VISION REHABILITATION PREFERRED PRACTICE PATTERN DEVELOPMENT PROCESS AND PARTICIPANTS

The Vision Rehabilitation Committee members wrote the Vision Rehabilitation for Adults Preferred Practice Pattern® guidelines ("PPP"). The Committee members discussed and reviewed successive drafts of the document, meeting in person once and conducting other review by e-mail discussion, to develop a consensus over the final version of the document.

Vision Rehabilitation Committee 2011-2012

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The Preferred Practice Patterns Committee members reviewed and discussed the document during a meeting in March 2012. The document was edited in response to the discussion and comments.

Preferred Practice Patterns Committee 2012

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The Vision Rehabilitation for Adults PPP was then sent for review to additional internal and external groups and individuals in 2012. All those returning comments were required to provide disclosure of relevant relationships with industry to have their comments considered. Members of the Vision Rehabilitation Committee reviewed and discussed these comments and determined revisions to the document. The following organizations and individuals returned comments.

Staff will compile before publication.
FINANCIAL DISCLOSURES

In compliance with the Council of Medical Specialty Societies’ Code for Interactions with Companies (available at www.cmss.org/codeforinteractions.aspx), relevant relationships with industry are listed. A majority (59%) of the participants had no financial relationship to disclose. The Academy has Relationship with Industry Procedures to comply with the Code (available at http://one.aao.org/CE/PracticeGuidelines/PPP.aspx).

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The disclosures of relevant relationships to industry of other reviewers of the document from XX to XX 2012 are available online at www.aao.org/ppp.

Staff will compile and post.
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OBJECTIVES OF PREFERRED PRACTICE PATTERN® GUIDELINES

As a service to its members and the public, the American Academy of Ophthalmology has developed a series of Preferred Practice Pattern® guidelines that identify characteristics and components of quality eye care. Appendix 1 describes the core criteria of quality eye care.

The Preferred Practice Pattern® guidelines (“PPP”) are based on the best available scientific data as interpreted by panels of knowledgeable health professionals. In some instances, such as when results of carefully conducted clinical trials are available, the data are particularly persuasive and provide clear guidance. In other instances, the panels have to rely on their collective judgment and evaluation of available evidence.

These documents provide guidance for the pattern of practice, not for the care of a particular individual. While they should generally meet the needs of most patients, they cannot possibly best meet the needs of all patients. Adherence to these PPPs will not ensure a successful outcome in every situation. These practice patterns should not be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the best results. It may be necessary to approach different patients’ needs in different ways. The physician must make the ultimate judgment about the propriety of the care of a particular patient in light of all of the circumstances presented by that patient. The American Academy of Ophthalmology is available to assist members in resolving ethical dilemmas that arise in the course of ophthalmic practice.

Preferred Practice Pattern® guidelines are not medical standards to be adhered to in all individual situations. The Academy specifically disclaims any and all liability for injury or other damages of any kind, from negligence or otherwise, for any and all claims that may arise out of the use of any recommendations or other information contained herein.

References to certain drugs, instruments, and other products are made for illustrative purposes only and are not intended to constitute an endorsement of such. Such material may include information on applications that are not considered community standard, that reflect indications not included in approved U.S. Food and Drug Administration (FDA) labeling, or that are approved for use only in restricted research settings. The FDA has stated that it is the responsibility of the physician to determine the FDA status of each drug or device he or she wishes to use, and to use them with appropriate patient consent in compliance with applicable law.

Innovation in medicine is essential to assure the future health of the American public, and the Academy encourages the development of new diagnostic and therapeutic methods that will improve eye care. It is essential to recognize that true medical excellence is achieved only when the patients’ needs are the foremost consideration.

All Preferred Practice Pattern® guidelines are reviewed by their parent panel annually or earlier if developments warrant and updated accordingly. To ensure that all PPPs are current, each is valid for 5 years from the “approved by” date unless superseded by a revision. Preferred Practice Pattern guidelines are funded by the Academy without any commercial support. Authors and reviewers of PPPs are volunteers and do not receive any financial compensation for their contributions to the documents. The PPPs are externally reviewed by experts and stakeholders before publication. The PPPs are developed in compliance with the Council of Medical Specialty Societies’ Code for Interactions with Companies. The Academy has Relationship with Industry Procedures (available at http://one.aao.org/CE/PracticeGuidelines/PPP.aspx) to comply with the Code.

The intended users of the Vision Rehabilitation PPP are ophthalmologists.
METHODS AND KEY TO RATINGS

Preferred Practice Pattern guidelines should be clinically relevant and specific enough to provide useful information to practitioners. Where evidence exists to support a recommendation for care, the recommendation should be given an explicit rating that shows the strength of evidence. To accomplish these aims, methods from the Scottish Intercollegiate Guideline Network\(^1\) (SIGN) and the Grading of Recommendations Assessment, Development and Evaluation\(^2\) (GRADE) group are used. GRADE is a systematic approach to grading the strength of the total body of evidence that is available to support recommendations on a specific clinical management issue. Organizations that have adopted GRADE include SIGN, the World Health Organization, the Agency for Healthcare Research and Policy, and the American College of Physicians.\(^3\)

- All studies used to form a recommendation for care are graded for strength of evidence individually, and that grade is listed with the study citation.
- To rate individual studies, a scale based on SIGN\(^1\) is used. The definitions and levels of evidence to rate individual studies are as follows:

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I++</td>
<td>High quality meta-analyses, systematic reviews of randomized controlled trials (RCTs), or RCTs with a very low risk of bias</td>
</tr>
<tr>
<td>I+</td>
<td>Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias</td>
</tr>
<tr>
<td>I-</td>
<td>Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias</td>
</tr>
<tr>
<td>II++</td>
<td>High quality systematic reviews of case control or cohort studies</td>
</tr>
<tr>
<td></td>
<td>High quality case-control or cohort studies with a very low risk of confounding or bias and a moderate probability that the relationship is causal</td>
</tr>
<tr>
<td>II+</td>
<td>Well conducted case-control or cohort studies with a low risk of confounding or bias and a high probability that the relationship is causal</td>
</tr>
<tr>
<td>II-</td>
<td>Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal</td>
</tr>
<tr>
<td>III</td>
<td>Non-analytic studies (e.g., case reports, case series)</td>
</tr>
</tbody>
</table>

- Recommendations for care are formed based on the body of the evidence. The body of evidence quality ratings are defined by GRADE\(^2\) as follows:

<table>
<thead>
<tr>
<th>Quality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Further research is very unlikely to change our confidence in the estimate of effect</td>
</tr>
<tr>
<td>Moderate</td>
<td>Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate</td>
</tr>
<tr>
<td>Insufficient</td>
<td>Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate</td>
</tr>
<tr>
<td></td>
<td>Any estimate of effect is very uncertain</td>
</tr>
</tbody>
</table>

- Key recommendations for care are defined by GRADE\(^2\) as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong recommendation</td>
<td>Used when the desirable effects of an intervention clearly outweigh the undesirable effects or clearly do not</td>
</tr>
<tr>
<td>Discretionary recommendation</td>
<td>Used when the trade-offs are less certain—either because of low quality evidence or because evidence suggests that desirable and undesirable effects are closely balanced</td>
</tr>
</tbody>
</table>

- Key recommendations for care are listed in the Highlighted Recommendations for Care section and are repeated in the PPP in boxed text. A key recommendation may address an area of controversy for which there is insufficient evidence to make a recommendation.

