the Women's Health Services, with help provided from a previous employee of the Mount Druitt AMS and from the NSW Eye Coordinator. The NSW eye coordinator had a successful day with recruitment at the Koorie Family Day a week prior the team's arrival. The survey acknowledges this great effort, support and guidance.

Doonside, NSW - Major City

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Doonside located in the Indigenous Area of Blacktown - Doonside/Woodcroft was one of the five sites randomly selected from the Major City remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be a small area approximately 40 km from central Sydney. The area of the survey site was on the north-eastern edge of the Indigenous Area (Figure 3).

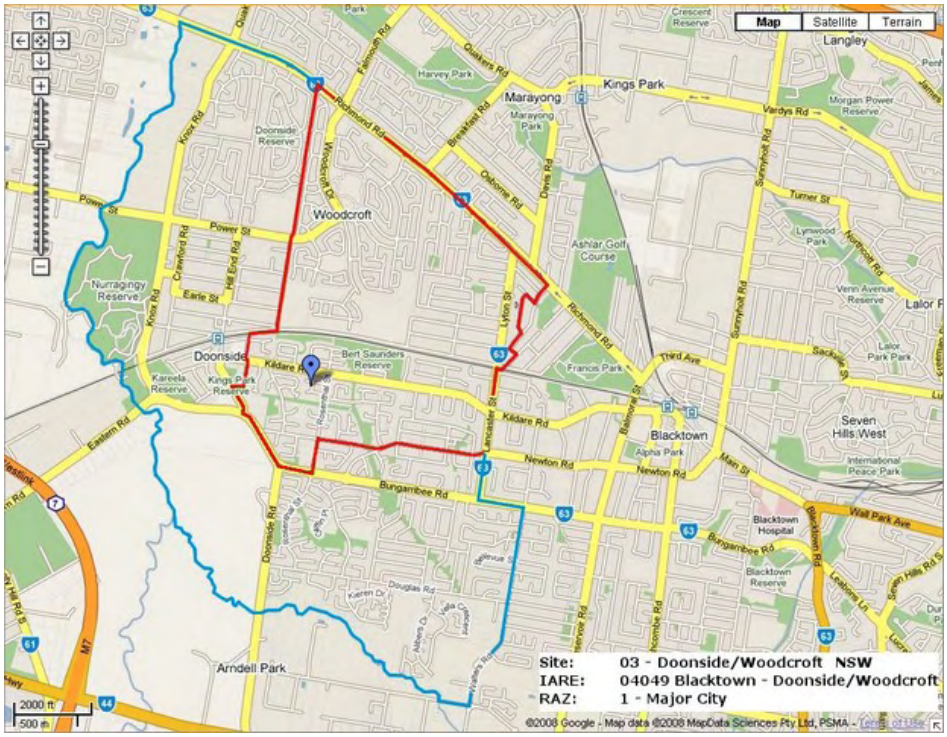


Figure 3 The area of the Doonside survey site is located within the red boundary; The Indigenous Area of Blacktown – Doonside/Woodcroft boundary is shown in blue. (Site Area 4.3 Km²; IARE Area 12.2 Km²).

Survey participation

The survey was conducted during the 4 - 9 May 2008. The number of eligible adults and children screened is shown in Table 18. An additional 10 children and 23 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey received help with recruitment and advertisement from a previous employee of the Mount Druitt AMS and from local community members. The survey acknowledges the great effort and guidance received.

Monash, VIC - Major City

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Monash located in the Indigenous Area of the same name was one of the five sites randomly selected from the Major City zone and one of two sites from Victoria. Due to the small Indigenous population in this area, the survey site takes up the entire Indigenous Area, which is located in Melbourne's south eastern suburbs, approximately 10 km from the coast of Port Phillip Bay (Figure 4).

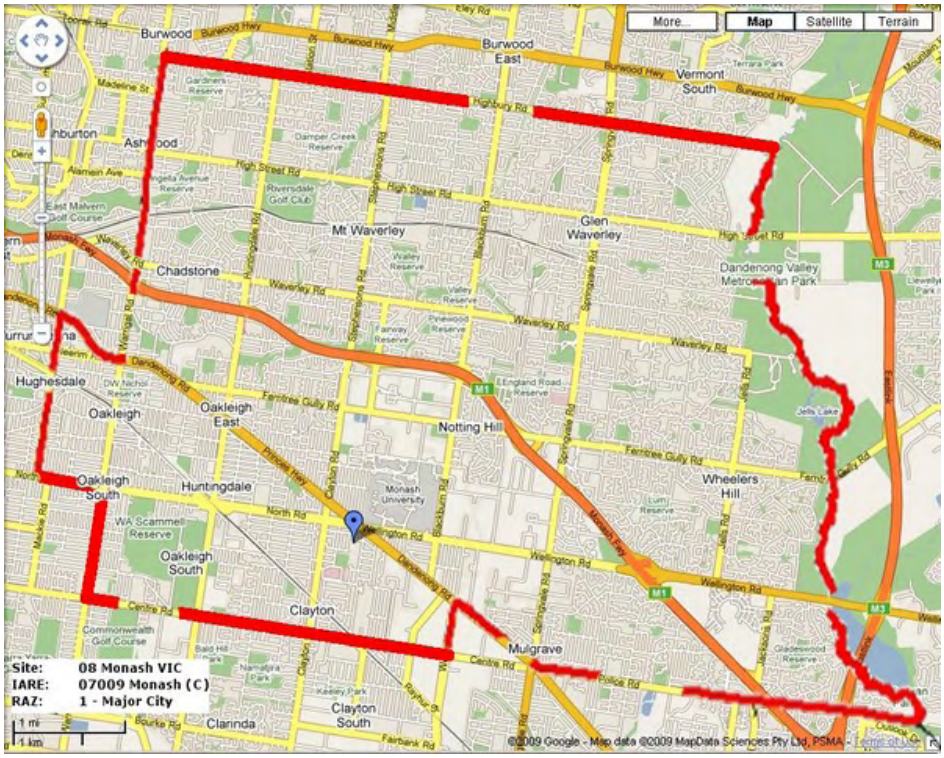


Figure 4 The area of the Monash survey site is located within the red boundary – survey area and Indigenous Area 81.5 Km².

Survey participation

The survey was conducted during the 26 - 30 May 2008. The number of eligible adults and children screened is shown in Table 18. An additional 3 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey acknowledges the support and guidance received from Bunurong Aboriginal Medical Service, The Victorian Aboriginal Health Service, the Koorie Education Department, Monash University, and Monash Medical Centre in attempting to locate the Indigenous population in this sample area. Despite extensive efforts by these organisation and CERA there was significant difficulty with identifying the Indigenous population.

Gold Coast, QLD - Major City

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

The Gold Coast located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Major City remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 60 km from north to south and around 30 km wide with the Gold Coast as the main regional centre (Figure 5).

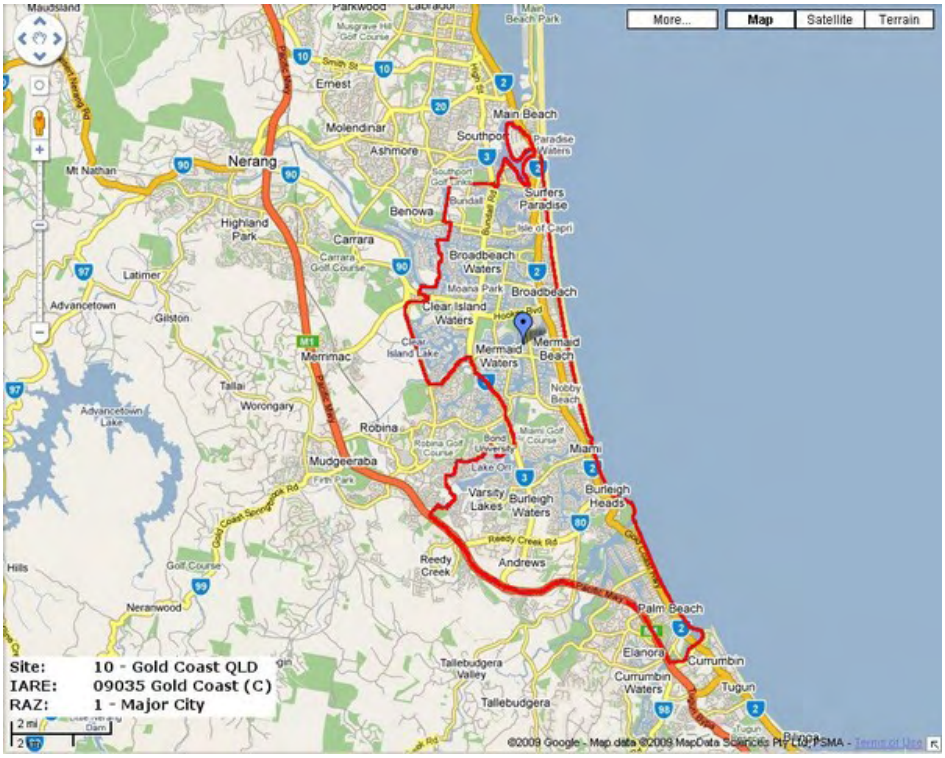


Figure 5 The area of the Gold Coast survey site is located within the Red Boundary – survey area 59.9 Km²; Indigenous Area 1,406.6 Km².

Survey participation

The survey was conducted during the 25 - 29 August 2008. The number of eligible adults and children screened is shown in Table 18. An additional 1 child and 26 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Kalwun Aboriginal Medical Service. The survey acknowledges that many of the Indigenous population had moved out of the sample area in recent years, but appreciates the support and guidance received from this health service to locate the Indigenous population that was still present.

Gosnells, WA - Major City

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Gosnells located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Major City remoteness area zone; and one of eight sites from Western Australia. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 10 km from north to south and around 15 km wide on the eastern fringe of Perth. The survey area is located near the centre of the Indigenous Area (Figure 6).

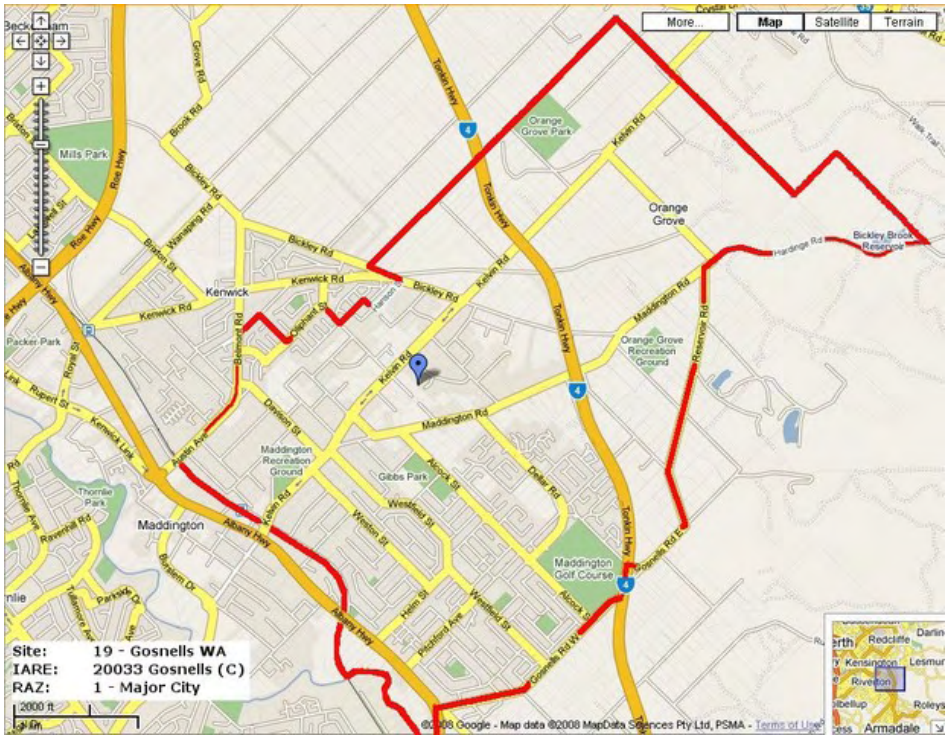


Figure 6 The area of the Gosnells survey site is located within the red boundary – survey area 14.5 Km²; Indigenous Area 127.2 Km².

Survey participation

The survey was conducted at Derbarl Yerrigan in Maddington during the 1 - 5 December 2008. The number of eligible adults and children screened is shown in Table 18. An additional 39 children and 66 adults who lived outside of the sample area, or were outside of the target age range were also examined. The survey was run as a cooperative effort with Derbarl Yerrigan Health Service in Maddington with support also received from the local Schools: Gosnells Primary School; Maddington Primary School and East Maddington Primary School.

10.10.4 Remoteness Area Zone: Inner Regional

Table 21 Inner Regional Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
2-1	32 (94%)	34	25 (63%)	40
2-2	56 (90%)	62	33 (89%)	37
2-3	109 (98%)	111	43 (84%)	51
2-4	29 (85%)	34	40 (89%)	45
2-5	45 (63%)	72	26 (62%)	42
Regional Total	**271 (87%)**	**313**	**167 (78%)**	**215**

Table 22 Inner Regional Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		1 (4%)	0 (0%)	5 (12%)	1 (3.8%)	6 (15%)
	Blindness (<6/60)		2 (8.0%)	0 (0%)	0 (0%)	1 (3.8%)	1 (2.5%)
	Poor Near Vision (<N8)		9 (36%)	5 (15%)	21 (49%)	10 (38%)	15 (38%)
	Wearing Distance Glasses		6 (24%)	12 (36%)	5 (12%)	4 (15%)	10 (25%)
Causes of Vision Loss (<6/12)	Refractive Error		0 (0%)	0 (0%)	2 (4.7%)	1 (3.8%)	4 (10%)
	Cataract		0 (0%)	0 (0%)	2 (4.7%)	0 (0%)	1 (2.5%)
	Diabetic Eye Disease		1 (4.0%)	0 (0%)	1 (2.3%)	0 (0%)	0 (0%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Other		2 (8.0%)	0 (0%)	0 (0%)	1 (3.8%)	2 (5.0%)
Prevalence	Diabetes (self reported)		12 (48%)	4 (12%)	16 (37%)	6 (23%)	13 (33%)
	Diabetic Eye Disease		4 (17%)	1 (3.1%)	8 (27%)	5 (20%)	2 (5.4%)
	Age-related Macular Degeneration		1 (4.3%)	0 (0%)	1 (3.3%)	1 (4.2%)	0 (0%)
	Glaucoma		1 (4.0%)	1 (3.0%)	1 (2.3%)	1 (3.8%)	0 (0%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Scarring	0 (0%)	0 (0%)	3 (7.0%)	3 (12%)	2 (5.1%)
		Trichiasis	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Coverage Rate	Near Vision[1]		3 (33%)	5 (100%)	12 (57%)	9 (90%)	11 (73%)
	Diabetic Eye Disease[2]		1 (50%)	0 (0%)	3 (60%)	1 (50%)	1 (33%)
	Cataract Surgery[3]		2 (100%)	1 (100%)	4 (67%)	1 (100%)	1 (50%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 23 Inner Regional Results Summary for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		0 (0%)	1 (1.8%)	4 (3.7%)	1 (2.2%)	1 (3.4%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Wearing Distance Glasses		0 (0%)	3 (5.4%)	0 (0%)	3 (6.7%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		0 (0%)	0 (0%)	2 (1.8%)	0 (0%)	1 (3.4%)
	Other		0 (0%)	1 (1.8%)	2 (1.8%)	1 (2.2%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	0 (0%)	2 (3.6%)	1 (.9%)	0 (0%)	0 (0%)
		Scarring	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Port Macquarie, NSW - Inner Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Port Macquarie located in the Indigenous Area of Hastings was one of the five sites randomly selected from the Inner Regional remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated Hastings to be approximately 60 km from north to south and around 100 km wide, with Port Macquarie as the main regional centre. The area of the survey site was on the western edge of Port Macquarie with Oxley Highway in the centre (Figure 7).

Figure 7 The area of the Port Macquarie survey site is located within the red boundary - Indigenous Area 3,686.1 Km², survey area 11.4 Km².

Survey participation

The survey was conducted at the Birpai Land Council from 28 July to 1 August 2008. The number of eligible adults and children screened is shown in Table 21. An additional 30 children and 8 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort between Birpai Land Council and members from Aboriginal Care. The survey acknowledges the support and guidance received from these organisations and the local community.

Tamworth, NSW - Inner Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Tamworth located in the Indigenous Area of Tamworth Regional (A) was one of the five sites randomly selected from the Inner Regional remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 150 km from north to south and around 100 km wide, with Tamworth as the main regional centre. The area of the survey site was in the central part of Tamworth (Figure 8).

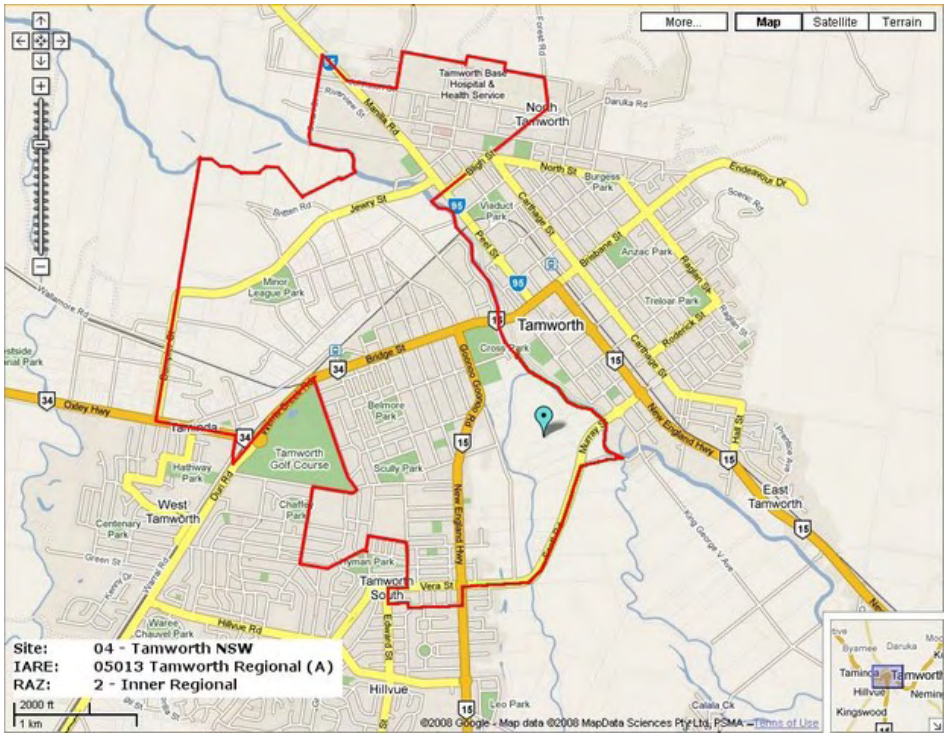


Figure 8 The area of the Tamworth survey site is located within the red boundary – survey area 9.2 Km²; Indigenous Area 9,713.3 Km².

