

Care of the Patient with Low Vision



American Optometric Association

A. DESCRIPTION AND CLASSIFICATION

Visual impairment is a functional limitation of the eye(s) or visual system that can result in a visual disability (a limitation of the abilities of the individual) or visual handicap (a limitation of personal and socioeconomic independence). Visual impairment may be considered as vision inadequate for an individual's needs.

Definitions and classification of the levels of visual impairment and legal blindness vary:

- World Health Organization defines blindness as profound impairment – blindness of one eye or blindness of the individual
- The United States Social Security Administration defines legal blindness as:

Remaining vision in the better eye after best correction is 20/200 or less or contraction of the peripheral visual fields in the better eye (A) to 10 degrees or less from the point of fixation; or (B) so the widest diameter subtends an angle no greater than 20 degrees.

Visual impairment may also be classified on the basis of the presence of a visual field defect:

- No visual field defect
- Central visual field defect
- Peripheral field defect

B. RISK FACTORS

Risk factors for visual impairment are numerous. Etiologies may be:

- Congenital:** Pre- or postnatal trauma, genetic or developmental abnormalities
- Hereditary:** Ocular diseases (e.g., retinitis pigmentosa, Stargardt's macular degeneration)
- Acquired:** Ocular infection or disease, neurological insult, trauma, age-related changes or systemic disease

The most common causes of visual impairment in the adult population are:

- Age-related macular degeneration
- Cataract
- Glaucoma
- Diabetic retinopathy

C. COMMON SIGNS, SYMPTOMS, AND COMPLICATIONS

The comprehensive low vision examination is tailored to each patient. It generally includes all areas of a comprehensive adult or pediatric eye and vision examination, as appropriate, with additional evaluation specific to the visual impairment. The evaluation of patients with visual impairment should include, but is not limited to, the following areas:

1. Patient History

- Nature of the presenting problem, including diagnosis, visual difficulties, and chief complaint
- Visual and ocular history, including family ocular history
- General health history, pertinent review of systems, family medical history

NOTE: This Quick Reference Guide should be used in conjunction with the Optometric Clinical Practice Guideline on Care of the Patient with Low Vision (Reviewed 2001). It provides summary information and is not intended to stand alone in assisting the clinician in making patient care decisions.

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- Medication usage and medication allergies
- Social history
- Vocational, educational, and avocational vision requirements (i.e., needs assessment)

2. Ocular Examination

- Visual acuity (distance and near measurement using high contrast moveable charts)
- Refraction (objective, subjective, and assessment of habitual spectacles and the use of low vision devices)
- Ocular motility and binocular vision assessment
- Visual field assessment
- Ocular health assessment

3. Supplemental Testing

- Contrast sensitivity
- Glare testing
- Color vision
- Visually evoked potential
- Electroretinogram
- Electro-oculogram

D. MANAGEMENT

Indications for specific types of treatment or management of visual impairment should be individualized for each patient. The optometrist should interpret and evaluate the examination results to establish and formulate a written rehabilitation treatment plan. Table 1 (adapted from Tables 6-8 in the Guideline) provides an overview of management strategies for visual impairment.

Factors to be considered in formulating a treatment plan should include:

- Degree of visual impairment, disability, or handicap
- Underlying cause of visual impairment and prognosis
- Patient's age and developmental level
- Overall health status of the patient
- Physical impairments to participation in low vision rehabilitation

- Patient's adjustment to vision loss
- Patient's expectations and motivation
- Lens systems or technology available
- Support systems available

1. Basis for Treatment

Low Vision Care is directed toward five goals:

- Evaluating the functional status of the eyes and visual system
- Assessing ocular health and related systemic health conditions and the impact of disease or abnormal conditions on visual functioning
- Providing appropriate optometric low vision intervention to improve the patient's visual functioning, taking into account the patient's special vision demands, needs, and adjustment to vision loss
- Counseling and educating patients regarding their visual impairment and ocular and related systemic health status, including recommendations for treatment, management, and future care
- Providing appropriate referral for services that are outside the expertise of the low vision clinician

2. Available Treatment Options

- Spectacle-mounted reading lenses
- Telemicroscopes
- Hand magnifiers
- Stand magnifiers
- Electronic devices
- Telescopes
- Prisms
- Mirrors
- Reverse telescopes and minus lenses
- Optimum lighting
- Specific lens designs
- Tints, filters, lens coatings, apertures, etc.
- Non-optical devices
- Referral for resources/services

All patients should receive in-office training to familiarize them with the uses and limitations of the optical systems.

