

Ocular co-morbidities in domiciliary eye care

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The Australian College of Optometry (ACO) provides domiciliary care in a number of settings, including aged care facilities, supported residential services and crisis accommodation centres with a significant proportion of these services provided to older Australians (aged over 65 years).

The ocular conditions that an optometrist can expect to encounter in these settings have been summarised by the 2016 National Eye Health Survey (NEHS),¹ which investigated the causes of vision impairment in the Aboriginal and/or Torres Strait Islander (40 years and over) and non-Aboriginal and/or Torres Strait Islander (50 years and over) populations.

It was established that in non-Aboriginal and/or Torres Strait Islander Australians, the leading causes of vision loss were uncorrected refractive error (61.3 per cent), cataract (13.2 per cent) and age-related macular degeneration (AMD) (1.3 per cent), compared to uncorrected refractive error (60.8 per cent), cataract (20.1 per cent) and diabetic retinopathy (5.2 per cent) in Aboriginal and/or Torres Strait Islander peoples.

Uncorrected Refractive error

Uncorrected refractive error accounts for almost two-thirds of all cases of vision impairment in Australia in

all groups. Unfortunately, this has not reduced in the last 20 years, with similar findings (62 per cent) in the Blue Mountains Eye Study and Melbourne Vision Impairment Project of the 1990s.² A major focus of optometry care, addressing refractive error remains an important part of service provision both in clinic and on domiciliary visits.

Cataract

With increasing age comes the likelihood of patients experiencing systemic co-morbidities rendering cataract surgery more challenging or not possible. Additionally, there are patients for whom cataract surgery is deemed to be of limited benefit due to the presence of compounding visually-limiting conditions, including AMD.

Cataract referral may also be delayed in older Australians due to a less visually-demanding lifestyle, for example: a patient who is no longer driving. It is well to remember that more indirect methods of examining the ocular fundus (for example binocular indirect ophthalmoscopy) or certain ocular coherence tomography (OCT) imaging systems incorporating a scanning laser ophthalmoscope (SLO) will be better at penetrating the opacified lens than direct methods (such as direct ophthalmoscopy).

Age-related macular degeneration

AMD is the predominant cause of vision impairment in optometry low vision clinics at Kooyong (49.0 per cent)³ and the Australian College of Optometry (39.6 per cent).⁴ Patients who require domiciliary optometry services may also be affected by limited access to anti-VEGF treatment due to financial or transport difficulties.

A difficulty with AMD in domiciliary care is the added challenge of not always having access to OCT and limited availability of a clear, highly magnified, binocular view of the ocular fundus to assess the profile of the macula. It is likely that patients with reduced vision and AMD will

require earlier ophthalmology referral (or attendance at an optometry clinical practice) to investigate for the presence of a choroidal neovascular membrane.

Diabetic retinopathy

Patients with a diagnosis of diabetes mellitus can be well-cared for in domiciliary practice with portable diagnostic equipment to assess visual, cranial nerve function, anterior segment and dilated posterior ocular health. However, patients with sudden or unexplained visual acuity loss require careful attention, as they may benefit from early ophthalmology referral or attendance at an optometry clinical practice to confirm the presence or absence of macular oedema.

Low vision

The NEHS established the overall prevalence of vision loss in Australia as 6.5 per cent, with increasing rates with age (5.0 per cent in the 50–59-year cohort vs 37.3 per cent in the 90+ years cohort) and Aboriginal and/or Torres Strait Islander status (11.2 per cent overall). Many rehabilitation organisations, including Guide Dogs Australia and Vision Australia, provide domiciliary assessments and support; inability to attend a clinic should not be a reason to delay referral for such care. To provide introductory low vision services to patients as needed, a small selection of basic optical magnifiers is a worthwhile addition to a domiciliary visit kit.

DOMICILIARY CARE CASE REPORT 1

Mrs A was seen as part of an annual visiting optometry service to a large aged care facility situated in a small town about five hours drive from Melbourne, three hours from the closest regional centre with an

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Domiciliary eye care

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ophthalmology service.

Mrs A did not report any knowledge of past ocular health problems, nor any concerns with her vision. She reported undergoing right eye cataract surgery and reduced left vision (possibly since childhood). Best corrected visual acuities were R 6/9.5 L 6/38, with no improvement with pinhole. Portable slitlamp examination revealed bilateral posterior chamber intraocular lenses (IOLs), despite Mrs A being quite insistent of only ever having surgery to her right eye. Intraocular pressures were consistently asymmetric with repeated measurements (R 13 mmHg L 20 mmHg with Perkins applanation tonometry).