Survey participation

The survey was conducted from the AMS in Tamworth during the 21 - 25 February 2008. The number of eligible adults and children screened is shown in Table 21. An additional 18 children and 32 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The AMS put extensive efforts into providing support with recruitment leading up to the survey visit. The survey acknowledges this great effort, support and guidance received from the local AMS and from the community.

Tuggeranong, ACT/NSW - Inner Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Tuggeranong located in the Indigenous Area of Tuggeranong/ACT South was one of the five sites randomly selected from the Inner Regional remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 70 km from north to south and around 35 km wide, comprising the west and south sections of the ACT. The area of the survey site was in the southern suburbs of Canberra (Figure 9).

Figure 9 The area of the Tuggeranong survey site is located within the red boundary – survey area 22.5 Km²; Indigenous Area 1,704.5.4 Km².

Survey participation

The survey was conducted at an Aboriginal Youth Corporation, Gugan Gulwan during the 16 - 20 June 2008. The number of eligible adults and children screened is shown in Table 21. An additional 11 children and 28 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Winnunga Nimmityjah AMS. The survey greatly appreciates the support and guidance received from this AMS, the Aboriginal Youth Corporation and the local community.

Moe, VIC - Inner Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Moe located in the Indigenous Area of Latrobe, was one of the five sites randomly selected from the Inner Regional remoteness area zone; and one of two sites from Victoria. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area of Latrobe to be approximately 50 km from north to south and around 40 km wide with Moe, Morwell and Traralgon as the main regional centres (Figure 10).

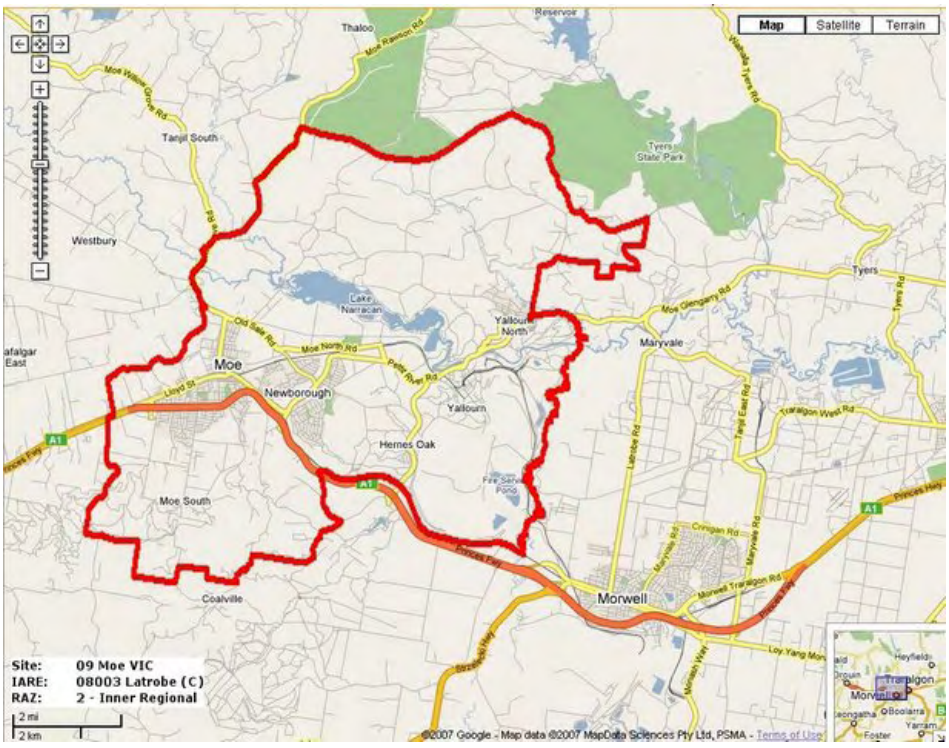


Figure 10 The area of the Moe survey site is located within the red boundary – survey area 136.7 Km²; Indigenous Area 1,462.1 Km².

Survey participation

The survey was conducted during the 25 - 28 February 2008. The number of eligible adults and children screened is shown in Table 21. An additional 3 children and 8 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Nindedana AMS and greatly appreciates the support and guidance received from this AMS and the local community.

Swan, WA - Inner Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Swan located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Inner Regional remoteness area zone; and one of 8 sites from Western Australia. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area of Hastings to be approximately 30 km from north to south and around 40 km wide, extending north and east of the Perth suburb of Swan. The survey site was located closest to the Perth metropolitan area (Figure 11).

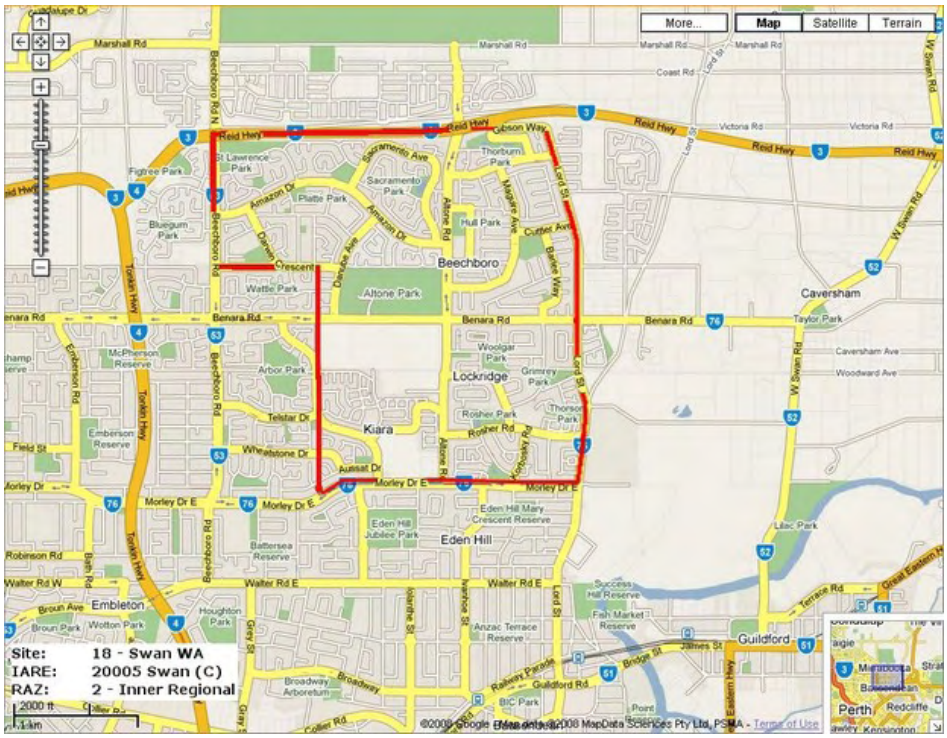


Figure 11 The area of the Swan survey site is located within the red boundary – survey area 6.9 Km²; Indigenous Area 1,044.3 Km².

Survey participation

There were 2 survey visits to Swan; one was conducted during 8 -12 September 2008 and the return visit during 1 -5 December 2008. The number of eligible adults and children screened is shown in Table 21. Additionally 26 children and 2 adults who lived outside of the sample area, or were outside of the target age range were also examined. The survey was run as a cooperative effort with Derbarl Yerrigan Health Service and Meerilinga Family Centre who provided valuable support and guidance. The survey also greatly appreciates the support from the local Schools: Beechboro Primary School; Lockridge Senior High School; Lockridge primary School; West Beechboro Primary School.

10.10.5 Remoteness Area Zone:Outer Regional

Table 24 Outer Regional Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
3-1	44 (81%)	54	26 (74%)	35
3-2	46 (90%)	51	20 (24%)	85
3-3	29 (64%)	45	52 (70%)	74
3-4	64 (89%)	72	46 (45%)	102
3-5	21 (42%)	50	24 (44%)	54
Regional Total	**204 (75%)**	**272**	**168 (48%)**	**350**

Table 25 Outer Regional Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		4 (7.7%)	2 (7.7%)	1 (5%)	1 (4.2%)	3 (6.5%)
	Blindness (<6/60)		1 (1.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Poor Near Vision (<N8)		28 (54%)	8 (31%)	3 (15%)	7 (29%)	23 (50%)
	Wearing Distance Glasses		5 (9.6%)	5 (20%)	2 (10%)	5 (21%)	6 (13%)
Causes of Vision Loss (<6/12)	Refractive Error		1 (1.9%)	0 (0%)	1 (5%)	1 (4.2%)	2 (4.3%)
	Cataract		2 (3.8%)	1 (3.8%)	0 (0%)	0 (0%)	1 (2.2%)
	Diabetic Eye Disease		2 (3.8%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Prevalence	Diabetes (self reported)		18 (35%)	8 (31%)	7 (35%)	2 (8.3%)	20 (44%)
	Diabetic Eye Disease		6 (12%)	3 (12%)	6 (30%)	1 (4.5%)	7 (16%)
	Age-related Macular Degeneration		1 (2.0%)	0 (0%)	0 (0%)	2 (9.1%)	2 (4.5%)
	Glaucoma		2 (3.8%)	0 (0%)	1 (5.0%)	0 (0%)	0 (0%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Scarring	6 (12%)	3 (12%)	0 (0%)	0 (0%)	13 (28%)
		Trichiasis	0 (0%)	1 (4%)	0 (0%)	0 (0%)	0 (0%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Coverage Rate	Near Vision[1]		19 (68%)	6 (75%)	2 (67%)	5 (71%)	16 (70%)
	Diabetic Eye Disease[2]		1 (33%)	0 (0%)	1 (50%)	0 (0%)	1 (25%)
	Cataract Surgery[3]		0 (0%)	2 (67%)	0 (0%)	0 (0%)	4 (80%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 26 Outer Regional Results Summary for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		1 (3.4%)	0 (0%)	1 (2.2%)	1 (4.8%)	0 (0%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Wearing Distance Glasses		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		1 (3.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Other		0 (0%)	0 (0%)	1 (2.2%)	1 (4.8%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (3.1%)
		Scarring	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Upper Murray, NSW - Outer Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Upper Murray located in the Indigenous Area of the same name was one of the five sites randomly selected from the Outer Regional remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 75 km from north to south and around 150 km wide, with the NSW/Victorian border defining its southern edge. Due to the large area of the survey site, recruitment was focused in the population centres at Lockhart, Corowa and Culcairn (Figure 12).

Figure 12 The area of the Upper Murray survey site is located within the red boundary – survey area (Lockhart, Culcairne And Corrowa) 26.3 Km²; Indigenous Area 18,714.4 Km².

Survey participation

The survey was conducted during the 17 - 18 July 2008. The number of eligible adults and children screened is shown in Table 24. An additional 16 children and 75 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort between Riverina Medical and Dental Services, Albury AMS, Aboriginal Land Councils and local Community Health Centres. The survey greatly appreciates the support and guidance received from these organisations.

Dubbo, NSW - Outer Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Dubbo located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Outer Regional remoteness area zone; and one of 7 sites from NSW/ACT. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 90 km from north to south and around 45 km wide, with Dubbo in the centre. The area of the survey site was on the northern edge of Dubbo, centred around the hospital (Figure 13).

Figure 13 The area of the Dubbo survey site is located within the red boundary – survey area 8.1 Km²; Indigenous Area 3,427.7 Km².

Survey participation

The survey was conducted during the 23 - 27 June 2008. The number of eligible adults and children screened is shown in Table 24. An additional 53 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Thubbo AMS and the local Aboriginal land council. The survey greatly appreciates the support and guidance received from these organisations and the local community.

Cherbourg, QLD - Outer Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Cherbourg located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Outer Regional remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be less than 10 km square and located about 100 km inland from Noosa Heads. The survey area was centred on the Cherbourg Township (Figure 14).

Figure 14 The area of the Cherbourg survey site is located within the red boundary – survey area 1.6 Km²; Indigenous Area 31.6 Km².

Survey participation

The survey was conducted at Barambah Health Service during 18 – 22 August 2008. The number of eligible adults and children screened is shown in Table 24. An additional 60 children and 82 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Barambah Health Service, who provided extensive support and guidance.

Port Augusta, SA - Outer Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Port Augusta located in the Indigenous Area of the same name was one of the five sites randomly selected from the Outer Regional remoteness area zone; and one of two sites from South Australia. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 40 km from north to south and around 15 km wide with Port Augusts as the main regional centre (Figure 15).

Figure 15 The area of the Port Augusta survey site is located within the red boundary – survey area 5.0 Km²; Indigenous Area 1,153.0 Km².

Survey participation

The survey was conducted at Pika Wiya Aboriginal Medical Service during 16 - 20 June 2008. The number of eligible adults and children screened is shown in Table 24. An additional adult who was outside of the target age range was also examined. The survey was run as a cooperative effort with Pika Wiya Aboriginal Medical Service who provided extensive support and guidance. The survey also acknowledges the support received from the local Schools.

Albany, WA - Outer Regional

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Albany located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Outer Regional Coastal remoteness area zone; and one of eight sites from Western Australia. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be a 40 km thick band running 140 km along the southern coast of Western Australia, with the main centre of Albany located 40 km from the western edge. The survey area was based around the fringes of central Albany, excluding a large prison in the south west (Figure 16).

Figure 16 The section of area in the Albany survey site is located within the red boundary (the area shaded yellow is excluded) – survey area 502.2 Km²; Indigenous Area 4,312.3 Km².

Survey participation

The survey was conducted during 2 - 6 July 2008. The number of eligible adults and children screened is shown in Table 24. An additional 45 children and 49 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Great Southern Aboriginal Health Service who provided extensive support and guidance as well as Mount Lockyer Primary School and Yakamia Primary School.

10.10.6 Remoteness Area Zone:Remote

Table 27 Remote Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
4-1	104 (85%)	122	83 (65%)	128
4-2	85 (78%)	109	32 (80%)	40
4-3	32 (97%)	33	43 (84%)	51
4-4	57 (72%)	79	51 (85%)	60
4-5	47 (67%)	70	36 (72%)	50
Regional Total	**325 (79%)**	**413**	**245 (75%)**	**329**

Table 28 Remote Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		3 (9.4%)	5 (14%)	2 (4.7%)	6 (12%)	9 (11%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2.4%)
	Poor Near Vision (<N8)		16 (50%)	4 (11%)	6 (14%)	19 (37%)	31 (37%)
	Wearing Distance Glasses		5 (16%)	8 (22%)	13 (31%)	1 (2.0%)	11 (13%)
Causes of Vision Loss (<6/12)	Refractive Error		2 (6.2%)	2 (5.6%)	2 (4.7%)	4 (7.8%)	6 (7.2%)
	Cataract		0 (0%)	3 (8.3%)	0 (0%)	1 (2.0%)	1 (1.2%)
	Diabetic Eye Disease		0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2.4%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	1 (2.0%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Other		1 (3.1%)	0 (0%)	0 (0%)	0 (0%)	2 (2.4%)
Prevalence	Diabetes (self reported)		15 (47%)	14 (39%)	6 (14%)	13 (26%)	46 (55%)
	Diabetic Eye Disease		8 (25%)	4 (13%)	2 (4.9%)	2 (4.3%)	20 (25%)
	Age-related Macular Degeneration		1 (3.1%)	1 (3.1%)	1 (2.4%)	2 (4.3%)	6 (7.5%)
	Glaucoma		1 (3.1%)	0 (0%)	0 (0%)	0 (0%)	1 (1.2%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Scarring	2 (6.2%)	7 (19%)	0 (0%)	17 (34%)	14 (17%)
		Trichiasis	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1.2%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Coverage Rate	Near Vision[1]		14 (88%)	3 (75%)	5 (83%)	8 (42%)	19 (61%)
	Diabetic Eye Disease[2]		4 (50%)	2 (50%)	0 (0%)	0 (0%)	2 (22%)
	Cataract Surgery[3]		0 (0%)	3 (50%)	0 (0%)	4 (80%)	3 (75%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 29 Remote Results Summary Table for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		1 (1.2%)	1 (2.2%)	0 (0%)	1 (1.8%)	0 (0%)
	Blindness (<6/60)		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Wearing Distance Glasses		1 (1.2%)	2 (4.3%)	1 (3.1%)	0 (0%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		1 (1.2%)	1 (2.1%)	0 (0%)	1 (1.8%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	3 (3.5%)	0 (0%)	0 (0%)	1 (1.9%)	1 (1%)
		Scarring	0 (0%)	1 (2.3%)	0 (0%)	0 (0%)	0 (0%)

Mt Isa, QLD - Remote

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Mount Isa located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Remote remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area of Mt Isa to be approximately 300 km from north to south and around 180 km wide with the western boundary shared with the Queensland/Northern Territory border. The same site boundary was used to select both the Indigenous and non-Indigenous participants (Figure 17).

Figure 17 The area of the Mt Isa survey site is located within the blue boundary, which also defines the area from which Non-Indigenous participants were recruited – survey area 0.9 Km²; Indigenous Area 43,348.6 Km².

Survey participation

The survey was conducted during the 29 September - 3 October 2008. The number of eligible adults and children screened is shown in Table 27. An additional 10 children and 51 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with the Mount Isa Aboriginal Community Controlled Health service, Community Health and Queensland Health Hospital. The survey greatly appreciates the efforts both of these organisations contributed, and the support from the local community.

Ceduna, SA - Remote

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Ceduna located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Remote remoteness area zone; and one of two sites from South Australia. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 50 km from north to south and around 100 km wide with Ceduna as the main regional centre. The non-Indigenous survey area was smaller because of the large non-Indigenous population in Ceduna (Figure 18).

Figure 18 The area of the Ceduna survey site is located within the red boundary – survey area 7.0 Km²; Indigenous Area 5,427.2 Km². The blue boundary indicates the Non-Indigenous Survey Area.

Survey participation

The survey was conducted at Ceduna/Koonibba Aboriginal Health Service during 19 – 23 May 2008. The number of eligible adults and children screened is shown in Table 1. An additional 12 children and 12 adults who lived outside of the sample area, or who were outside of the target age range were also examined. A non Indigenous sample was also screened and results can be seen in Table 27. The survey was run as a cooperative effort with Ceduna/Koonibba Aboriginal Health Service Health Service who provided extensive support and guidance. The survey also acknowledges the support received from local Schools.

