

INTRODUCTION / PURPOSE

- In Australia optometrists provide full scope glaucoma care in co-management arrangements with ophthalmologists.
- Appropriateness of care is achieved when best available evidence is translated into clinical practice providing safe and effective care that will benefit the patient's condition² and can be measured by record card audit.²
- Compliance to evidence-based glaucoma care guidelines by hospital and community ophthalmologists and optometrists has been investigated in the USA and UK with wide variation in compliance rates noted (range 53 – 95%).³⁻¹²

Aim:

- To identify the percentage appropriateness of evidence-based glaucoma care by Australian optometrists across a variety of practice modalities
- To identify patient or practice factors influencing appropriateness of care.

METHODS

- A cross-sectional retrospective record card audit was conducted in 42 randomly selected optometry practices in New South Wales, Queensland, South Australia and Victoria (69% metropolitan, 19% inner regional and 12% outer regional) for the time frame of 2013-2014
- 10 glaucoma patient record cards were randomly sampled from each practice (n = 420)
- Patient records were included if they were diagnosed with glaucoma, ocular hypertension, having risk of glaucoma, or categorised as glaucoma suspect
- 35 glaucoma care clinical indicators that were derived from evidence-based clinical practice guidelines for glaucoma (AAO PPP,^{13,14} COS,¹⁵ NHMRC,¹⁶ NICE¹⁷) and reviewed by experts via a Delphi process, were used to measure appropriateness of glaucoma care¹⁸
- Full compliance to clinical indicator was awarded a 'yes', while a 'no' was gained for missing or incomplete adherence to a clinical indicator
- Appropriateness percentage was calculated as the number of clinical indicators that were answered 'yes' (numerator) to overall interactions (denominator)
- Multivariate logistic regression was used to identify predictors of appropriateness for following variables: state, remoteness, business model, record type, electronic record system, patient age, and patient gender

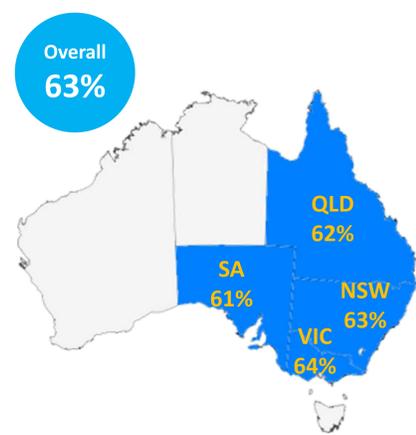
Glaucoma Clinical Indicators by Domain

History		Physical Examination	
Patients assessed for or with glaucoma should have the following documented during initial visit:		Patients assessed for glaucoma or with ocular hypertension (OHT) or newly diagnosed glaucoma should have a glaucoma examination performed and documented or referral for the following procedures to be organised:	
<ul style="list-style-type: none"> Age Ethnicity Past ocular health General health History of migraine Ocular medications Systemic medications Current and past steroid use Family ocular health 	<ul style="list-style-type: none"> Diabetic status High blood pressure Low blood pressure Raynaud's syndrome Interval ocular health Interval systemic health Side effects of ocular medications Compliance to medications 	<ul style="list-style-type: none"> Habitual distance VA Pupil reactions IOP IOP measuring time Applanation tonometry Anterior eye examination Peripheral anterior chamber assessment 	<ul style="list-style-type: none"> Size of optic disc Cup-disc ratio Pattern of neuroretinal rim Imaging Visual field with standard automated perimeter

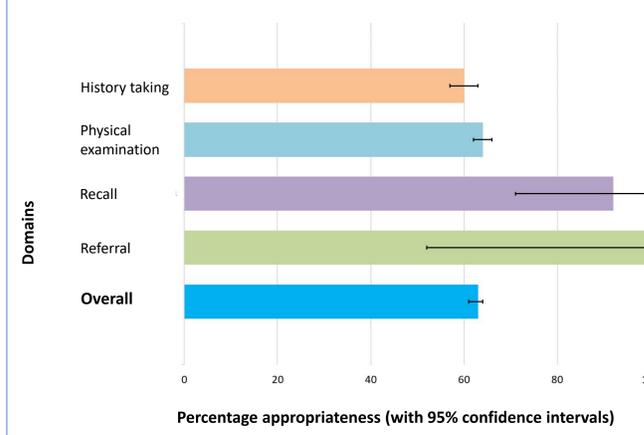
Recall	Referral
Patients assessed for glaucoma or with ocular hypertension or newly diagnosed glaucoma should be recalled for follow-up at the following time intervals:	Patients (assessed for glaucoma or with OHT) and not achieving target IOP should be referred to ophthalmologists.
<ul style="list-style-type: none"> Low risk suspect glaucoma (LRSG) – within 6-24 months High risk suspect glaucoma (HRSG) with treatment and achieving target IOP – within 3-12 months HRSG with treatment and not achieving target IOP – within 4 months HRSG with no treatment – within 4 months Early glaucoma – within 12 months Moderate glaucoma – within 6 months Advance glaucoma – within 4 months 	