- Literature searches to update the PPP were undertaken in February 2011 in PubMed and the Cochrane Library and updated in January 2012. Complete details of the literature search are available at www.aao.org/ppp.
HIGHLIGHTED RECOMMENDATIONS
FOR CARE

1. All ophthalmologists are encouraged to recommend multidisciplinary vision rehabilitation as
a continuum of their care and to provide information about rehabilitation resources for
patients with vision loss because vision rehabilitation improves visual performance and,
hence, quality of life. (strong recommendation, good evidence)

SmartSight™ (www.aao.org/smartsight) has information on vision rehabilitation, including
materials for patients.

2. Vision rehabilitation should go beyond device recommendations and sales to assess and
address the broader impact of vision loss on patients’ lives.
(strong recommendation, moderate evidence)

3. Even early or moderate vision loss causes disability and can cause great anxiety. Referral for
multidisciplinary vision rehabilitation may improve well-being.
(strong recommendation, moderate evidence)

4. Ophthalmologists should ask about visual hallucinations when taking an initial history for
patients with vision loss. (strong recommendation, good evidence)

Patients with any level of vision impairment may experience recurrent hallucinations of
Charles Bonnet syndrome (CBS) in which they see images of objects that are not real. Patients
who have CBS should be reassured that it occurs in up to one-third of patients with visual
acuity, contrast sensitivity, or visual field loss.

5. Ophthalmologists should recommend that patients with central vision loss receive training to
use the preferred retinal locus (PRL) optimally. (strong recommendation, good evidence)

Most patients with a central scotoma find the PRL and use it spontaneously; however,
emerging research suggests that training to use the PRL optimally can be effective.

6. Patients with vision loss should be encouraged to attend groups that offer problem solving or
self-management skills because of their proven ability to improve quality of life as measured
by change in mood and function. (strong recommendation, good evidence)
INTRODUCTION

DISEASE DEFINITION

Low vision is vision impairment that is not corrected by standard eyeglasses, medical or surgical treatment and that impacts patients’ performance and quality of life. It may result from many different ocular and neurological disorders.

The ICD-9 and ICD-10-CM definitions of low vision consider visual acuity and visual field. (See Appendix 2.) It should be emphasized, however, that aspects of visual impairment other than visual acuity and visual field may be independent contributing factors to patient functioning\(^4\)\(^5\) and that even at levels of visual acuity better than 20/70, ability to perform visual tasks and psychosocial well-being can be significantly impacted. For example, contrast sensitivity loss, glare, scotomas, or field loss can interfere significantly with day-to-day tasks. Maintaining an unrestricted driving license is at-risk at visual acuities of 20/50 to 20/70 in many states. In addition, relatively modest levels of vision loss may be a greater disability when it co-exists with other health problems, such as when a patient with a hearing impairment requires good vision to be able to lip-read. Early vision loss can be associated with anxiety and depression and may have a significant impact on lifestyle and quality of life.

Patients with severe, profound, near-total, or total vision impairment are classified as legally blind, which has traditionally determined disability benefits in the United States (US),\(^6\) qualification for extra dependent status for federal income tax purposes, and additional benefits that vary from state to state. The determination of legal blindness, using both automated visual fields and visual acuity charts that measure lower levels of acuity, has been recently clarified by the Social Security Administration.\(^6\) Individuals who cannot read any letters on the 20/100 line using a visual acuity chart, such as the ETDRS, would be considered legally blind. The term legal blindness causes confusion because patients with legal blindness can have partial vision and are candidates for vision rehabilitation. The designation also means that individuals with significant loss of vision, who may not be legally blind, are not candidates for some services in some states. A low vision designation (not legally blind) will not necessarily ensure state services. Although overlapping, blind rehabilitation using sight substitutes is a somewhat different care process than vision rehabilitation optimizing the use of residual vision. For rehabilitation services, the term blindness should be reserved for total vision loss.

Terms such as visual function, functional vision, functional vision loss, and functional blindness can be confusing. In this document we use the term visual function to refer to
ocular function such as visual acuity, contrast sensitivity, and visual field. How one uses vision is referred to as visual performance, including tasks such as reading.

PATIENT POPULATION

Adults with vision impairment (discussion of considerations of vision rehabilitation in children are in Appendix 3).

CLINICAL OBJECTIVES

- Identify patients with low vision and quantify their visual loss
- Evaluate the impact of vision loss on reading, activities of daily living, safety, participation and psychosocial well-being
- Evaluate potential to use residual vision or sight substitutes
- Educate patients about vision loss, the potential benefits of rehabilitation, and rehabilitation options
- Inform patients about training and its potential benefit
- Engage patients in their rehabilitation
- Maximize patients’ ability to read, complete activities of daily living independently, be safe and participate in their community
- Address the emotional and psychological adjustment to vision loss
- Provide information to patients about community and national resources and social supports
- Involve family and support persons in the rehabilitation process and provide education

BACKGROUND

EPIDEMIOLOGY

The Eye Disease Prevalence Research Group estimated that, in 2000, 2.4 million Americans over the age of 40 had low vision (defined as visual acuity less than 20/40 in the better-seeing eye) and that 937,000 had less than or equal to 20/200 visual acuity, which is classified as legal blindness. Therefore, 1 in 28 adults in the US had low vision or blindness. Vision impairment disproportionately affects the elderly. Adults over the age of 80 account for almost 70% of individuals with severe vision impairment, yet they represent only 7.7% of the population.

