ProVision

Driver Safety

Promoting Optimal Vision on the Road

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The Driver Safety Opportunity

A car's most important safety feature: *the driver*

As drivers, we are very focused on safety, it's a must-have. Whilst we are concerned about our car's 5-star safety features, we often don't think about the major influential factor in crashes: *human error*.

As eye care professionals, you have an important role and duty of care to educate your patients about the inextricable link between vision and driver safety. We know that vision is the most important source of information for a driver[1] (responsible for around 90% of the information used for driving) and that uncorrected vision is a key contributor to crash risk[2].

We're spending more time in our cars commuting and traffic is ever-increasing. It's vital that drivers can see well at all distances, in all conditions.

This risk can easily be reduced if drivers:

Check their vision regularly
so that uncorrected vision can be rectified with eyewear optimal for day and night driving

Protect their eyes from dangerous glare
ideally with polarised sunglasses

Wear their glasses on the road
as prescribed

The Facts

1 in 5

drivers can't see the road clearly due to uncorrected poor vision.[3]

The World Health Organisation has declared poor eyesight among the

main risk factors

for road crashes.[2]

Drivers with visual field defects have

double

the incidence of road crashes and traffic violations compared to drivers with a full visual field.

Almost half

of people with visual field loss are unaware of the problem.[4]

There are more than

480,000

people aged over 40 in Australia whose vision is currently too poor for them to drive legally. Over three-quarters of these people could have their vision corrected easily with a pair of glasses.[5]

Glare during the day or night, is the most complained about visual discomfort by drivers and slows both detection and reaction time.[6]

A Holistic Lifestyle Solutions Approach

Multiple solutions will be part of many patients' eyewear options, and recommendations around driver safety solutions are part of providing optimal patient care.

Driver Safety solutions will assist with providing:

- Larger fields of view when looking in side-view mirrors or over one's shoulder when overtaking (lens design)
- Better depth and distance perception (optimisation)
- Better night vision, reduced halos around lights and better contrast at dusk and dawn (control of higher order aberration)
- Reduced glare from oncoming headlights (multi-coats)

Aging patients will be key candidates for driver safety solutions, as they are more likely to present with:

- Less efficient eye movements
- Slower reaction time in driving situations
- Greater loss of visual acuity as target illumination decreases
- Less ability to see night-time illuminated highway signs at the same distance as a young person with the same visual acuity
- Greater glare due to intraocular light scattering

The three most important indicators of vision problems that impact driving are:

1. **Reduced visual acuity – lack of clarity in the distance**
2. **Poor contrast sensitivity – difficulty in variable light conditions**
3. **Reduced visual fields – limited peripheral vision**

Symptoms that may indicate the need for optometric care include:

- Lack of clarity recognising details on road signs, number plates or text in the distance
- Night driving glare and flare with light sensitivity from oncoming headlights
- Lack of depth perception when judging distance of oncoming vehicles particularly at night
- Hesitation and avoidance of night driving or driving in unfamiliar environments

Listed on the next page are some common presenting symptoms and potential solutions for each. It's important that all practice staff can recognise these patient symptoms to ensure they are considered as part of a complete solutions discussion.

Patient Symptoms & Potential Solutions

Sign	Symptom	Solution	The Patient Discussion
Less efficient eye movements and slower decision making.	Having to move the head more to see side-view mirrors ie. reduced visual fields, having to turn the head more to check when overtaking or reversing, lack of confidence at road junctions, difficulty seeing GPS.	Include a lens with reduced aberration. • Progressive lens - this should be a design that gives preference to distance and intermediate areas. (The intermediate is important for side-view mirrors and GPS.) • Single vision - a design with low aberration, a multi aspheric design.	'The symptoms you have often are related to reduced field of vision.....' 'I have a lens that gives clearer vision out towards the edge.....' 'so you can see things more quickly / clearly.....' 'so you will need to turn your head less...'

Sign	Symptom	Solution	The Patient Discussion
Slower decision making.	Difficulty judging the position and speed of oncoming vehicles, difficulty driving down a narrow road with cars parked on either side, difficulty manoeuvring through multi-story car parks.	These symptoms generally reflect poor distance and speed perception, so the solution again is a low aberration lens where the aberration is matched as the eyes scan across the lens. This is a result of optimisation.	'The symptoms you have are often related to poor depth perception...' 'I have a lens that will make the eyes work better together...' 'to help you judge distances more easily...'

Sign	Symptom	Solution	The Patient Discussion
Reduced contrast sensitivity, decreased low contrast visual acuity (the distance at which night time road signs can be read decreases significantly in older individuals compared to younger people of the same visual acuity)[7], increased amounts of Higher Order Aberration (HOA).	Difficulty reading road signs at night, halos around lights, loss of confidence driving at night.	A lens with HOA control. HOA cannot be corrected by a lens but compensation can be built into the script. With most lens manufacturers this includes physiological modelling to produce averages to be incorporated into the lens design.	'The symptom you have ...halos around lights...' 'Can be caused by a complexity of your prescription that we can build a solution for in your lens...' 'this will help you to see signs more clearly...' 'reduce halos around lights...'

Patient Symptoms & Potential Solutions

Sign	Symptom	Solution	The Patient Discussion
Slower dark adaptation, greater internal light scattering due to lens opacity.	Glare from oncoming headlights, reflections from the back surface of the lens (especially from SUV headlights), multiple images of oncoming headlights.	As reflections are a problem, a good quality Anti-reflection coating is needed to stop internal reflections and back surface reflections. Modern High Intensity Discharge headlights have high levels of blue wavelengths to make them appear whiter. The solution should include some reduction of blue light preferably by absorbing with a tint.	'I can put a coating on your lens that will reduce the reflections ...' 'tint to reduce the brightness of the lights (Note: the tint is limited in intensity by the laws governing driving at night)...'

