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June 2020
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Barriers to Optometric Care

Refugees and asylum seekers
Dr Hana Melligi

Culturally and linguistically diverse patients
Dr Mandy Truong

The homeless
Piers Carozzi

6
1T

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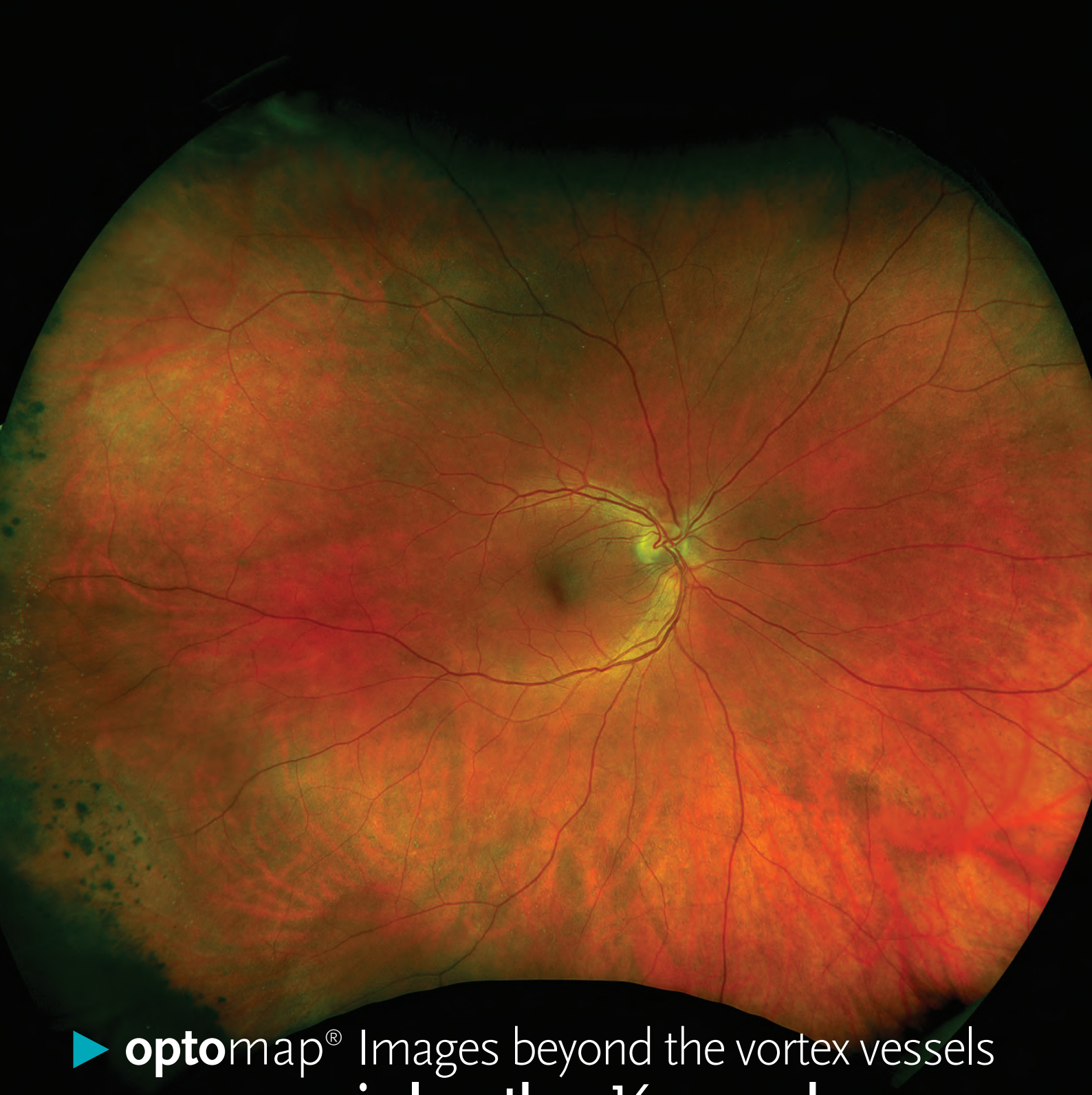

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A note from Guest Clinical Editor, Roman Serebrianik

The case reports and papers included in this issue were selected to highlight the important work Australian optometrists are performing as they deliver care to the vulnerable communities and populations around the country.

One of the more rewarding (and challenging) aspects of our profession is the variety of clinical settings and multicultural populations we look after. Cultural, linguistic, health literacy and socio-economic barriers present real challenges which optometrists encounter in our daily practice.

From a personal perspective, the work I have done with CALD, homeless, refugee and asylum-seeker communities remains a source of deep satisfaction and pride. I believe optometry has a significant role to play in ensuring these patients receive access to equitable, high-quality eye care. I have also been inspired by the dedication of many colleagues around the country who are committed to eye health promotion and the delivery of optometric and collaborative care for frequently-marginalised people.

It is our hope that you will find the examples presented here of interest.

The COVID-19 global pandemic overturned our notions of 'normal.' It has placed additional and significant challenges on optometrists in their ability to provide necessary optometric care to our patients. I would like to commend all my colleagues who have adapted and continue to work and deliver services to people who seek our help during this time.

At the same time, it's important to acknowledge that the economic disruptions that have accompanied the pandemic present even more challenges and require renewed attention to the growing number of those who are experiencing long-term economic hardship.

To quote an old wise saying: 'Not everything that is faced can be changed, but nothing can be changed until it's faced.'

Stay safe and healthy!

This issue of Pharma offers 6 (1T) CPD points.

Cover: 'Nepalese outreach'

This photo was taken by member Ben Hamlyn in the Timal region of Nepal. Ben was part of a team of Nepalis and Australians who examined 5,480 patients over nine different locations in Nepal in March 2020. The team included seven optometrist members and eight students members.

Visit **www.optometry.org.au/publications/pharma-submissions** and find out how to submit your photo for the cover of *Pharma*.

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Treating common ocular conditions in

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Guest Clinical Editor of *Pharma*

This case highlights the importance of the provision of regular primary eye care for patients with restricted freedom of movement (immigration detention facilities, correctional facilities, prisons, etc.) and the role optometrists can play in ensuring chronic eye diseases are screened for and managed in those vulnerable populations, to prevent irreversible vision loss.

Introduction

In Australia, immigration detention is administrative and not punitive, and is designed to manage temporary entry and permanent migration programs.[1]

According to the report from the Australian Government's Department of Home Affairs and Border Force, as of January 2020, there were 1,432 persons held in immigration detention facilities, with 77 per cent of those detainees held for longer than three months, and over 40 per cent housed in detention for over 12 months.[2]

It is well known that these periods of time are sufficiently long enough for chronic eye diseases to manifest or worsen (diabetic retinopathy, macular degeneration, glaucoma and many others). Although detainees have access to emergency and general health-care on demand, the risk of developing eye conditions (particularly those without acute symptoms) remains a challenge. Subacute and chronic eye maladies may go undiagnosed if not regularly screened for by comprehensive optometric examinations.

The described case below will demonstrate an example of a patient with early asymptomatic glaucoma, who was identified during a routine examination provided by the optometrist as part of a visiting optometry program at an immigration detention facility on Australia's mainland. It will also discuss some of the challenges of providing eye care to this patient group, particularly in accessing supplementary tests and ongoing regular follow-up.

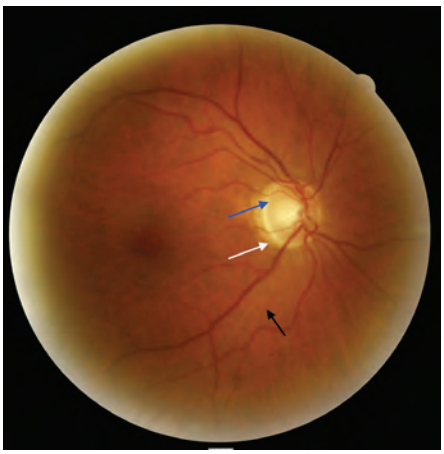

Figure 1. R retina, showing superior rim vessel bayoneting (blue arrow), inferior rim thinning (white arrow) and subtle RNFL loss (black arrow)

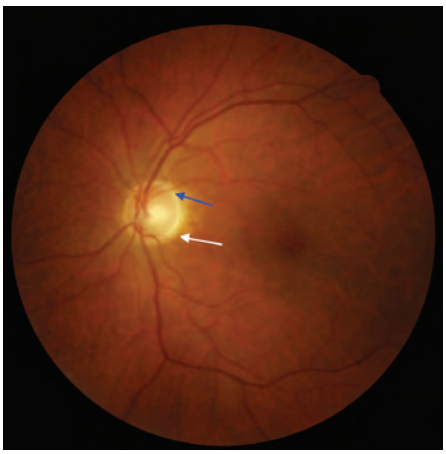

Figure 2. L retina, showing superior rim thinning (blue arrow) and inferior rim thinning (white arrow)

vulnerable populations

A primary open angle glaucoma case in an immigration detention centre

CASE REPORT

A 57-year-old Caucasian male was examined by a visiting optometrist at an immigration detention facility (the author). The presenting complaint was 'misplaced reading spectacles.' The patient reported no other ocular or general health concerns.

Familial ocular history could not be ascertained because the patient had lost contact with his family for a significant period of time. There was no history of trauma, blood loss, migraines or vascular/circulatory disorders. He was not taking any systemic medications.

Examination findings

Unaided vision: R 6/6, L 6/6, N16

Prescription: Distance R plano L +0.25/-0.25x90, Near N5 (+2.00 Addition). Reading spectacles prescribed.

Ocular motilities: full and fluent

Pupil reactions: normal (direct/consensual/near)

Confrontation (with finger count): full

Anterior segment examination: unremarkable. Lenticular haze only (R Grade 1; L Grade 1.5)*

Intraocular pressure: R 20 mmHg L 16mmHg (Perkins MK3 applanation tonometer)

Central corneal thickness: R 500 µm L 491µm (DGH Pachmate 2 portable pachymeter)

Dilated fundus examination: (examined with Volk 20D, SuperField and 78D fundus lenses): R 0.65 (suspected inferior rim thinning, and superior disc vessel bayoneting) L 0.6 (early inferior rim thinning and very slight superior rim thinning). Very subtle retinal nerve fibre layer (RNFL) drop out was observed below the R disc.

Physiological disc size: ~average (R disc slightly larger than L). Temporal disc rims show some pallor

Peripheral fundus: unremarkable, with bilateral posterior vitreous detachments evident.

*Note: anterior chamber drainage angles could not be readily assessed as the initial examination was performed in an outreach setting with a portable slit-lamp. Van Herrick and anterior chamber depth estimates showed an open angle.

Based on the initial findings, the patient was deemed a suspect for primary open angle glaucoma (POAG).

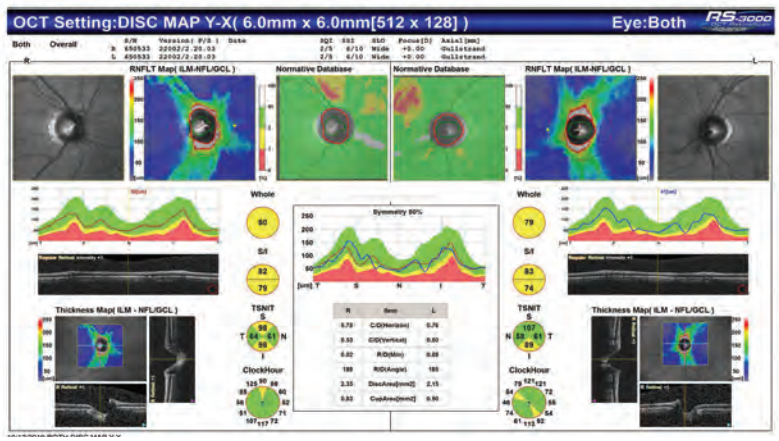

Figure 3. RNFL plot shows superior thinning in both eyes (consistent with disc appearance)

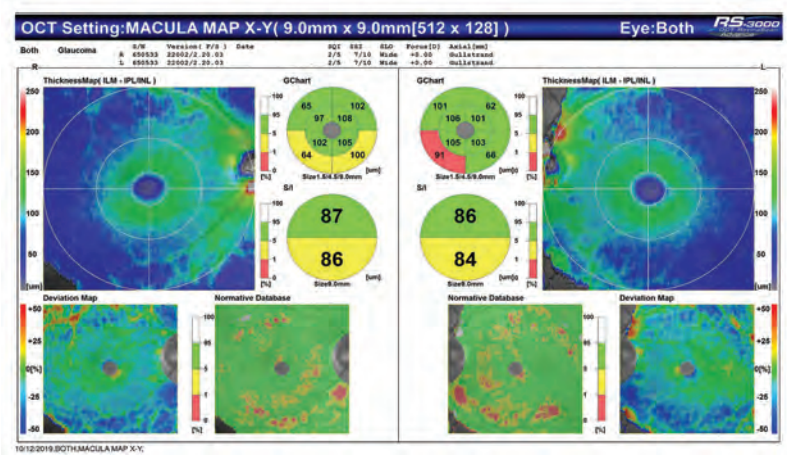

Figure 4. Ganglion cell complex (GCC) plot, shows inferior arcuate pattern of thinning in both eyes (typical of early glaucomatous changes)

Continued page 4

POAG in IDC

From page 3

Because the patient was examined in an outreach setting, it was not possible to conduct other tests necessary for a comprehensive glaucoma assessment (gonioscopy, optical coherence tomography (OCT) of disc/macula and automated perimetry).