RESULTS

Glaucoma Care Appropriateness

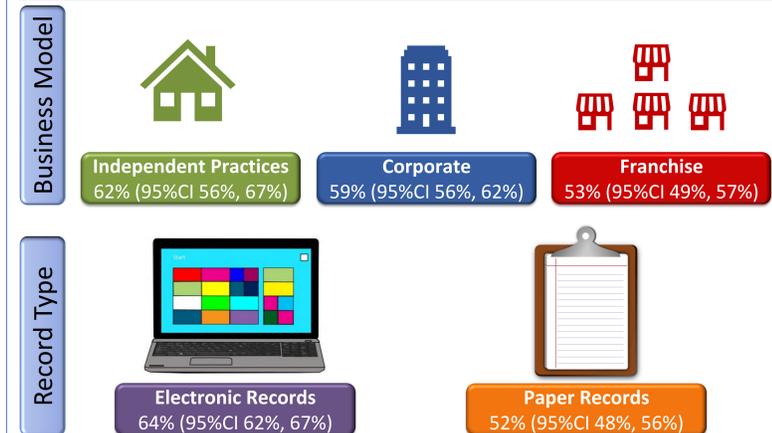


Glaucoma Care Appropriateness by Domain



Predictors of Appropriateness

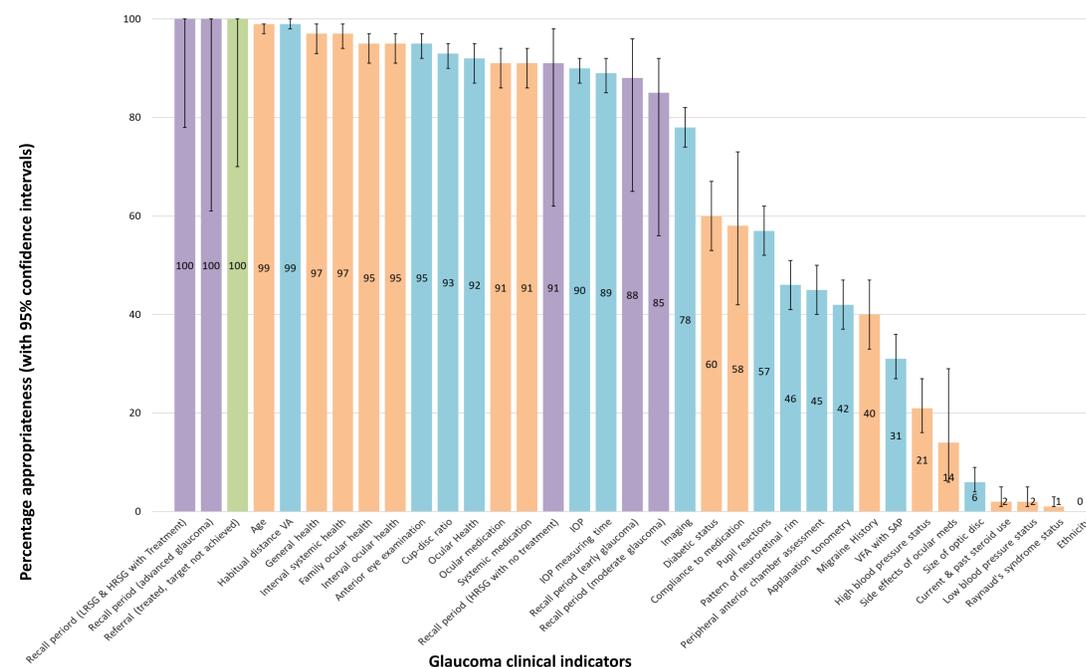
In the multivariate logistic regression model, business model and record type were significant predictors of appropriate glaucoma care where a significantly higher percentage of appropriateness was delivered when practices were corporate (p=0.004) and independent (p=0.01) compared to franchise and using electronic records compared to paper records (p<0.001).



The following variables were **not** predictors of appropriate glaucoma care

State	Remoteness	Electronic record system	Patient age	Patient gender
				

Appropriateness by Clinical Indicator



The percentage of appropriate glaucoma eye care delivery measured by clinical indicators. Clinical indicators were excluded from the figure if they were not applicable to any patient record. Recall period for Low risk suspected glaucoma and high risk suspected glaucoma with treatment no matter target IOP was achieved or not were combined as 100% compliance were noted for these 3 indicators. VA= visual acuity; VFA = visual field assessment; SAP = standard automated perimetry; IOP=intraocular pressure; LRSG=Low risk suspected glaucoma; HRSG=High risk suspected glaucoma; Imaging=Imaging of optic nerve head and/or retinal nerve fibre layer and/or fundus photography

DISCUSSION

- Glaucoma care delivery by Australian optometrists is appropriate in most interactions and at similar level (63%) to those found in the USA and UK studies (range 53 -95%).³⁻¹¹
- Whilst there was large variation in compliance to clinical indicators, good compliance was noted in key clinical indicators of Cup-to-disc ratio (93%), IOP measurement (90%) and ONH/RNFL imaging (78%) and was comparable to other studies.^{3-8,10,11}
- Peripheral anterior chamber assessment was documented less frequently (45%) but at a rate similar to that found in other compliance studies in both ophthalmology and optometry.^{5,9,10}
- Limitations of this study include: (1) sampling bias leading to over-estimation of appropriateness; (2) non-documentation of results leading to under-estimation of appropriateness; and (3) results being practice-based not practitioner-based limiting our understanding of potential practitioner factors that influence appropriate glaucoma care.

CONCLUSION

- Glaucoma care delivery by Australian optometrists is appropriate in most interactions and at similar levels to those found in USA and UK studies.
- Opportunities exist to further strengthen care delivery by intervening to improve care in those areas where sub-optimal delivery was identified.
- The next stage of this research is to identify the determinants (barriers and facilitators) of glaucoma care practice that will aid in the selection of an intervention to further strengthen the appropriateness of glaucoma care.

EMAIL CONTACT

The study is ongoing. Contact m.toomey@unsw.edu.au if you have a different perspective to share. We would love to hear from you!

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