Esperance, WA - Remote

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Esperance located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Remote remoteness area zone; and one of eight sites from Western Australia. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be a 300 km section of the south coast of Western Australia and extending 160 km inland. Esperance is located 100 km from the western edge. The survey area covered the western and northern fringes of the Esperance Township (Figure 19).

Figure 19 The section of area in the Esperance survey site is located within the red boundary (The area shaded yellow is excluded) – survey area 37.0 Km²; Indigenous Area 42,546.8 Km².

Survey participation

The survey was conducted at Esperance Community Health during 25 - 29 June 2008. The number of eligible adults and children screened is shown in Table 27. An additional 10 children and 4 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Esperance Aboriginal Corporation and Esperance High School. The survey would also like to acknowledge the support received from Esperance Primary School; Esperance Senior High School, Castletown Primary School; Nulsen Primary School and the Lutheran Church in Esperance.

Huon Valley, TAS - Remote

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Huon Valley located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Remote remoteness area zone and the only site from Tasmania. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 60 km from north to south and around 90 km wide with all but the very eastern edge being sparsely populated. The survey area was concentrated at Dover and Geeveston (Figure 20).

Figure 20 A section of area in the Huon Valley survey site is located within the red boundary (the blue line denotes the Eastern edge of the Non-Indigenous Area) – survey area 5,012.5 Km²; Indigenous Area 5,497.3 Km².

Survey participation

The survey was conducted at Esperance Multi-purpose Centre in Dover and Geeveston Community Centre during 2 - 6 June 2008. The number of eligible adults and children screened is shown in Table 27. An additional 3 children and 5 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with South East Tasmanian Aboriginal Corporation; Esperance Multi-purpose Centre and Geeveston Community Centre. The survey acknowledges the support and guidance received from these organisations and the local community. A non Indigenous sample population was also screened and results can be seen in Table 27.

Maningrida, NT - Remote

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Maningrida located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Remote remoteness area zone; and one of four sites from the Northern Territory and Tiwi Islands. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area of Maningrida to be the same as our survey area (Figure 21).

Figure 21 The area of the Maningrida survey site is located within the red boundary – survey area 3.1 Km²; Indigenous Area 3.1 Km².

Survey participation

The survey was conducted at Maningrida Clinic during 10 - 14 November 2008. The number of eligible adults and children screened is shown in Table 27. An additional 27 children and 6 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort between Malabam Health Board Aboriginal Council; Maningrida Clinic; Danila Dilba Health Service and Maningrida School. The survey acknowledges the great support and guidance received from these organisations and the local community.

10.10.7 Remoteness Area Zone:Very Remote Coastal

Table 30 Very Remote Coastal Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
5-1	43 (96%)	45	51 (81%)	63
5-2	61 (94%)	65	47 (98%)	48
5-3	79 (95%)	83	77 (86%)	90
5-4	82 (98%)	84	60 (92%)	65
5-5	96 (83%)	115	28 (74%)	38
Regional Total	**361 (92%)**	**392**	**263 (87%)**	**304**

Table 31 Very Remote Coastal Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		10 (13%)	3 (5.0%)	3 (11%)	4 (8.5%)	5 (9.8%)
	Blindness (<6/60)		0 (0%)	1 (1.7%)	0 (0%)	1 (2.1%)	1 (2.0%)
	Poor Near Vision (<N8)		6 (7.8%)	36 (60%)	11 (39%)	32 (68%)	26 (51%)
	Wearing Distance Glasses		23 (30%)	3 (5.0%)	2 (7.1%)	1 (2.1%)	1 (2%)
Causes of Vision Loss (<6/12)	Refractive Error		4 (5.2%)	2 (3.3%)	0 (0%)	2 (4.3%)	3 (5.9%)
	Cataract		1 (1.3%)	1 (1.7%)	2 (7.1%)	3 (6.4%)	3 (5.9%)
	Diabetic Eye Disease		4 (5.2%)	0 (0%)	1 (3.6%)	0 (0%)	0 (0%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Age-related Macular Degeneration		1 (1.3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Trachoma		0 (0%)	'1 (1.7%)	0 (0%)	0 (0%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Prevalence	Diabetes (self reported)		36 (47%)	21 (35%)	9 (32%)	19 (40%)	20 (39%)
	Diabetic Eye Disease		18 (29%)	4 (7.7%)	4 (17%)	4 (8.9%)	1 (2.7%)
	Age-related Macular Degeneration		3 (4.9%)	0 (0%)	0 (0%)	1 (2.2%)	1 (2.7%)
	Glaucoma		2 (2.9%)	0 (0%)	0 (0%)	1 (2.2%)	3 (6.8%)
	Trachoma	Active Trachoma	1 (1.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		Scarring	2 (2.8%)	1 (1.7%)	8 (30%)	1 (2.2%)	6 (12%)
		Trichiasis	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Coverage Rate	Near Vision[1]		6 (100%)	21 (58%)	4 (36%)	23 (72%)	12 (46%)
	Diabetic Eye Disease[2]		5 (45%)	0 (0%)	1 (50%)	0 (0%)	0 (0%)
	Cataract Surgery[3]		9 (90%)	1 (50%)	3 (60%)	2 (40%)	4 (57%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 32 Very Remote Coastal Results Summary for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		1 (1.3%)	0 (0%)	2 (2.1%)	1 (1.6%)	0 (0%)
	Blindness (<6/60)		0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)
	Wearing Distance Glasses		1 (1.3%)	0 (0%)	2 (2.1%)	0 (0%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		0 (0%)	0 (0%)	1 (1%)	1 (1.6%)	0 (0%)
	Other		1 (1.3%)	0 (0%)	2 (2.1%)	0 (0%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	8 (10.1%)	1 (1.2%)	12 (13%)	1 (1.6%)	4 (9.3%)
		Scarring	0 (0%)	1 (1.2%)	1 (1.1%)	0 (0%)	1 (2.3%)

Aurukun, QLD - Very Remote Coastal

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Aurukun located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Very Remote Coastal remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 200 km from north to south and around 50 km wide on the western edge of the Cape York Peninsula. The survey site is located close in the centre of the Indigenous Area (Figure 22).

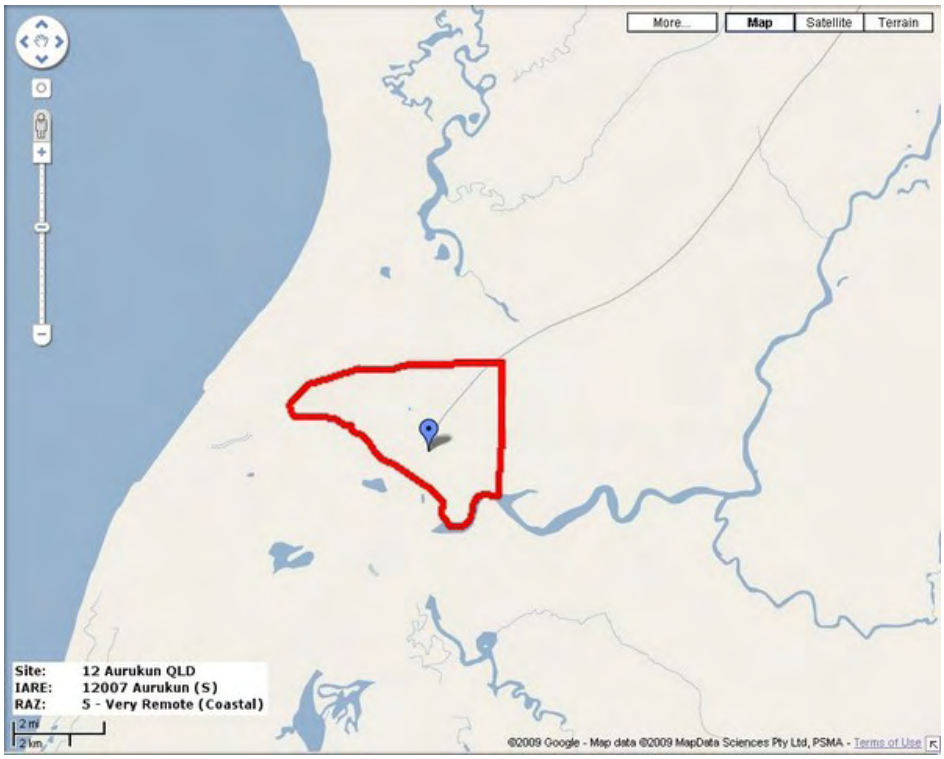


Figure 22 The area of the Aurukun survey site is located within the red boundary – survey area 25 Km²; Indigenous Area 7,375 Km².

Survey participation

The survey was conducted during the 4 – 8 August 2008. The number of eligible adults and children screened is shown in Table 30. An additional 2 children and 2 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Aurukun Primary Health Care Clinic. The survey appreciates the support and guidance received from the clinic and local community.

10.10.8 St Paul's/Kubin (Moa Island), TSI/QLD - Very Remote Coastal

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Moa Island located in the combined Indigenous Areas of Torres Remainder (Kubin) and St Paul's made up one of the five sites randomly selected from the Very Remote Coastal remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Areas to cover the smaller islands of Torres Strait, with Moa Island approximately 60 km north of Cape York and 80 km from New Guinea (Figure 23).

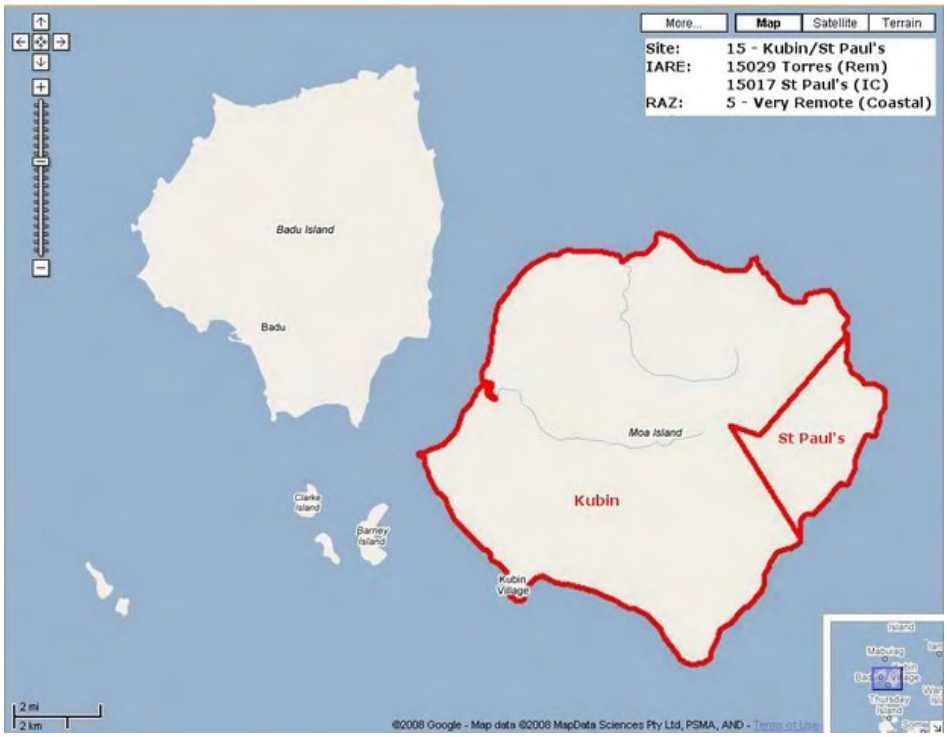


Figure 23 The area of the Moa Island survey site is located within the red boundary – survey area 171.3 Km²; Indigenous Area 1,022.7 Km².

Survey participation

The survey was conducted at St Paul's and Kubin during 20 – 25 October 2008. The number of eligible adults and children screened is shown in Table 30. An additional 1 child and 2 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with St Paul's Health Service, St Paul's Campus, Kubin Health Service and Kubin Campus who all provided extensive support and guidance.

Lombadina/Djarindjin, WA - Very Remote Coastal

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

The Broome Pastoral Areas Indigenous Area covers an area of almost 55,000 km², with a very sparse Indigenous population. For the 2006 Census, the Australian Bureau of Statistics designated four main population centres in this area to be separate Indigenous Areas – Beagle Bay, Djarindjin/Lombadina and One Arm Point (Bardi). For this survey, the areas of Djarindjin/Lombadina and One Arm Point were selected, however it was found that One Arm Point had a significantly higher population than reported, and it was decided that this survey would be limited to participants from Djarindjin/Lombadina (Figure 24).

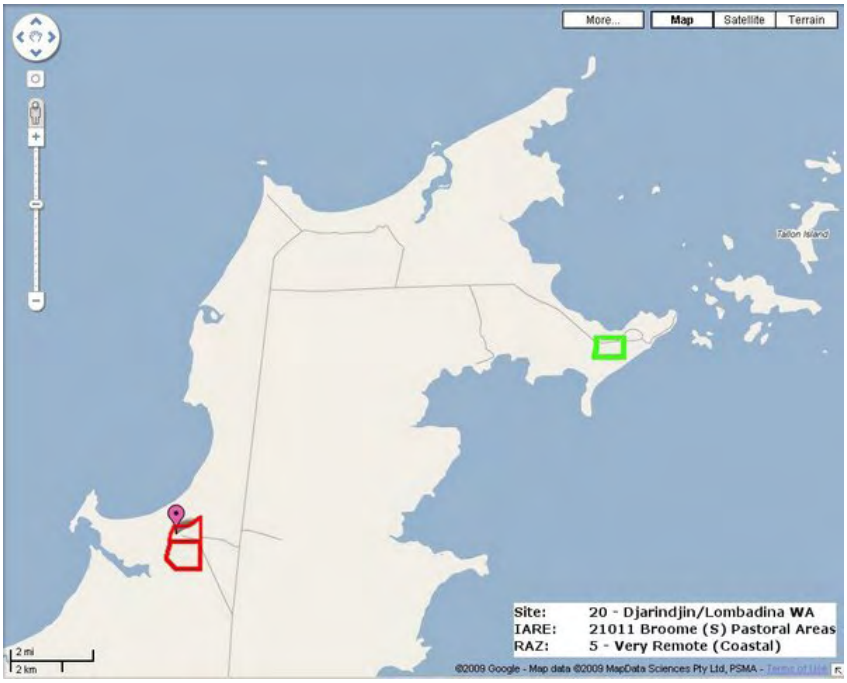


Figure 24 The area of the survey site is located within the red boundaries (Lombadina to the North and Djarindjin to the South) – survey area 2.0 Km². (One Arm Point is shown by the green boundary).

Survey participation

The survey was conducted during 17 – 21 November 2008. The number of eligible adults and children screened is shown in Table 30. An additional 12 children and 61 adults who lived outside of the sample area, or were outside of the target age range were also examined. The survey was run as a cooperative effort with Lombadina Clinic, Lombadina Aboriginal Corporation, Lombadina-Djarindjin Catholic School, One Arm Point Clinic and School, Ardyaloon Incorporated, Djarindjin Aboriginal Corporation and Kimberley Aboriginal Medical Services Council Inc, who all provided us with extensive support and guidance.

Ashburton (Tom Price/Paraburdoo), WA - Very Remote Coastal

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

This survey area in the Indigenous Area of Exmouth/Ashburton was one of the five sites randomly selected from the Very Remote Coastal remoteness area zone; and one of eight sites from Western Australia. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 250 km from north to south and extending 600 km inland from the coast at Exmouth. The collection of communities in this site is approximately 100 km from the western edge of the Indigenous Area (Figure 25).

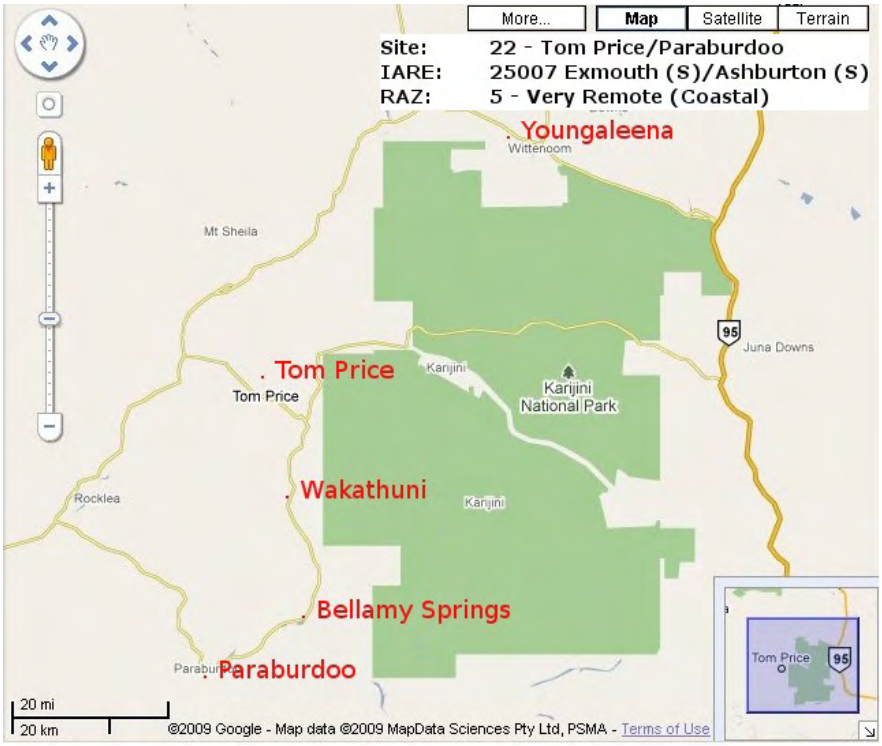


Figure 25 The section of area in the Exmouth/Ashburton survey site, indicating the main communities visited – survey area 73.7 Km²; Indigenous Area 107,754.2 Km².

Survey participation

The survey was conducted during 13 - 18 August 2008. The number of eligible adults and children screened is shown in Table 30. An additional 7 children and 3 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Pilbara and Community Care (HACC) who provided significant logistical support in organising visits to Wakathuni, Bellary Springs and Youngaleens. The survey would also like to acknowledge the participation and support received from Tom Price Senior High School; Paraburdoo Primary School; North Tom Price Primary School; Tom Price Primary School and Tom Price Hospital.