The patient and medical staff of the detention facility were informed of the provisional diagnosis (primary open angle glaucoma suspect), and were advised that a follow-up test at the optometry clinic was necessary for further testing.

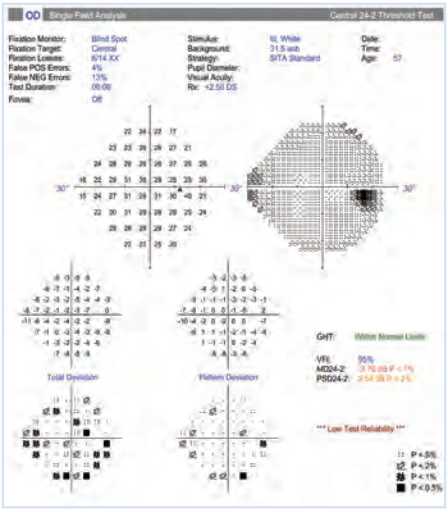

Figure 5. R HFA perimetry plot

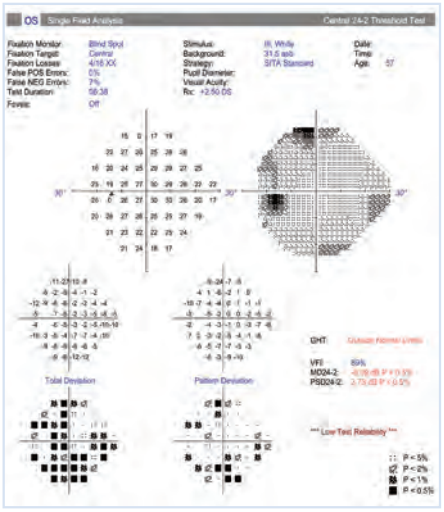

Figure 6. L HFA perimetry plot

Due to the complexity of the patient's immigration status and ongoing legal proceedings (at the time of first examination, the patient was under review for compulsory deportation), follow-up optometry testing had to be postponed in the immediate future.

This was not due to neglect or indifference by the medical team at the immigration facility; but rather a reflection on the complex and competing priorities facing the patient at that time.

Additional logistical arrangements were also required to transport the patient out of the immigration facility to the optometry clinic for supplementary testing.

However, after a delay of around five months, the patient was able to attend for follow-up examination, where the following additional diagnostic information was ascertained (see information below and OCT scans and Humphrey HFA Perimetry Plots).

*Note: while the reliability was less than ideal (FL ~ 25 per cent), the perimetry result was consistent with OCT and disc appearance. Given the patient's less-than-ideal flexibility and ability to attend follow-up examinations, the results were deemed reliable to arrive at diagnosis.

Considering the disc appearance, perimetry results, consistently asymmetric intraocular pressure (R>L), thinner-than-average corneal thickness and characteristic arcuate patterns of RNFL and GCC loss, a provisional diagnosis of POAG was established. It is interesting to note that the eye with the consistently higher IOP (R) was showing less evident perimetric loss but more advanced RNFL loss, highlighting the importance of OCT as a useful additional modality for displaying early glaucomatous neuropathy.

Based on the well-documented conclusions of the Ocular Hypertension Treatment Study (OHTS),[3-5] and Early Manifest Glaucoma Trial (EMGT),[6-8] the optometrist initiated IOP-reduction therapy, and attempted to reduce IOP by at least 25 per cent in an effort to reduce the risk of glaucoma progression.

Gonioscopy	Drainage angle: Shaffer Grade 4 open (minimal pigmentation)
Intraocular pressure	R 19 mmHg L 16 mmHg
OCT	RNFL bilateral superior rim thinning (consistent with disc appearance R/L) GCC: inferior arcuate thinning (bilateral, consistent with disc appearance R/L)
HFA	R: reduced edge points (artefacts or possibly early arcuate glaucomatous scotoma); MD -3.76dB L: inferior nasal step defect & small superior defect (matching disc appearance and OCT RNFL/GCC profiles). MD -6.09dB*

Table 1. Diagnostic information for patient

Treatment

First-line treatment for POAG may begin by either topical medication or selected laser trabeculectomy (SLT).

A recent LiGHT study compared SLT vs medical therapy in open angle glaucoma,[9] demonstrating that SLT may offer similar (or superior) IOP control, more cost effectiveness and equal or better quality-of-life compared to topical medications.

However, for this patient, given the additional challenges of scheduling time-specific follow-up appointments, the optometrist decided to commence glaucoma treatment with topical prostaglandin-analogue agents (latanoprost 0.005% nocte R and L), with target IOP set at 30 per

cent below highest measurement. The patient will be able to access medication at the immigration facility; where it is dispensed by the medical staff. Ongoing prescriptions will be supplied by the general practitioner (or visiting optometrist).

The follow-up appointment was arranged in six weeks to monitor the IOP response. The necessity of future requirement for SLT (if topical therapy with multiple agents is unsuccessful) also cannot be excluded. At the time of writing the case report, the success of topical therapy was yet to be determined as the follow-up visit has not occurred.

Under the current Optometry Board of Australia 'Revised Guidelines for Use of Scheduled Medicines,' optometrists must provide an ophthalmology referral for newly diagnosed glaucoma cases within four months of diagnosis.

Given the patient's immigration status and lack of free movement, the optometrist discussed the patient's case by chart review with a glaucoma consultant at the local public ophthalmic hospital. The ophthalmologist reviewed the clinical notes, diagnostic images and perimetry results, concurring with the optometrist's treatment plan and management algorithm.

Discussion

This case illustrates the necessity of optometrists being ready and available to provide eye examinations to detainees of immigration facilities or similarly-confined patient populations (incarcerated persons, etc.) who may lack freedom of movement and not have ready access to routine primary eye care.

The importance of including these patient populations in screenings for common ocular conditions like glaucoma cannot be over-emphasised.

Patients in immigration detention may have a number of significant co-morbidities and complicated social, cultural, emotional, medical, health-literacy and linguistic needs[10,11]

Fortunately, there was no linguistic barrier between the patient and optometrist in this case, as both spoke a common second language, which made communication significantly easier. Telephone interpreters are available for detainees of immigration detention facilities, however, this may not always address health-literacy needs of the patient fully.

In this example, the diagnosis of glaucoma was relatively straight forward, and the formulation of the management plan was well within the competency of optometrists (certainly in treating glaucoma in early stages, where topical agents only are required).

One of the complicating factors for managing this group of patients is the uncertainty of future ophthalmic follow-up if the patient's immigration status changes and they are deported. Clinical notes and written reports must be provided to the immigration detention facility to ensure that clinical information and baselines are communicated onwards.

As mentioned previously, while emergency and acute medical care is offered in the immigration detention facilities, access to primary eye care is not always there.

Conclusion

While the topic of immigration detention in Australia continues to face fierce debate from both sides of the political spectrum, the unique challenges faced by medical practitioners servicing this population has remained less discussed outside of medical literature. For practitioners interested or considering engaging in this area of optometry, I recommend these references as a useful starting point.[12,13]

My own personal perspective is that access to primary care optometry is a necessity and basic right for everyone in Australia, and as this case illustrates, optometrists can play a significant role in public eye health and prevention of vision loss for everyone in our country.

Disclaimer: the clinical work described in this case report was performed under contract at a different organisation to the author's current employer.

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Barriers to care

Who are Australia's CALD patients?

Jackie Barry
B Orth MPH

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Vision 2020 Australia

In Australia, approximately one third of the population was born overseas. In over 21 per cent of homes, a language other than English is spoken and over 100 different religious faiths are practised. Australia is a hugely diverse nation.[1]

Australia's culturally and linguistically diverse (CALD) people include long-established communities as well as newly-arrived migrants, refugees and asylum seekers. Although some people may have shared experiences, they are themselves diverse.[2] Language and culture can have an impact on the way that people make meaning out of their experiences, which can lead to differing cultural expectations and understanding of health.[3]

Figure 1. Information on AMD in Vietnamese

Social determinants of health

Barriers to accessing health care emerge from the moment we are conceived. The social determinants of health are the conditions in which we are born, live, grow and work.[4] Health outcomes are influenced by the distribution of power, money and resources, which, in turn, alter our level of education, level of English proficiency, housing, socio-economic status and employment status.[5]

Australia has one of the highest life expectancy rates in the Organisation for Economic Co-operation and Development (OECD) countries, yet inequalities remain.[6] The fact is: if you have a higher income, higher education or occupation level, you are less likely to experience illness and disability—and you are more likely to access health services and live longer.

Barriers to eye care

It is estimated that over 453,000 people in Australia live with blindness and vision loss.[7] Some of the modifiable or preventable risk factors, such as, type 2 diabetes and tobacco smoking can occur at higher rates in some CALD communities. Ultimately, individuals who are more likely to experience risk factors for vision loss also experience the greatest barriers to accessing eye care services.

Why? Financial stress and the perceived cost of eye tests, glasses and health care in general are the largest barriers to accessing eye health services.[8]

A recent report by the Victorian Refugee Health Network detailed further barriers: low health literacy, including understanding local health services and ability to navigate the Australian health system; restricted access to health care for refugees and asylum seekers;[3] distance to the service; lack of transport options and inability to use public transport; long waiting times for appointments; difficulty making appointments and difficulty completing forms.[3] Men from refugee backgrounds reported being less likely to seek help for their health problems.[3]

The Vision Initiative

The Vision Initiative is a health promotion program funded by the Victorian Government and managed by Vision 2020 Australia. Our goal is to reduce levels of preventable vision loss and blindness by targeting people at risk and the health professionals who care for them.

Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve it.[9] It is important that we recognise people and their communities as key actors in the maintenance of their own health and well-being, and fostering self-determination is a vital aspect of this.

Although there are many different causes of vision loss and blindness, we know that one intervention that is proven to work when it comes to preventable blindness: regular eye tests. It is estimated that 90 per cent of vision loss and blindness is avoidable and treatable in Australia if detected in the early stages.[7]

The Vision Initiative works with organisations who support CALD communities across the state and in local government areas where there is evidence of lower rates of eye testing, higher rates of risk factors, high proportions of residents with non-English speaking backgrounds and higher rates of disadvantage.

The Vision Initiative has developed a range of resources in conjunction with its partners, including Optometry Victoria South Australia, in an effort to tackle some of these barriers and demystify eye health for people who do not speak English. We have information on the main causes of vision loss, translated into 10 languages other than English. These resources are available on our website for optometrists, patients and other health professionals

to download, and are free to order in hard copies within Victoria. We also have a range of translated video clips developed to communicate the importance of regular eye tests for people who do not speak English which we encourage all optometrists and health professionals to access.

When it comes to individual practitioners, the Victorian Refugee Health Network report recommends health professionals can work better with clients from CALD backgrounds by improving cultural competence, being welcoming and friendly, listening and being respectful, being patient and sensitive to people's difficult past experiences, taking time to develop the client's trust, and maintaining confidentiality.[3] Optometrists and all eye health practitioners can work to ensure our services are more accessible and inclusive of all Australians.

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Caring for culturally and linguistically diverse (CALD) patients

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In Australia, 10.6 million people were either born overseas or have one or both parents who were born overseas.[1] Twenty-one per cent of Australians speak a language other than English at home and increasing proportions of migrants arriving in Australia are coming from China and India. Therefore, many optometrists are providing eye care services to culturally and linguistically diverse CALD) Australians. Many optometrists themselves are from CALD backgrounds (as recent migrants and first/second/third-generation Australians).

Culture is important in health care because it provides a framework through which individuals and communities interpret the world, negotiate their health behaviours and make decisions about their health care.

Culture generally refers to knowledge, beliefs, traditions, values, or the way of life of a particular people, society or nation.[2]

Within optometry, other health professions and our broader health system in Australia, health-related beliefs, practices and policies are centred on the biomedical model and traditional Anglo-Australian concepts of health and health care.

Therefore, when people from non-Western societies migrate to places such as Australia, they are confronted with a health system which may differ and conflict with their own health beliefs, practices and experiences.

We know that people from CALD backgrounds can find it challenging accessing health services for a variety of reasons, including: communication difficulties related to English-speaking proficiency, health literacy, knowledge and beliefs about eye health, lack of familiarity with the health system (Medicare billing, referrals for medical specialists and so on) and availability of culturally-appropriate services.

A pilot study found that optometrists can experience challenges when providing care to patients from different cultural backgrounds.[3] Optometrists interviewed in this study described language difficulties with patients that resulted in the need to adjust their management advice or spend more time explaining things to patients.

Some optometrists expressed frustration at times when encountering

Continued page 8

CALD care

From page 7

patients who prioritised their spectacle needs and ignored or downplayed advice given about their eye conditions (for example: cataracts or retinal detachment) which were seen as more important by the practitioner.[3]

But when the priorities, beliefs and attitudes of patients do not align with the optometrist, the treatment and management will need to be adapted and negotiated.

CASE REPORT

David, a 10 year-old male Chinese student who recently migrated to Australia with his parents attended an optometry practice reporting blurry distance vision. Both of his parents wear glasses and were quite concerned about his vision. The examination revealed early myopia: R -1.00 L -0.75. No other eye conditions were detected.

The consulting optometrist advised single vision distance glasses, however, the patient and his parents were very reluctant to buy glasses because the parents felt that from their experience, wearing glasses from a young age caused their vision to progressively worsen. They expressed this was a common perception among their community back in China.