The aged sector of the US population is rapidly expanding. It is estimated that approximately 3.5% of individuals over age 65 are candidates for vision rehabilitation and that this age group is anticipated to increase from 33.2 million in 1994 to 80 million in 2050 in the US.
The most common cause of low vision in the US is age-related macular degeneration (AMD), which accounts for approximately half of the vision impairment. Other causes of low vision in the US include glaucoma, diabetic retinopathy, and cataract. Current estimates are that more than 1.75 million Americans have AMD, and it is estimated that this will rise to 2.95 million by 2020 due to the aging of the population. It is not known how current and anticipated new treatments for AMD may impact these projections. At present, at least one in every 10 persons over the age of 80 has advanced AMD.

Patients with acquired brain injury and neurological disease, including trauma, stroke, Parkinson’s disease, and tumors, often have significant limitations that result from visual impairment. They may be overlooked in the vision rehabilitation referral process. The vision rehabilitation specialist can play a vital role for these patients.

While some patients with low vision successfully minimize the impact of their vision loss without formal rehabilitation, most are unable to read standard print, unable to maintain their safety and independence in daily activities, and require extensive assistance from family members or extended care facilities. This leads to decreased participation and quality of life. Not all patients who may benefit from low vision rehabilitation access services. Access barriers to low vision services include lack of awareness of services, lack of appreciation of what services provide, and lack of appreciation that one can benefit from available services and financial cost of devices.

RATIONAL FOR TREATMENT

Vision impairment has a major impact on quality of life. Individuals with vision impairment have twice the risk of falling and four times or more increased risk of sustaining a hip fracture. Controlling for confounding variables, people with impaired vision are admitted to nursing homes three years earlier; make greater use of community services; have increased social isolation; three times the prevalence of depression; and great difficulty reading, which causes problems in accessing information and errors in self-administering medications. Thus, vision impairment has an impact on healthy aging and social interaction.

Comprehensive vision rehabilitation enhances quality of life for patients who are compromised by vision loss, by assessing and addressing the following:

- Reading
- Activities of daily living
- Safety and mobility
- Social participation
Psychosocial well-being

Six systematic reviews relevant to vision rehabilitation interventions are reported below.

1. A systematic review of literature published prior to August 2010 considered 58 studies, including 7 randomized controlled trials, and concluded the following:
   - “There is good evidence that the provision of low-vision services results in an improved level of clinically measured visual function, particularly with respect to aspects of reading ability.”
   - “There is good evidence to support the hypothesis that patients value and use low vision aids provided by rehabilitation services.”
   - “Despite the disparity in evaluation tools used, there is very good evidence that low-vision service provision improves functional ability.”
   - “There is very good evidence that the addition of a vision self-management program can produce a small reduction in depressive symptoms.”
   - “It is not possible to assess the relative benefits of different service models across studies because of the use of different outcome measures, follow-up times and diverse populations studied.”

2. A review of orientation and mobility training noted:
   - “There is little evidence on which type of O & M [orientation and mobility] training is better for people with low vision who have specific characteristics and needs…”

3. A systematic review of interventions to prevent falling, published in 2010, reported:
   - “Vision correction did not reduce the proportion of fallers.”
   - “…Exercise or physical therapy interventions and vitamin D supplementation reduce the risk of falling for community-dwelling adults…”
   - “Risk for falling was reduced by 7% (with home hazard modification).”

4. The Vision Rehabilitation Evidence-Based Review group conducted a comprehensive search of the literature relevant to devices and strategies for individuals with low vision published prior to 2006 and assessed study quality using the Downs and Black criteria to assign levels and strength of evidence to the literature retrieved. The conclusions of the report include the following:
   - “Despite weak evidence from one smaller study, there is moderately strong evidence that LVA [low vision aid] provision (optical aids) plus training is effective for individuals with AMD, diabetic retinopathy, glaucoma, optic atrophy, myopia, retinitis pigmentosa, and hemianopsia.”
“Based on the results of two studies that included subjects with AMD, there is moderate evidence indicating that computer task accuracy and performance is linked with certain measures of visual function, icon sizes, and other graphical user-interface design considerations.”

“Despite conflicting evidence from one previous and smaller study, there is strong evidence that prism spectacles [yoked prisms intended for the purpose of redirecting the image to avoid a scotoma] are no more effective than conventional glasses for individuals with AMD.” The study did not consider level of compliance in wearing the prism glasses.

“There is moderately strong evidence showing that there is no significant [additional] benefit to implementing an enhanced [device-focused] low vision rehabilitation program which incorporates home visits [exclusively directed towards using the optical device for spot reading] from a low vision rehabilitation specialist, as measured by vision and health-related outcomes (VCMI and [Medical Outcomes Study Short Form-36 Health Survey] SF-36).”

A report in 2002 by the U.S. Agency for Healthcare Research and Quality reviewed literature relevant to vision rehabilitation and rated evidence strength and internal validity using standard criteria as proposed by the U.S. Preventive Services Task Force. It identified four systematic reviews, four randomized controlled trials, two nonrandomized controlled studies, and seven before-after studies that met their criteria for inclusion. The review noted the following:

“Group intervention improves patient outcomes.”

“Although methodologically weak (using standard criteria as proposed by the U.S. Preventive Services Task Force 2001), three studies suggest that individuals with low vision do benefit from exposure to comprehensive vision rehabilitation service.”

“Studies with small sample sizes have shown that the prescription of optical devices and low vision aids improves reading performance.”

An evidence-based review of stroke rehabilitation surveyed relevant literature and evaluated the methodological quality of each study using the Physiotherapy Evidence Databases Scale, developed by the Centre for Evidence-Based Physiotherapy in Australia. It reported the following findings:

“There is strong evidence that treatment utilizing primarily enhanced visual scanning techniques improves visual neglect [of one side of the body] post-stroke with associated improvements in function.”
There is strong evidence that treatment with prisms is associated with an increase in visual perception scores in stroke patients with homonymous hemianopsia and visual neglect, but is not associated with improvement in activities of daily living scores.55

There is strong evidence that the use of right half-field eye patches improves left visual neglect. There is moderate evidence that monocular, opaque patching to improve neglect produces inconsistent results. There is conflicting evidence that the use of bilateral half-field eye patches improves functional ability.”

Other specific research studies have found the following:

- Training that focuses on eye-movement control increases reading speed in patients with age-related macular degeneration.56
- Twelve hours of rehabilitation intervention as part of a two-center, randomized wait-list controlled trial when aids are provided at no cost has a positive effect on patient-perceived reading ability in a Veterans Administration patient population with visual acuity ranging from less than 20/100 to greater than 20/500 (severe visual impairment).57
- More than 25% of glaucoma patients with relatively minor binocular field loss report difficulty with mobility.58
- Even moderate vision loss correlates with depression in up to 30% of patients.30

Overall, the above reviews indicate that there is increasing evidence that supports vision rehabilitation interventions, but note an overall current paucity of methodologically strong research.

