**Association for Education and Rehabilitation of the Blind**

**and Visually Impaired (AER) Position Paper: The Orientation**

**and Mobility Specialist’s Role in Low Vision Driving**

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**Overview of Low Vision Driving**

“Since the 1970s, some U.S**.** states [a growing number] have granted driver’s licenses to people with low vision who meet specified clinical measures of visual acuity and visual field. Today, most states [licensing jurisdictions] in the United States—and, more recently, a few provinces [and increasing number] in Canada—have provisions for low vision driving, including driving with bioptic telescopic systems” (Corn & Rosenblum, 2020, p. 146).

Each state also determines its own licensing criteria for low vision drivers, including specifications for the powers of bioptic telescopic systems, and the training and testing required to obtain a driver’s license. Just as all typically sighted individuals may pursue a driver’s license, so too, individuals with low vision may desire to become drivers. Reasons include, but are not limited to, absence of public transportation options where they live, spontaneity, autonomy, travel requirements for work activities, carrying out day-to-day tasks, etc. Orientation and Mobility (O&M) specialists are often involved in working with learners who have low vision and are in a unique position to help those learners be aware of low vision driving options in their state or province, as well as helping them prepare to become low vision drivers if they choose to pursue that option.

“The role of the O&M specialist in teaching driving with bioptics has been evolving. The traditional role was to provide instruction in the use of the bioptic telescope, including training in bioptic use with the student as a passenger in a car” (Geruschat & Smith, 2010, p. 78-79).

“Currently however, O&M specialists are becoming part of ever-growing ***multidisciplinary adaptive driver rehabilitation teams*** involved in teaching students or clients with mild to moderate levels of central vision loss to drive with the assistance of prescription bioptic telescopic lens systems. The latter includes learning how to better use both their carrier lens vision abilities as well as short-term telescopic lens unit viewing abilities” (C. Huss, personal communication, June 8, 2021).

**What is the role of the orientation and mobility specialist in preparation for low vision driving?**

Driving is a complex task and even more so for those with low vision. Many individuals who have the potential to become low vision drivers may not have developed the visual skills that driving requires. While orientation and mobility specialists are not expected nor certified to teach their students or clients behind-the-wheel driving skills, they can provide instruction in what is referred to as pre-driver awareness instruction (Huss & Corn, 2004). This instruction includes, but is not limited to:

* Use of distance vision skills
* Use of peripheral vision skills
* Critical object or condition awareness skills (i.e., other road users, traffic control devices, and roadway characteristics)
* Use of bioptic telescopic lens system skills

Orientation and mobility specialists also provide information about low vision driving, including, but not limited to:

* Referrals to clinical low vision specialists who can determine whether an individual meets state (or province) vision requirements and who can prescribe and supply a bioptic telescopic lens system
* Policies and procedures for obtaining a low vision driver’s license within a state or province.
* Access to training opportunities for passenger-in-car and behind-the-wheel instruction

Tabb: “It's important for the orientation and mobility specialist to understand that you're not going to be expected to be teaching an individual how to drive. What we're really hoping that the orientation and mobility specialist will be able to do is share your expertise with travel in the community, [and] utilizing visual devices like monocular telescopes to develop the skills that will then be generalized into the driving experience for that student [or adult traveler].”

Bachofer: “…because traveling on foot has so many similarities to being a driver behind the wheel when you're figuring out a route…” (Bachofer & Tabb, 2017)

The orientation and mobility specialist can serve as a bridge in many ways. Families who would traditionally be providing support to a new driver may not be aware of strategies for obtaining environmental information when one has low vision. Learners who have never driven may be unaware of “rules of the road”, the responsibilities of a driver, and the basic skills needed for behind the wheel travel.

“Since many family members themselves are sighted, they may not recognize the challenges low vision can present during travel. However, many youths [and adults] with low vision can benefit from the skills an O&M specialist can provide. A few of the skills taught by an O&M specialist to a traveler with low vision include

* learning how to use a monocular telescope to find street addresses, signs, and bus numbers
* understanding where to look for different types of signs
* understanding how to interpret visual images during travel, for example, the shape of the name of a business posted on a building
* understanding that a broken shadow indicates a change in the surface
* analyzing types of intersections for safe crossing strategies
* interpreting rules of the road and traffic patterns for anticipating driver decisions
* becoming familiar with the layout of residential and commercial areas
* using a digital or paper map
* understanding the address system and locating a specific address on a building or house
* learning about complex visual spaces, such as large intersections or parking lots
* developing problem-solving skills to use in unfamiliar environments when locating visual information may be more challenging (Corn & Rosenblum, 2020)

**Learning to use the Bioptic Telescopic System**

“…bioptic drivers who wear their bioptic for many other life functions in addition to driving, use the bioptic more capably behind the wheel, and are often overall far better drivers than those who keep the bioptic in the glove compartment of their car and only wear it when behind the car’s heavily tinted glass. If one needs a bioptic to be able to safely drive, then they also should be able to find it useful when bowling, going to theatrical events and other entertainments, reading menus on walls of restaurants, enjoying art, watching sporting events, locating items in retail establishments, etc. If the person becomes comfortable with their bioptic in all of these venues, then it is almost certain that they will be more comfortable with it when behind the wheel” (M. Byington, personal communication, May 10, 2021).