There are several possible strategies that an optometrist can employ in a situation like this.

First, show understanding and empathy towards the patient and his family. It is a common misconception across many different cultures and communities that glasses weaken eye sight.

Next, provide an information sheet (in the requisite language or plain English) that explains what myopia is and that not correcting or under-correcting myopia will cause myopia to worsen. The optometrist can then explain that there are other therapies available that can potentially slow down myopia progression and that you are willing to help them if the need arises in future

Finally, if possible, offer to get an optometrist who speaks the patient's language to call the parents to explain the diagnosis and management in their preferred language and address any concerns/questions.

Discussion

The practice of competent optometry in Australia and New Zealand requires that we improve our ability to provide more culturally-responsive and culturally-aware care across our diverse community, which includes refugees, recent migrants, international students and First Nations Australians.

Recommendations[4-6]

Identify and address any language barriers and provide information in languages other than English.

Consider being more flexible with appointment systems. Avoid penalising patients for missing appointments or being late without trying to understand the circumstances which resulted in the late or missed appointments.

Be pro-active; respectfully engage with cultural/ethnic groups in your community. For example, attend cultural events and offer to do a talk about an eye-health issue at a community gathering.

Find out whether there are alternative perspectives and beliefs about eye health issues.

Employ and train optometrists and dispensing/support staff from diverse backgrounds.

Encourage all your staff to engage in cultural competency training so everyone in the practice is culturally-aware and responsive.

Conduct a review of how welcoming the environment is to people from diverse backgrounds, including Aboriginal and Torres Strait Islander peoples. Is diversity represented in pictures, posters and promotional material, for example?

Engage with your diverse patients in an open-minded and respectful manner – listen, ask and learn.

Avoid the following:

Using a 'checklist approach' (that is learning that Chinese people 'think and do X'; 'Greek people think and do X') that results in negatively stereotyping and generalising patients.

Providing good quality eye care to patients does not necessarily mean 'treating everyone the same' because each individual has a unique set of characteristics and experiences. Therefore, those in our community who are more disadvantaged may need additional support and consideration. At times we will need to adapt our practices and treatments in the best interests of each patient.

Finally, it's possible for optometrists to unintentionally provide care that is not culturally responsive. We should recognise and understand that our attitudes and practices, both conscious and unconscious, impact on how we provide care to our patients. Therefore, self-reflective practice is critical to ensuring we are providing high quality eye care to all patients in our community.

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Eye care for the homeless population

Working to solve the problem

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Establishing programs and providing eye-care services for people experiencing hardships, including homelessness, has been a central part of my role at the Australian College of Optometry (ACO) for nearly two decades.

I grew up in a relatively typical middle-class suburb, yet in the course of my career at the ACO, I have had encounters with two separate people from my childhood. One was a friend from primary school, whose birthday parties I attended, and who I competed against to be the best at maths in grade three. The other I had played junior basketball with as a teenager. When we met again, they sat opposite me in a homeless persons' eye clinic, looking older than their years, trauma evident on their faces. Both experiences shook me, offering evidence of the diversity of people who, for a range of reasons, may experience homelessness, and a reminder that this includes people from relatively privileged backgrounds, like mine.

Who are the homeless?

On the last census night in Australia, there were 116,427 people experiencing homelessness. 58 per cent of these were male and 42 per cent female. Significantly, despite making up around 3.3 per cent of the Australian population, Aboriginal and Torres Strait Islander people represent 22 per cent of the homeless population.[1]

People under 25 years make up 37 per cent of Australia's homeless population, and 28 per cent are over the age of 45 years. Seven per cent are sleeping rough, 15 per cent are couch surfing, 15 per cent are in boarding houses, 18 per cent are in supported accommodation and 44 per cent are in severely overcrowded dwellings.

The Council for Homeless Persons (CHP)[2] quantified the causes of homelessness in an analysis in 2016-2017: 45 per cent lacked housing; 26 per cent were escaping family violence; 12 per cent had money/income issues; eight per had cent relationship breakdowns; three per cent suffered from mental/physical illness and/or addiction; and six per cent 'other.'

Ocular health and homelessness

Homelessness is associated with a range of health issues, and often, poor access to health services. But what about ocular health? A study of 100 people experiencing homelessness in Canada with a median age of 48 years, found 25.2 per cent had visual impairment (defined as less than 6/12), of which about half was attributable to refractive error. Eight per cent required referral for ophthalmological care, and one in three had an abnormal finding during screenings.[3]

A study of 283 patient records of people attending Vision Care for Homeless People crisis clinics in London found that 32 per cent had ocular pathology; 12 per cent presented with visual impairment, which dropped to 2.5 per cent after refractive correction.[4]

In terms of homeless youth, a study of 90 homeless people[5] between the ages of 16-24 in Toronto found that approximately 19 per cent had visual impairment. Refractive error the main cause; 50 per cent of these people had previously had glasses, yet only 20 per cent had them at the time of the study.

Continued page 10

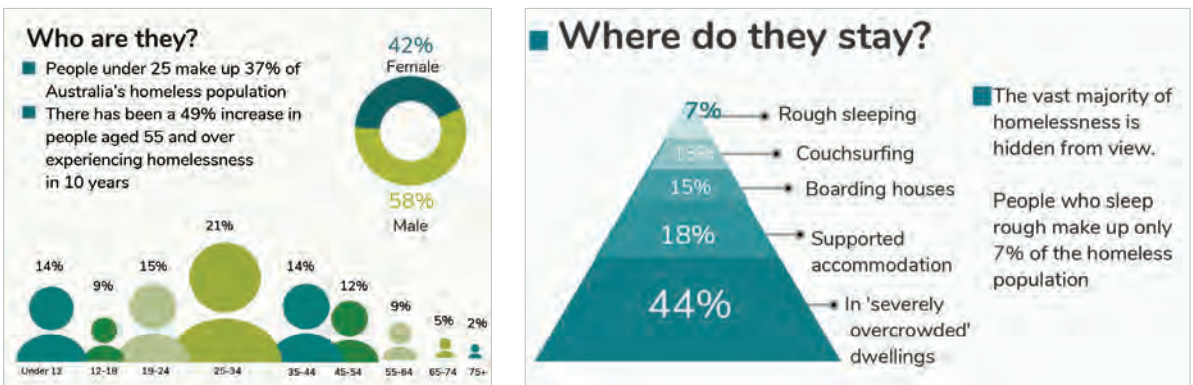

Figure 1. The who and where of Australia's homeless population. Infographics provided courtesy of the Council to Homeless Persons.

Homeless

From page 9

Establishing an effective program

At first, it came as some surprise to us at the Australian College of Optometry in 2001, when the Royal District Nursing Services' (RDNS) Homeless Persons Program (HPP) spoke to us, saying it was difficult for their clients (people experiencing homelessness) to access eye care services at the ACO.

In fact, there were multiple barriers between the care we offered and the people who needed it. In order for patients to engage with us, they would have to know about our service and subsidised glasses program, ring up and make an appointment, find transport to get to their appointment, sit quietly and wait for the appointment, have their Medicare and concession card on them, have money for glasses, and then (if that all goes well) return two weeks later to collect the glasses.

The ACO quickly developed partnerships with charitable organisations that were already providing services in this space, at sites where there was perhaps a meal service, or a health service, or material aid service. Eye clinics were set up in community locations at these sites using portable optometry equipment, providing care in a familiar and trusted location, with the support of a host organisation.

The ACO's homeless persons eye-care program has two main arms. The first works within host organisations to extend services to 14 sites across broader Melbourne. These clinics run regularly and provide local access points for eye care. In this mode,l we see people at the primary, secondary and tertiary levels of care, as well as people at risk of homelessness.

The second arm visits tertiary homelessness sites, which can include caravan parks, boarding houses, transitional housing, emergency accommodation for women, and Supported Residential Services (SRS) sites.

SRS's are privately run businesses that provide personal care and accommodation, where people share bedrooms, kitchen and bathroom facilities. The 2013 Census of SRS[6] sites indicates they each have between 10 and 77 residents, with an average of 33. In the pension-level facilities, 96 per cent of residents have a disability, 59 per cent have a psychiatric disability, and 29 per cent have an intellectual disability.

There are more than 60 SRS sites across Victoria that we visit, with some of our program funded through the Victorian Department of Health, and some through the Commonwealth Home Support Program. The value of providing a visiting eyecare program to these sites, where residents may otherwise not access services is immense. Some of the impact on the lives of the residents has been profound.

Future efforts

The 'Roadmap to Close the Gap for Vision for Aboriginal and Torres Strait Island Peoples'[7] describes the patient journey for eye care as a 'leaky pipe,' and that analogy often holds true for the patient journey of people experiencing homelessness.

It can be challenging if patients seen in the homeless persons eye-care program need further or tertiary eye care. The use of support workers, caseworkers, homeless persons program nurses, social workers, community connections programs and so on to help to co-ordinate further care is crucial in assisting people experiencing homelessness to navigate the health system.

I believe the profession of optometry is well placed to provide outreach primary eye care services in trusted environments. I believe there is opportunity for us to work together, using private and public partnerships to expand the services we offer to people experiencing homelessness. I look forward to the day when our profession is supporting co-ordinated clinics for people experiencing homelessness across, as a first step, all capital cities.

Guiding principles of the Australian College of Optometry homeless persons' eye care program

Services should be:

- **Accessible.** Provided in a familiar and trusted community location in partnership with a host organisation.
- **Affordable.** That is: bulk billed to Medicare, (and free for someone from New Zealand or other national that doesn't have a Medicare card) and that the glasses are heavily subsidised, thanks to kind donations of many frame suppliers over the years.
- **Available.** People know when we are coming, and that the service is for them.
- **Appropriate.** Service runs in a patient-centred way, using a cultural competency framework.
- **Adaptable.** Services can be flexible in the places it works from, and the hours it is offered.
- **Auditable.** We aim for high quality care and clinical excellence.

Table 1. ACO Guiding principles

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Ganglion cell losses and visual field defects

Can we rely on OCT imaging alone to discover neurological deficits?

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New diagnostic technologies such as optical coherence tomography (OCT) have brought significant advancements in detecting change and progression in retinal nerve fibre layer (RNFL) and ganglion cell complex (GCC) losses in many ocular diseases, such as glaucoma. More recently, correlations between the pattern of GCC loss and visual field (VF) defects related to neurological degenerations have been found. Potentially, this has created an opportunity for early detection of neurological disease, which would allow timely referral for cranial imaging and patient management in critical cases.

This report will discuss two cases in which the pattern of GCC loss is less clear, but the patient has a significant VF defect. Together, these cases raise the question: can we truly rely on OCT imaging alone to discover neurological deficits?

CASE REPORT 1*

An 81-year-old male patient presented for a VF test due to large optic nerve head cupping. He had a history of Type 2 diabetes, cardiovascular disease and aortic valve replacement. He had a history of R amblyopia.

The VF results show a bi-temporal hemianopia, with progression from 2018 to 2019. Although the R VF has high fixation losses, reducing the test's validity, there is still a significant defect seen.

An urgent referral was sent to the patient's general practitioner (GP) for a full neurological work-up (including CT imaging) and a full-cardiovascular work-up. Approximately 90 per cent of disorders causing a chiasmal compression leading to a compressive optic neuropathy are due to mass lesions[1] such as a pituitary adenoma, craniopharyngioma, meningioma and glioma. Often a patient may experience headaches and diplopia, which can be from extension of the mass itself into the cavernous sinus, impacting cranial nerve III, IV or VI. This is why a neurological assessment was instigated.

Cranial imaging (CT scan) confirmed an ischemic infarct in the right temporo-frontal lobe of the brain, which is the likely cause of the bilateral ganglion cell complex and VF damage. A pituitary adenoma was ruled out as the cause from this objective assessment.

When there is neuronal injury or degeneration in the cortex, there can be retrograde degeneration of ganglion cells. Retrograde trans-neuronal degeneration describes the impact of axonal and terminal neuronal degeneration[2] occurring posterior to the optic chiasm, which spreads backwards from the neuronal axons to retinal ganglion cells. The exact mechanism is not fully understood but is thought to be related to the precursor brain-derived neurotrophic factor.[3] Neurotrophic factors are important in axonal transport, to allow homeostasis within a neuron.[4] Neurotrophic factor deprivation theory outlines that compromise to this axonal transport process[4] in the striate and primary visual cortex, can travel backwards and damage the RNFL, creating a congruous pattern of degeneration to the GCC, according to the initial origin of the injury.