**CARE PROCESS**

Vision rehabilitation improves the patient’s ability to compensate for vision loss.59 [I+/Good]

Rehabilitation trains patients to use their residual vision or alternate compensatory techniques to make practical adaptations to facilitate reading, facilitates activities of daily living, ensures safety, supports participation in community, and enhances emotional well-being. All ophthalmologists are encouraged to recommend vision rehabilitation as a continuum of their care and to provide information about rehabilitation resources for patients with vision loss. Eight American Academy of Ophthalmology Preferred Practice Pattern guidelines (Comprehensive Adult Medical Eye Evaluation, Age-Related Macular Degeneration, Cataract in the Adult Eye, Bacterial Keratitis, Primary Angle Closure, Primary Open-Angle Glaucoma, Diabetic Retinopathy, and Idiopathic Macular Hole) include recommendations for vision rehabilitation referral when appropriate.

Ophthalmologists are urged to provide all patients with any level of vision loss the free handout created by the Academy’s SmartSight™ Initiative in Vision Rehabilitation that is available on the
Academy web site (www.aao.org/smartsight). (See Appendix 4.) A patient education brochure on low vision is also available from the Academy (www.aao.org/store). The role of the treating ophthalmologist is to evaluate and treat eye disease before referring a patient to vision rehabilitation. The treating ophthalmologist also will reassess a patient’s condition periodically to prevent further vision loss because many conditions that result in low vision are progressive. Patients who report vision loss during the course of rehabilitation should be referred back to the treating ophthalmologist for evaluation.

Because the largest group of patients requiring rehabilitation is over 65 years of age and Medicare patients are eligible for vision rehabilitation to improve functioning, the care process outlined in this document aims to be consistent with the Medicare Program Memorandum Transmittal AB-20-078, which outlines rehabilitation services that may be provided by a physician or an occupational therapist. It is important for ophthalmologists to be aware that the Center for Medicare and Medicaid Services (CMS) reimburses for occupational therapy training for patients with visual impairments under medical rehabilitation codes in the same way that reimbursement is provided for rehabilitation after cerebral vascular accidents or orthopedic procedures.

Many factors influence the success of rehabilitation. Patients who are searching for a cure for their disease and a restoration of vision to "the way it was" may perceive rehabilitation as an intense disappointment and may present a difficult challenge to the therapist. Cultural factors may influence goals and expectations. Some patients have limited financial resources to obtain aids. Many patients have other physical impairments that impact the rehabilitation process or enhance dependency. Hearing, mobility, and neurological deficits, for example, can alter the patient's ability to utilize some standard devices and to participate in some rehabilitation techniques. Patients with low endurance and limited energy may have difficulty participating fully in rehabilitation. It is important to realize that any of the above factors may contribute to a lower success rate in the rehabilitation process, but they do not constitute a rationale for denying vision rehabilitation for a patient with vision loss.

The vision rehabilitation care process includes a history, a clinical evaluation of visual functions, an assessment of the patient’s performance of tasks requiring vision, assessment of risks to the patient associated with their vision loss, recommendations for rehabilitation interventions, and patient education. Vision rehabilitation must be individualized to meet each patient's particular goals, limitations, and resources (e.g., age, finances to purchase devices, and caregivers) and must address reading, activities of daily living, safety, participation in community, and well-being.

**PATIENT OUTCOME CRITERIA**

Patient outcome criteria for vision rehabilitation include the following:
Vision Rehabilitation for Adults Wide Review Draft – 6/5/12

- Maximized access to printed materials
- Improved ability to perform activities of daily living
- Improved safety
- Optimized social participation despite vision loss
- Improved psychosocial status and understanding of adjustments to vision loss and options for psychological supports
- Overall improved quality of life

INITIAL EVALUATION

History

The initial history may include the following elements:

- The patient’s understanding of the diagnosis
- The duration of vision loss
- How the patient’s life has changed since the onset of vision loss
- What bothers the patient most about the current vision
- Difficulty with near and intermediate vision-related tasks such as:
  - Using a telephone, cell phone, or computer
  - Reading mail, directions or medication labels
  - Paying bills and managing finances
  - Shopping and counting money
  - Preparing and eating meals
  - Seeing faces
- Difficulty with distant-vision-related skills such as:
  - Seeing TV, movies, theatre
  - Seeing traffic signals at intersections
- Magnifying devices currently used for what purpose
- Driving status and use of transportation alternatives
- Falls or fear of falling
- Bumping into things
- Glare
- Visual hallucinations (Charles Bonnet syndrome) [II+/Good/Strong]
- Depressed mood [II+/Moderate]
- Fear of dependence
- Participation in activities that are valued or enjoyed
Impact of vision loss on job or hobbies

Social history:
- Living situation
- Family responsibility
- Family or other supports
- Employment
- Hobbies and interests

Medical history

Medications

Goals and priorities with rehabilitation

Physical impairments relevant to rehabilitation (e.g., tremor, decreased hearing, cognitive deficit, and restricted mobility)

The patient may elect to have a friend or family member present during the evaluation process to confirm or add information.

Evaluation

A comprehensive adult medical eye evaluation is conducted by the referring ophthalmologist before referring for the low vision evaluation. Elements of the ocular examination relevant to vision rehabilitation may occasionally be done as part of the vision rehabilitation care process. Specific elements included in an evaluation for vision rehabilitation are visual function, assessment of the patient’s ability to perform tasks requiring vision, assessment of cognitive and psychological status and assessment of risks to the patients due to their visual loss combined with other comorbid features.

Evaluation of Visual Function

A review of relevant clinical notes, previous diagnosis, and previous ancillary testing such as retinal photographs or visual fields are helpful when evaluating visual function. Both monocular and binocular visual function assessment can be part of the evaluation. Components of the evaluation are the following:

Visual Acuity and Refraction

Precise measurements in the lower ranges of visual acuity are necessary to appreciate ocular function fully and to recommend devices and interventions. For people with visual acuity less than 20/100 the measurement range can be extended by using a portable test chart at a closer testing distance, such as the ETDRS chart.
at 1 meter (3.3 feet), the Colenbrander Chart (Precision Vision, La Salle, IL) or the Berkeley Rudimentary Vision test (Precision Vision, La Salle, IL). The latter test is conducted using cards that are held at 25 centimeters (10 inches). Such tests eliminate the use of the “count fingers” notation. Distance visual acuity measurement is an angular measurement and, thus, 20/200 is equivalent to 1/10 or 2/20. When using the metric system, it is important to remember that the numerator of the fraction (indicating the test distance) must be expressed in meters and the denominator (indicating the letter size) must be expressed in M units. A one M-unit subtends a visual angle of 5 minutes of arc at 1 meter and, hence, is the size of average newsprint.