Mydriatic ocular fundus examination revealed a large area of macular swelling in the left eye, along with some fine new vessels on the superior margin of the left disc. Scattered small haemorrhages were also noted in the midperiphery of the left fundus.

After lengthy discussion with the patient, site staff and a later phone call to Mrs A's daughter who did not live locally, the decision was made to refer Mrs A to an ophthalmologist (three hours away), which required ambulance transport. A diagnosis of neovascular AMD was confirmed (Figure 1), however no further treatment was initiated due to difficulties with access and follow-up, and Mrs A's declining treatment.

This case highlights some of the

additional challenges faced in domiciliary eye care, namely poor health literacy, limited continuity of care, access to ophthalmology care, providing care to patients with cognitive decline and consent regarding treatments.

DOMICILIARY CARE CASE REPORT 2

Mr B was provided optometry care at his residence in an aged care facility in metropolitan Melbourne. He reported a known history of 'dry' AMD, having previously been under the care of a private ophthalmologist and undergoing bilateral cataract surgery some years ago. He had not attended for ophthalmology review for some time, as he had been told, 'Nothing more could be done.' Mr B's main concern was being able to read books and the newspaper a little better.

Best corrected visual acuities were R 6/18 L 6/30. Appropriate near

addition enabled N8 print to be achieved with limited fluency. Dilated ocular health examination revealed bilateral clear and stable IOLs, and confirmed intermediate AMD at both maculae.

Several hand-held magnifiers and stand magnifiers were trialled; as optometry assessment took place at Mr B's own residence, he was able to trial magnifiers at his own desk and with his own reading material. Lighting in his room was assessed, with an existing floor lamp relocated to provide extra focal lighting. In this way, Mr B was able to ascertain that a 3x illuminated stand magnifier was the most appropriate magnifier for his needs; enabling N4 print to be read fluently.

This case demonstrates the benefit of being able to conduct a low vision examination in a patient's own setting, with the practitioner able to provide practical advice regarding the setup of lighting and visual ergonomics to enable the comfortable use of magnifiers as low vision aids.

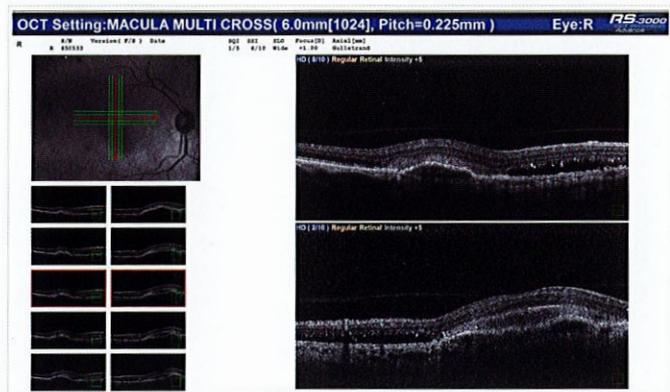


Figure 1. Nidek OCT scan (Macula Multi) demonstrating neovascular AMD in another ACO patient

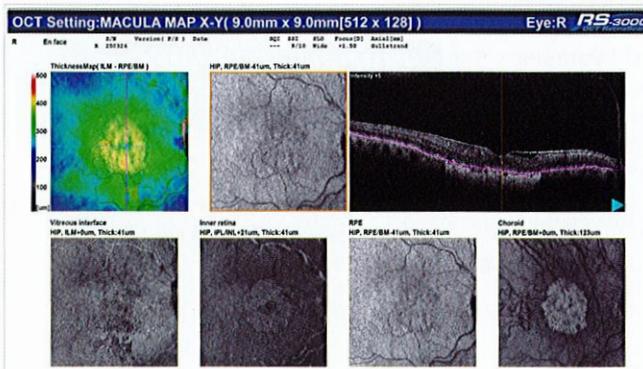


Figure 2. Nidek OCT (Macula Map) demonstrating late AMD (geographic atrophy) in the right eye

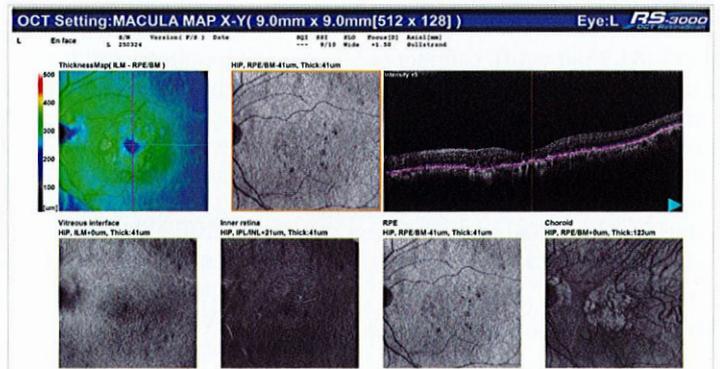


Figure 3. Nidek OCT (Macula Map) demonstrating late AMD (geographic atrophy) in the left eye