Continued page 12

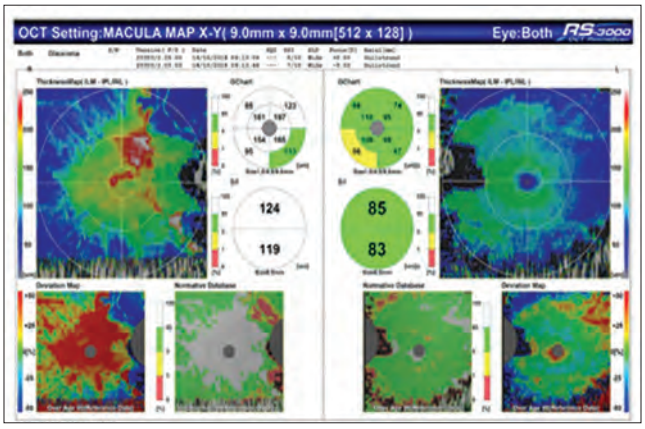

Figure 1A. OCT results; R macula cross-section and macular GCC

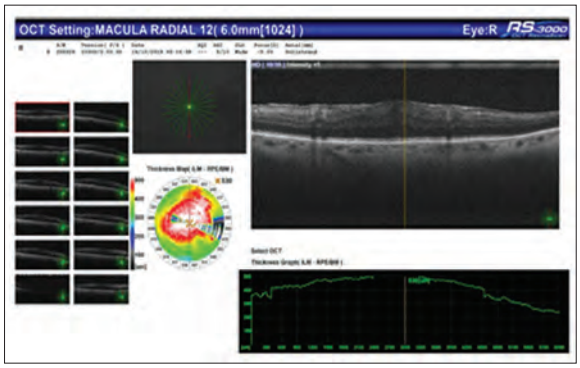

Figure 1B. The OCT reveals a significant R ERM, which has caused the GCC map to be thickened significantly. There is slight L infero-nasal GCC thinning also seen.

GCC and VFD

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CASE REPORT 2*

A 21 year-old female presented for an initial eye examination, with the presenting complaint of decreased vision. In her own words, she stated in the consultation that she was feeling 'more blind.' She reported no ocular history or trauma that would offer possible aetiology for this complaint.

HFA 30-2 SITA Standard revealed heavily constricted vision, the results showing a possible left homonymous hemianopia, but the right-hand side VF was also reduced.

Upon discussion it was found that this patient had a history of acquired brain injury (ABI), following a head trauma event at the age of two.

A GP referral was arranged to investigate the possible causes of the VF findings and to determine whether the VF defect was long-standing, stemming from the ABI in infancy.

However, the significant VF defect does not match with the subtle pattern of ganglion cell loss or RNFL thickness for this patient. This suggests that not all neurological injuries will show up on VF or OCT results.

Discussion

The visual pathway comprises of the RNFL, where the axons ganglion cells travel from the retina through to the lateral geniculate nucleus (LGN) and later, the primary visual cortex.[5] This allows the brain to interpret the image that the eye perceives. When there is neuronal injury or degeneration in the cortex, functional and structural loss will follow.

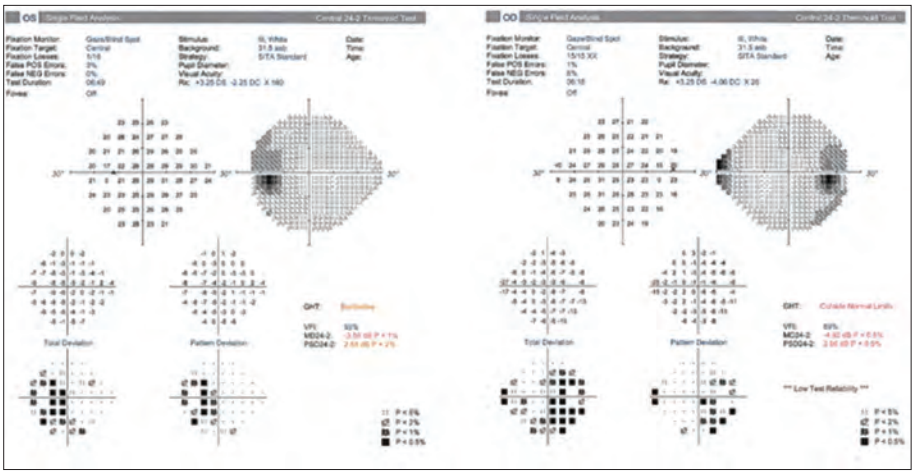


Figure 2. Visual field results reveal a bitemporal hemianopia (05/03/2019)

The pattern of structural damage to neuronal cells can consequently lead to GCC loss, which presents in the opposite pattern to the VF loss.

OCT is a useful objective measure of optic nerve injury,[6] via assessment of the pattern of macular GCC and RNFL loss. The pattern of GCC loss from a neurological condition is different to that of an optic neuropathy such as glaucoma, as the premature and irreversible loss of ganglion cells manifest as glaucomatous optic cupping, with localised and generalised RNFL defects.[7] GCC defects that may be neurological in origin, respect the vertical midline.

Zangerl and colleagues[2] support the idea that the pattern of ganglion cell loss may precede VF defects which is why OCT can be a useful tool in early detection of neurological disease.

The example of Case 1, shows only slight infero-nasal ganglion cell thinning in the L OCT result. The R OCT result is difficult to assess in regards to GCC losses, as it is impacted by the R ERM. Research has found that bi-nasal GCC thinning can correlate to a bitemporal hemianopic visual defect,[6] however to make this correlation for this patient is difficult, due to the impact of macular disease on the OCT results. This type of VF defect is serious, which is why early detection and management can be crucial for a patient's survival or life outcome. When OCT results are not affected by macular disease, such as the patient in Case 1, the distinct pattern of bi-nasal GCC loss can be evident prior to the presentation of a bitemporal hemianopia VF defect.[6]

Zangerl et al[2] discuss that although some patterns of GCC and VF loss are quite clear and distinct, post-chiasmal lesions can be quite unique to the individual and show variable presentations.

The pattern of GCC loss and VF defects shown in Case 2, are also less clear. The entire VF is very constricted in OU which does not readily match the pattern of GCC loss. If the ABI was the cause of the VF defect, why does it not match the extent of GCC loss?

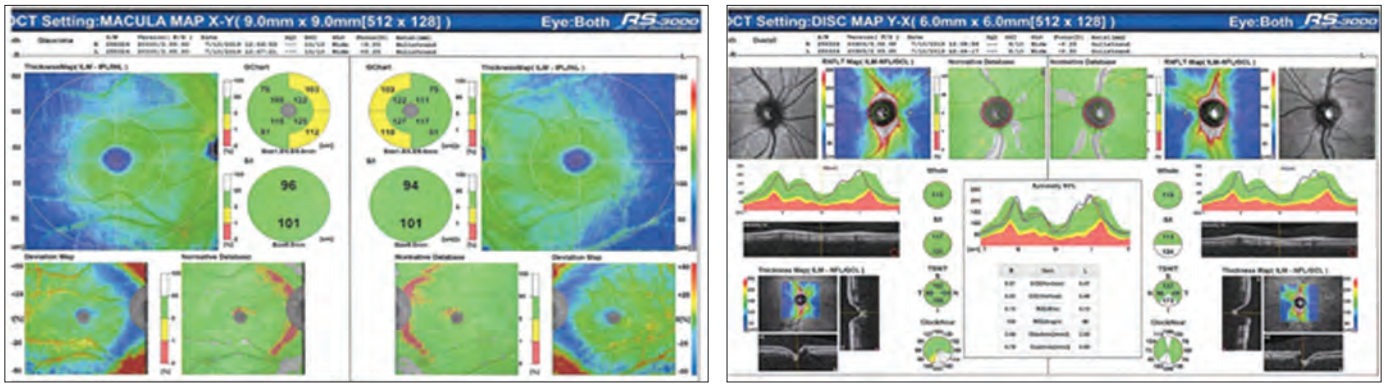
One consideration could be that because cerebral damage has a variable effect on the RNFL between

Refraction	R plano (6/24-) L -3.00/-2.25x160 (6/9.5=)
IOP	15mmHg OU
Posterior Eye	Cup: Disc ratio 0.8 R and L with a thin and pale R neuroretinal rim and L tilted disc. There was a significant R ERM and L macula was clear.
Nidek Posterior OCT	L>R Optic nerve head RNFL thinning in OU. OCT scans had poor signal strength in OU.

Table 1. Case 1: clinical findings

Refraction	R plano/-1.50x180 (6/12) L +0.50/-1.50x180 (6/9.5)
IOP	R 16mmHg L 14mmHg
Posterior eye	Cup: Disc Ratio R 0.2, L 0.25. Flat macula in OU.
Posterior OCT (Nidek)	Bi-nasal GCC thinning. RNFL 119um in OU.
Confrontation	Confrontation yielded slow responses, with repeated assessment of the L supero-nasal and supero-nasal VF. The patient reported difficulties seeing on the left-hand side of their visual field.

Table 2. Case 2: clinical findings



Figures 3A and 3B. OCT Results revealing a subtle binasal GCC loss and RNFL within normal limits in OU

individuals, it may not always be flagged as abnormal.[8] Martucci et al[5] discuss that using OCT was still useful in assessing trans-synaptic retrograde degeneration, and the pattern of macular GCC loss was more useful than analysing the peripapillary RNFL. They support the theory that there is a correlation between the topographic position of GCC loss and degeneration in the visual cortex, however GCC thickness is not a perfect correlate to the VF defect.

Perhaps in these cases, assessing a pathway visual function via visually evoked potentials (VEP) and/or electroretinography (ERG) assessment is more reliable than subjective VF testing. Other useful objective testing would be fundus auto-fluorescence (FAF), or monocular colour vision testing, to rule out an inheritable retinal dystrophy, such as retinitis pigmentosa,[9] causing a loss of peripheral vision.

Sometimes it is difficult to match the GCC losses with defects along the visual pathway, especially when VF are not always reliable. This illustrates that sometimes OCT must be used as key objective measure and monitor the progression of an optic nerve and vision.

Conclusion

OCT is in invaluable tool in guiding an optometrist's decision making and differential diagnoses in managing a patient's health.

In some cases, OCT is a good correlate for structural and functional changes such as in the case of compressive or glaucomatous optic neuropathy. In other cases, where VF is not always reliable, having a baseline OCT result is useful to monitor optic nerve change objectively and use alongside other testing strategies to best manage a patient.

Ultimately, a successful diagnostic and management decision cannot be reached by over-reliance on one diagnostic modality, and requires a holistic approach to examination, utilising clinical techniques, comprehensive history taking and adjunct application of diagnostic imaging.

*Case reports seen at the Australian College of Optometry, Melbourne.

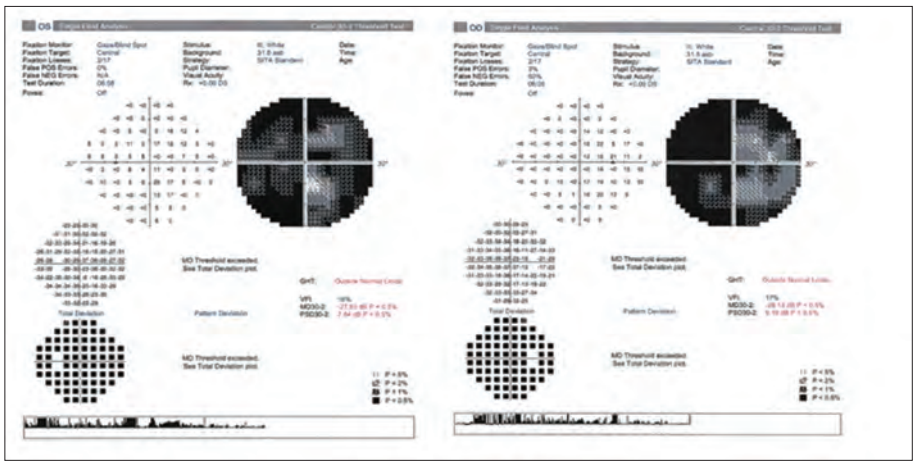


Figure 4. Visual Field Results: HFA 30-2

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Centre for Eye Health

Chair-side Reference:

Many systemic drugs have ocular side effects, some of which are potentially sight threatening. It is important to monitor and screen patients on these drugs as early detection and reporting to appropriate medical practitioners may be critical in preventing irreversible vision loss. This chairside reference describes the major potential ocular side effects related to selected systemic drugs, in particular those that with RPE/retinal implications.

Drug name	Use	Potential sight-threatening complication	Onset	Signs & Symptoms
Amiodarone (Cordarone)	Anti-arrhythmia	Optic neuropathy	Months	Insidious visual loss (mostly bilateral), colour vision abnormalities, variable field defect, disc oedema.
Fingolimod (Gilenya)	Anti-multiple sclerosis	Macular oedema	Months	Painless blurred vision, metamorphopsia, reduced VA.
Chloroquine (Nivaquine, Avlocor) Hydroxychloroquine (Plaquenil)	Anti-malarial, anti-rheumatologic	Bull's eye maculopathy	Years	Paracentral scotoma, nyctalopia, focal thinning of photoreceptors and RPE abnormality (early), vision loss and Bull's eye maculopathy (later).
Tamoxifen (Nolvadex)	Anti-neoplastic	Crystalline maculopathy; macular oedema	>1 year	Often asymptomatic. Bilateral fine deposits in perifoveal region, foveolar cyst; visual acuity loss if macula oedema or haemorrhages present.
Interferon-alfa (Intron, Rebetron)	Anti-neoplastic	Ischaemic retinopathy; optic neuropathy	Months	Often asymptomatic, intraretinal haemorrhages and/or cotton wool spots (CWS).
Vigabatrin (Sabril)	Anti-epileptic	Irreversible field restriction	Months to years	Normal VA, bilateral, concentric or bi-nasal visual field defects, fundus is typically normal. May have disc pallor, arteriolar narrowing and/or abnormal macular reflexes.
Topiramate (Topamax)	Anti-epileptic	Angle closure glaucoma	Weeks	Blurred vision, ocular and/or periorbital pain, headache, increased IOP, myopic shift, angle closure, cilio-choroidal effusion.
Thioridazine (Aldazine) Chlorpromazine (Thorazine)	Anti-psychotic	Pigmentary retinopathy	Months	Slightly reduced VA, nyctalopia, dyschromatopis, Salt-and-pepper pigmentary disturbance in mid-periphery and posterior pole, focal or diffuse loss of RPE and choriocapillaris.
Ethambutol (Myambutol)	Anti-tubercular	Optic neuropathy	Months	Sudden vision loss, colour vision abnormalities, central scotoma, normal or slightly swollen optic nerve.
Canthaxanthin	Anti-psoriasis	Crystalline maculopathy	Dose-dependent	Often asymptomatic, refractile, yellow-orange deposits form a ring-like pattern in perifoveal region.
Deferoxamine (Desferal, Desferrioxamine, deferasirox)	Iron chelator for transfusional haemosiderosis	Pigmentary retinopathy; optic neuropathy	Months	Decreased vision, nyctalopia, dyschromatopisa, field loss, multiple discrete hypo-pigmented lesions at posterior pole and mid-peripheral retina.
Filler for intravenous narcotics	Talcum powder	Macular/retinal ischaemia; crystalline maculopathy	Unknown	Decreased vision, scotoma, bilateral hyper-reflective intraretinal small yellow deposits in macula, arterial occlusion, CWS, AV anastomosis, neovascularisation of the disc or in the periphery.
Methanol	Solvent, anti-freeze, recreational	Optic neuropathy	Within hours with high dose	Decreased central and/or peripheral vision, colour vision abnormalities, disc atrophy.

