



# Using Health Literacy Principles to Create a Vision Loss Virtual Reality (VR) App

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## Background

Millions of people are affected by common eye diseases like age-related macular degeneration (AMD) and cataracts. It can be difficult to explain what it's like to live with a visual impairment. The National Eye Institute (NEI) with support from CommunicateHealth (CH) developed the "NEI VR: See What I See" virtual reality app to give health professionals and caregivers a better understanding of vision loss from the patient perspective. In turn, this can lead to better treatment, improved disease management solutions, and proactive prevention through education.

## Methods

### App Development

We prototyped, designed, and created the following VR tools with the goal of increasing our audiences' capacity to obtain, process, and understand basic eye health information.

- Fully-immersive VR app for HTC Vive interactive headsets
- Google Cardboard version of the app for at-home use
- Educational online videos and still images based on the experience

### Technical Review

We recruited a variety of subject matter experts to review the app for accuracy. Experts included physicians, vision researchers and scientists, and VR technical specialists.

### User Demos

We conducted VR demos with more than 360,000 users at various conferences and events to test the app for usability, functionality, and overall community sentiment.

## "NEI VR: See What I See" App

The "NEI VR: See What I See" app is an immersive experience that shows users what it might be like to live with common eye diseases, like AMD and cataracts. The app includes:

- Eye disease overlays and informational audio
- Realistic settings in a grocery store aisle and city street at night
- Full 360-degree surrounding view of each setting

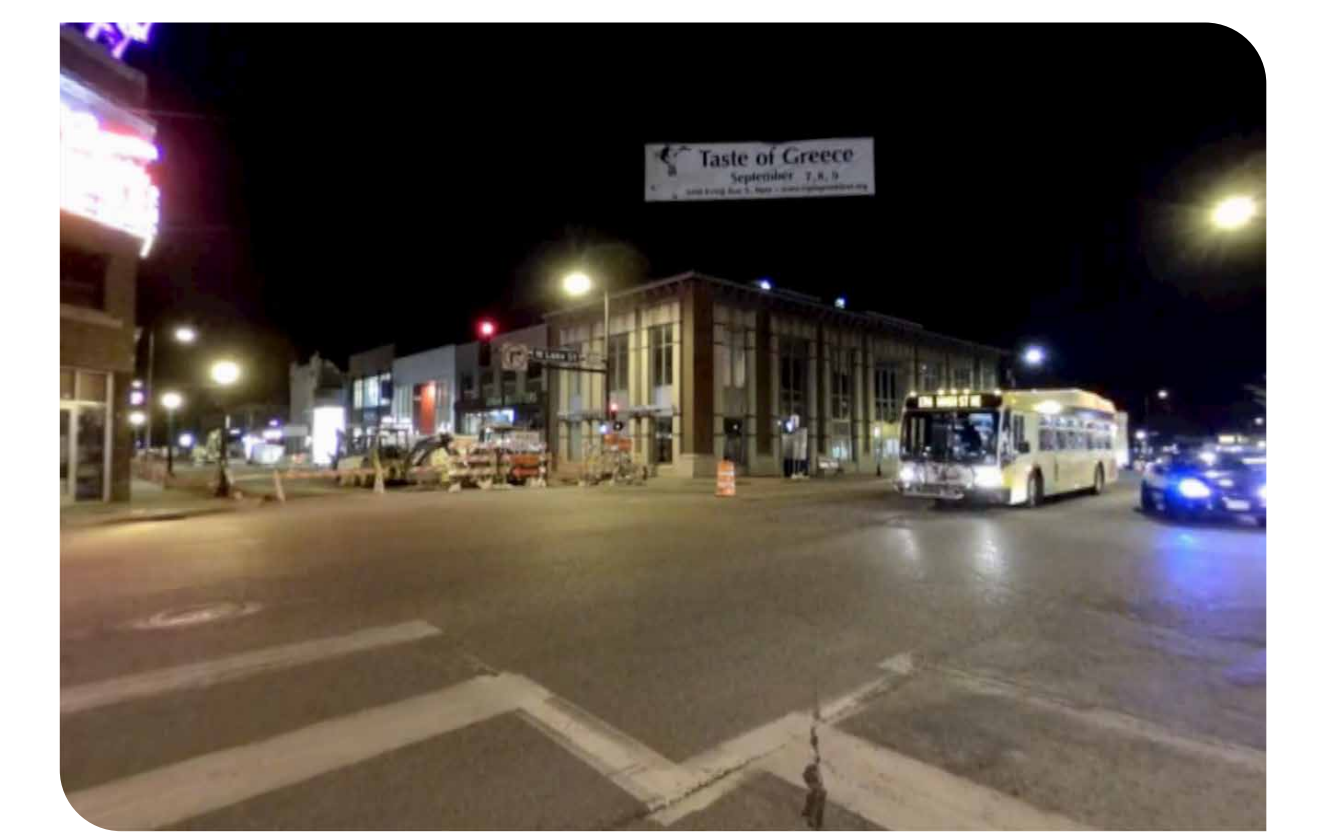
Visit [nei.nih.gov/vr](https://nei.nih.gov/vr) to download the "NEI VR: See What I See" application to your smartphone! The app is available for Android and iOS. Scan here using the QR code!