**CLINIC-BASED CARE
CASE REPORT 3**

A contrasting case is Mrs C, a long-standing patient at the ACO Carlton clinic who resides in a nursing home and self-arranges transport for any required appointments. Having been monitored for many years with intermediate AMD, Mrs C presented for routine review, reporting a decline in her vision. She was found to have visual acuity R & L 6/120 reduced from 6/24 (six months prior) with a commensurate reduction in her near acuity. The anterior eye was unremarkable with posterior chamber IOLs noted to be clear and well positioned. Dilated ocular fundus examination revealed atrophic pigmentary changes at both maculae, which appeared to be flat. OCT confirmed that there was no choroidal neovascularisation and the maculae were flat with no subretinal fluid (Figures 2 and 3). Mrs C's ability to regularly attend a fully-equipped clinic for her care enabled a more

conclusive diagnosis of intermediate AMD progressing to late AMD (geographic atrophy).

Conclusion

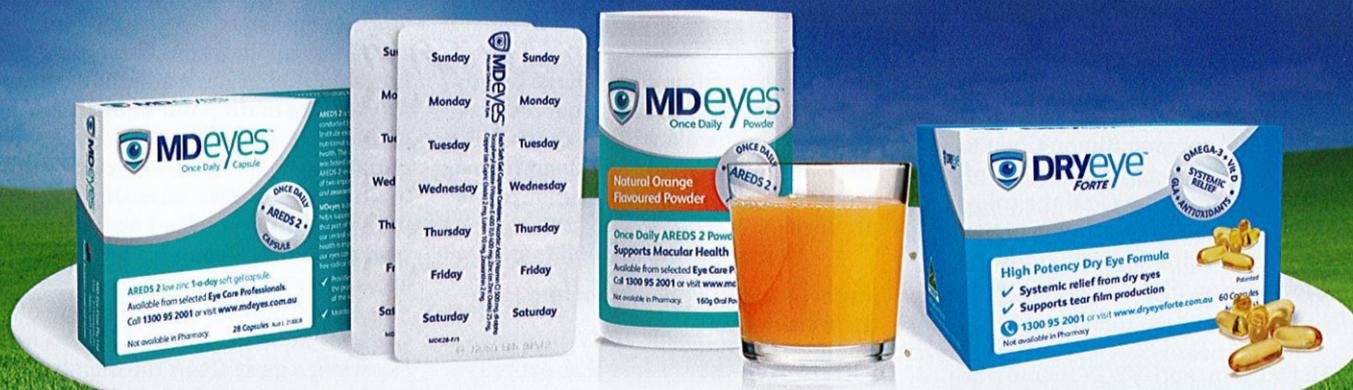
The ocular co-morbidities associated with domiciliary care are not dissimilar to those found in routine clinical practice; once the older population group is taken into consideration. The most frequently-expected finding is uncorrected refractive error and most conditions can be adequately managed with the portable diagnostic equipment that is the mainstay of domiciliary care. It is worth noting, however, that conditions such as AMD and diabetic retinopathy may require earlier referral to ophthalmology due to the lack of detailed ocular fundus examination and/or ocular diagnostic imaging in the domiciliary setting.

Additional challenges of delivering optometry care in an aged-care domiciliary setting include: limitations in health literacy, reduced continuity of care, limited access to

ophthalmology, care provision with the overlay of cognitive decline, lack of health information or awareness and the difficulties in communicating with patients from culturally and linguistically diverse backgrounds. In these cases, it is important to liaise and engage with health workers and others involved in a patient's care to ensure that the most appropriate and timely attention is provided to patients in optometry domiciliary care. ▲

1. Foreman J, Xie J, Keel S et al. The prevalence and causes of vision loss in Indigenous and Non-Indigenous Australians: The National Eye Health Survey. *Ophthalmology* 2017; 124: 1743-1752.
2. Taylor HR, Keeffe JE, Vu HT et al. Vision loss in Australia. *Med J Aust* 2005; 182: 565-568.
3. Chong MFA, Jackson AJ, Wolffsohn JS et al. An update on the characteristics of patients attending the Kooyong Low Vision Clinic. *Clin Exp Optom* 2016; 99: 555-558.
4. Chong MFA, Cho HHL, Jackson AJ et al. Profile of the Australian College of Optometry Low Vision Clinic. *Clin Exp Optom* 2018; 101: 793-798

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