Visual field test program and pattern outlined are based on Humphrey Visual Field Analyser (HFA), equivalent tests are available in other perimeters

^ Onset may vary depending on dose and duration.

* In addition to comprehensive dilated fundus examination.

Screening Ocular Toxicity of Selected Drugs

Optometry
NEW SOUTH WALES
AUSTRALIAN CAPITAL TERRITORY

Non-vision threatening toxicity such as vortex keratopathy from amiodarone is outside the scope of this reference. This reference provides recommendations on the workup and ongoing follow-up intervals in an optometric setting. It is not intended to cover the spectrum of all ocular side effects of systemic drugs (e.g. drugs that induce mydriasis, dry eyes, and steroids), nor is it designed to provide guidance on intervention or treatment.

	Clinical examination recommendation*					Screening recommendation
	CV	VF	CFP	OCT	FAF	
	✓	✓ 30-2	✓	✓		Baseline evaluation before treatment, every 4, 8 and 12 months after treatment initiation, yearly thereafter or on an as-needed basis depending on clinical findings.
		✓ Amsler	✓	✓		Baseline evaluation before treatment, 3-4 months after treatment initiation. Advise patient to use Amsler grid self-monitoring. Patients with diabetes and uveitis are at a higher risk and may need to be screened more closely. Patients who undergo intraocular surgery also need pre and post-operative assessment.
		✓ 10-2 for all, 30-2 (if FAF abnormal)	✓	✓		Baseline evaluation within the first year and yearly screenings begins after 5 years, sooner if risk factors (high dosage HCQ>5.0mg/kg real weight, CQ>2.3mg/kg real weight, long duration>5 years, renal disease, tamoxifen use, concomitant macula disease) are present.
	✓		✓	✓		Baseline evaluation within first year and then 3-6 monthly if symptomatic. No continued screening is required if there is absence of signs and symptoms.
			✓	✓		Baseline evaluation before treatment and 3 monthly assessments thereafter.
		✓ HVA full field screening or kinetic perimetry		✓		Initial visual field screening before treatment then every 6 months for 5 years. Yearly thereafter if no defects are present. If a visual field defect is noted, repeat within one month to confirm. Use threshold 30-2 to monitor progression. Electrophysiology is indicated if field testing is not viable.
	✓ Gonio/ UBM					Baseline evaluation should include gonioscopy. Routine review is not recommended. Warn patients of side effects and symptoms and to seek urgent attention if they occur.
	✓		✓	✓	✓	Baseline evaluation followed by yearly review or sooner for high dose (>600mg per day)
	✓	✓ 30-2	✓	✓		Baseline evaluation before treatment, followed by every 4 weeks if daily dose>15mg/kg, every 3-6 months for lower dose
			✓	✓		Baseline evaluation followed by yearly review
	✓	✓	✓	✓	✓	Baseline evaluation followed by screening at 6-monthly intervals. Electrophysiology may be helpful in monitoring retinal dysfunction
			✓	✓		Baseline evaluation for current and past IV drug users For active IV drug users, monitor routinely for emboli and their ischemic sequelae
	✓	✓ 30-2	✓	✓		Baseline evaluation should include a detailed history to identify other factors associated with toxic/nutritional optic neuropathy such as tobacco/alcohol abuse, vitamin deficiencies etc.

Key

CV: colour vision
VF: visual field
CFP: colour fundus photograph
FAF: fundus autofluorescence
UBM: ultrasonic biomicroscopy

A unique case:

Idiopathic, thyroid eye disease or myopia-associated esotropia syndrome?

Laura E Carson
BVisSci Moptom

Canterbury Eyecare
Canterbury VIC

This original case report was submitted by fellow Optometry Australia member Laura Carson in response to our nation-wide call for papers.

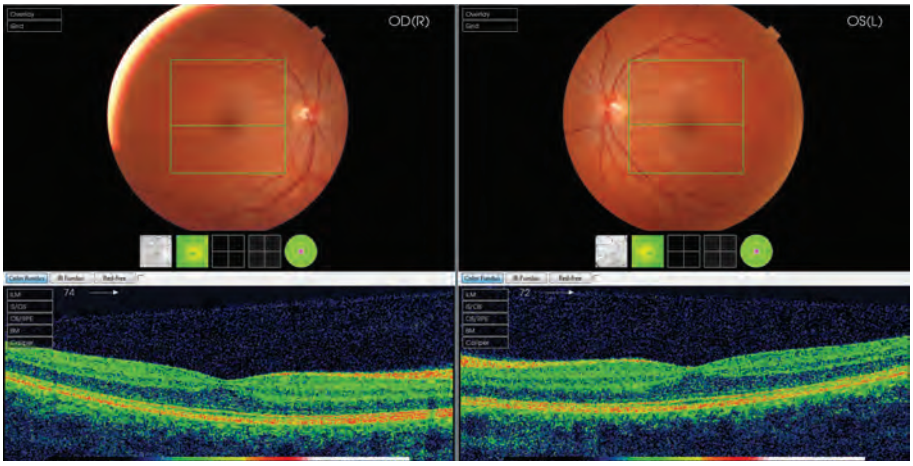

Figure 1. Macula OCT and fundus images

A 23-year-old female myopic female presented with symptoms of intermittent diplopia, worse when wearing glasses than soft contact lenses (CLs). Visual acuity (VA) with her monthly replacement CLs were R 6/7.5 and L 6/6. Motilities and pupil reactions were normal.

Cover test while wearing CLs found esophoria at distance and near, with a magnitude of 9 prism dioptres (PD) and 19 PD, respectively. Spectacle refraction results were R -5.00/-1.25x100 VA 6/6- and L -5.00/-0.75x65 VA 6/6- with 6 base out (BO) PD split to neutralise intermittent esotropia. Stereopsis was 200 seconds of arc. Fundus examination was unremarkable (Figure 1).

She was diagnosed with transiently decompensating esophoria and a review for cycloplegic refraction was scheduled to determine if the underlying cause was accommodative. In the meantime, she was prescribed monthly replacement high add multifocal CLs, aiming to control the esophoria.

Review 1

The patient was reviewed two weeks later. She reported general improvement with the change to her CL prescription but was still closing one eye to eliminate occasional diplopia. Cycloplegic refraction results were consistent with previous findings and confirmed the need for prism correction. She was prescribed prescription glasses with 6 BO prism divided and a separate pair of plano glasses with fresnel prism (10 BO) for over the top of her CL's, to be used when driving. Thankfully this combination was satisfactory until she re-attended 12 months later for an update to her glasses and CL prescription, maintaining the prism corrections with both.

Review 2

Another 12 months later, the patient attended with symptoms of almost constant diplopia in her CL's and felt unable to wear them for long periods

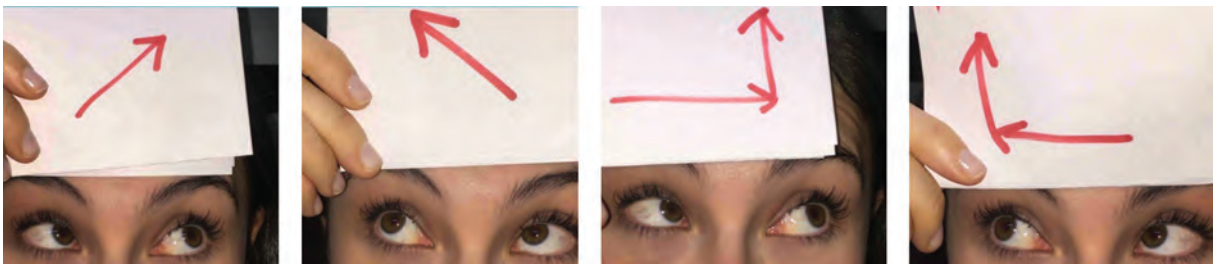

Figure 2. Upgaze left and right abduction showing non commutative versions

of time. Cover testing found a 18 PD esophoric deviation at distance when wearing CL's. Her existing 10 BO fresnel glasses only just controlled her diplopia. In glasses she was esotropic and exhibiting suppression at distance; cover test measured a total of 10 BO to neutralise the esotropia. Additionally, distance base in fusional reserves were limited with break at 2 PD, resolution at 1 PD. Aside from increasing the prism correction in her glasses, alternative management such as modifying her CLs and referral for an opinion on strabismus surgery was discussed.

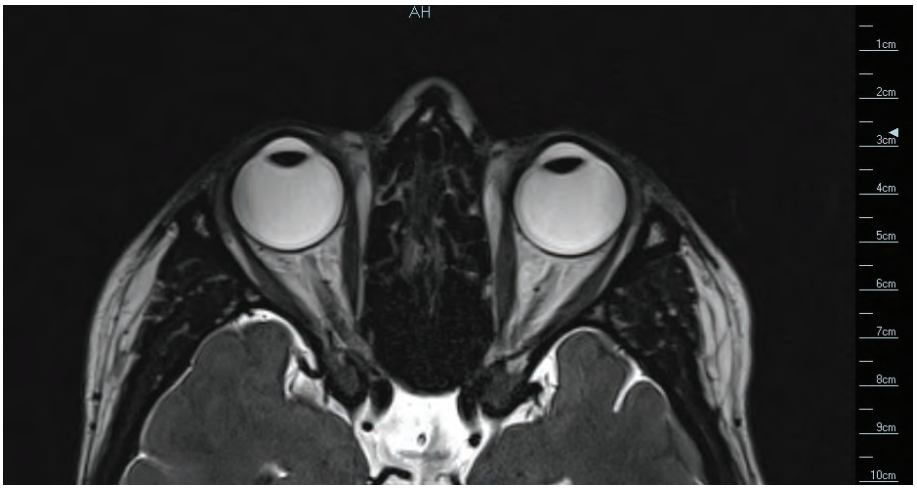

Figure 3. MRI of eye socket and slightly bulky extraocular muscles

Referral

After unsuccessful trials of alternative contact lens options, she was referred to a strabismus specialist. The ophthalmologist confirmed the measurements of her esophoria to decompensating esotropia and limited stereo acuity. Interestingly, considering her level of myopia, axial lengths were found to be R 24.11 and L 23.94 mm. She was also found to have R superior oblique underaction and associated non commutative versions (Figure 2) indicating possible abnormal lateral rectus muscle pulley anatomy. Differential diagnoses therefore became one of the myopia-associated esotropia syndromes, such as heavy eye syndrome or knobby eye syndrome.

She was sent for magnetic resonance imaging (MRI) to investigate further. The consultant radiologist reported that the MRI (Figure 3) showed 'somewhat prominent' extraocular muscles but still 'symmetrical in appearance and position.' They hypothesised Graves' disease, introducing a new differential diagnosis, however, blood tests did not confirm any active thyroid levels. The patient no longer wanted to be reliant on any level of prism correction so decided to proceed with surgical intervention–strabismus surgery.

One week post-surgery the findings were promising. VA's were R 6/7.6 and L 6/7.6 with glasses (a pair was made up without prism prior to surgery). She had near esotropia but distance orthophoria as well as an improvement in her stereopsis results, achieving 100 sec of arc.

Two weeks later, she attended with symptoms of worsening vision; VA with existing glasses was R 6/12+ and L 6/9.5= and refraction found a myopic shift of -0.75 in each eye, enabling a best corrected VA of R&L 6/6-. At her scheduled review with the ophthalmologist, her myopic shift was confirmed along with findings of improved stereoacuity of 70 sec of arc. She maintained distance orthophoria, albeit still with low fusional reserves. It was hypothesised that a change in corneal topography (Figure 4A, 4B) had caused the myopic shift, however, when her pre-and post-operative topography maps were compared (Table 1) this hypothesis was found to be unlikely.

Two months after surgery, the patient was found to have a stable prescription of R -7.00 VA 6/6- and L -6.25/-0.50x10 VA 6/6- which was prescribed in spectacles. Cover test found residual esophoria of 1 PD at distance and 4 PD at near. The patient is very pleased to be relieved of prismatic correction and has returned to wearing spherical monthly replacement CLs.