“Most brains are unable to process a split focus through the bioptic and the carrier lens at the same time. They are either in the bioptic focus or are not. In driving, the process must be so prompt, however, that it almost seems for all intents and purposes as though the visual field is split. One common mistake among bioptic drivers is to actually use the bioptic view too much….The bioptic user must accordingly develop the capability to profoundly quickly spot what they need to see better through the carrier lens, and then instantaneously get into it with the bioptic” (M. Byington, personal communication, May 10, 2021).

**Pre-Driver Readiness Skills**

The following skills are relevant for any learner with low vision who is traveling in the community. The benefit of developing these skills extends to both traveling as a pedestrian who uses public transportation options, and to those who choose to become low vision drivers.

“Prior to driver evaluation or driver training procedures in-car, low vision students [and adults] who qualify visually and wish to explore the driving privilege should first be exposed to and able to illustrate with a reasonable degree of confidence and safety the following basic survival low vision orientation and mobility skills (on-foot) under the auspices of a certified orientation and mobility specialist:

1. Receive, retain, and follow route instructions
   1. Mental mapping skills
   2. Conceptual development
      1. Block Distance
      2. Street marker
      3. Street continuity
      4. Route shape
      5. Compass Directions
      6. Reverse vs. alternate routes
2. Travel a designated path or route (and respective reverse and alternate routes) in a variety of environmental settings
   1. Eye lead
   2. Scanning ability
   3. Textural and gradient change awareness
   4. Object avoidance
   5. Static and dynamic orientation
3. Detect, identify, and react in time to critical objects or critical present in various travel environments
   1. Functional visual acuity abilities
      1. Awareness acuity
      2. Identification acuity
      3. Sure acuity
   2. Functional visual field abilities
      1. Static visual field
      2. Dynamic visual field
4. Preferred visual field  
   Detect, analyze, and cross intersections (stop sign and traffic light controlled)
   1. Scanning ability
   2. Conceptual development
      1. Shape
      2. Traffic control devices
      3. Parallel versus perpendicular
   3. Method, safety and confidence in street crossings
   4. Object, speed and depth perception
   5. Color identification and discrimination
   6. Turn Right or Left on Red Laws” (Huss, 2014)

**Monocular Telescope**

Orientation and mobility specialists can work with learners to develop proficiency with a monocular telescope for visually distant environmental information. Those learners that initially feel uncomfortable using an optical device in public may feel more comfortable if the instructor is also willing to use a monocular as well; another option is having a group lesson where the learner is working with another low vision traveler, both using optical devices for obtaining distant environmental information.

The orientation and mobility specialist can also work with the learner to practice with a monocular in a moving vehicle, such as during travel to training areas or while as a passenger on public transportation, etc. All these skills are relevant for the learner with low vision regardless of whether they travel as a driver or a non-driver.

“That handheld tool is… practice for becoming a better driver if you're going to consider the bioptic driving [option]” (Bachofer, 2017)

**What else can the orientation and mobility specialist do?**

The orientation and mobility specialist can facilitate the learner connecting with an eye care specialist (i.e., low vision optometrist or ophthalmologist) who is recognized by the state to complete necessary paperwork for advancing in the process of receiving a driver’s license. The orientation and mobility specialist can also help the learner locate a Certified Driving Rehabilitation Specialist (CDRS) who can work with the learner to complete the behind-the-wheel training necessary for obtaining a driver’s license.

**What should the orientation and mobility specialist not do?**

An orientation and mobility specialist is generally not a Certified Driving Instructor (CDI) or Certified Driving Rehabilitation Specialist (CDRS), unless they also have attained that certification. The orientation and mobility specialist should not be conducting behind-the-wheel driving instruction with the learner or experienced driver with low vision. The orientation and mobility specialist should not prejudge who will and who will not be approved to be a driver; this is the purview of both the eye care specialist and the CDI or CDRS. Finally, the orientation and mobility specialist does not prescribe optical devices. The orientation and mobility specialists can:

* Encourage an eye care specialist to consider a monocular telescope or a bioptic telescopic system for driving
* Encourage the learner themselves to talk with their eye care specialist)
* Teach a learner about the care and maintenance of the device,
* Teach the learner to understand optical magnification and its implications for travel
* Train a learner to use the optical device.

**Where more information can be found**

Each state that permits the option of bioptic driving will have its requirements and guidance. An internet search can bring results for your state or you can use a curated list such as this one from Ocutech:   
 https://ocutech.com/wp-content/uploads/2019/12/Bioptic-Driving-Regulations.2.pdf

There is a LiveBinder focused on the role of the orientation and mobility specialist’s role in bioptic driving at https://www.livebinders.com/b/1960069.

**References**

References marked with an asterisk indicate studies included in the meta-analysis.

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