Nguiu, Tiwi Islands/NT - Very Remote Coastal

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Nguiu located in the Indigenous Area of Tiwi Islands, was one of the five sites randomly selected from the Very Remote Coastal remoteness area zone; and one of four sites from the Northern Territory and Tiwi Islands. For the 2006 Census, the Australian Bureau of Statistics designated the Tiwi Islands to be one Indigenous Area, with the main islands being almost 70 km north to south and 160 km east to west. Nguiu is located on the eastern edge of the western island (Figure 26).

Figure 26 The area of the Nguiu survey site is located within the red boundary – survey area 5.1 Km²; Indigenous Area 7,492.0 Km².

Survey participation

The survey was conducted at Murrupurtiyanuwu Catholic School during 3 - 7 November 2008. The number of eligible adults and children screened is shown in Table 30. An additional 238 participants who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Tiwi Health Services; Nguiu Community Health Centre; Nguiu Council; Tiwi Land Council; Murrupurtiyanuwu Catholic School; Centacare; St Francis Xavier School; Danila Dilba Health Service and Malabam Health Board Aboriginal Council. The survey acknowledges the great support and guidance received from these organisations and the local community.

10.10.9 Remoteness Area Zone:Very Remote Inland

Table 33 Very Remote Inland Response Rates for Indigenous Adults and Children.

	Children		Adults	
Sites	**Examined**	**Eligible**	**Examined**	**Eligible**
6-1	73 (100%)	73	61 (97%)	63
6-2	61 (91%)	67	48 (91%)	53
6-3	84 (78%)	108	22 (73%)	30
6-4	44 (94%)	47	39 (89%)	44
6-5	115 (88%)	130	59 (89%)	66
Regional Total	**377 (89%)**	**425**	**229 (90%)**	**256**

Table 34 Very Remote Inland Results Summary for Eligible Indigenous Adults.

Results Summary for Adults			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		2 (5.1%)	5 (23%)	6 (10%)	9 (15%)	7 (15%)
	Blindness (<6/60)		0 (0%)	2 (9.1%)	0 (0%)	2 (3.3%)	5 (10%)
	Poor Near Vision (<N8)		8 (21%)	13 (59%)	17 (29%)	42 (69%)	16 (33%)
	Wearing Distance Glasses		1 (2.6%)	1 (4.5%)	16 (27%)	1 (1.7%)	1 (2.1%)
Causes of Vision Loss (<6/12)	Refractive Error		2 (5.1%)	4 (18%)	5 (8.5%)	2 (3.3%)	4 (8.3%)
	Cataract		0 (0%)	1 (4.5%)	1 (1.7%)	4 (6.6%)	6 (13%)
	Diabetic Eye Disease		0 (0%)	1 (4.5%)	0 (0%)	1 (1.6%)	0 (0%)
	Glaucoma		0 (0%)	0 (0%)	0 (0%)	1 (1.6%)	0 (0%)
	Age-related Macular Degeneration		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Trachoma		0 (0%)	0 (0%)	0 (0%)	2 (3.3%)	1 (2.1%)
	Other		0 (0%)	1 (4.5%)	0 (0%)	1 (1.6%)	1 (2.1%)
Prevalence	Diabetes (self reported)		22 (56%)	10 (46%)	16 (27%)	25 (41%)	25 (52%)
	Diabetic Eye Disease		5 (16%)	3 (17%)	12 (21%)	6 (11%)	6 (17%)
	Age-related Macular Degeneration		0 (0%)	1 (5.6%)	2 (3.4%)	3 (5.5%)	2 (5.6%)
	Glaucoma		0 (0%)	1 (4.5%)	1 (1.7%)	2 (3.3%)	0 (0%)
	Trachoma	Active Trachoma	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2.1%)
		Scarring	21 (55%)	6 (27%)	1 (1.7%)	35 (58%)	27 (56%)
		Trichiasis	3 (7.9%)	0 (0%)	0 (0%)	3 (5.0%)	7 (15%)
		Corneal Opacity	0 (0%)	0 (0%)	0 (0%)	2 (3.3%)	1 (2.1%)
Coverage Rate	Near Vision[1]		4 (50%)	4 (31%)	15 (88%)	19 (45%)	6 (38%)
	Diabetic Eye Disease[2]		1 (33%)	0 (0%)	2 (40%)	1 (33%)	1 (33%)
	Cataract Surgery[3]		2 (100%)	2 (67%)	5 (83%)	7 (64%)	4 (40%)

Notes: [1] Need glasses and have them; [2] Needed Laser Treatment and received it;
[3] Needed Cataract Surgery and received it.

Table 35 Very Remote Inland Results Summary Table for Eligible Indigenous Children.

Results Summary for Children			**De-identified Site Data**				
Presenting Visual Acuity	Low Vision (<6/12 – 6/60)		1 (2.3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Blindness (<6/60)		0 (0%)	0 (0%)	1 (.9%)	0 (0%)	0 (0%)
	Wearing Distance Glasses		2 (4.5%)	1 (1.2%)	2 (1.7%)	0 (0%)	0 (0%)
Causes of Vision Loss (<6/12)	Refractive Error		1 (2.3%)	0 (0%)	1 (0.9%)	0 (0%)	0 (0%)
	Other		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Prevalence	Trachoma	Active Trachoma	2 (4.5%)	3 (3.7%)	0 (0%)	8 (11%)	14 (23%)
		Scarring	1 (2.3%)	0 (0%)	0 (0%)	0 (0%)	1 (1.6%)

West Central Queensland, QLD - Very Remote Inland

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

West Central Queensland located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Very Remote Inland remoteness area zone; and one of six sites from Queensland. From the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be an elongated shape stretching 1000 km from North West to south east, and around 350 km wide. The selected survey site still covered a very large area containing the regional centres of Winton, Longreach and Barcaldine (Figure 27).

Figure 27 The area of the West Central Queensland survey site is located within the red boundary – survey area 19.7 Km²; Indigenous Area 220,976.5 Km².

Survey participation

The survey was conducted at multiple sites; Winton, Longreach and Barcaldine during the 20 - 25 October 2008. The number of eligible adults and children screened is shown in Table 33. An additional 1 child and 22 adults who lived outside of the sample area, or who were outside of the target age range were also examined. In Winton a non Indigenous sample was also screened. The survey was run as a cooperative effort with Queensland Health, who provided extensive support and guidance. The survey also acknowledges the great support provided by Winton State School, Longreach State School, Longreach State High School, Our Lady's School and Barcaldine State School.

Newman, WA - Very Remote Inland

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Newman, in the Indigenous Area of East Pilbara was one of the five sites randomly selected from the Very Remote Inland remoteness area zone; and one of eight sites from Western Australia. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be up to 430 km from north to south and extending approximately 1000 km west from the Northern Territory border. The Newman survey area was on the southern boundary almost 140 km from the western edge of the Indigenous Area (Figure 28).

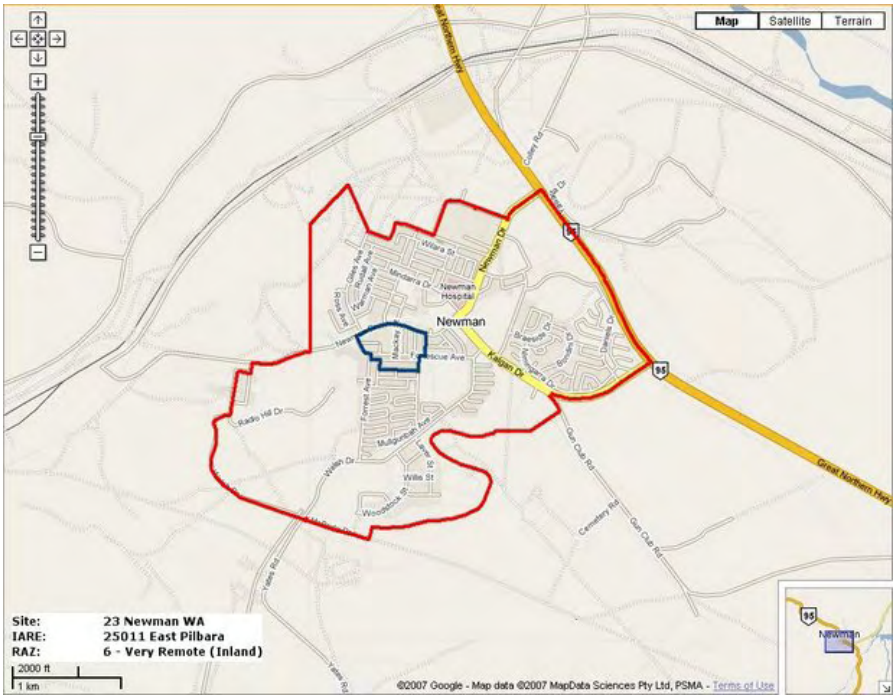


Figure 28 The area of the Newman survey site is located within the red boundary – survey area 7.7 Km²; Indigenous Area 370,455.3 Km². The blue boundary indicates the sample area for the non-Indigenous population.

Survey participation

The survey was conducted at East Pilbara Independence Support (HACC) during 19 - 22 August 2008. The number of eligible adults and children screened is shown in Table 33. An additional 20 children and 15 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with East Pilbara Independence Support (HACC), with extensive support received from the local Schools: South Newman Primary, Newman Primary School, and Newman Senior Primary School. A non Indigenous sample population was also screened and results can be seen in Table 33.

Kalkarindji, NT - Very Remote Inland

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Kalkaringi located in the Indigenous Area of Daguragu, was one of the five sites randomly selected from the Very Remote Inland remoteness area zone; and one of four sites from the Northern Territory and Tiwi Islands. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be a small area of 50 km² in which the survey area occupied the south east corner (Figure 29).

Figure 29 The Kalkarindji survey site is shown as a red spot near the bottom of the map – survey area 6.2 Km²; Indigenous Area 50.2 Km².

Survey participation

The survey was conducted at Kalkaringi Health Service during 13 - 17 October 2008. The number of eligible adults and children screened is shown in Table 33. An additional 41 children and 20 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort between Kalkaringi Health Service; Katherine West Health Board Aboriginal Corporation; and Kalkaringi Community Education Centre. The survey acknowledges the great support and guidance received from these organisations and the local community.

Titjikala, NT - Very Remote Inland

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Titjikala located in the Indigenous Area of Sandover, was one of the five sites randomly selected from the Very Remote Inland remoteness area zone and one of four sites from the Northern Territory and Tiwi Islands. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area of Sandover to be approximately 350 km from north to south, extending 400 km west from the Queensland border. Titjikala is located in the south west corner of the Indigenous Area and just over 100 km from Alice Springs (Figure 30).

Figure 30 The Titjikala survey site is shown at the bottom of this map – survey area 3.8 Km²; Indigenous Area 108,465.1 Km².

Survey participation

The survey was conducted at Titjikala Health Centre during 3 - 7 November 2008. The number of eligible adults and children screened is shown in Table 33. An additional 3 children and 3 adults who lived outside of the sample area, or who were outside of the target age range were also examined. The survey was run as a cooperative effort with Titjikala Health Centre and Titjikala School. The survey acknowledges the great support and guidance received from these organisations and the local community.

Jigalong, WA - Very Remote Inland

Survey site details

The *National Indigenous Eye Health Survey* was designed to collect a representative total sample of 3000 Indigenous people with 50 adults aged 40 years and older; and 50 children aged between 5 -15 years at each site. For this purpose, the total Indigenous Australian population was stratified according to their Remoteness Area Zone (RAZ): Major City, Inner Regional, Outer Regional, Remote, Very Remote Coastal and Very Remote Inland using the Australian Accessibility and Remoteness Index (ARIA) and the 2006 Australian Census data. Five sites from each zone were randomly selected to participate in the Survey to ensure adequate population representation.

Jigalong located in the Indigenous Area of the same name, was one of the five sites randomly selected from the Very Remote Inland remoteness area zone; and one of eight sites from Western Australia. For the 2006 Census, the Australian Bureau of Statistics designated the Indigenous Area to be approximately 50 km from north to south and around 25 km. The survey area was located near the north western boundary of the Indigenous Area (Figure 31).

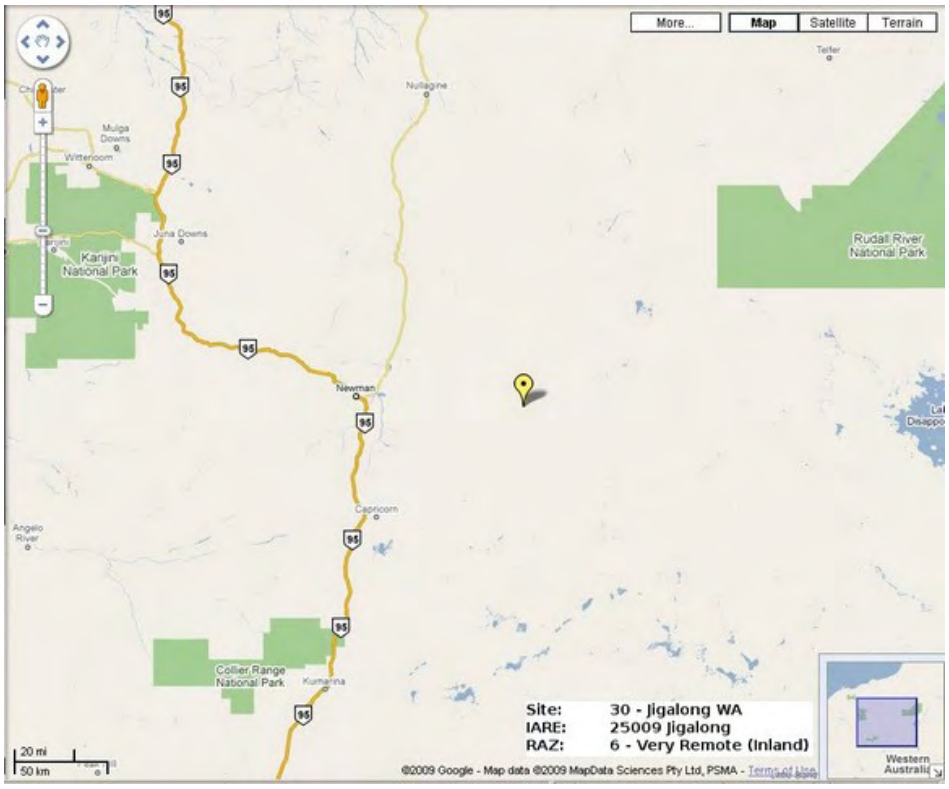


Figure 31 The Jigalong survey site is shown in the centre of this map – survey area 1.1 Km²; Indigenous Area 1,140.6 Km².

Survey participation

The survey was conducted at Jigalong Health Centre, PuntuKurnu Aboriginal Medical Service during 8 - 12 December 2008. The number of eligible adults and children screened is shown in Table 33. The survey was run as a cooperative effort with PuntuKurnu Aboriginal Medical Service; Jigalong Community Council and Jigalong Remote Community School. The survey acknowledges the great support and guidance received from these organisations and the local community

10.11 Key findings

10.11.1 Demographic results

Age distribution

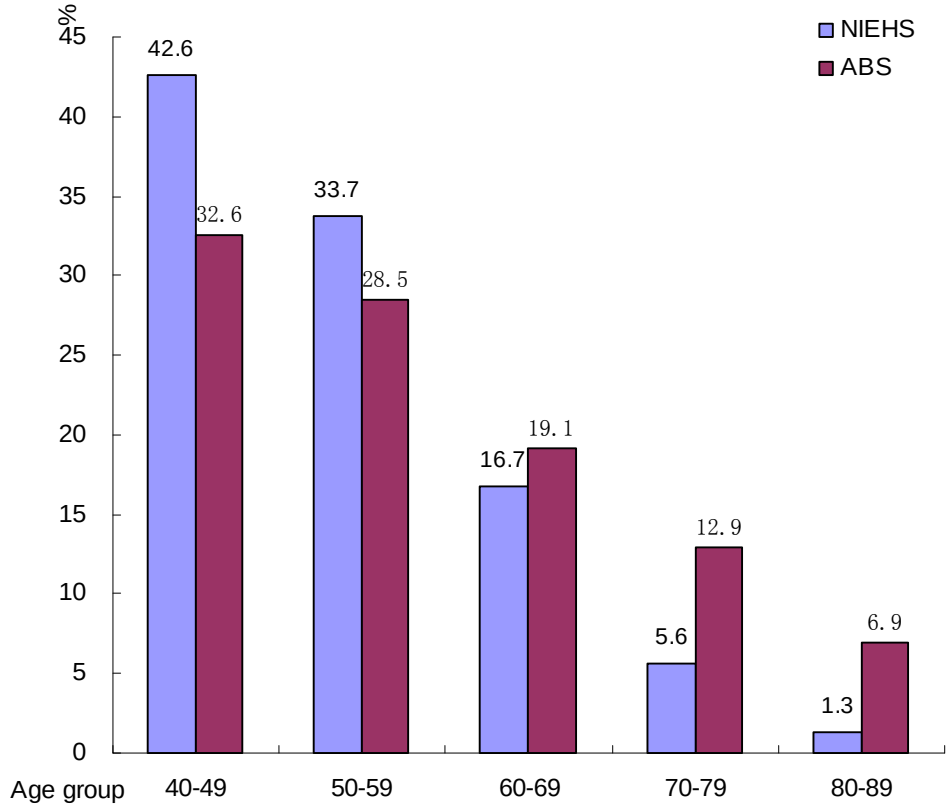


Figure 32 Age Distribution of Eligible Participants versus ABS.

Table 36 Age Distribution of Eligible Participants versus ABS.