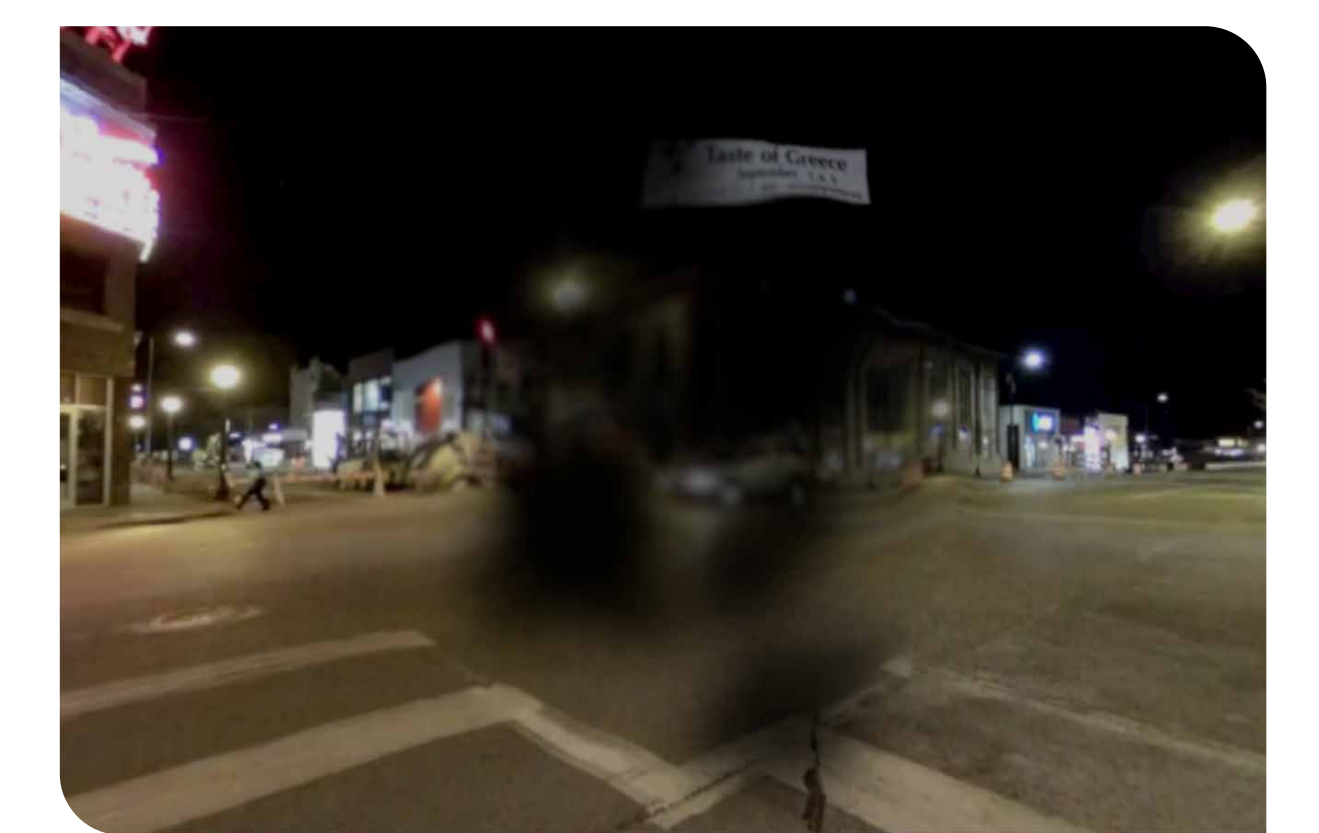
## Eye Diseases

### Age-Related Macular Degeneration

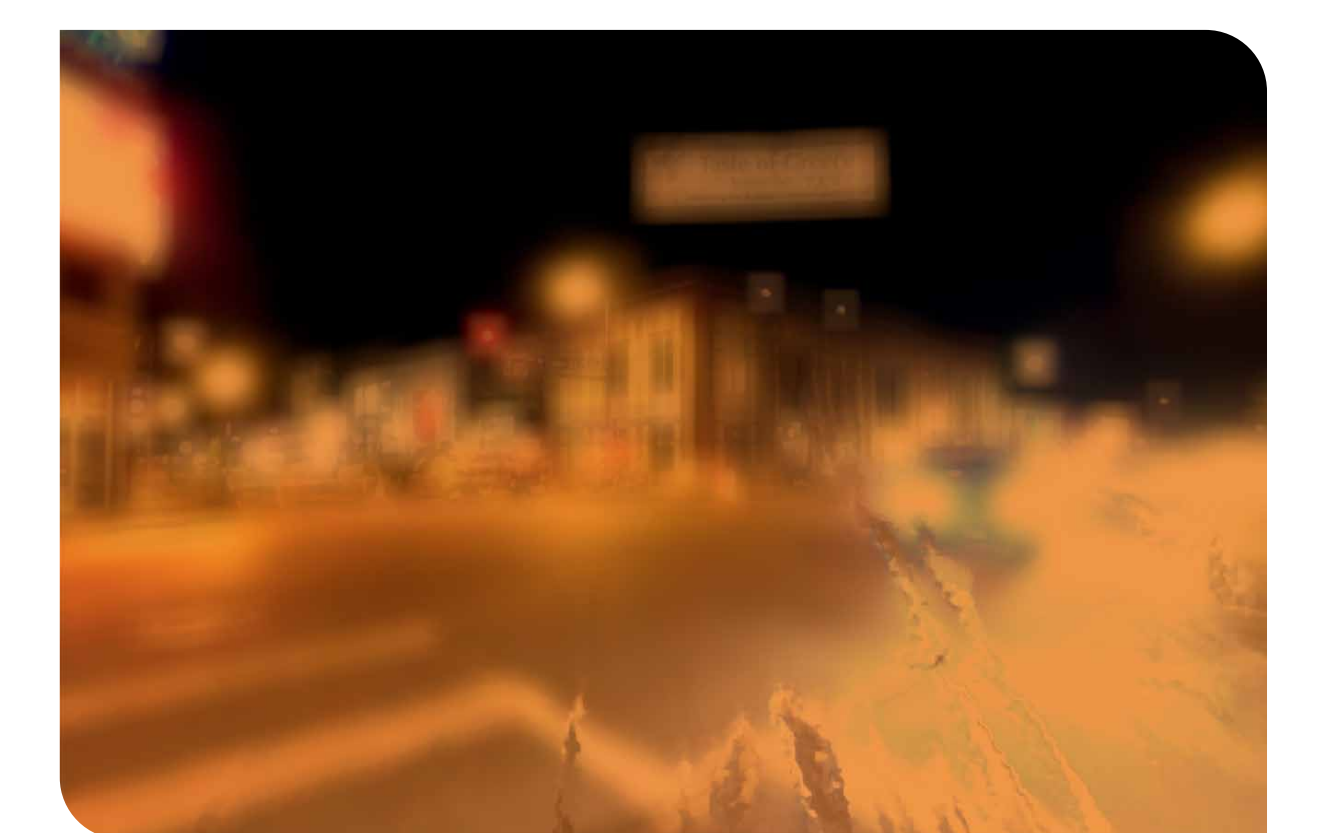
- AMD – short for age-related macular degeneration – is one of the leading causes of vision loss in people age 50 and older.
- At first, AMD may not cause many symptoms – so people may not know they have it. In later stages, AMD can cause blurriness or spots in the center of your vision.
- AMD can also make straight objects look wavy. And people with AMD may have a hard time reading or seeing small details.
- Regular eye exams can find AMD early and treatment can help prevent vision loss. In some cases, early treatment can even reverse vision loss from AMD.



A city street at night with normal vision



A city street at night with AMD



A city street at night with cataracts

### Cataracts

- When you have a cataract, the lens of your eye gets cloudy – and that can make your vision blurry.
- Having a cataract can cause a brownish tint in your vision – it's almost like looking through dusty glass.
- Over time, cataracts can also make seeing colors harder – especially blue and purple. People with cataracts may also be sensitive to bright lights and see glare.
- Cataracts are common – especially in older adults. The good news is that eye doctors can treat cataracts with surgery – and you can go home the same day!