It has not been possible to ascertain a final diagnosis but this case highlights the management pathway and successful outcome of strabismus surgery in a unique case of progressive esophoria.

Continued page 18

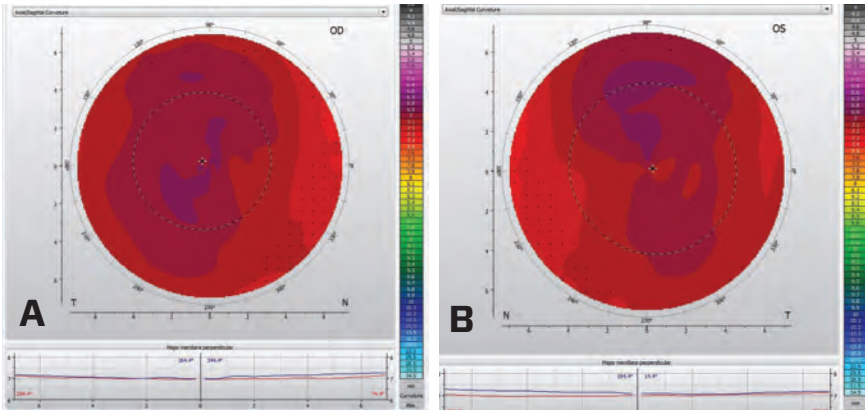

Figure 4. A: Right eye and B: left eye

	Right Eye (D)	Left Eye (D)
Pre-Surgical (IOL Master A scan)	47.60x142/48.28x52	47.54x21/48.56x111
Post-Surgical (Easygraph Topographer)	47.70x165/48.30x75	47.40x14/48.40x104

Table 1. Keratometry readings

A unique case

From page 17

Discussion

Potential differential diagnoses included thyroid eye disease (TED) and myopia-associated esotropia syndromes such as myopic strabismus fixus subtype heavy eye syndrome (HES) or knobby eye syndrome (KES).[1]

Strabismus occurs in TED when there is acute inflammation followed by fibrosis of the extraocular muscles.[2] In TED, all extraocular muscles may be involved and it may be unilateral or bilateral.[2] In this case, negative findings on blood tests mean that there was no active immunological stimulus, but perhaps still a potential differential diagnosis.

Myopia, at any level, may lead to ocular motility issues.[1] Acquired causes of ocular motility issues in myopes may be diagnosed as myopia strabismus fixus which has the subtypes esotropia-hypotropia complex (also known as HES) and the rarer exotropia-hypotropia complex.[1] Additionally, axial myopia is associated with staphylomata, which, in turn, has been associated with defects of the lateral rectus-superior rectus (LR-SR) band and inferior displacement of the lateral rectus.[3]

HES causes symptoms of progressive esotropia, sometimes also hypotropia.[4] It is similar to another condition, sagging eye syndrome. This occurs primarily in elderly patients so was excluded as a differential diagnosis early on.[4] HES has been described as a displacement of rectus muscles, in particular, the lateral rectus, possibly due to dislocation of the myopic globe or compression of the muscles by the eyeball against the orbital wall.[4,6-7]

Recent research using MRI technology has led to the term 'KES,' which has been described as a syndrome parallel to HES in patients with similar symptoms. KES and HES may both occur in myopes, but strabismus caused by KES is from the interaction of the extra ocular muscles (EOMs) and a staphyloma.[7] In KES, equatorial staphylomata may affect EOM paths when there is rotational contact with the EOMs, in turn adding tension which increases on ductions.[7]

Staphyloma prevalence increases with axial length, however they may still be present in eyes with axial lengths below 26.5mm.[8] In this case, interestingly, the patient had normal axial lengths and the absence of a posterior staphyloma on fundus examination (Figure 1) as well as an absence of equatorial staphyloma on MRI (Figure 3), therefore ruling out KES and HES as potential diagnoses.

It is possible the cause in this case was idiopathic, due to TED or perhaps caused by a subtype in the family of myopia esotropia associated syndromes yet to be defined.

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CLINICAL AND EXPERIMENTAL

OPTOMETRY

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At the time of writing, I have just returned from a brief locuming stint in a lovely practice in the mid-north coast of New South Wales. I do this on a yearly basis as a break from my academic life, and every time I am reminded of the incredible versatility of clinicians. Every patient that walks through the door brings with them their own ocular and medical conundrum, and that can very often include mental disorders which will inevitably play a part in the examination and subsequent management of that person. Author Dr Scott A Anthony from the Cleveland Veterans Affairs Medical Centre focuses on one such condition that poses major social and health-care challenges: schizophrenia.

Schizophrenia is marked by cognitive deficits as well as psychosis which can be classified into positive symptoms (delusions, hallucinations, disorganised speech, grossly disorganised behaviour), negative symptoms (social withdrawal, avolition, alogia, emotional flattening), or mixed symptoms (both negative and positive symptoms, or neither).[1,2]

Schizoaffective disorder has the same features as schizophrenia, with the addition of associated major depression or manic episodes.[3] Given the associated ocular findings of sun gazing, impaired smooth pursuits and treatment-related complications such as chlorpromazine ocular pigmentary changes, it is important to review eye-care in the presence of schizophrenia.

In his manuscript published in *Clinical and Experimental Optometry*, Dr

Pharma and Optometry Australia's official journal *Clinical and Experimental Optometry (CXO)* are collaborating to bring our readers up to date with some of the most interesting articles, reviews and original research available in the latest issues of *CXO*.

Focus on eye care in schizophrenia

Summary and comment provided by Maria Markoulli
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Anthony conducted a retrospective review on three cases of patients with schizophrenia and ophthalmic complications.

In the first case, a 63-year old African-American male presented with eye pain, photophobia, redness and blurred vision in his left eye following blunt force trauma. The patient had a constant large-angle, alternating exotropia without a history of diplopia and of unknown onset. He had significant peripheral chorioretinal scarring in both eyes of unknown aetiology. The patient was diagnosed with traumatic uveitis and severe left eye iris sphincter tears and treated accordingly.

In the second case, a 57-year-old African-American male presented reporting blurred vision at near without using his glasses. Based upon the funduscopic appearance of inferior parafoveal retinal pigment epithelial dropout with an overlying glinting reflex, and the pathognomonic OCT scans, as well as his history of schizoaffective disorder, a diagnosis of solar maculopathy was made.

In the third case, a 59-year-old African-American male was referred for a routine consultation and complained of uncorrected blurred vision in the left eye for two months. Entering vision was 6/6 in the right eye and 6/19 in the left eye that improved to 6/15 with pinhole. Anisocoria was also noted as well as an afferent pupillary defect in the left eye. The left iris had iris sphincter tears, superior atrophy, and temporal trans-illumination defects. A 0.65 H/V cup-to-disc ratio was found in the right eye and 0.95 in the left eye with an accompanying absolute superior visual field defect in that eye. The patient was diagnosed with advanced traumatic glaucoma in the left eye.

Our author concludes that the impact of schizophrenia on the ocular system is wide-ranging, from no signs and symptoms to significant visual morbidity. This needs to be factored into the consultation, as well as the potential for increased difficulty of examination and compliance to proposed management. The cases presented highlight the complexity and the risk of injury in patients with schizophrenia.

Although a direct link cannot be made between traumatic fall and this mental condition, psychiatric illnesses have been associated with poor judgement, coordination and reaction time. Concurrent medication could further augment this risk. Moreover, the risk of strabismus and oculomotor abnormalities are thought to be greater in patients with schizophrenia.

Our author surmises that awareness of the psychiatric features of this disorder and the effects of treatments and associated risks are critical in the clinician's ability to coordinate a comprehensive eye exam and management plan.

Anthony SA. Focus on eye care in schizophrenia. *Clin Exp Optom* 2019; 102: 385-393.

Clinical and Experimental Optometry is the official journal of Optometry Australia, the New Zealand Association of Optometrists and the Hong Kong Society of Professional Optometrists.

Psychotropic medication	Common side effects
Clonazepam[4]	Drowsiness; problems with walking and co-ordination; dizziness; depression; fatigue; problems with memory
Olanzapine[5]	Lack of energy; dry mouth; constipation; increased appetite; sleepiness; tremor; dizziness; changes in behaviour; restlessness
Mirtazapine[6]	Sleepiness; increased appetite; dry mouth; constipation; dizziness; abnormal dreams

Table 1. Common side effects of the schizophrenia medications used by Patient 1.

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5. Medication Guide: Zyprexa (Olanzapine). [Cited 2020 Mar 25.] Available at: http://www.fda.gov/downloads/Drugs/DrugSafety/UCM134700.pdf
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Overcoming obstacles and Indigenous eye care

The importance of asking 'are you of

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The University of Melbourne

Many optometrists are aware that eye and vision problems are the most common long-term health conditions experienced by Aboriginal and Torres Strait Islander people.

Pharma's Guest Clinical Editor Roman Serebrianik recently conducted an interview with Mitchell Anjou from The University of Melbourne's Indigenous Eye Health (IEH). Established in 2008, IEH guides government policy to 'close the gap' between the health outcomes of Aboriginal and Torres Strait Islanders and other Australians.

RS: What are the most pressing problems for the Indigenous population?

MA: The immediate and current challenge for Indigenous eye care in Australia is to provide support and care for communities through the COVID-19 pandemic.

Most remote communities have effectively isolated for visitors and visiting services and the impact here is twofold: a lack of care and a consequent backlog of care.

The backlog presents challenges such as distribution of the finite resource that supports eye care (Australian Government programs including the Visiting Optometrists Scheme (VOS), Rural Health Outreach Fund (RHOF), the Medical Outreach Indigenous Chronic Disease Program (MOICDP) and Eye and Ear Surgical Support Services (EESSS) do not readily allow additional services, nor are there the physical and workforce resources available to provide this).

Urgent and emergency care will likely be compromised during the pandemic and regular care, including the delivery of diabetic retinopathy intravitreal injections will be impacted.

A further concern is that this period may allow the gap to broaden unless Aboriginal and Torres Strait Islander eye care is prioritised in the post COVID-19 period.

Beyond COVID-19, the focus is further system enhancement, reform and growth as characterised in Vision 2020 Australia's 'Strong Eyes, Strong Communities' plan.

RS: Could you describe the work of the Indigenous Eye Health Unit (IEH)?

MA: Indigenous Eye Health at The University of Melbourne was established by Professor Hugh Taylor in 2008 with a singular purpose to work towards ensuring that the gap for vision was closed--that is: that there would be no population-level difference in rates of unnecessary blindness and vision loss between Aboriginal and Torres Strait Islander and other Australians.

The strategies used in the work have included: national surveys to measure blindness and vision loss rates and causes; analysis of available national data on eye care services and their use; case study consideration of service models and their various successes and shortfalls; extensive community and sector consultation on the barriers to access and utilise care; and the development of solutions to these barriers.

This work was consolidated in 2012 as 'The Roadmap to Close the Gap for Vision' and the group works to implement the Roadmap health systems reforms.

A key element of the Roadmap has been the elimination of trachoma in Australia.

We characterise our work as offering technical advice and support for those implementing the systems changes recommended by the Roadmap that will lead to the gap for vision being closed. Within the academy we are considered 'translational researchers.'

RS: What's the history behind 'Close the Gap?' and more specifically, the 'Close the Gap: Vision' programs?

MA: The 'closing the gap' campaign has origins back to 2008 where Australian governments (national, state and territory) agreed to work together to deliver better health, education and employment outcomes for Aboriginal and Torres Strait Islander people, and to eliminate the gaps between Indigenous and non-Indigenous Australians.

Our work has been more closely aligned to the 'close the gap' campaign which is Indigenous-led and has Indigenous health equality by 2030 as the goal.

The Close the Gap for Vision work has been underpinned by the Roadmap and has a specific focus on eliminating the inequity between Aboriginal and Torres Strait Islander blindness and vision loss to other Australians.

RS: What's working?

MA: Optometrists know how to examine eyes and so, from my perspective, there has never been a clinical deficiency in our care for Indigenous Australians.

The issues have been access to and availability of services, the appropriateness of services and the

'close the gap' on

Aboriginal or Torres Strait Islander origin?'

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cultural safety of care offered.

I have been very keen to encourage optometrists to seek out patients in their communities who may not readily access care and to ensure all people in their communities are not unnecessarily suffering vision loss and eye disease.

Working from Aboriginal community-controlled health settings, optometrists provide additional outreach and remote and regional services. They contribute to regional collaboratives providing eye care, improving and offering subsidised spectacles services. Optometrists also support primary care services to identify and assist those with eye problems in all areas. And our work has made a significant difference.

RS: What can optometrists do to help?

MA: Optometry is key to improved vision and eye health for Aboriginal and Torres Strait Islander Australians.

Good vision is critical to health and well-being. Indeed, analysis in 2011 estimated that vision loss represented some 11 per cent of the Aboriginal health burden.

Optometry, working with and within Aboriginal community-controlled health settings, can demonstrate how to successfully link primary care and specialist services—and this model is applicable in other areas of health.

Improving vision and eye health also illustrates improved health achievement and demonstrates immediate advantage and success.

However, our goal is that this work is community-driven and led and that is the important work of the next few years.

Optometrists can also contribute to visiting work for communities that do not have resident practitioners. There are a number of agencies and private practices that support these opportunities.

My wish is that optometrists look at their own communities first and check whether they are providing care to the Aboriginal people in their area – and ensuring that the care is culturally safe.