For near visual acuity measurements, the reading add used, letter size, and reading distance should be specified because near visual acuity will vary with the power of the reading add used.

Clinical observations during visual acuity testing can be informative. Head turns, deviated gaze or searching eye, and head movements should be noted and may indicate that a patient is navigating around scotomas when reading the acuity chart or using an eccentric viewing location. As patients shift fixation, measured visual acuity may vary. Difficulty identifying very large letters, with better performance in the middle-size range, may indicate a small central island of vision surrounded by an encircling scotoma or a small residual central island in a patient with extensive peripheral field constriction.

Retinoscopy may be done in a phoropter or with loose lenses, with the prescription confirmed in a trial frame if necessary. Refraction techniques may be modified for the patient with reduced vision, such as using a +1.0 diopter cross cylinder. Prescription for new eyeglasses is best delayed until completion of occupational therapy training, when the potential benefit of new eyeglasses can be reassessed relative to other devices, unless the refraction varies substantially from the current, e.g., by over 1.5 diopters.

**Contrast Sensitivity**

Contrast sensitivity should be measured as it provides insight into patient performance and assists in planning rehabilitation interventions.\(^\text{62}\) [II+/Moderate/Strong] In visual acuity testing, targets shown are high-contrast dark letters against a white background. The only variable being tested is the size of the letter that can be discerned. The ability of the human visual system to resolve objects, however, depends not only on size, but also on the contrast or luminance
difference between the object and its surround. In daily visual tasks, many targets do not have high contrast or sharp edges. Recognizing a face or light-colored foods on a white plate requires sensitivity to low-contrast targets. Patients with poor contrast sensitivity, for example, are at increased risk of missing steps and of falling.\textsuperscript{63,64}

Contrast sensitivity tests include those that test a single or a range of spatial frequencies. The Pelli-Robson chart (Precision Vision, La Salle, IL) and the Mars Letter Contrast Sensitivity Test (Mars Perceptrix Corp., Chappaqua, NY) have letters of one size with decreasing contrast. The VISTECH contrast test has targets with five spatial frequencies.

Patients with severe contrast loss may require devices that supply high levels of contrast enhancement, such as an illuminated stand magnifier or a video magnifier. Video magnifiers or other electronic methods to view text may be particularly advantageous for some patients because they can produce reverse-contrast text (white letters on a black background).

**Visual Field**

Measurement of the central field includes assessment of scotoma (areas that are not seen at a determined testing target) and fixation characteristics. The size, shape, and position of the central scotoma and the position of the fixation relative to the scotoma impact performance on tasks, choice of device, and patient training. The location of eccentric fixation is called a Preferred Retinal Locus (PRL).

Assessment of the scotoma and PRL are necessary for optimal rehabilitation.

Central field can be assessed with automated field tests, however, unstable or non-foveal fixation in patients with macular disease limits its use in vision rehabilitation. Fixation behavior is difficult to ascertain or monitor if a traditional Tangent Screen is used to assess central field. Both fixation and central scotoma details can be precisely mapped using fundus-related macular perimetry. Three devices are commercially available (OPKO-OTI [Opko Health, Inc., Miami, FL], MAIA [Ellex Medical Pty., Ltd., Adelaide, Australia], Nidek MP-1 [Nidek Technologies, Srl, Padova, Italy]). While not as sensitive as fundus related macular perimetry, a California Central Visual Field test (Mattingly Low Vision, Inc., Escondido, CA), using 8.5-inch by 11-inch paper target and a laser pointer projecting stimuli, can provide valuable information. The patient’s fixation can be monitored during the testing if the test is held between the patient and the examiner, although clinically it is difficult to discern an eccentric viewing angle of
less than 5 degrees. One centimeter on the paper target corresponds to 1 degree when a 57-centimeter test distance is used. An Amsler grid can be used but will detect only about half of central scotomas, due to perceptual completion.\textsuperscript{65} [II+/Moderate]

Scotomas can also be located with central confrontation fields using single-letter targets mounted on flash cards.\textsuperscript{66} Observing obscured and clear areas on a clock face or human face may also identify scotomas, although this is possibly less precise than letter flash cards. The Worth 4-dot test can be used to confirm which eye is perceiving stimuli presented centrally, under binocular conditions.

Peripheral visual field testing is important when patients have disease that is anticipated to affect visual field such as glaucoma. [II+/Moderate]

**Assessment of Performance on Visual Tasks**

The patient may be observed doing such tasks as:

- Reading continuous print
- Writing
- Reading labels including medications
- Using a cell phone
- Using a computer
- Walking

Much information can be gained by assessing the quality of the patient’s continuous reading. Reading speeds with larger and smaller print and errors made when reading can confer information about central and paracentral fields. For example, missing the last letters in words may indicate a scotoma to the right of fixation, or difficulty with large print and more ease with moderate size print can indicate a small central field. If the patient reads larger print better than smaller print, magnification is likely to restore effective reading.

**Assessment of Psychological Status**

The patient’s psychological status is important to assess. Factors to consider include:

- Motivation, responsibilities, and supports
- Mood, affect, depression, and adjustment to vision loss (Geriatric Depression Scale, Depression, Anxiety and Stress Scale, or other screening questions may be used)
Vision Rehabilitation for Adults Wide Review Draft – 6/5/12

- Cognitive ability
- Stamina, energy, and activity level

Assessment of Risks
Based on the above information, the physician assesses the risks for the individual patient including the following:
- Medication errors [II+/Good]
- Label misidentification/product misuse
- Diabetic mismanagement
- Nutritional compromise
- Injury from accidents, including falls, cuts, burns, fractures, or head injuries
- Errors in financial management and/or writing/record keeping
- Social isolation, depression, or economic hardship

Assessment of Potential to Benefit from Rehabilitation
- Motivation
- Barriers to attending training [II++/Good]
- Assessment of co-morbidities including tremor, weakness, hearing deficit, cognitive deficit, mobility, chronic illnesses

REHABILITATION DEVICES, INTERVENTIONS, AND EDUCATION

Reading Rehabilitation
Reading is the most common goal that patients bring to rehabilitation and this goal should be assessed and addressed. [II++/Good] It is important for patients to be aware of the large array of options and alternatives for reading rehabilitation, because more than one device may be appropriate for different reading tasks. Visual acuity levels offer some prediction of the power of an add that will be required, however, this estimation will be often modified by varying levels of contrast sensitivity and central field disruptions. Patients with central scotomas may benefit from the efficient fixation with an alternate, “next-best,” area of non-foveal retina. [II/Moderate] Most patients find a PRL and use it spontaneously, however, emerging research suggests that training to use the PRL optimally can be effective. [I+/Good/Strong] Occasionally, patients use more than one locus, depending on the task being performed or illumination. The location of a scotoma relative to fixation is important. Scotomas to the right of fixation may obscure the end of words or impact saccades required for reading,
whereas scotomas to the left of fixation more often impede finding the beginning of the
next line of print. Scotomas positioned above or below the PRL may impact reading
columns of numbers or navigating a page of text.