3. Patient Education

- Review patient's visual and ocular health status in relation to visual symptoms and complaints
- Explain treatment options, including risks and benefits
- Recommend rehabilitation plan with reasons for its selection
- Inform patient of prognosis for attaining identified goals
- Instruct patient in use, maintenance, and safety of optical aids and devices
- Discuss need for followup care and ongoing patient compliance

4. Prognosis and Followup

Prognosis depends on a variety of factors, such as:

- Ocular condition causing the visual impairment
- Nature and extent of vision loss
- Goals of rehabilitation
- Patient's attitude, motivation, and expectations
- Clinician's attitude and motivation

Low vision patients' needs and vision may change over time. Followup visits should be continued on a regular basis and ongoing concerns should be reassessed as needed. Frequency of followup care depends on:

- Stability of eye condition
- Patient response to therapy and visual devices

TABLE 1*

Management Strategies for Visual Impairment

Type of Patient	Strategy	Available Options**	Factors to be Considered
Reduced near visual acuity	Determine/prescribe appropriate magnification system: Determine the required starting addition, Refine addition power with continuous test materials, Evaluate equivalent-powered systems	Spectacle-mounted reading lenses Magnifiers: Hand-held or stand Telemicroscopes Electronic devices: CCTVs, HMDs, adaptive computer hardware and software	Ease of use (working distance, reading speed, reading duration) Requirement for hands-free magnification Contrast considerations Lighting requirements Weight, cosmesis, cost
Reduced distance visual acuity	Determine/prescribe appropriate magnification system: Determine magnification required (task dependent) Assess appropriateness of telescopic systems Consider electro-optical systems	Telescopes: Hand-held or spectacle-mounted, monocular or binocular Electronic devices: HMDs	Ease of use (field of view, spotting, scanning, focusing) Requirement for hands-free magnification Requirement for mobility Contrast or image brightness Weight, cosmesis, cost
Central visual field defect	Determine central field disturbance Introduce magnification	Eccentric viewing training Large print materials and reading systems	Size, location and density of scotoma Nature of the task
Peripheral visual field defect	Assess visual field loss and evaluate mobility Select appropriate optical system Train patient in use of optical system Improve basic visual skills (scanning, spotting) Improve mobility	Prisms Mirrors Reverse telescopes: Hand-held or spectacle-mounted, full diameter or bioptic Minus lenses Amorphic lenses: Full diameter or bioptic-mounted spectacle system	Type of restricted field (hemianopia, generalized constriction) Patient's understanding of the visual loss and ability to compensate for it
Reduced contrast sensitivity and glare sensitivity	Determine most appropriate type of lighting (incandescent, fluorescent, halogen or combination) Select optical device specific to lighting environment	Optimum lighting (ambient, task, or use of illuminated optical device) Increased magnification Use of specific lens designs Use of tints, filters, lens coatings, apertures, etc. Non-optical devices (large print materials, writing aids, typoscopes, audiotaped materials) Electronic devices	Patient's sensitivity to changes in illumination Nature of the task

* Adapted from Tables 6, 7 and 8 in the Optometric Clinical Practice Guideline on Care of the Patient with Low Vision.

** Patient education, training/instruction in use of optical device(s), recommendations for followup visits, and referral for resources/services to state and local blind vocational rehabilitation agencies are integral to management of all conditions.

Legend: CCTV = closed circuit television system; HMD = head mounted device.