RS: Why should optometrists ask their patients if they are Aboriginal or Torres Strait Islander origin?

MA: The 'Have you Asked the Question' resource is an important initiative that we hope encourages all eye care practitioners to consider the services and care that they provide to Aboriginal and Torres Strait Islander people.

We have been pleased that other health providers, including GPs, are displaying the resource.

For me, creating discussions in optometry practices about Indigenous eye care might be challenging but can only be positive and may result in friendlier, more-knowledgeable and safer places for Aboriginal people to attend for care.

Practices and practice staff who are comfortable 'asking the question' are demonstrating some cultural competence. When patients choose to identify, the practitioner is then in a position to ensure that approaches to care and support for care can be accessed for them.

RS: What's next for the IEH and you?

MA: 'Beyond 2020' presents a number of opportunities for IEH and we continue to consider and work through these.

The 'Roadmap to Close the Gap for Vision' has made great strides and hopefully the upcoming second National Eye Health Survey will confirm more progress, and indeed that the gap is effectively closed.

Vision 2020 Australia, on behalf of the eye care sector, has developed the 'Strong Eyes, Strong Communities plan for 2019-2024' and IEH is participating in the implementation and delivery of this plan.

Probably the most exciting advancement here is increasing community leadership and control of eye care.

The Australian Government has also identified the elimination of avoidable blindness and vision loss for Aboriginal and Torres Strait Islander people as a goal for 2025—there remains work to do.

IEH identifies other areas of Aboriginal and Torres Strait Islander health where an approach like that undertaken in eye care could be applied. We are considering how best to employ the lessons we've learned in eye care to other areas of Indigenous health.

For me, I am happy to contribute where I am useful and wanted. I have enjoyed a wonderful professional life in optometry and I hope that my experiences and skills can be applied to support future challenges in public health, health equity and eye care.

Management of patients in a domiciliary setting

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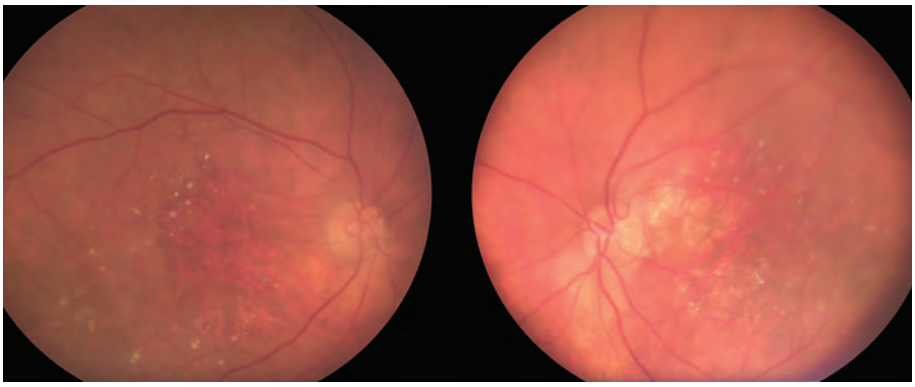

Figure 1. Patient NB: bilateral geographic macular degeneration at last visit May 2019

The incidence of eye disease increases with age, as does the incidence of co-morbidities (ocular and general) and increased frailty. With this comes increased difficulty with mobility, confinement to home or care facility and further confinement to a room or bed. This makes accessing standard desktop instrumentation difficult. Patients with chronic illness, and physical and mental disabilities–including those with challenging behaviours or who are too distressed when taken out of their familiar surrounding–are often also unable to attend an external practice.[1,2,5]

This increases the difficulty of accessing eye care as well other allied health care.

Optometric domiciliary visits may be the only way in which ocular health can be maintained, managed and treated, and refractive corrections kept up to date for the vulnerable patient.[3,4]

Optimum eye care for patients in the home or aged-care or other facilities should include communication with other relevant involved health-care providers, carers and family (if appropriate) with due care and respect for the privacy of the patient.

A full eye examination will involve full medical and ophthalmic history and medications taken. This may need to be done with a family member or carer present, particularly if there are behavioural issues or cognitive disability, followed by an accurate refraction and low vision assessment, dilated fundus examination, with provision of any necessary vision aids.[3,4]

A full eye report provided for each resident seen in a care facility will inform and complement their general health care. This is combined with instructions to carers about eye hygiene, correct application of eye drops and discussions about low vision and visual field loss to enhance patient care and help prevent and manage falls.

Referral for ophthalmological treatments can involve ambulance transport, so suitable wheelchair-access to ophthalmology clinics should be considered. Treatment must be balanced against multiple pathologies and priority of treatment for multiple conditions.[5]

Conditions which may require management in place are: dry eyes, low vision due to AMD, glaucoma, diabetic retinopathy and cataract (if the patient is too frail for surgery), and visual field loss due to stroke or glaucoma.

Glaucoma management is often difficult for a confined patient who may not have seen their ophthalmologist for a long time; has been lost to follow-up; or has inappropriate or discontinued treatment. Co-management with the patient's ophthalmologist may be required, or new treatment initiated by the optometrist.

The following case reports demonstrate the importance of communication between the providers of health care to the vulnerable patient (optometrist, ophthalmologist, general practitioners, nurses, family and personal carers) and the importance of being flexible and able to provide accessible health care options according to the needs of the patient. Sometimes the clinical diagnosis is straightforward and the management becomes complex due to physical and behavioural limitations.

CASE REPORT 1

Mrs NB, a 92-year-old female in 2016, presented for a routine eye examination at an aged-care facility a month after her admission. She presented with a complaint of dry eyes. Mrs NB reported a history of glaucoma, dry eyes, bilateral cataract surgery and left pterygium removal. Mrs NB reported that she was advised to cease glaucoma treatment after the cataract surgery.

Visual acuities were R 6/15 (+1.00/-0.50 x 40) and L 6/9.5-2 (+0.25/-1.00 x 60), n5 part. Intraocular pressures were R 11 mmHg and L 11 mmHg. Slitlamp assessment showed right eye with peripheral iridotomy, the left had two peripheral iridotomies and clear bilateral IOLS. Dilated fundus examination showed optic nerves with RE/LE 0.30, with the left showing a resolving haemorrhage. Both maculae had early hyper- and hypo-pigment

changes. Lubricants were prescribed.

At review three months later, eyes were much more comfortable with regular lubricants. Vision and intraocular pressures were stable. The haemorrhage at the left disc was almost gone. Three months later, intraocular pressures were stable, and vision slightly reduced RE 6/19+2 LE 6/12+. The disc haemorrhage had resolved. At review six months later, her visual status was stable. Annual reviews were recommended.

At annual review in July 2018, Mrs NB reported no visual changes. Vision was measured to be RE 6/30 LE 15-2, IOPS 11/11. The right IOL had some mild fibrosis on the nasal segment. The left IOL was clear. There were early geographic atrophic changes at the right macula and early pigment disturbance at the left macula. Referral was discussed but was declined. Visual acuities were unchanged over the next six months but there was evidence of developing confusion with glasses being mixed up and worn incorrectly.

She was next seen in May 2019 at the request of her family and her general practitioner. The family reported that Mrs NB had complained about 'darkness.'

Her medical practitioner had recently diagnosed Mrs NB with vascular dementia and noted that she had confused images in cognitive assessments. Mrs NB reported no visual complaints. Vision was now RE 6/48 +2 LE 6/36+2, N24 with best correction. Assessment of acuity and refraction was limited due to poor identification of letters associated with her dementia. Near vision assessment was easier as identification of words was better. IOPs were stable (RE 11 LE 12 mmHg). Anterior ocular segment was stable. Posterior ocular segment showed dry geographic macular degeneration more advanced in the left eye. However, visual acuities did not match the appearance of the maculae.

Her increasing vascular dementia and debility limited subjective refraction and accurate measurement of acuity.

Management options were discussed with her family. As there are no treatment options for dry AMD, Mrs NB is frail, has limited ability to leave her aged-care facility and has no insight into her condition, her family decided against referral to her ophthalmologist and to review on an annual basis.

CASE REPORT 2

MH, a 60-year-old female with a history of intellectual disability, tuberous sclerosis, schizophrenia and high anxiety was referred to her local optometrist as she had become hesitant when walking, unable to see steps or uneven surfaces and had lost interest in watching television. As she approached the optometrist's consulting rooms, she had become physically and verbally agitated and refused to co-operate with the examination. She was referred for a domiciliary visit to attempt an examination in her home (a special accommodation house).

MH was calmest in her own room with a trusted carer sitting with her and offering her a slow careful description of what was about to happen.

MH had bilateral, dense brunescent cataracts with no view of the fundi. There was a left exotropia which had been present since birth (noted in her past medical history). Intraocular pressures were R 21 mmHg and L 20 mmHg (iCare tonometer). Visual acuities were R 1/15 and L 1/30 with her existing spectacle correction of: R +4.25/-1.00 x 180 and L +3.00/-1.00 x 180.

MH was referred to a public hospital and was offered an appointment within a month but baulked at the hospital entrance and was unable to attend her appointment. The hospital was advised of the difficulties and rescheduled her appointment a few weeks later, which she attended successfully, mildly sedated and in the company of her sister and her carer.

Bilateral cataract surgery was performed the following month with general anaesthetic and overnight hospital stay. The patient was seen at her domicile two weeks, four weeks and three months post-operatively.

MH had bilateral posterior chamber IOLs, clear and in good position. Visual acuities were R 6/12+ and L 2/30 with insignificant residual refractive correction (Nidek Automated Refractor). Mobility has improved, she is confident and has regained interest in her surroundings.

Treatment of cataracts is generally straightforward and can mean significant improvement to quality of life[6] but appropriate management here was challenging due to the patient's complex issues.

Conclusion

Patients who are extremely frail or have multiple health issues whether physical, cognitive or emotional may be isolated in their home, aged-care or accommodation facility. They frequently have little or no access to eye care in a conventional office. Patients can easily become lost to follow-up when they have missed a few appointments and no longer receive recall letters.

Domiciliary visits by the optometrist to identify and, where possible, manage ocular problems–which may range from correcting a refractive error to managing a complex ocular health issue–can be a significant contributor to improved quality of life, even if the patient is close to end of life. Good communication with those involved in the patient's care and welfare is vital.

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Visiting Disability Services

Optometry and the cognitively-impaired

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On a cold morning in 2008, I started my journey doing Visiting Disability Services (VDS). Walking into the house, I noticed over 12 residents sitting in their wheelchairs across the living room, none of them were paying much attention to their surroundings. The house supervisor assisted me to set up my 'clinic' in a quiet corner of the living room. After trying to work out what I could do for my first patient, I naively put a trial frame onto the patient's face to perform retinoscopy. Within five seconds, the frame was thrown onto the floor. At that point, I called up my colleague, Piers Carozzi, for some guidance. His advice: 'do what you can.'

Seeing patients with disabilities (physical and/or intellectual) requires a lot of patience, observations and quick reflexes. In VDS, we go to various Community Residential Units (CRUs), day placement centres and work places to provide optometric services for people with disabilities. The barriers to accessing eye care for people with disabilities are numerous. They include difficulty in communications, limited medical information provided by carers, limited specialised training and varying levels of compliance to management and follow up.

In the 1880s, patients with intellectual disabilities (ID) were classified as 'mentally retarded.' Such terminology has been replaced with 'intellectual disability' or 'intellectual developmental disorder'.[1] People born with ID were admitted into institutions for care which could house up to 200 residents. Nowadays, the majority of people with ID are cared for at home by their families or in much smaller residential units. Care has become more personal and does give flexibility for people to choose various health care practitioners, including optometrists.

CASE REPORT

Mark was 46 years old when he was first assessed in 2013. Diagnosed with Angelman Syndrome when he was young, Mark has a moderate intellectual disability. He was non-verbal, and communicated with his carer, John, via a form of key sign language. Mark also had issues with balance, however, he could walk short distances with support.

Angelman syndrome is a genetic condition that affects the nervous system in which chromosome 15 is mutated. It occurs in one in 20,000 births.[2] The clinical features were first described by Angelman in 1965.[3] Some characteristics include microcephaly, a depression in the occipital region of the skull and some form of optic atrophy (due to incomplete choroid development). Patients with Angelman Syndrome present with an easily excitable personality; they smile and laugh frequently. (It is also called 'Happy Puppet' syndrome). They suffer from several intellectual disabilities: tremor, speech impairment, ataxia and seizures.

Upon speaking with his carer John, we found out that Mark could have meals with assistance, enjoys outdoor activities and drawing. Mark had frequent seizures and therefore he had to wear a helmet most of the time when awake. Mark could walk with assistance around the house. However, lately John noticed that Mark had become less confident when going from the living room to the bathroom. John also reported that Mark had lost interest watching his favourite movies for the last six months.

Establishing communication

People with ID can present with different levels of severity. It is important to check the preferred methods of communication, for example: key sign language. Communication with patients with ID requires the optometrist to simplify the questions, and response options, In other words, ask closed question. Questionnaires can be filled in by carers prior to eye examinations. This may allow the carers to observe any visual or ocular-related symptoms or signs that the patient might have.