Video magnification is very commonly used for reading and other tasks and it is an
excellent means to achieve both magnification and contrast enhancement. Audio and
tactile alternatives for accessing text can be very useful. Patients often use both
magnification and audio texts.

The effectiveness, ergonomics, and appropriateness of the following interventions and
devices should be considered and the patient response to each should be noted:

- Reading eyeglasses
- Handheld magnifiers
- Stand magnifiers
- Video magnifiers
- Electronic books/readers
- Text-to-speech devices, audio books, audio newspapers
- Large print
- Telescopic devices for near
- Lighting
- Braille for individuals with little or no vision

The clinician can guide a patient’s optical and non-optical options, but each patient
will make his or her individual selection. Once the patient can use a device in the
clinical setting, it is essential to provide training to insure confidence and successful
use in the patient's environment.

When considering recommendations for reading rehabilitation, the clinician and patient
should discuss the following topics:

- Remaining visual function; visual acuity, contrast sensitivity and central visual field
- Perceptual completion and awareness of scotomas
- Development of eccentric fixation
- Potential for reading rehabilitation interventions to improve performance
- Why eyeglasses will not correct low vision

**Activities of Daily Living**

Patients have varied goals for rehabilitation depending on their set of unique
circumstances.
A given task and different tasks may require different devices. In general, objects at near can be enlarged or magnified for viewing at a closer distance. Objects at distance can be enlarged by moving closer or by viewing them with a telescopic device.

Training with non-optical devices is also very important.

The effectiveness, ergonomics, and appropriateness of the devices listed above under reading rehabilitation, and the following list, should be considered for patients’ activities of daily living goals. Patient response to each should be noted. Consider:

- Non-optical aids such as optimized lighting, large print bank checks, needle threaders, glare control, large format telephones, and signature templates
- Sight substitutes such as, audio labels, talking watches, tactile markers, Braille labeling
- Computer adaptations using magnification and audio output
- Cell phone accessibility options
- Strategies and devices for food preparation and eating

**Patient Safety**

Safety includes addressing:

- Independent ambulation – white cane or support cane instruction
- Fall prevention
- Kitchen safety
- Ability to self-administer medications including insulin and over-the-counter medications [II+/Strong]
- Ability to self-monitor glucose by using a glucometer or insulin pump
- Ability to call for help with a telephone

Orientation and Mobility services and white cane instruction are available through most state services for the visually impaired. Guide dog training is reserved for patients with very limited or no vision. Devices listed for reading rehabilitation will assist in reading medications and labeling techniques and medication organizers assist.

Home safety assessment is important to ensure that older patients with low vision adapt their living environment to optimize safety and function. Fall prevention can be addressed by encouraging physical exercise and modifying the environment. [II+/Moderate]
Continue Participation in Activities Despite Vision Loss – Driving and Other Barriers

Many issues limit full participation in one’s community, such as difficulty with individual visual tasks, mood disorders, and opportunities for employment, however, transportation is often a significant barrier to continued participation. Driving is seen as a key element in maintaining independence. Driving requires a composite of visual, cognitive, and motor functions. The ophthalmologist has a role in formally assessing visual function in drivers, in discussing findings, driving restrictions, driving cessation, or driving alternatives with patients, and in reporting according to state requirements outlined in the American Medical Association’s (AMA) Physician’s Guide to Assessing and Counseling Older Drivers. Further evaluation and adaptive training with a driver rehabilitation specialist may be appropriate for some patients. Patients who are not eligible to drive will benefit from referral to transportation alternatives. Driving retirement can be associated with depression and social isolation, each of which may require intervention. The AMA Physician’s Guide lists the requirements for drivers’ licenses in each state, which vary considerably.

Psychosocial Well-being and Patient Education

The evaluation and assessment in vision rehabilitation is framed by the patient’s individual goals, skills, and responses to aids and concludes with a comprehensive discussion. The factors that should be discussed include:

- Independence
- Importance of activity
- Family interactions and concerns,
- Patient concerns (e.g., fear of blindness)
- Questions about legal blindness
- Driving status and adjustments to driving cessation
- How to prevent further vision loss
- Emotional support systems
- Visual hallucinations (Charles Bonnet syndrome)
- Disability is not apparent to others

Patients with any amount of vision loss often experience fear, frustration, and anger. Even early or moderate vision loss causes disability and can cause great anxiety. Early referral to vision rehabilitation can be very important. Many communities and organizations offer support groups for people who are discouraged and frustrated by
their vision loss and these provide positive role models of successful rehabilitation and help patients realize that they are not “alone” with the challenge of vision loss. Group programs, self-management programs and problem solving training have been shown to have positive benefit for patients with vision loss. [Strong/I+/Good] Professional assessment should be recommended for patients who report severe change in mood.

Patients with any level of vision impairment may also experience recurrent hallucinations of Charles Bonnet syndrome (CBS) in which they see images of objects that are not real. [II+/Good] Patients recognize that the images are not real. Patients who have CBS and family/caregivers should be reassured that this phantom vision is common in visually impaired people. Charles Bonnet Syndrome occurs in up to one-third of patients with visual acuity, contrast sensitivity, or visual field loss. Atypical features that should raise suspicion of a diagnosis other than CBS include lack of insight into the unreal nature of the images in spite of an explanation of CBS, or other associated neurological signs or symptoms. Patients with these atypical features require a neuropsychiatric evaluation for accurate diagnosis.

The vision rehabilitation clinician often has a role in communicating information to patients that the patient perceives as “bad news,” such as the information that the patient cannot continue to drive or that vision cannot be improved to normal with eyeglasses or treatment. The skill of “breaking bad news” can be trained [II-/Good] and several models of communicating “bad news” have been outlined. The interest and the skill to empathize, communicate with sensitivity and convey hope to patients are keys to successful vision rehabilitation.