Age group	NIEHS Eligible		NIEHS Ineligible		ABS	
	N	%	n	%	n	%
40-49	507	42.64	163	38.44	2918381	32.56
50-59	401	33.73	155	36.56	2550391	28.46
60-69	199	16.74	78	18.4	1715464	19.14
70-79	67	5.63	24	5.66	1159664	12.94
80-89	15	1.26	4	0.94	618799	6.90

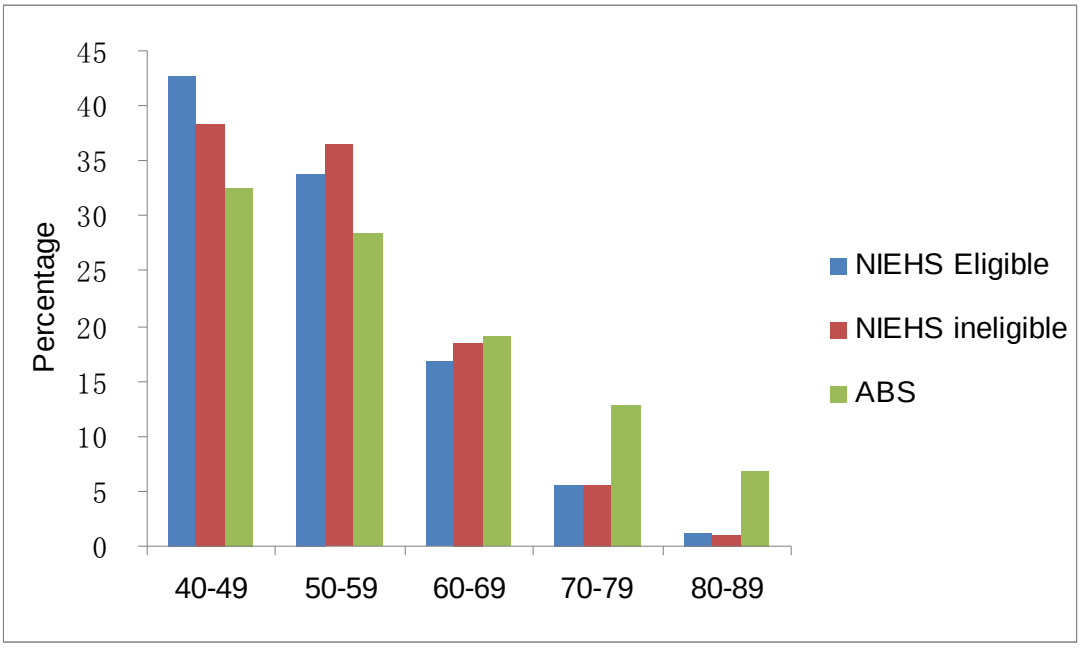


Figure 33 Age Distribution of Eligible and Ineligible Participants versus ABS.

Table 37 Age Distribution of Eligible Indigenous Adults and Children.

Age Group (years)	Indigenous Children	Age Group (years)	Indigenous Adults	Non-Indigenous Adults
5	154	40 - 44	255	19
6	166	45 - 49	252	23
7	185	50 - 54	235	30
8	198	55 - 59	166	11
9	180	60 - 64	118	17
10	172	65 - 69	81	14
11	164	70 - 74	45	8
12	174	75 - 79	22	6
13	121	80 - 84	12	6
14	111	85 - 89	3	2
15	69			
Total	1694		1189	136

Demographic characteristics of Indigenous and non Indigenous, eligible and non eligible adults and children screened during NIEHS

Table 38 Demographic Characteristics of NIEHS Participants.

Characteristics	Indigenous Children				Indigenous Adults				Non-Indigenous adults§		
	Eligible	Ineligible	χ^2	P	Eligible	Ineligible	χ^2	p	Eligible	χ^2	p
Number	1694	402			1189	425			136		
Female	49%	49%	0.007	0.94	61%	59%	0.30	0.58	62%	0.05	0.83
Median age (IQR), years*	5	5	-1.26	0.21	14	13	1.71	0.08	22	-3.73	<0.001
English spoken at home	66%	52%	25.8	<0.01	59%	75%	33.9	<0.001	97%	76.1	<0.001
Education: More than secondary school	NA	NA	NA	NA	12%	18%	142.4	<0.001	20%	26.3	0.001
Self-reported diabetes	1.3%	0.5%	1.80	0.18	37%	37%	7.51	0.006	12%	35.4	0.001
Current smoker	NA	NA	NA	NA	67%	60%	0.01	0.92	57%	4.57	0.03
History of eye problems	19%	20%	0.15	0.70	78%	84%	5.38	0.02	84%	1.93	0.17
Normally wear distance glasses	8%	7%	0.64	0.42	26%	32%	4.99	0.03	49%	31.0	<0.001
Normally wear reading glasses	NA	NA	NA	NA	61%	68%	5.16	0.02	74%	8.97	0.003

*: Wilcoxon rank sum test

§: Comparison between non-Indigenous adults and eligible Indigenous adults.

Table 39 The Prevalence of Bilateral Presenting Distant Visual Acuity in NIEHS Participants.

Presenting Distant Visual Acuity	Eligible Indigenous				Ineligible Indigenous				Non-Indigenous Adults (N=136)	
	Children (N=1694)		Adults (N=1189)		Children (N=402)		Adults (N=425)			
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Normal vision ≥6/12	1659	97.9 (97.3, 98.6)	1052	88.5 (86.7, 90.3)	388	96.5 (94.7, 98.3)	381	89.4 (86.4, 92.3)	122	89.7 (84.6, 94.9)
Bilateral vision loss										
<6/12 - ≥6/18	17	1.0 (0.5, 1.5)	75	6.3 (4.9, 7.7)	5	1.1 (0.03, 2.5)	24	5.7 (3.4, 7.8)	9	6.6 (3.0, 12.6)
<6/18 - ≥6/60	8	0.5 (0.2, 0.9)	37	3.1 (2.1, 4.1)	3	0.6 (0.01, 1.8)	10	2.3 (0.9, 3.8)	5	3.7 (1.1, 8.6)
<6/60 - >PL[+]	3	0.2 (0.03, 0.5)	19	1.6 (0.9, 2.3)	1	0.2 (0.005, 1.2)	3	0.7 (0.1, 2.1)	NA	NA
PL/NPL[+]	NA	NA	3	0.3 (0.05, 0.7)	0	NA	2	0.5 (0.1, 1.7)	NA	NA
Missing	7	0.4 (0.2, 0.9)	3	0.3 (0.05, 0.7)	25	5.3 (3.4, 7.8)	5	1.2 (0.4, 2.8)	NA	NA
Low Vision										
<6/12 - ≥6/60	25	1.5 (0.9, 2.1)	112	9.4 (7.8, 11.1)	5	1.2 (0.2, 2.3)	34	8.0 (5.4, 10.6)	14	10.3 (5.1, 15.5)
Blindness										
<6/60	3	0.2 (0.02, 0.5)	22	1.9 (1.1, 2.6)	1	0.2 (0.01, 1.4)	6	1.4 (0.5, 3.1)	NA	NA

[+] PL: Perception of light; NPL: No perception of light

Table 40 The Prevalence of Bilateral Presenting Near Visual Acuity in NIEHS Adult Participants.

Presenting Near Vision	Eligible Indigenous Adults	Ineligible Indigenous Adults	Non-Indigenous Adults
Normally wears reading glasses	725 (61.0%)	253 (59.5%)	101 (74.3%)
Tested with reading glasses	515 (43.3%)	230 (54.1%)	84 (61.8%)
≥N8	709 (59.6%)	247 (58.1%)	95 (69.9%)
<N8 - ≥N20	436 (36.7%)	155 (36.5%)	38 (27.9%)
<N20- ≥N48	24 (2.0%)	11 (2.6%)	2 (1.5%)
<N48	8 (0.7%)	2 (0.5%)	0 (0.0%)
Missing values	12 (1.0%)	10 (2.4%)	1 (0.7%)

10.11.2 The prevalence and causes of vision Loss

The rates and causes of vision loss in Indigenous children

Table 41 The Age Specific Prevalence of Vision Loss in Eligible Indigenous Children by Region.

Children	Total	Low Vision		Blindness	
		n	%	n	%
Major City	156	7	4.49	1	0.64
Inner Regional	271	7	2.58	0	0
Outer Regional	204	3	1.47	0	0
Remote	325	3	0.92	0	0
Very Remote-Coastal	361	4	1.11	1	0.28
Very Remote-Inland	377	1	0.27	1	0.27

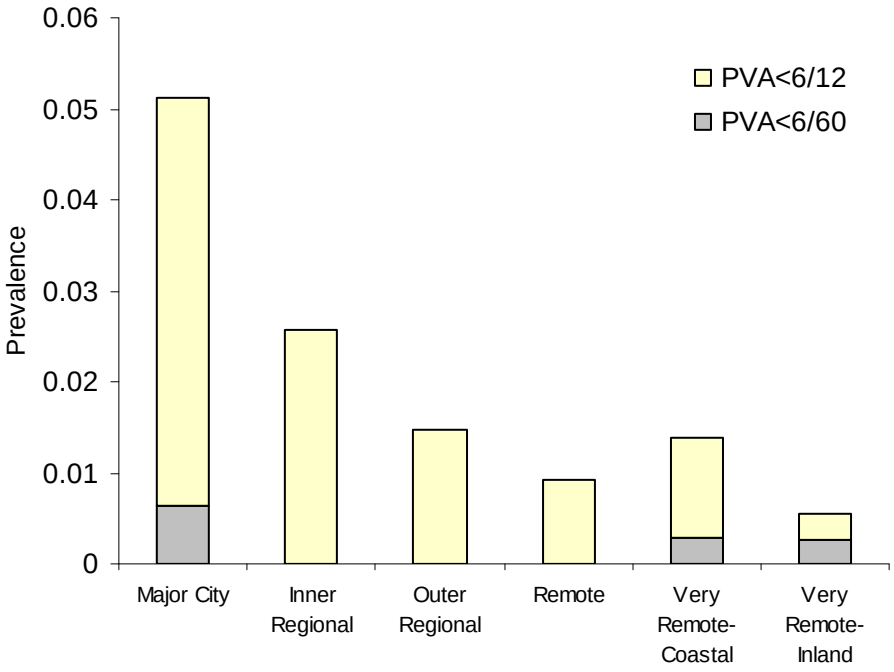


Figure 34 The Age Related Prevalence of Vision Loss for Eligible Indigenous Children by Region.

10.11.3 Comparing rates of low in NIEHS children to Sydney Myopia Study

Calculating age-adjusted rates for vision loss in eligible children

Table 42 Calculating Age-Adjusted Rates for Low Vision in Eligible Indigenous Children.

Children (PVA<6/12)	Study Population (NIEHS)		Standard Population	Crude Rate	Expected Cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
5	4	148	259134	2.6	6737.5
6	0	162	261009	0	0.0
7	2	183	261809	1.08	2827.5
8	4	193	261600	2.02	5284.3
9	4	176	265314	2.22	5889.97
10	4	168	267505	2.33	6232.87
11	1	163	274881	0.61	1676.77
12	2	172	274462	1.15	3156.31
13	2	119	275370	1.65	4543.61
14	2	109	275722	1.8	4963
15	0	69	278488	0	0
Sum			**2,955,294**		**41,312**
Rate					**0.0140**

PVA = Presenting visual acuity

Table 43 Calculating Age-Adjusted Rates for Blindness in Eligible Indigenous Children.

Eligible Children (PVA<6/60)	Study Population (NIEHS)		Standard Population	Crude Rate	Expected Cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
5	0	148	259134	0	0.0
6	0	162	261009	0	0.0
7	0	183	261809	0	0.0
8	1	193	261600	0.51	1334.2
9	1	176	265314	0.56	1485.76
10	0	168	267505	0	0
11	0	163	274881	0	0
12	0	172	274462	0	0
13	0	119	275370	0	0
14	1	109	275722	0.9	2481.5
15	0	69	278488	0	0
Sum			**2,955,294**		**5,301**
Rate					**0.0018**

PVA = Presenting visual acuity

Table 44 Calculating Age Adjusted Rates for Low Vision in Children from The Sydney Myopia Study.

SMS Children (PVA<6/12)	Study Population (NIEHS)		Standard Population	Crude Rate	Expected Cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
5			259,134	1.29	3,343
6			261,009	2.03	5,298
7			261,809	2.78	7,278
8			261,600	3.53	9,234
9			265,314	4.27	11,329
10			267,505	5.02	13,429
11			274,881	5.77	15,861
12			274,462	6.51	17,867
13			275,370	7.26	19,992
14			275,722	8.01	22,085
15			278,488	8.76	24,396
Sum			**2,955,294**		**150,113**
Rate					**0.0508**

PVA = Presenting visual acuity

Crude rates were estimated from SMS study.

Table 45 Vision Loss in Children Examined in the Sydney Myopia Study.

Age	Total	VA<6/12		VA<6/60	
		n	% Vision impairment	n	% Blindness
5	74	2	2.7	-	-
6	1,240	9	0.73	-	-
7	424	8	1.89	-	-
11	112	9	8.04	1	0.89
12	1,667	86	5.16	12	0.72
13	574	41	7.14	14	2.44

Run linear regression model to explore the relationship between prevalence of vision impairment and age.

$Y_{(\text{prevalence of vision impairment})} = 0.747*\text{age} - 2.450$; $R^2 = 0.738$

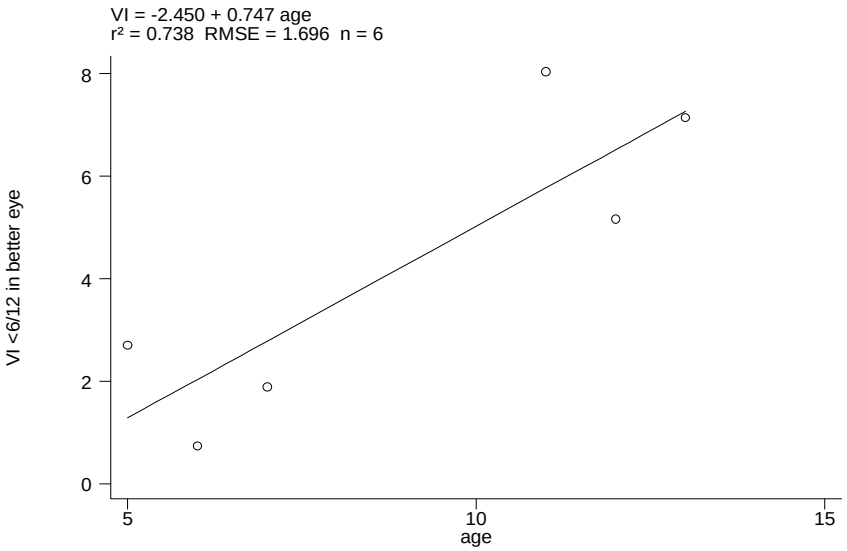


Figure 35 Linear Regression Model to Explore the Relationship between Prevalence of Vision Impairment and Age (41; 42; 43).

Table 46 Predicted Prevalence of Vision Loss.

Age	n	Total	VA<6/12	
			Prevalence of VI (%)	Predicted prevalence of VI (%)
5	2	74	2.7	1.29
6	9	1,240	0.73	2.03
7	8	424	1.89	2.78
8				3.53
9				4.27
10				5.02
11	9	112	8.04	5.77
12	86	1,667	5.16	6.51
13	41	574	7.14	7.26
14				8.01
15				8.76

Table 47 Age Adjusted Prevalence of Vision Loss in Eligible Indigenous Children.

Children	National Survey	Mainstream Australia	Relative Risk
Low Vision*	1.40 (1.38 – 1.44)	6.36 (6.27 – 6.45)*	0.22
Blindness	0.18 (0.17 – 0.18)	0.28 (0.26 – 0.30)	0.64

* from data provided by the Sydney Myopia Study (39;41;42;43).

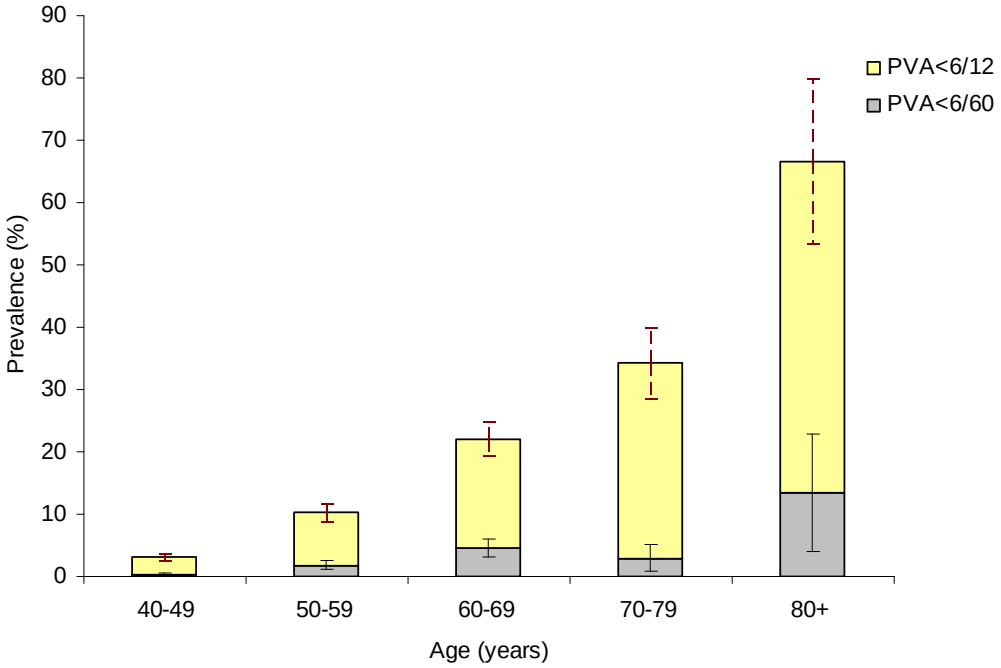


Figure 36 Age Specific Prevalence of Vision Loss in Eligible Indigenous Adults.

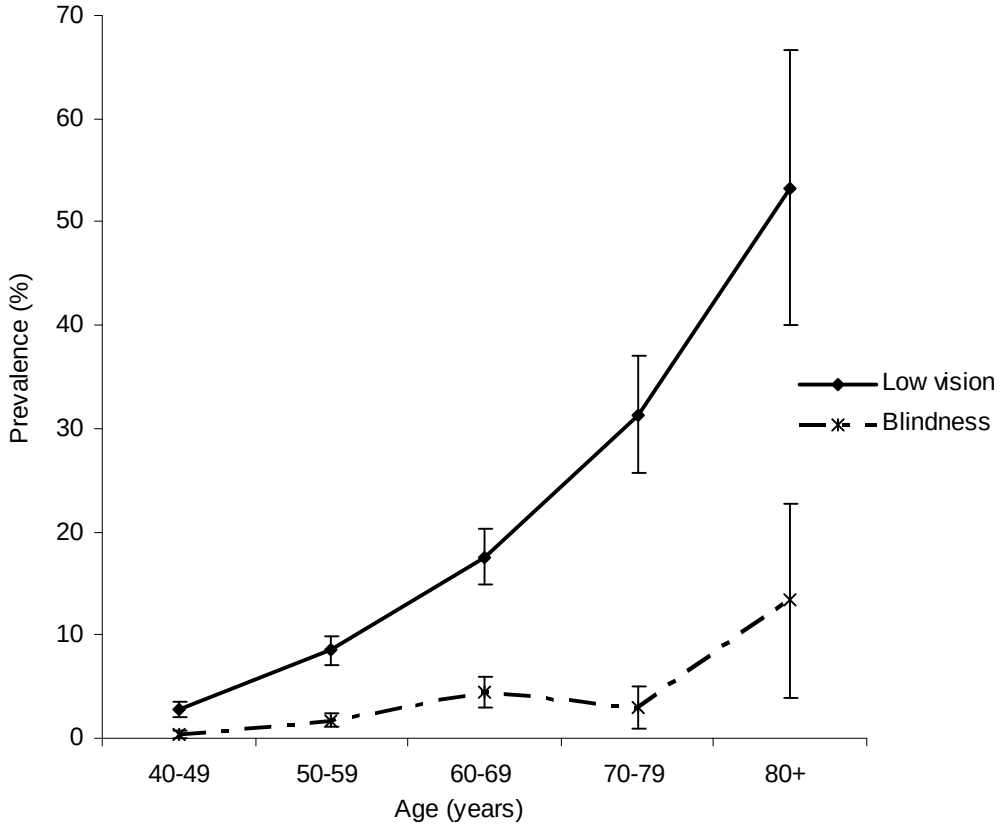


Figure 37 Age Specific Prevalence of Vision Loss in Eligible Indigenous Adults.

