DIABETIC RETINOPATHY SCREENING among Indigenous Australians

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BARS conference 2017



INDIGENOUS AND NON-INDIGENOUS BLINDNESS AND LOW VISION PREVALENCE



http://iehu.unimelb.edu.au/publications/?a=339842 NIEHS 2010

UNEVENLY DISTRIBUTED NEEDS, RESOURCES AND POPULATION

HEALTH CENTRE

People per sg km



http://www.ga.gov.au/scientific-topics/national-location-information/di

Nurses + Aboriginal Health Practitioners

- Annual turnover rates
 - > 128% (turnover from a remote clinic)
 - ➢ 66% (turnover from any remote work)
- Median survival time
 - > 4.1 months
- 12 month Survival probability
 ▶ 20%

MONASH University MONASH RURAL HEALTH

HEALTH WORKFORCE TURNOVER IN REMOTE INDIGENOUS COMMUNITIES: WHO STAYS, WHO GOES?

14th National Rural Health Conference, 26-29 April 2017, Cairns, Queensland



2016 DR SCREENING COVERAGE IN AUSTRALIA



78% [up from 60%] non-Indigenous

and

53% [up from 20%] Indigenous

The National Eye Health Survey 2016

Full report of the first national survey to determine the prevalence and major causes of vision impairment and blindness in Australia prepared by the Centre for Eye Research Australia and Vision 2020 Australia.



NON-OPHTHALMIC MODEL OF TELE-RETINAL DR SCREENING IN AUSTRALIA



- RETINAL PHOTOGRAPHY in primary care setting
- IMAGE GRADING (local or remote clinician / certified grader)
- GRADING REPORT transmitted to EHR and GP
- MEDICARE-funded since 1st Nov 2016
 - yearly for Indigenous; 2-yearly for non-Indigenous with diabetes
 - to augment not replace ophthalmic DR screening services
- EFFECTIVE only if COVERAGE adequate





All our staff are registered with medicare



Patient: Hormain	an.	Imaging Location:	Work, Texastic Close
Aedical Record #: 700,000		Retinal Imager:	loe traager
Gender: Male		Imaging Date:	10/99/2013
Date of Birth: All		Retinal orader:	Lauren Hodgson 10/00/2013 12-08em
Age. 10		Date Reported:	12/99/2018, 2:32pm
	Treatment Pla	n Guidance	
We recommend	that your patient recei to an ophthalmologis	ves a non-urgent t based on study	referral (within 2 months) findings.
	Retinal Images -	Central field	
Right Eye	(OD)		Left Eye (OS)
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AIM To determine if: **Telehealth-based** DIABETIC RETINOPATHY SCREENING in a remote primary care clinic is clinically effective?

METHODS INVOLVED

- 1. developing software for local imaging and remote grading
- 2. supplying all hardware, including CR2 Canon, computer, chairs, tables ...
- 3. training: one retinal imager; one screening coordinator
- 4. screening 300 Indigenous adults with T2D for DR
- 5. reporting with recommendations to treating GP



Retinal Coverage - 15-80%



RESULTS – STAFF, PARTICIPANTS, PARTICIPATION

- 10 local imagers trained over 2 years
- 301 Indigenous adults with T2D screened
 - age 48 (19-86) years
 - known duration of diabetes 9 years
- 33% male participation



RESULTS – PRESENTING BINOCULAR VISION

- 1. 52% ≥ 6/6 and 6/6 average
- 2. $84\% \ge 6/12$ [driving licence standard]
- 3.16%* impaired vision

a. Mild [<6/12 - 6/18] 5% b. Moderate-severe [<6/18 - 3/60] 11% c. Blind [<3/60] 0%

*14% NIEHS; 18% indigenous; 7% non-Indigenous 2016 NEHS

RESULTS – SCREENING QUALITY

- Image gradable rates [% (n)]
 - 79 % (237) for DR
 - 83 % (250) for DMO
 - 78 % (234) fully gradable
- Gradable rates higher if
 - Pharmacological pupil dilation
 - Imager experienced
 - Full imaging protocol
 - Good image quality

RESULTS – DR PREVALENCE



N = 234 gradable

RESULTS – DMO PREVALENCE



RESULTS - DR AND DURATION OF DIABETES



RESULTS – STDR TREATMENT COVERAGE

STDR type	% of screened	% treated of total	
PDR			
Treated	2.0	80	
Total cases	2.5		
CS-DMO			
Treated	10.8	77	
Total cases	14.0		
STDR = PDR + CS-DMO		70**	
Treated	12.8	/8*** [31/40]	
Total cases	16.5		

SUMMARY / CONCLUSIONS

- Designed and implemented a remote primary care Indigenous DR Screening program
 - Trained 10 imagers
- Screened 301 Indigenous adults T2D 2/3 female
 - Presenting vision 6/6
 - Gradable images for 79% [83 % full:17% if partial protocol
 - DR rates: 47% DR; 16% STDR [mainly DMO]
 - Treatment coverage for STDR [78%]



DISCUSSION

- Primary care screening model clinically effective at detecting DR, including referable cases
- Screening protocols and screening quality matter
- Widespread imager training and a DR screening KPI required for screening sustainability
- Data support new Medicare funding initiative for camera-based DR screening in primary-care clinics

ACKNOWLEDGMENTS

Study participants

Staff - Sharon Atkinson-Briggs, Renate Millonig and clinic staff (Aboriginal Health Practitioners, administrators, drivers, doctors and the chronic care team).

Study Partners and Collaborators

- Partners: Central Australian Aboriginal Congress [Alice Springs]; Aboriginal Medical Services Alliance [NT]; CERA [Melbourne]; Estenda Solutions [USA]; Fred Hollows Foundation [Global]; The University of Melbourne; NHMRC Clinical Trials Centre [University of Sydney]
- Collaborators: Dr Tim Henderson [Head Alice Springs Hospital Ophthalmology Department]

TEAMSnet Study Group

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THANK YOU