Sign	Symptom	Solution	The Patient Discussion
Night Myopia (in the pre-presbyope).	'I don't drive at night as I can't see'	There is some evidence that night myopia may be triggered by HOA.[8] So a solution should include the full script with a lens that offers HOA control.	'There are complexities to your prescription that we can resolve by using a specific design of lens.....' 'may help you see better at night...'

Sign	Symptom	Solution	The Patient Discussion
Reduced visual acuity due to glare impact.	'Sometimes I struggle to see when there's a lot of glare, and I have trouble making out oncoming cars'	Polarised sunglasses remove glare and block harmful UV. Studies showing a driver travelling at 80km/hr gains 7 metres of braking distance when wearing polarised sunglasses.	'There are sunglasses that will help you to see better by reducing brightness and glare directly from the sun and reflecting off the road and other surfaces (like other cars, your dashboard and water on the road...)' 'may help you react more quickly to other vehicles or hazards on the road ...'

Building Patient Awareness

Total Solution & Eyecare Plan

Include driver safety eyewear as part of a tailored eyewear solution where appropriate and explain why. Even if your patient is not ready to purchase on the day, they will leave better educated.

Understanding You

Understand the amount of time a patient spends driving and asking questions like 'Do you have an issue with sun glare or glare at night while driving?' to start the conversation. You could update your 'Welcome to the practice/Welcome back to the practice' form to include one or two driving related vision questions.

Lens Advice

Having completed eye health and vision testing, discuss lens options that are appropriate for the vision and lifestyle needs of your patient. Driver safety solutions should be part of this discussion where symptoms have been identified.

Eye Protection

Discuss quality glare protection to optimise driver safety with a focus on polarised options for improved vision.

Continuing Education

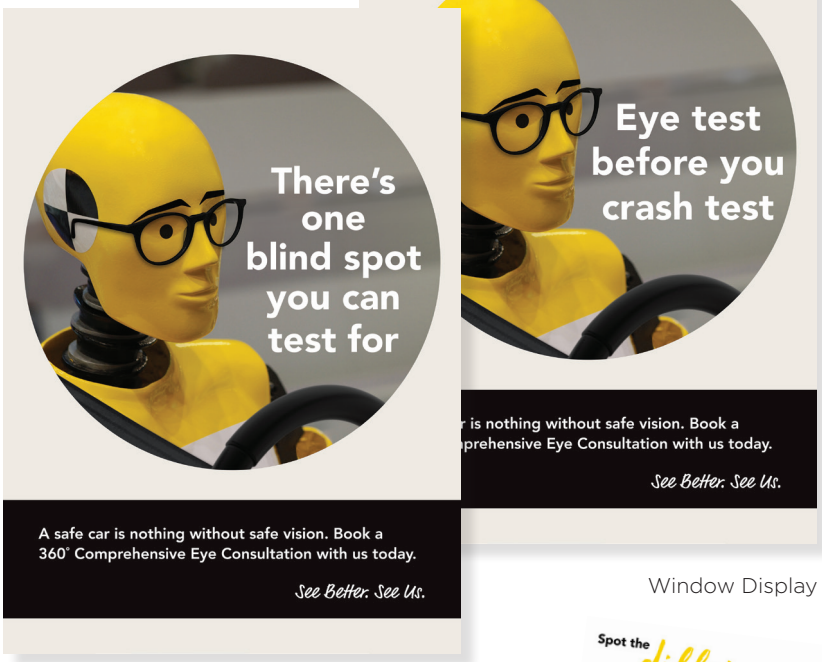
There is an assortment of customised lens solutions available from most lens companies which are designed to optimise driver safety. For a complete product overview reference, consult with your preferred lens partner's sales representative. They will also be able to advise on training materials available and opportunities for staff training sessions to increase awareness.

You can also view ProVision's Driver Safety webinar at http://bit.ly/2HUw8Qb

Marketing Activity

Leverage ProVision's wide selection of Driver Safety campaign activity including point of sale, in-practice collateral, ProMarket direct communication templates and a New Patient Marketing Kit via Dropbox.

Recall Letter



Window Display

Postcards

Newsletter

Informational Brochure

Emailers

Special thanks to Rodenstock for their contribution to brochure content and for co-facilitating ProVision's Driver Safety webinar.

ProVision

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1 Dr. Tj Van Der Berg, 2005, Relevance of glare sensitivity and impairment of visual function among European drivers, European Commission

2 2006, World Health Organisation Training Manual: Road Traffic Injury Prevention

3 November 2012, Vision Impact Institute – The Social and Economic impact of poor vision

4 Incidence of visual field loss in 20,000 eyes and its relationship to driving performance, Archives of Ophthalmology, 1983

5 Royal Automobile Association and VicRoads

6 2017, Harris interactive Driving study for Essilor; 2014, Clark, J.W., NightTime Driving Evaluation of the effects of disability and discomfort glare from various headlamps under low and high light adaptation levels; 2009, ARVO, Zikos G.A. et al., Contrast Sensitivity and Reaction Times with Polarised and tinted lenses in a Driving Environment

7 Mainster MA, Timberlake GT. 2003. Why HID headlights bother older drivers. British Journal of Ophthalmology 2003 87 113 – 117

8 Norberto López-Gil et al. (2012). Shedding light on night myopia. Journal of Vision May 2012, Vol.12, 4. doi:10.1167/12.5.