10.11.4 Age-related prevalence of vision loss in Indigenous adults by region

Table 48 The Age Specific Prevalence of Vision Loss in Eligible Indigenous Adults by Region.

Adults	Total	Low vision		Blindness	
		n	%	n	%
Major City	117	9	7.69	3	2.56
Inner Regional	167	13	7.78	4	2.4
Outer Regional	168	11	6.55	1	0.6
Remote	245	25	10.2	2	0.82
Very Remote-Coastal	263	25	9.51	3	1.14
Very Remote-Inland	229	29	12.66	9	3.93

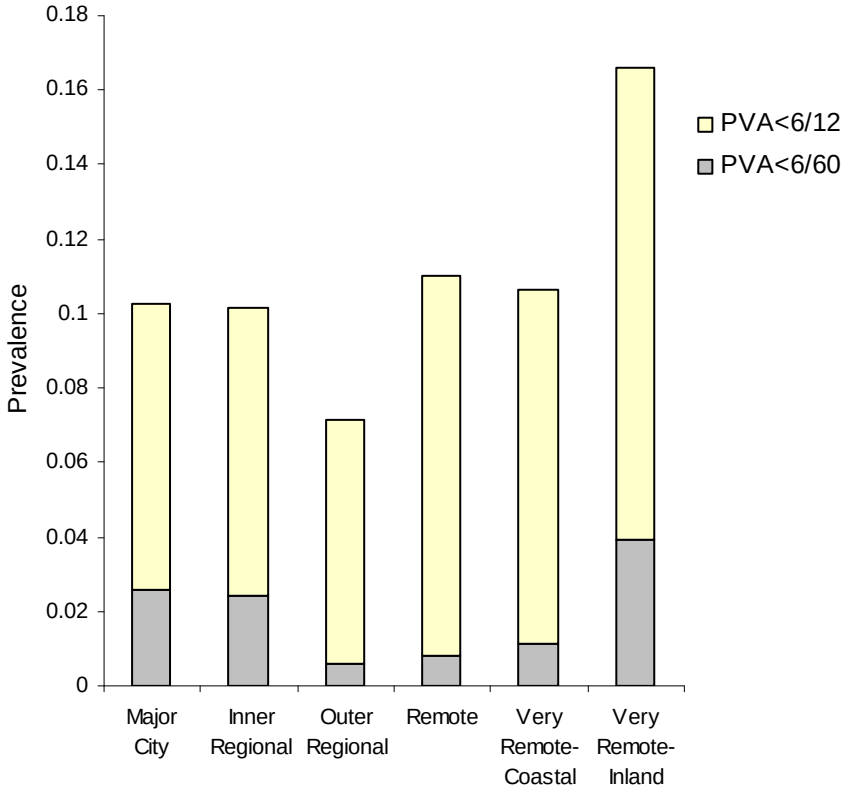


Figure 38 Age-related Prevalence of Vision Loss in Eligible Indigenous Adults by Region.

10.12 Comparing Causes of Low Vision in NIEHS Adults to Non Indigenous Adults from Other Studies

10.12.1 Calculating age-adjusted rates

Table 49 Calculating Age-adjusted Rates of Vision Impairment in NIEHS Eligible Indigenous Adults.

NIEHS - Adults (PVA<6/12)	Study Population (NIEHS)		Standard Population	Crude rate	Expected cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
40-49	14	507	2,918,381	0.0276134	80586.46
50-59	34	401	2,550,391	0.084788	216242.6
60-69	35	199	1,715,464	0.1758794	301714.8
70-79	21	67	1,159,664	0.3134328	363476.8
80-89	8	15	618,799	0.5333334	330026.2
Sum	**112**	**1,189**	**8,962,699**		1292046.86
Rate				**0.094**	**0.1442**

PVA = Presenting visual acuity

Table 50 Calculating Age-adjusted Rates of Vision Impairment in Eligible Indigenous Adults from Melbourne Vision Impairment Project (MVIP) and Blue Mountain Eye Study (BMES).

MVIP+BMES (PVA<6/12)	Study Population (MVIP+BMES)		Standard Population	Crude Rate	Expected cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
40-49			2918381	0.0067	19553.15
50-59			2550391	0.0228	58148.91
60-69			1715464	0.0451	77367.43
70-79			1159664	0.1141	132317.7
80-89			618799	0.2875	177904.7
Sum			**8962699**		465291.89
Rate					**0.052**

PVA = Presenting visual acuity

Table 51 Calculating Age-adjusted Rates of Blindness in NIEHS Eligible Indigenous Adults.

NIEHS - Adults (PVA<6/60)	Study Population (NIEHS)		Standard Population	Crude rate	Expected cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
40-49	2	507	2918381	0.004	11512.35
50-59	7	401	2550391	0.017	44520.54
60-69	9	199	1715464	0.045	77583.8
70-79	2	67	1159664	0.030	34616.84
80-89	2	15	618799	0.133	82506.54
Sum	**22**	**1,189**	**8962699**		250740.07
Rate				**0.0185**	**0.0280**

PVA = Presenting visual acuity

Table 52 Calculating Age-adjusted Rates of Blindness in Eligible Adults from Melbourne Vision Impairment Project (MVIP) and Blue Mountain Eye Study (BMES).

MVIP+BMES (PVA<6/60)	Study Population (MVIP+BMES)		Standard Population	Crude Rate	Expected cases
	Case	Population	(AU ABS- 2006)		
Age Groups	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
40-49			2918381	0	0
50-59			2550391	0.0009	2295.352
60-69			1715464	0.0029	4974.846
70-79			1159664	0.0068	7885.715
80-89			618799	0.0412	25494.52
Sum			**8962699**		40650.433
Rate					**0.0045**

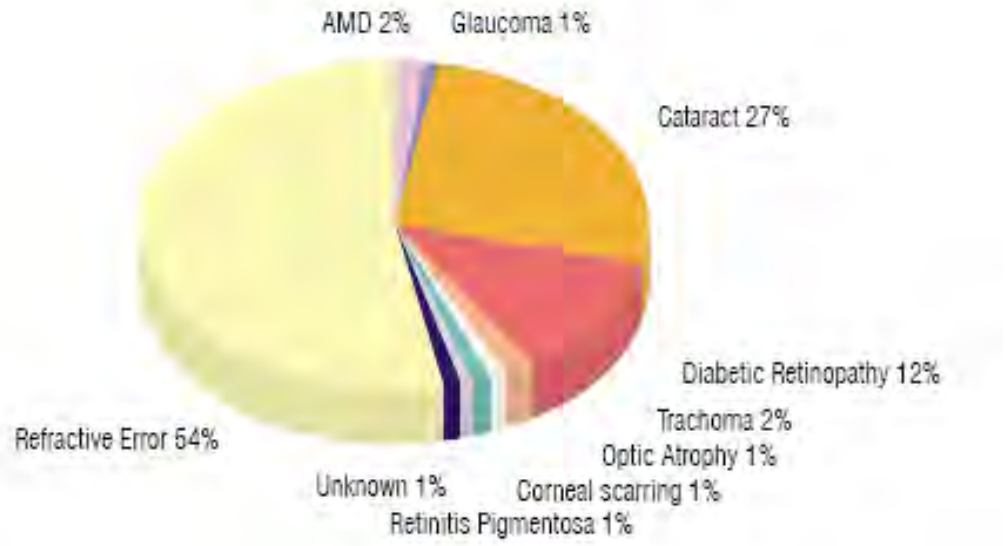


Figure 39 Causes of Vision Impairment in NIEHS Eligible Indigenous Adults

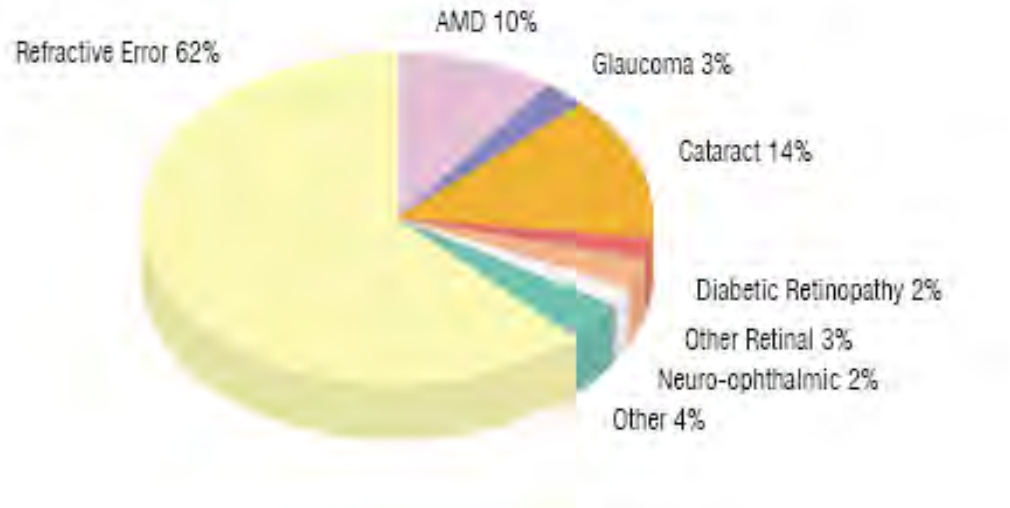


Figure 40 Causes of Vision Impairment in Non-Indigenous Adults Examined in Melbourne Visual Impairment Project and Blue Mountains Eye Study.

10.12.2 The causes of blindness in NIEHS eligible Indigenous adults

Figure 41 Causes of Blindness in NIEHS Eligible Indigenous Adults.

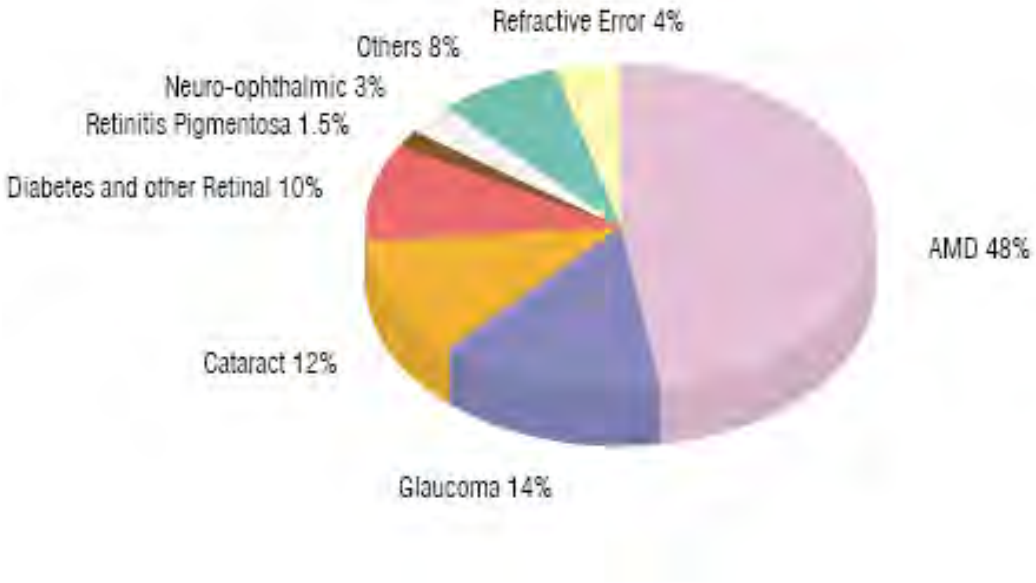


Figure 42 Causes of Blindness in Non-Indigenous Adults Examined During Melbourne Visual Impairment Project and Blue Mountains Eye Study.

Table 53 Age-Adjusted Prevalence of Vision Loss in Eligible Indigenous Adults Compared to Mainstream Australia.

Adults	National Survey	Mainstream Australia	Relative Risk
Low Vision	14.42 (14.39 – 14.43)	5.19 (5.17 – 5.20)§	2.78
Blindness	2.79 (2.78 – 2.81)	0.45 (0.44 – 0.46) §	6.20

+ Age-adjusted to the Australian population (39)
§ from Melbourne Visual Impairment Project and Blue Mountains Eye Study (40)

Table 54 The Prevalence of Vision Loss in Eligible Indigenous Adults and Children by State and Region.

	Children		Adults			Children		Adults	
State	**Low Vision**	**Blindness**	**Low Vision**	**Blindness**	**Regions**	**Low Vision**	**Blindness**	**Low Vision**	**Blindness**
NSW	9 (3.3%)	1 (0.4%)	14 (5.7%)	6 (2.4%)	**Major City**	7 (4.5%)	1 (0.6%)	9 (7.7%)	3 (2.6%)
NT	2(0.8%)	0 (0%)	18 (9.1%)	6 (3%)	**Inner Regional**	7 (2.6%)	0 (0%)	13 (7.8%)	4 (2.4%)
QLD	3 (0.9%)	0 (0.3%)	30 (11.6%)	1 (0.4%)	**Outer Regional**	3 (1.5%)	0 (0%)	11 (6.6%)	1 (0.6%)
SA	0 (0%)	0 (0%)	12 (9.3%)	2 (1.6%)	**Remote**	3 (0.9%)	0 (0%)	25 (10.2%)	2 (0.8%)
TAS	0 (0%)	0 (0%)	2 (4.7%)	0 (0%)	**Very Remote Coastal**	4 (1.1%)	1 (0.3%)	25 (9.5%)	3 (1.1%)
VIC	0 (0%)	0 (0%)	2 (6.9%)	2 (6.9%)	**Very Remote Inland**	1 (0.3%)	1 (0.3%)	29 (12.7%)	9 (3.9%)
WA	11 (1.9%)	1 (0.2%)	34 (12%)	5 (1.8%)	**TOTAL**	25 (1.5%)	3 (0.2%)	112 (9.4%)	22 (1.9%)

Table 55 Causes of Bilateral Vision Loss in NIEHS Participants.

Causes of vision loss	Eligible Indigenous				Ineligible Indigenous				Non-Indigenous	
	Children (N=25)		Adults (N=112)		Children (N=5)		Adults (N=34)		Adults (N=14)	
Low Vision (<6/12 - ≥6/60)	n		n		n		n		n	
Refractive Error	14	56%	60	54%	1	20%	18	53%	5	36%
Cataract	-	-	30	27%	-	-	12	35%	6	43%
Diabetic Retinopathy	-	-	13	12%	-	-	-	-	1	7.1%
AMD	-	-	2	1.8%	-	-	-	-	-	-
Glaucoma	-	-	1	0.9%	-	-	-	-	1	7.1%
Trachoma	-	-	2	1.8%	-	-	-	-	-	-
Corneal Scar	-	-	1	0.9%	-	-	-	-	-	-
Retinitis Pigmentosa	-	-	1	0.9%	-	-	-	-	1	7.1%
Optic Atrophy	-	-	1	0.9%	-	-	-	-	-	-
Retinal Vascular Occlusion	-	-	-	-	-	-	1	2.9%	-	-
Congenital Nystagmus	1	4%	-	-	1	20%	-	-	-	-
Unknown	10	40%	1	0.9%	3	60%	3	8.8%	-	-
Blindness (<6/60)	**Children (N=3)**		**Adults (N=22)**		**Children (N=1)**		**Adults (N=6)**		**Adults (N=0)**	
Refractive Error	1	33%	3	14%	1	100%	1	17%	-	-
Cataract	-	-	7	32%	-	-	3	50%	-	-
Diabetic Retinopathy	-	-	2	9.1%	-	-	-	-	-	-
AMD	-	-	-	-	-	-	1	17%	-	-
Glaucoma	-	-	-	-	-	-	1	17%	-	-
Optic Atrophy	-	-	3	14%	-	-	-	-	-	-
Trauma	-	-	1	4.5%	-	-	-	-	-	-
Trachoma	-	-	2	9.1%	-	-	-	-	-	-
Retinal Detachment	-	-	1	4.5%	-	-	-	-	-	-
Unknown	2	67%	3	14%	-	-	-	-	-	-

Table 56 Causes of Unilateral Vision Loss in NIEHS Participants.

Causes of vision loss	Eligible Indigenous				Ineligible Indigenous				Non-Indigenous	
	Children (N=32)		Adults (N=152)		Children (N=5)		Adults (N= 56)		Adults (N=19)	
Low Vision (<6/12 - ≥6/60)	n		n		n		n		n	
Refractive Error	15	47%	89	59%	2	40%	29	52%	12	63%
Cataract	-	-	28	18%	1	20%	9	16%	5	26%
Diabetic Retinopathy	-	-	10	6.6%	-	-	4	7.1%	-	-
Amblyopia	6	19%	4	2.6%	-	-	3	5.4%	2	10%
AMD	-	-	3	2.0%	-	-	2	3.6%	-	-
Glaucoma	-	-	2	1.3%	-	-	-	-	-	-
Trauma	-	-	2	1.3%	-	-	1	1.8%	-	-
Optic Atrophy	-	-	1	0.7%	-	-	-	-	-	-
Macular Scar	-	-	1	0.7%	-	-	-	-	-	-
Climatic Droplet Keratopathy	-	-	1	0.7%	-	-	-	-	-	-
Corneal Scarring	-	-	-	-	-	-	1	1.8%	-	-
Retinal Detachment	-	-	-	-	-	-	1	1.8%	-	-
Congenital Coloboma	-	-	1	0.7%	-	-	-	-	-	-
Retinal Vascular Occlusion	-	-	-	-	-	-	1	1.8%		
Unknown	11	34%	10	6.6%	2	40%	5	8.9%	-	-
Blindness (<6/60)	**Children (N=5)**		**Adults (N=32)**		**Children (N=2)**		**Adults (N=16)**		**Adults (N=2)**	
Refractive Error	1	20%	3	9.4%	-	-	-	-	-	-
Cataract	-	-	7	22%	1	50%	5	31%	-	-
Diabetic Retinopathy	-	-	4	13%	-	-	-	-	-	-
Amblyopia	2	40%	1	3.1%	-	-	3	19%	-	-
AMD	-	-	3	9.4%	-	-	-	-	-	-
Trauma	-	-	9	28%	-	-	6	38%	-	-
Corneal Scarring	-	-	1	3.1%	-	-	1	6.2%	1	50%
Retinal Detachment	-	-	1	3.1%	-	-	-	-	1	50%
Pterygium / Keratoconus	-	-	1	3.1%	-	-	1	6.2%	-	-
Unknown	2	40%	2	6.2%	1	50%	-	-	-	-

10.13 Refractive Error

Table 57 Uncorrected Refractive Error for Distance Vision in Eligible Indigenous Adults and Children by Region and State.