Other Resources

Many patients will benefit from referral to, or information about, community resources, including services for seniors or people with disabilities, transportation alternatives, radio or telephone reading services for newspapers and magazines, free dialing services from telephone companies, shopping assistance, state agencies serving the legally blind that may provide devices, training or home visits to mark appliance dials, and national services, including the Library of Congress Talking Books Program available to anyone unable to read standard print. Comprehensive services for veterans are available through the Veteran’s Administration. National organizations, Internet resources, self-help books, sources for large-print materials, and other resources are listed in the SmartSight Handout. (See Appendix 4.)
Internists, family practice physicians, and geriatricians should be informed that when vision loss is not reversible, a patient with vision loss is at high risk for depression, injury, and hallucinations (CBS).

Family members are often very appreciative of education to avoid misunderstanding the nature of the vision loss and can, in addition, be positive team players in a rehabilitation process. They may benefit from training in how to assist a visually impaired person when walking using a sighted guide technique.

There is potential for confusion between the terminology of vision rehabilitation and the various terms for addressing reading difficulties of normally sighted children. In the latter, the terms vision therapy, visual training, visual therapy, or vision training are used. These activities are not the same as training to use residual vision in vision rehabilitation. The Academy has published a statement about vision therapy for learning disabilities.

**PROVIDERS**

Following a comprehensive low vision evaluation, the physician may make a referral, as indicated, for evaluation and rehabilitation training by an occupational therapist (OT). The referral indicates the diagnosis, level of impairment, statement of need for rehabilitation, problems with performing specific tasks, recommendations for therapeutic activities, techniques and devices, assessment of the patient’s potential to benefit from rehabilitation, and a statement of the expected duration of treatment. Occupational therapists or other professionals use therapeutic activities, environmental modifications, and compensatory strategies that may incorporate adaptive and optical devices to enable persons with vision impairment and other co-morbid disabilities to complete daily living activities in the home and community. Other professionals who may be involved in the rehabilitation care process include certified low vision therapists (CLVT), certified orientation and mobility specialists (COMS), technology instructors, certified vision rehabilitation therapists (CVRT) (formerly teachers of the blind), social workers, psychologists, and nurses. A multidisciplinary team approach is recommended to effectively address the disability and psychological problems caused by vision loss. The physician is the team leader and directs the rehabilitation program, and the patient is an active participant in the rehabilitation process and often must expend considerable effort to learn new skills. Overall, the rehabilitation team should provide continued opportunities for training and reinforcement, as appropriate, to accomplish sustained success with rehabilitation interventions and devices and must offer hope to patients whose lives have been significantly affected by vision loss.
A 2012 editorial in the Archives of Ophthalmology challenges that we reframe the role of vision rehabilitation in ophthalmic care. “This subtle distinction – that rehabilitation is a part of good care rather than something necessitated by the failure of care – makes a world of difference.” The treating ophthalmologist has a very important role to play in ensuring that patients they treat maintain quality of life despite less than normal vision. The goal is that vision rehabilitation will be incorporated into the continuum of ophthalmic care just as stroke or orthopedic rehabilitation has been incorporated into the care process of those domains. Such a goal can be support by having ongoing attention to physician-patient communication skills, attention to the referral process for vision rehabilitation services and support for well-designed research that will create a more robust evidence base for vision rehabilitation interventions.

**ACADEMY SMARTSIGHT™ MODEL OF VISION REHABILITATION**

The rehabilitative needs of patients vary considerably. The setting, level of care, and disciplines required depend on the complexity of the functional problems, psychosocial status, and personal attributes, not solely on visual acuity. The Academy outlines how vision rehabilitation can be incorporated in the continuum of ophthalmic care in its SmartSight two-level model of vision rehabilitation ([www.aao.org/smartsight](http://www.aao.org/smartsight)). The most important part of the SmartSight model is Level 1, which asks all ophthalmologists seeing patients with less than 20/40 acuity, contrast sensitivity loss, scotoma, or field loss to ‘Recognize and Respond’. They should recognize the impact of even modest uncorrectable partial vision loss and respond by assuring the patient that much can be offered with rehabilitation, and giving them the SmartSight Patient Handout. It is essential that the patient understand that while nothing may be done to improve their vision, much can be done to improve their lives. (See Appendix 5.)

SmartSight Level 2 is vision rehabilitation. Comprehensive vision rehabilitation is a multidisciplinary service that includes evaluation, rehabilitation training, and psychosocial support services. (See Appendix 6.)

It is important to note that the extent of intervention is determined not by the visual acuity. Rather, the range and complexity of the patient’s goals and the impact of vision loss on that individual’s independent function and quality of life determine the level on intervention required.

If the patient’s only difficulty is in reading fine print, which may occur with very mild impairment of visual acuity and contrast sensitivity and without significant scotomas, then supplemental direct lighting and possibly a simple device like a low power lighted magnifier for spot reading in dim condition may suffice for that single task.
However, when additional daily tasks are compromised, which also occurs with near normal visual acuity, then multidisciplinary rehabilitation is warranted. Such additional tasks may include using a computer, managing finances, doing handwork and hobbies, grooming, shopping, preparing meals, performing optimally at work, managing curbs and steps safely, continuing to drive, developing transportation alternatives and adjusting to the significant psychological challenge of vision loss. To empower individuals struggling with those or other challenges to continue to live fully with maximal independence, rehabilitation services that offer strategies, training, environmental adaptations, resources and psychosocial support are essential.

It should be re-emphasized that level of visual acuity does not determine who will benefit from multidisciplinary care. Multidisciplinary care is not reserved for patients with advanced vision loss and may well be most important for those with modest loss, to assure that they are on a positive path at the outset. This is particularly true for individuals who face progressive vision loss.

The multidisciplinary vision rehabilitation team includes an ophthalmologist or optometrist who performs the low vision evaluation, occupational therapists, orientation and mobility specialists and technology experts who provide rehabilitation training, and psychologists, social workers, and counselors who offer psychosocial support. Medicare reimburses for the low vision evaluation by an ophthalmologist or optometrist, for rehabilitation training by an occupational therapist, as their training within the medical system includes the spectrum of potential comorbidities that exacerbate visual impairment in older adults, and for individual counseling by a social worker or psychologist.

It should be emphasized that the extent of the patient’s goals, the individual impact of vision loss for that individual, and the availability of other individual resources may determine the need for vision rehabilitation.
APPENDIX 1. QUALITY OF OPHTHALMIC CARE CORE CRITERIA

Providing quality care
is the physician's foremost ethical obligation, and is
the basis of public trust in physicians.
AMA Board of Trustees, 1986

Quality ophthalmic care is provided in a manner and with the skill that is consistent with the best interests of the patient. The discussion that follows characterizes the core elements of such care.