Visual acuity	Unable to determine. Patient was not paying attention to any visual targets
Dry retinoscopy	R +4.00/-1.25 x 90 L +5.00/-1.00 x 95
Wet retinoscopy	R +5.00/-1.25 x 90 L +5.00/-1.00 x 95
Pupillary reaction	Normal
Ocular motility	Unable to follow target. A left constant exotropia was noted
Anterior eye examination	Lids/lashes: equal in position, no blepharitis Conjunctiva white Cornea: clear Lenses: clear
Shadow test	Minimal shadow (i.e. deep chamber)
Icare tonometry	R 14 mmHg and L 15 mmHg
Dilated ocular fundus examination	CD ratios R 0.65, L 0.60 Neuroretinal rim appeared pink in the right eye; but grey in the left Maculae were flat Glimpses of the peripheral retinae were noted, lightly pigmented

Table 1. Patient's clinical summaries

Crucially, before approaching the patient, ask the carer if there are any specific triggers, such as use of certain word or phrases, sound or lights that may lead to a sudden behavioural change during the eye examination.

Observations and objective tests

An eye examination starts during history-taking, and observation is the key. A gross observation of the patient may provide clinical information such as any eye misalignment, obvious inflammation or infection, or dense cataracts.

Testing distance may be variable depending on the tasks that the patients usually do, their attention span and range. Often, patients with ID are interested in tasks and objects that are within arm's length. The usual approach is to speak with the patient and/or carer to determine what their daily tasks are.

Visual-acuity measurement could require the patient to identify letters (either responding verbally or by matching) or symbols (Lea chart), or the use of target-based test such as hundreds-and-thousands or M&M's (providing that these are not a choking hazard). Based on the object size and testing distance, we can estimate visual acuity.[4] Binocular visual acuity is measured first before attempting to cover an individual eye, as covering the dominant eye could lead to slight distress.

Before glasses were prescribed, a modified prescription of R +3.00/-1.25 x 90 L +4.00/-1.00 x 95 was trialed during the consultation. Mark started to look around and made eye contact with John. He was able to detect a lit target (3 cm in size) at approximately one metre. Mark looked at the TV screen for a few minutes then threw the glasses away, finding them uncomfortable. After a lengthy discussion with John, Mark was prescribed the modified prescription into sport goggles, which would wrap comfortably around his eyes and could fit under his helmet.

Patients with intellectual disabilities enjoy having routine in their daily lives. Fitting a spectacle wear schedule can be a challenge. John was instructed to let Mark wear his new spectacles in a supervised environment, for example: while watching TV for 30 minutes. The wearing-time gradually increased to one or two hours over three months. However, Mark had to be supervised when walking around with his spectacles.

I returned three months later to assess how Mark had coped with the spectacles. It was reported that Mark enjoyed wearing them during the day while doing visual tasks such as watching TV and painting. Mark also regained his interest in watching TV and movies and appeared to be more attentive to John. Mark had been reviewed yearly since.

Discussion

The above case highlights the importance of providing a thorough eye exam for the patient and demonstrates that it may take more than one visit to obtain a reasonable outcome. It has been shown that there is a wide range of refractive error in patients with ID.[5,6] There are associated ocular manifestations such as keratoconus (common in patients with Down Syndrome) and strabismus (which also correlate with more severe ID).[7,8]

The complexity of ocular manifestations is often greater in people with ID, as patients could be presented with more than one condition. Importantly, the prevalence of visual impairment can be at least 40 per cent to 92 per cent in those with profound and severe disabilities.[9]

Behavioural issues can also contribute to visual impairment if there is evidence or habits of self-inflicted injuries to different body parts. In some cases, if the self-inflicted injury involves the ocular area, this could lead to corneal abrasion, eye infection, or even permanent damage such as retinal detachments, orbital damage, corneal scarring and potentially loss of the eye.

The advantage of providing visiting optometric services to patients with ID it that they are assessed in their familiar environment, which can help ease their anxiety and minimise the disruption of their routine. This is likely to improve cooperation. Optometrists can also observe what the patient can do around the house. For example: do they have any trouble walking around, doing household activities? Do they have any behavioural issues such as hurting themselves in the head/eye when agitated?

In the twelve years since starting my journey in Visiting Disability Services, I have verified the real value of the advice offered me on my first day: 'do what you can.' By improvising existing clinical techniques according to each patient's intellectual ability, we can improve the rate of diagnosing ocular diseases and improve on the likelihood of prescribing corrections earlier in life.

Providing eye examinations to patients with ID can be challenging, yet rewarding—especially when our efforts improve our patients' quality of vision and ultimately, their quality of life.

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Refugees, asylum-seekers and eye care

Context, challenges and issues

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Context

A refugee is defined as 'a person who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is forced to leave their country and is unwilling or unable to return.' An asylum seeker is defined as 'someone who has sought protection as a refugee but whose claim for refugee status has not yet been determined.'[1]

Conflict and violence as a result of war is the most common cause for forced migration, but situations such as natural disasters related to environmental change are, increasingly, becoming a cause for displacement.[1]

The latest United Nations High Commissioner for Refugees (UNHCR) Global Trend report suggests that in 2018, the number of refugees worldwide stands at 70.8 million people.[2]

Australia has a long history of resettling refugees. More than 870,000 refugees have been resettled between 1945 to the early 1990s. More recently, 2018 saw 23,000 people resettled in Australia with a further 24,566 people lodging new applications seeking asylum.[3]

Historically refugees came from Europe after World War II, followed by waves of asylum seekers from South East Asia (1976-1981), Indochinese (1989-1998) and the Middle East (from 1999). In the past five years, the main nationalities seeking asylum are from China, Malaysia, India, Pakistan, Vietnam, South Sudan and Myanmar. Over 80 per cent of refugees and asylum seekers are settled in urban centres in Victoria and NSW. Approximately 75 per cent of asylum seekers across Australia are male and predominantly under the age of 35.[4]

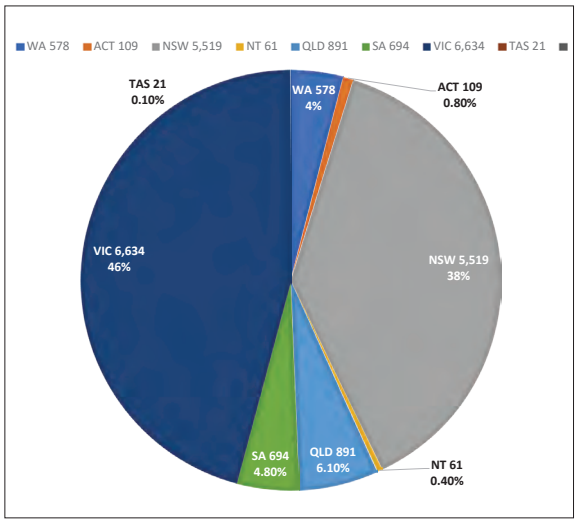

Figure 1. The distribution of refugees on bridging visas across Australia as of June 2019 [4]

Countries	Number of visas granted
Iraq	7,095
Congo (DRC)	2,114
Myanmar	1,995
Syria	1,836
Afghanistan	1,323
Ethiopia	635
Eritrea	555
Iran	367
Bhutan	254
Tibet	189

Figure 2. Offshore visa grants for refugee and humanitarian visas entrants by top 10 countries of origin in 2018–19. [7]

Challenges

Refugees face numerous challenges in settling into Australia. Health care challenges include language barriers, low levels of education and literacy, lack of transport, financial handicap, poorly understood risks of illness and lack of knowledge about where and how to access health services. Further, negative experiences of health care overseas and the fear of negative social consequences such as loss of job opportunities as a result of having a health issue has also been identified as affecting access to health-care.[5]

The Brien Holden Vision Institute and The NSW Refugee Health Clinic have formed a partnership, providing eye examinations to refugee and asylum seekers. Outreach clinics operate at Liverpool, NSW. Referrals to the clinic are received via refugee health nurses, social services and general

practitioners.

As the majority of the patients do not have access to Medicare and are without work rights, the clinic provides a way to decrease barriers to accessing health care. The patients are supported at the appointment with a refugee health nurse who introduces them to the optometrist and a face-to-face interpreter or over-the-phone interpreter services. These approaches allow the patient to communicate freely in their own language, which supports the development of trust, respect, rapport, cultural safety and relationship-centred care.[6]

Issues

Basic optometric services are provided with the provision of cost-free prescription spectacles, provided through the generosity of the Essilor Foundation. Additionally, due to previous lack of access to diagnosis and management, diabetic retinopathy, glaucoma, hypertensive retinopathy and lid lesions often present in later stages. A significant part of my role is liaising with the refugee health nurse, GPs, and public and private ophthalmologists to establish the referral pathways when further assessments and care are required.

CASE REPORT

MP is a 56-year-old male from Sri Lanka who arrived in Australia as a refugee two years ago. Referred for an optometric consultation by a GP, he has never owned glasses and reports that he is struggling with reading bus signs and filling out forms.

When he arrived in Australia two years prior to presentation, he was diagnosed with diabetes. He reports variable control of his sugar levels due to poor compliance with diabetic medications. He also reports that affordability of medications is a problem and too many worries make him forget to take them.

MP was found to require both distance and reading glasses. His aided visual acuity was R: 6/6 L: 6/9. Further: moderate non-proliferative diabetic retinopathy in both eyes was found on retinal assessment. The left eye has dull foveal reflex consistent with macula oedema and cotton wool spots within 1-disc diameter from fovea.

As a result of the consultation, a referral to multidisciplinary practitioners was made, including an urgent referral to a public hospital ophthalmology clinic; a referral and report to the GP to re-evaluate diabetic management plan; a report to the refugee health nurse to highlight the need to assess issues with affordability of medications and to provide for mental health reassessment and social work support.

Discussion

Beyond these clinical roles, an essential component of my work is empowering my patients and building their health literacy. Many refugees have a limited ability to obtain, communicate, process and understand basic health information. The reasons are complex and multifarious: some don't understand the language, some struggle to navigate the cultural differences of a new health system, often there is poor education and low reading ability, or poor concentration and emotional issues related to trauma.[6]

The clinical space becomes a dynamic learning environment to grow knowledge, to share differing health beliefs and to educate the patients towards improving their engagement with health information, service use and preventative health activities.

There are various tools tailored to the unique circumstances of each patient, such as providing information in a clear and modified way; involving family members in the examination process; the use of drawings, visual aids and demonstrations to not only educate but build confidence and participation of the client.

Getting glasses has changed many aspects of our patients' lives. They report an increase in self-esteem, which, in turn, creates more social and educational opportunities such as the confidence to learn English and to read again.

Working in the refugee eye care health space has many challenges and issues. The complexity of patients' health needs often requires an interdisciplinary collaborative approach. To break down barriers to eye care service, delivery models must allow interventions to occur in a timely and coordinated way. Clients must be identified and brought into services that are culturally safe and physically accessible in the community.

These things require a greater commitment to education about eye care in the community and in health-care workers. They require increased competency in the workforce to deal with this vulnerable population group. They require professional training and support and stronger partnerships between service providers. Finally, they require the development of our patients' health literacy which encourages them to participate in their own health care and to become informed users of the health care system.

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A simple technique to improve eyedrop compliance

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First, you need a zip tie...

Here we share a clever technique that was devised by a patient of ours to improve adherence to the prescribed IOP eyedrop therapy. For a more detailed description of this technique, please see our recent article in *Acta Ophthalmologica*.[1]

Evenly-spaced marks are drawn on the side of the eyedrop bottle according to how many times the eye drops need to be administered each day.

Figure 1A. Eye drop bottle marked with four lines indicating that a drop should be administered four times a day. The zip tie is at the top of the bottle above the highest line signifying that no drops have been administered that day.

Figure 1B. The cable tie is at the bottom of the bottle indicating that all 4 sets of drops have been administered.

A brightly coloured zip tie is then placed around the bottle, tightened, and the excess is trimmed (Figure 1A). At the start of the day, the zip tie should be positioned just above the top mark. As each set of eye drops is administered, the zip tie is slid down to the next mark, reaching the bottom of the bottle by the end of the day (Figure 1B). A zip tie at the bottom of the bottle indicates that all drops for the day have been administered.

The scheduled time of each dose can be written next to the corresponding line if there is sufficient room on the bottle. The bottle is placed in a prominent position in the home to act as its own visual reminder. With just a brief glance, the zip tie reminds the patient of how many drops are still due to be administered that day. At the end of the day the zip tie is reset back to the top of the bottle.

This is an inexpensive and simple technique for patients to keep track of their eye drop doses each day. The zip tie can be fastened by an eye-care practitioner or family member, and thereafter the system requires minimal dexterity to operate. It is particularly helpful for patients with short-term forgetfulness who struggle to recall if they did or did not administer their drop.

Given that eye drops are the mainstay of treatment for many conditions, the importance of administering them correctly is self-evident. It is well established that patients who require multiple drops a day find it difficult to administer them correctly.[2,3] Existing strategies to support compliance include dosing calendars, associating drop use with daily activities, and digital alarms. There is insufficient evidence to advocate any particular strategy over others.[4]

Electronic medication alarms have been shown to improve compliance,[5-6] however these can be expensive, bulky, fragile and complicated to manage when multiple drops are prescribed. Patients may find our cable tie technique easier than setting digital alarms or drawing a dosing calendar. Another advantage of our technique is that it is compact and robust–well suited to patients who travel.

Of course, our technique doesn't give the patient a prompt to actually administer the drop at the correct time, so it's important to ensure the patient places the bottle in a prominent position in the home. (A reminder alarm may still be required for some individuals).

This simple technique is a helpful tool that all eye-care practitioners can recommend to their patients to support the adherence to eye drop therapy.

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