	Children		Adult			Children		Adult	
State	VI	Percent with correction	VI	Percent with correction	Regions	VI	Percent with correction	VI	Percent with correction
NSW	3 (1.1%)	6 (2.2%)	10 (4.1%)	60 (24%)	**Major City**	4 (2.6%)	0 (0%)	7 (6.0%)	38 (32%)
NT	2 (0.82%)	2 (0.82%)	12 (6.1%)	6 (3.0%)	**Inner Regional**	3 (1.1%)	6 (2.2%)	7 (4.2%)	37 (22%)
QLD	2 (0.58%)	5 (1.5%)	16 (6.2%)	56 (22%)	**Outer Regional**	1 (0.49%)	0 (0%)	5 (3.0%)	23 (14%)
SA	0 (0%)	0 (0%)	8 (6.2%)	17 (13%)	**Remote**	3 (0.92%)	4 (1.2%)	16 (6.5%)	38 (16%)
TAS	0 (0%)	1 (3.1%)	2 (4.7%)	13 (30%)	**Very Remote Coastal**	2 (0.55%)	3 (0.83%)	11 (4.2%)	30 (11%)
VIC	0 (0%)	0 (0%)	1 (3.5%)	6 (21%)	**Very Remote Inland**	2 (0.53%)	5 (1.3%)	17 (7.4%)	20 (8.7%)
WA	8 (1.3%)	4 (0.67%)	14 (4.9%)	28 (9.9%)	**Total**	15 (0.89%)	18 (1.1%)	63 (5.3%)	186 (16%)

Table 58 Presenting Near Visual Acuity in Eligible Indigenous Adults by Region and State.

States	Difficulty with near (<N8)	Have reading glasses	Regions	Difficulty with near (<N8)	Have reading glasses
NSW	107 (43%)	79 (74%)	**Major City**	56 (48%)	42 (75%)
NT	79 (40%)	39 (49%)	**Inner Regional**	60 (36%)	40 (67%)
QLD	57 (22%)	39 (68%)	**Outer Regional**	69 (41%)	48 (70%)
SA	54 (42%)	35 (65%)	**Remote**	76 (31%)	49 (64%)
TAS	6 (14%)	5 (83%)	**Very Remote Coastal**	111 (42%)	66 (59%)
VIC	9 (31%)	3 (33%)	**Very Remote Inland**	96 (42%)	48 (50%)
WA	156 (55%)	93 (60%)	**Total**	468 (39%)	293 (63%)

10.14 Cataract

Table 59 Prevalence of Vision Loss due to Cataract and Cataract Coverage Rate in Eligible Indigenous Adults by State and Region.

State	Prevalence of vision loss due to cataract	Cataract surgery coverage*	Regions	Prevalence of vision loss due to cataract	Cataract surgery coverage*
NSW	3 (1.2%)	4 (57%)	**Major City**	3 (2.6%)	4 (57%)
NT	8 (4.1%)	11 (58%)	**Inner Regional**	3 (1.8%)	9 (75%)
QLD	10 (3.9%)	22 (69%)	**Outer Regional**	4 (2.4%)	6 (60%)
SA	2 (1.6%)	7 (78%)	**Remote**	5 (2.1%)	10 (67%)
TAS	0 (0%)	0 (0%)	**Very Remote Coastal**	10 (3.8%)	19 (66%)
VIC	0 (0%)	2 (100%)	**Very Remote Inland**	12 (5.3%)	20 (63%)
WA	14 (5.0%)	68 (61%)	**TOTAL**	37 (3.1%)	68 (65%)

*The proportion of people who have had cataract surgery compared with those affected by cataract with vision loss or already operated on

10.15 Diabetes

Table 60 Prevalence of Diabetes and Vision Loss, Examination Rate and Treatment Coverage Rate.

State	Prevalence of Diabetes	Number with Diabetes			Regions	Prevalence of Diabetes	Number with Diabetes		
		Vision Loss*	Examined**	Treated***			Vision Loss*	Examined**	Treated***
NSW	60 (24%)	8 (13%)	13 (22%)	3 (25%)	**Major City**	41 (35%)	6 (15%)	8 (20%)	2 (50%)
NT	81 (41%)	8 (9.9%)	14 (17%)	2 (25%)	**Inner Regional**	51 (31%)	5 (9.8%)	9 (18%)	6 (46%)
QLD	97 (37%)	16 (16%)	30 (31%)	10 (43%)	**Outer Regional**	55 (33%)	7 (13%)	11 (20%)	3 (27%)
SA	66 (51%)	7 (11%)	9 (14%)	3 (23%)	**Remote**	94 (38%)	8 (8.5%)	13 (14%)	8 (36%)
TAS	6 (14%)	0 (0%)	0 (0%)	0 (0%)	**Very Remote Coastal**	105 (40%)	12 (11%)	28 (27%)	6 (38%)
VIC	14 (48%)	3 (21%)	2 (14%)	1 (50%)	**Very Remote Inland**	98 (43%)	18 (18%)	18 (18%)	5 (33%)
WA	120 (42%)	14 (12%)	19 (16%)	30 (37%)	**TOTAL**	444 (37%)	56 (13%)	87 (20%)	30 (37%)

*Percent of people who have diabetes and who have vision loss
**1Percent of people with diabetes who have had an eye exam in the last year
***1Percent of people with diabetic retinopathy requiring laser surgery who have been treated

10.16 The Prevalence of Trachoma Results

10.16.1 The prevalence of trachoma in eligible Indigenous children

Table 61 The Prevalence of Active Trachoma and Scarring in Eligible Indigenous Children.

Remoteness Area/Site					
Very Remote Inland	**State**	**n**	**TF**	**TI**	**TS**
	WA	73	8 (11%)	2 (2.7%)	0 (0%)
	NT	44	2 (4.5%)	0 (0%)	1 (2.3%)
	NT	61	14 (23%)	5 (8.2%)	1 (1.6%)
	WA	82	3 (3.7%)	0 (0%)	0 (0%)
	QLD	112	0 (0%)	0 (0%)	0 (0%)
Sub-Total		372	27 (7.3%)	7 (1.9%)	2 (0.5%)
Very Remote Coastal					
	WA	94	12 (13%)	2 (2.1%)	1 (1.1%)
	QLD	43	4 (9.3%)	0 (0%)	1 (2.3%)
	WA	61	1 (1.6%)	0 (0%)	0 (0%)
	QLD	79	8 (10%)	1 (1.3%)	0 (0%)
	NT	82	1 (1.2%)	1 (1.2%)	1 (1.2%)
Sub-Total		359	26 (7.2%)	4 (1.1%)	3 (0.8%)
Remote					
	NT	52	1 (1.9%)	0 (0%)	0 (0%)
	SA	100	1 (1.0%)	0 (0%)	0 (0%)
	QLD	44	0 (0%)	0 (0%)	1 (2.3%)
	WA	85	3 (3.5%)	0 (0%)	0 (0%)
	TAS	32	0 (0%)	0 (0%)	0 (0%)
Sub-Total		313	5 (1.6%)	0 (0%)	1 (0.3%)
Outer Regional					
	SA	64	2 (3.1%)	0 (0%)	0 (0%)
	NSW	29	0 (0%)	0 (0%)	0 (0%)
	WA	44	0 (0%)	0 (0%)	0 (0%)
	QLD	44	0 (0%)	0 (0%)	0 (0%)
	NSW	20	0 (0%)	0 (0%)	0 (0%)
Sub-Total		201	2 (1.0%)	0 (0%)	0 (0%)
Inner Regional					
	ACT	45	0 (0%)	0 (0%)	0 (0%)
	WA	106	1 (0.9%)	0 (0%)	0 (0%)
	NSW	29	0 (0%)	0 (0%)	0 (0%)
	VIC	32	0 (0%)	0 (0%)	0 (0%)
	NSW	56	2 (3.6%)	0 (0%)	0 (0%)
Sub-Total		268	3 (1.1%)	0 (0%)	0 (0%)
Major City					
	NSW	62	1 (1.6%)	0 (0%)	0 (0%)
	QLD	12	0 (0%)	0 (0%)	0 (0%)
	NSW	35	0 (0%)	0 (0%)	0 (0%)
	WA	44	0 (0%)	0 (0%)	0 (0%)
	VIC	1	0 (0%)	0 (0%)	0 (0%)
Sub-Total		154	1 (0.6%)	0 (0%)	0 (0%)
Total		1667	64 (3.8%)	11 (0.7%)	6 (0.4%)

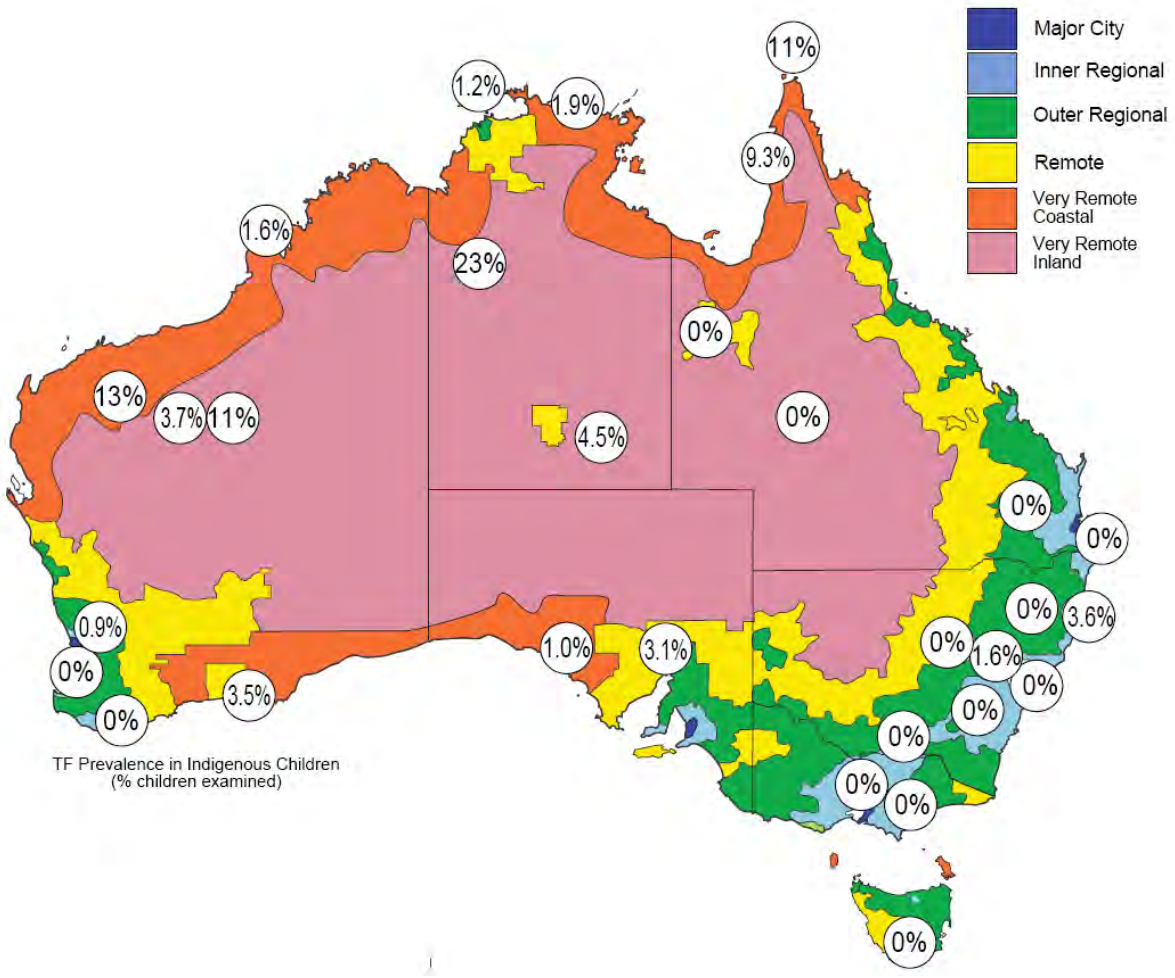


Figure 43 Map of Australia Showing the Prevalence of Active Trachoma in Indigenous Children (5-15 years).

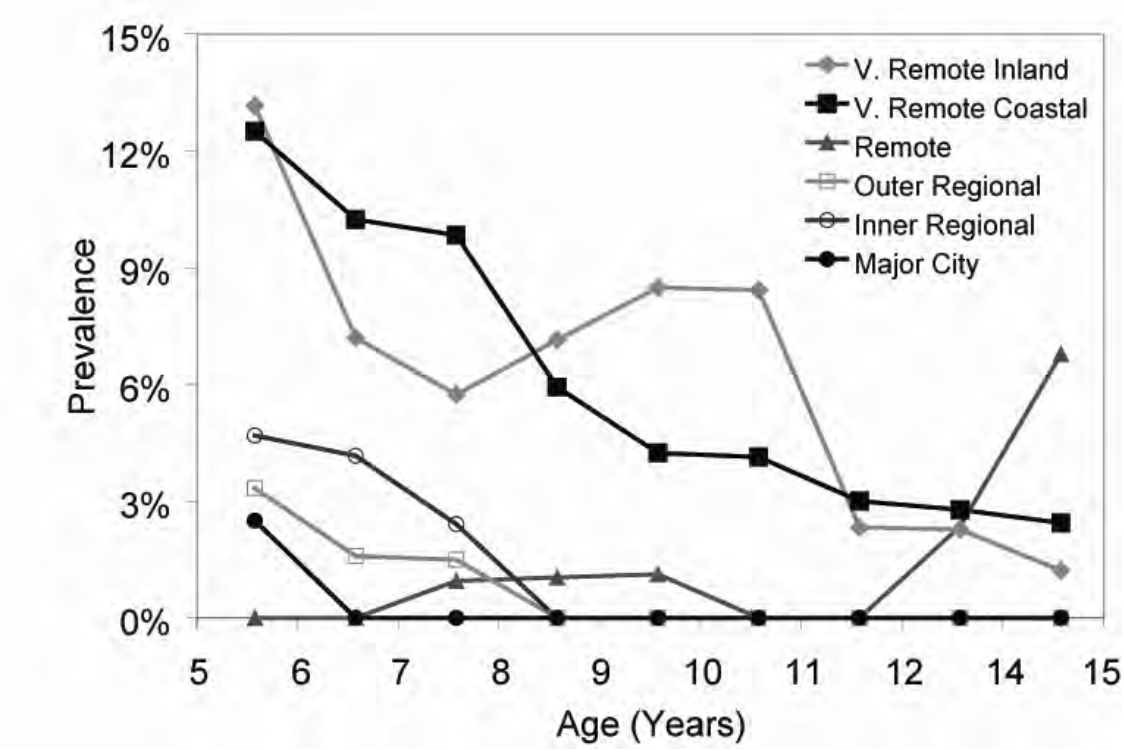


Figure 44 Prevalence of Active Trachoma in Indigenous Children (3 year rolling average).

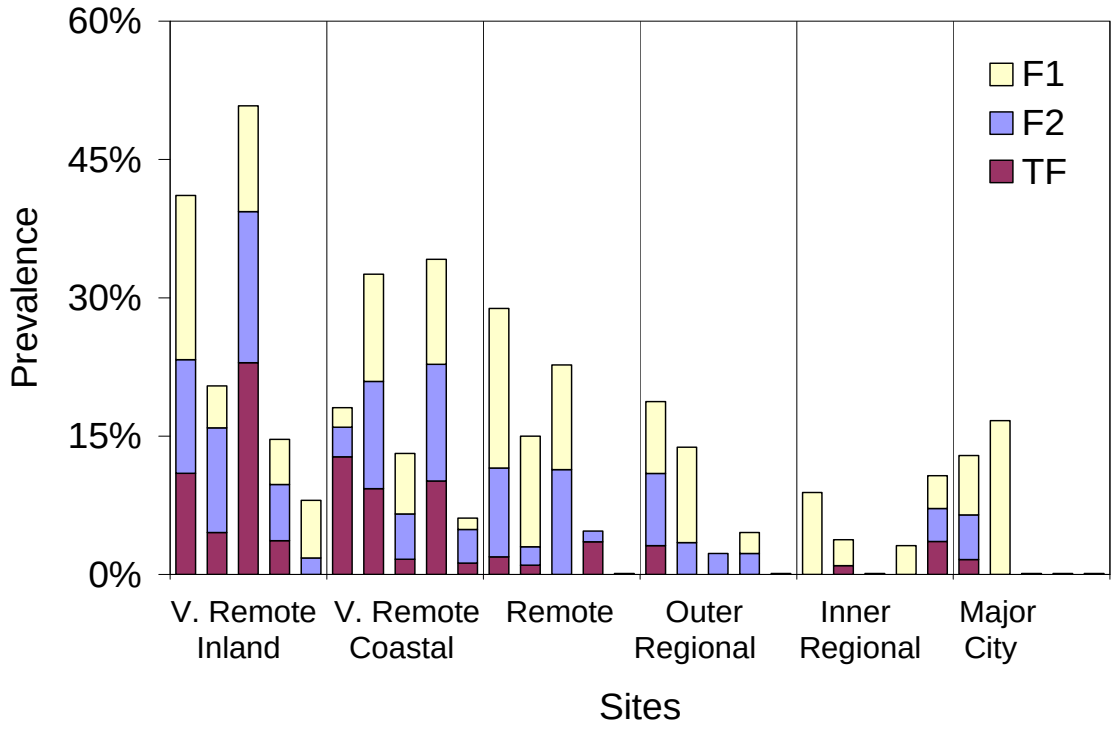


Figure 45 Prevalence of Follicular Trachoma in Indigenous Children by Remoteness Area.

10.16.2 The prevalence of trachoma in eligible Indigenous adults

Table 62 The Prevalence of Trachomatous Scarring in Indigenous Adults.

Remoteness Area/Site	State	n	TS	TT	CO
Very Remote Inland					
	WA	60	35 (58%)	3 (5.0%)	2 (3.3%)
	NT	38	21 (55%)	3 (7.9%)	0 (0%)
	NT	48	27 (56%)	7 (15%)	1 (2.1%)
	WA	22	6 (27%)	0 (0%)	0 (0%)
	QLD	59	1 (1.7%)	0 (0%)	0 (0%)
Sub-Total		227	90 (40%)	13 (5.7%)	3 (1.3%)
Very Remote Coastal					
	WA	27	8 (30%)	0 (0%)	0 (0%)
	QLD	50	6 (12%)	1 (2.0%)	0 (0%)
	WA	46	1 (2.2%)	0 (0%)	0 (0%)
	QLD	72	2 (2.8%)	0 (0%)	0 (0%)
	NT	59	1 (1.7%)	0 (0%)	0 (0%)
Sub-Total		254	18 (7.1%)	1 (0.4%)	0 (0%)
Remote					
	NT	50	17 (34%)	0 (0%)	0 (0%)
	SA	82	14 (17%)	1 (1.2%)	0 (0%)
	QLD	36	7 (19%)	0 (0%)	0 (0%)
	WA	32	2 (6.3%)	0 (0%)	0 (0%)
	TAS	42	0 (0%)	0 (0%)	0 (0%)
Sub-Total		242	40 (17%)	1 (0.4%)	0 (0%)
Outer Regional					
	SA	46	13 (28%)	0 (0%)	0 (0%)
	NSW	52	6 (12%)	0 (0%)	0 (0%)
	WA	25	3 (12%)	1 (4.0%)	0 (0%)
	QLD	20	0 (0%)	0 (0%)	0 (0%)
	NSW	24	0 (0%)	0 (0%)	0 (0%)
Sub-Total		167	22 (13%)	1 (0.6%)	0 (0%)
Inner Regional					
	ACT	26	3 (12%)	0 (0%)	0 (0%)
	WA	43	3 (7.0%)	0 (0%)	0 (0%)
	NSW	39	2 (5.1%)	0 (0%)	0 (0%)
	VIC	24	0 (0%)	0 (0%)	0 (0%)
	NSW	33	0 (0%)	0 (0%)	0 (0%)
Sub-Total		165	8 (4.8%)	0 (0%)	0 (0%)
Major City					
	NSW	45	3 (6.7%)	0 (0%)	0 (0%)
	QLD	15	1 (6.7%)	0 (0%)	0 (0%)
	NSW	27	1 (3.7%)	0 (0%)	0 (0%)
	WA	25	1 (4.0%)	0 (0%)	0 (0%)
	VIC	4	0 (0%)	0 (0%)	0 (0%)
Sub-Total		116	6 (5.2%)	0 (0%)	0 (0%)
Total		1171	184 (16%)	16 (1.4%)	3 (0.3%)

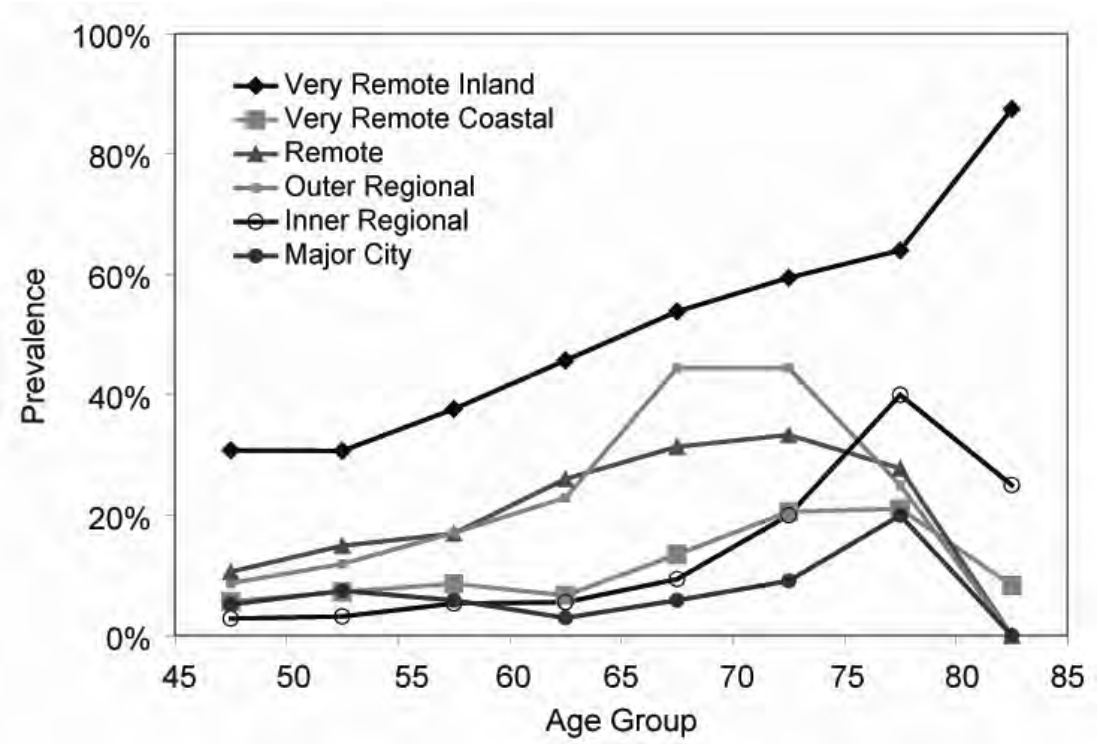


Figure 46 Prevalence of Trachomatous Scarring in Indigenous Adults (15 year rolling average).

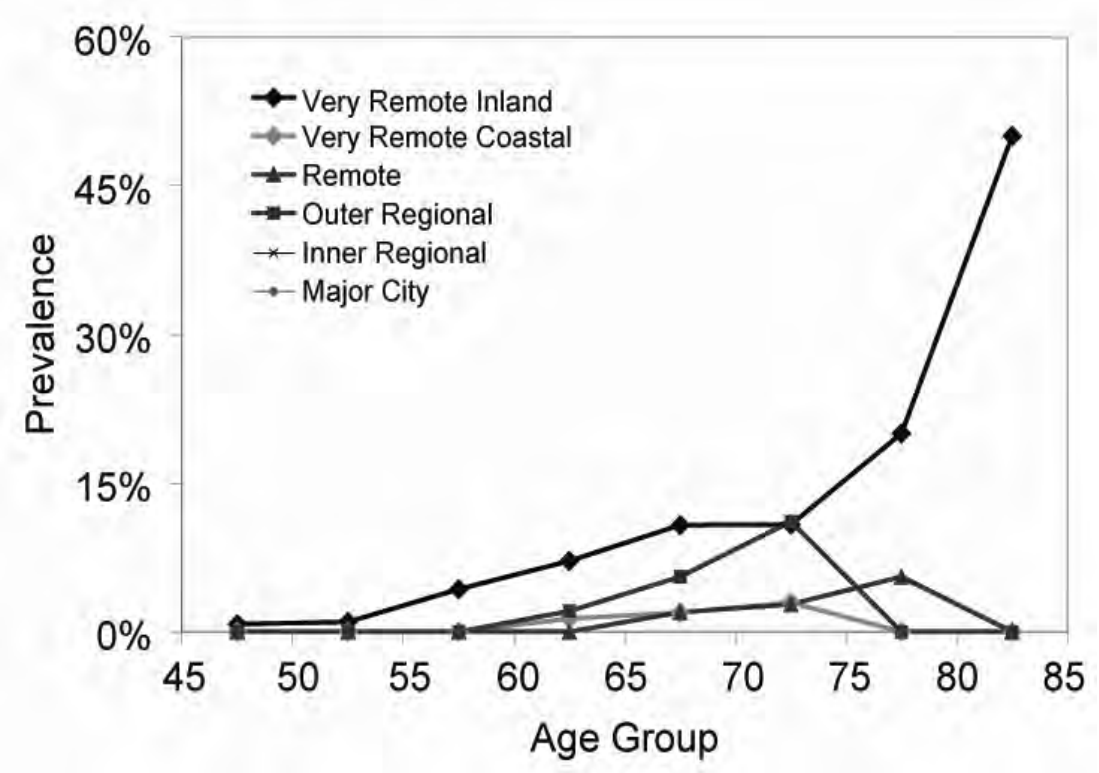


Figure 47 Prevalence of Trichiasis in Indigenous Adults (15 year rolling average).

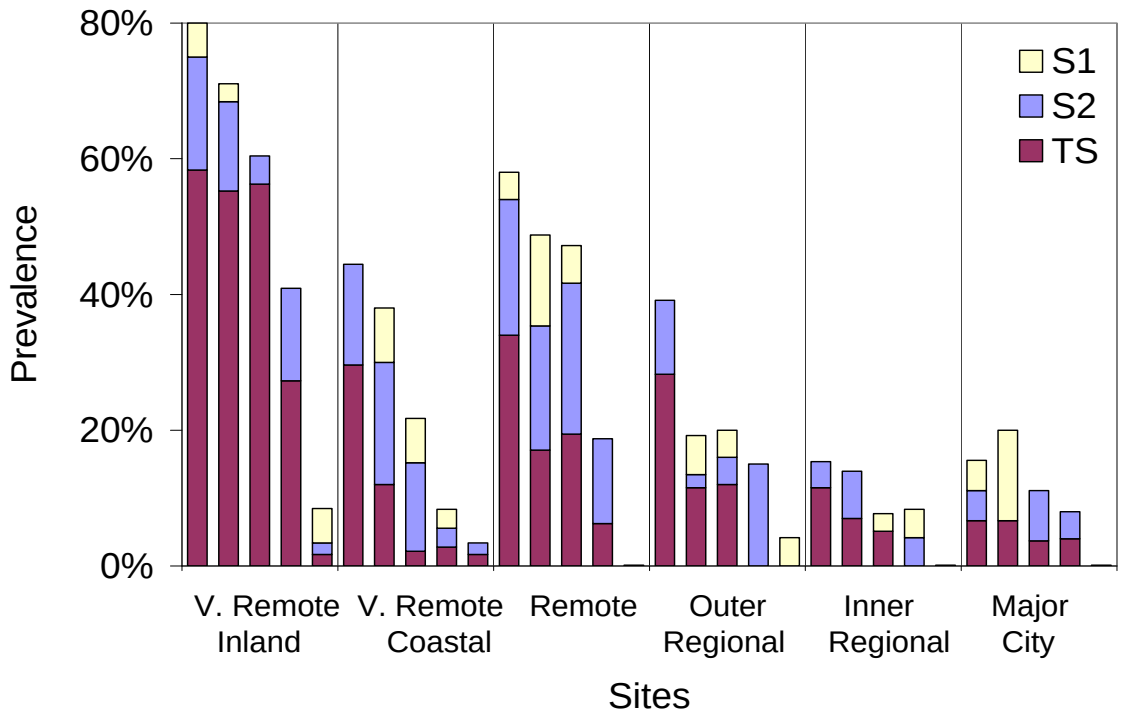


Figure 48 Prevalence of Trachomatous Scarring in Indigenous Adults by Remoteness Area.

10.16.3 The distribution of active trachoma in children (5 to 15 years)

Table 63 The Prevalence of Trachoma in Eligible in Indigenous Adults and Children by State and Region.

Region	Active Trachoma (TF (in Children	Communities with Endemic Trachoma *	Scarring in Adults (TS)	Inturned Eyelashes in Adults (TT)	Corneal Blindness in Adults (CO)
Very Remote Inland	7.3%	3/5	40%	5.7%	1.3%
Very Remote Coastal	7.2%	3/5	7%	0.4%	0%
Remote	1.6%	0/5	17%	0.4%	0%
Outer Regional	1.0%	1/5	13%	0.6%	0%
Inner Regional	1.1%	0/5	4.8%	0%	0%
Major City	0.6%	0/5	5.2%	0%	0%
Total	3.8%	7/30	16%	1.4%	0%

Percent of communities with TF ≥ 5% in children 5 – 9 years (This age group is consistent with data in NTSRU) (8).

10.16.4 Calculating age-adjusted rate of TF in eligible Indigenous children

Table 64 Calculating Age-Standardised Prevalence of Trachoma in Eligible Indigenous Children.

Age Groups	Study Population (NIEHS)		Standard Population	Crude rate	Expected cases
	Case	Population	(AU ABS-2006)		
	d_i	p_i	S_i	$r_i = d_i/p_i$	$D_i = r_i * S_i$
5	15	149	259134	10.07	26094.79
6	7	160	261009	4.38	11432.19
7	14	180	261809	7.78	20368.74
8	5	196	261600	2.55	6670.8
9	4	177	265314	2.26	5996.096
10	8	170	267505	4.71	12599.49
11	3	164	274881	1.83	5030.322
12	2	171	274462	1.17	3211.205
13	0	121	275370	0	0
14	4	110	275722	3.64	10036.28
15	2	69	278488	2.9	8076.152
Sum	**64**	**1667**	**2955294**	**3.84**	**109516.07**
Rate					**0.0371**

10.17 NIEHS Published Manuscripts

10.17.1 Ethical hurdles in Indigenous research

doi: 10.1111/j.1753-6405.2008.00289.x

Ethical hurdles in Indigenous research

Hugh R. Taylor

Melbourne School of Population Health, The University of Melbourne and Vision Cooperative Research Centre, University of New South Wales

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The National Indigenous Eye Health Survey is a multistage randomised cluster survey. Thirty sites were selected across Australia. The survey is led by Professor Hugh Taylor of the University of Melbourne and originated in the Centre for Eye Research Australia. Its overall activities are reviewed and approved by an Advisory Group chaired by the Hon. Dr Michael Wooldridge (former Federal Minister for Health) and includes representatives of the Royal Australian and New Zealand College of Ophthalmologists (RANZCO), the Optometrists Association of Australia, the Office for Aboriginal and Torres Strait Islander Health (OATSIH), the National Aboriginal Community Controlled Health Organisation (NACCHO), the Vision Co-operative Research Centre and the Co-operative Research Centre for Aboriginal Health. Technical input is provided by a Steering Committee that includes ophthalmologists who serve Indigenous communities from each State, optometrists and a representative of the Office for Aboriginal and Torres Strait Islander Health.

The major funding for the survey comes from the RANZCO Eye Foundation which considered a funding proposal after it had been reviewed by the Research Committee of the Ophthalmic Research Institute of Australia. Additional funding comes from the Vision CRC which reviewed and approved the project agreement.

Initial Primary Ethical Approval was sought and obtained from the Human Research Ethics Committee of the Royal Victorian Eye and Ear Hospital in February 2007 and formal approval of the full application in September 2007. To date, there have been four revisions and amendments to reflect input from subsequent reviews.

A proposal that included a completed National Ethics Application Form (NEAF) was submitted to the CRC for Aboriginal Health Board for review and approved. Wherever possible, the NHMRC endorsed NEAF was used although a number of review boards would not consider applications unless submitted on their own distinct forms.

After a face-to-face meeting in the offices of NACCHO, a similar pack was submitted to the NACCHO Board in March 2007 and approved in September 2007.

At the request of OATSIH, the detailed sampling strategy was discussed with staff at the Australian Bureau of Statistics in June 2007 who strongly endorsed the approach used.

In Victoria, the project was discussed with VACCHO in September 2007 (no formal application was required) and the two AMS agreed to participate after meetings to explain the program and a Memorandum of Understanding was signed with each group.

In the ACT, approval was obtained from the ACT Health Human Research Committee in November 2007 after one submission with the request for some minor changes to the consent material. In principle support of the local, AMS was received in October 2007 but a series of face to face meetings and negotiations were needed before a Memorandum of Understanding was finally signed in May 2008.

In New South Wales, an initial discussion was held with the Aboriginal Health and Medical Research Council in June 2007 and after further discussion, a full application was lodged in October. This application was not accepted and further telephone calls took place before the revised forms were submitted in January 2008 and approved in March 2008. Letters of support were received from each of the six AMS involved, although several required conference calls to explain the nature of the survey.

In the Top End of the Northern Territory, the NEAF was not accepted when it was lodged in October 2007 with the Human Research Ethics Committee at the Menzies School of Health Research and a separate application was lodged in January 2008. The application was rejected and 21 points of concerns were raised that included questions about clinical research, local ophthalmic involvement, referral practices, interactions with Aboriginal Health Workers, the randomisation process and typographical errors. The response was submitted in May. The revised application was conditionally accepted in July 2008 provided 13 additional questions were answered satisfactorily. Letters from two Health Services were received in November 2007 and April 2008 and the third is still awaited after the fifth resubmission in September 2008.

In Central Australia, an application was submitted to the Central Australian Human Research Ethics Committee in October 2007. Further information has been sought about consent, language, cross-cultural issues and the interaction with Aboriginal Health Workers. Approval was received in April 2008. The two selected communities have been approached in person and by mail multiple times since September 2007 but letters of agreement are still to be received. This process has been complicated by the activities of the Australian Government Intervention and the addition of community councils and the creation of shires.

In South Australia, a submission was made to the Aboriginal Health Research Ethics Committee in October 2007 and approval received in December 2007. Community support was sought initially in November 2007 and finally confirmed in March 2008.

A submission was made to the Tasmanian Health and Medical Research Ethics Committee in October 2007 and approved in April 2008. The South East Tasmanian Aboriginal Corporation also gave their approval in April 2008.

The Western Australia Aboriginal Health Information and Ethics Committee reviewed and approved the proposal in October 2007. Community support was confirmed with letters between September 2007 and February 2008. One community requested a face-to-face presentation and several other communities had visits in addition to mail and telephone contact.

Letters

To undertake this study in 30 sites, formal community endorsement was required for 28 sites. Formal clearance was required from eight ethical committees and formal review and endorsement from a further six research committee or boards. So far this process has taken 18 months and has been the prime responsibility of one full time staff member. To date, we await the final approval of one ethical committee and one community health board.

This sort of steeplechase to obtain ethical clearance must form a significant impedance to the collection of national data on Indigenous health and may in part explain why national data on Indigenous health issues are so deficient. Methods to speed up and streamline this process are badly needed and should provide a challenge to the bodies involved.

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