The ophthalmologist is first and foremost a physician. As such, the ophthalmologist demonstrates compassion and concern for the individual, and utilizes the science and art of medicine to help alleviate patient fear and suffering. The ophthalmologist strives to develop and maintain clinical skills at the highest feasible level, consistent with the needs of patients, through training and continuing education. The ophthalmologist evaluates those skills and medical knowledge in relation to the needs of the patient and responds accordingly. The ophthalmologist also ensures that needy patients receive necessary care directly or through referral to appropriate persons and facilities that will provide such care, and he or she supports activities that promote health and prevent disease and disability.

The ophthalmologist recognizes that disease places patients in a disadvantaged, dependent state. The ophthalmologist respects the dignity and integrity of his or her patients, and does not exploit their vulnerability.

Quality ophthalmic care has the following optimal attributes, among others.

- The essence of quality care is a meaningful partnership relationship between patient and physician. The ophthalmologist strives to communicate effectively with his or her patients, listening carefully to their needs and concerns. In turn, the ophthalmologist educates his or her patients about the nature and prognosis of their condition and about proper and appropriate therapeutic modalities. This is to ensure their meaningful participation (appropriate to their unique physical, intellectual and emotional state) in decisions affecting their management and care, to improve their motivation and compliance with the agreed plan of treatment, and to help alleviate their fears and concerns.

- The ophthalmologist uses his or her best judgment in choosing and timing appropriate diagnostic and therapeutic modalities as well as the frequency of evaluation and follow-up, with due regard to the urgency and nature of the patient's condition and unique needs and desires.

- The ophthalmologist carries out only those procedures for which he or she is adequately trained, experienced and competent, or, when necessary, is assisted by someone who is, depending on the urgency of the problem and availability and accessibility of alternative providers.

- Patients are assured access to, and continuity of, needed and appropriate ophthalmic care, which can be described as follows.
  - The ophthalmologist treats patients with due regard to timeliness, appropriateness, and his or her own ability to provide such care.
  - The operating ophthalmologist makes adequate provision for appropriate pre- and postoperative patient care.
  - When the ophthalmologist is unavailable for his or her patient, he or she provides appropriate alternate ophthalmic care, with adequate mechanisms for informing patients of the existence of such care and procedures for obtaining it.
  - The ophthalmologist refers patients to other ophthalmologists and eye care providers based on the timeliness and appropriateness of such referral, the patient's needs, the competence and qualifications of the person to whom the referral is made, and access and availability.
  - The ophthalmologist seeks appropriate consultation with due regard to the nature of the ocular or other medical or surgical problem. Consultants are suggested for their skill, competence, and accessibility. They receive as complete and accurate an accounting of the problem as necessary to provide efficient and effective advice or intervention, and in turn respond in an adequate and timely manner.
  - The ophthalmologist maintains complete and accurate medical records.
On appropriate request, the ophthalmologist provides a full and accurate rendering of the patient's records in his or her possession.

The ophthalmologist reviews the results of consultations and laboratory tests in a timely and effective manner and takes appropriate actions.

The ophthalmologist and those who assist in providing care identify themselves and their profession.

For patients whose conditions fail to respond to treatment and for whom further treatment is unavailable, the ophthalmologist provides proper professional support, counseling, rehabilitative and social services, and referral as appropriate and accessible.

Prior to therapeutic or invasive diagnostic procedures, the ophthalmologist becomes appropriately conversant with the patient's condition by collecting pertinent historical information and performing relevant preoperative examinations. Additionally, he or she enables the patient to reach a fully informed decision by providing an accurate and truthful explanation of the diagnosis; the nature, purpose, risks, benefits, and probability of success of the proposed treatment and of alternative treatment; and the risks and benefits of no treatment.

The ophthalmologist adopts new technology (e.g., drugs, devices, surgical techniques) in judicious fashion, appropriate to the cost and potential benefit relative to existing alternatives and to its demonstrated safety and efficacy.

The ophthalmologist enhances the quality of care he or she provides by periodically reviewing and assessing his or her personal performance in relation to established standards, and by revising or altering his or her practices and techniques appropriately.

The ophthalmologist improves ophthalmic care by communicating to colleagues, through appropriate professional channels, knowledge gained through clinical research and practice. This includes alerting colleagues of instances of unusual or unexpected rates of complications and problems related to new drugs, devices or procedures.

The ophthalmologist provides care in suitably staffed and equipped facilities adequate to deal with potential ocular and systemic complications requiring immediate attention.

The ophthalmologist also provides ophthalmic care in a manner that is cost effective without unacceptably compromising accepted standards of quality.

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## APPENDIX 2. INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES AND RELATED HEALTH PROBLEMS (ICD) CODES

<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD-9 CM</th>
<th>ICD-10 CM</th>
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<tr>
<td>Total, near-total, and profound visual impairment in better eye</td>
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<td>Better eye: total impairment; lesser eye: total impairment</td>
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<td>Severe or moderate impairment in better eye</td>
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<td>Homonymous bilateral field defects (blind spots in the right or left halves of the visual fields of both eyes: hemianopsia, quadrantanopia, altitudinal)</td>
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</table>
Heteronymous bilateral field defects (blind spots in opposite halves of the visual fields of both eyes: binasal, bitemporal) 368.47

Scotoma involving the central area (within 10 degrees of fixation) 368.41

Generalized contraction or constriction 368.45

The following definitions apply:

- Moderate visual impairment: best-corrected visual acuity is less than 20/60 (including 20/70) to 20/160
- Severe visual impairment: best-corrected visual acuity is less than 20/160 (including 20/200) to 20/400, or the visual field diameter is 20 degrees or less (largest field diameter for Goldmann isopter III4e, 3/100 white test object, or equivalent)
- Profound visual impairment: best-corrected visual acuity is less than 20/400 (including 20/500) to 20/1000, or the visual field diameter is 10 degrees or less (largest field diameter for Goldmann isopter III4e, 3/100 white test object, or equivalent)
- Near-total vision loss: best-corrected visual acuity is 20/1250 or less
- Total blindness is no light perception

CM = Clinical Modification used in the United States
APPENDIX 3. VISION REHABILITATION FOR CHILDREN

INTRODUCTION

Vision rehabilitation for children with low vision, and their families, is an essential component of ophthalmic care. It represents a collaborative effort of ophthalmologists, pediatric ophthalmologists, vision rehabilitation clinicians, occupational therapists, orientation and mobility instructors, teachers, and others, in a multidisciplinary team.

Fortunately children have bilateral visual impairment less frequently than adults, none the less, the developmental needs of children, their vulnerability to poor outcome without supports and advocates, their often co-morbid disabilities, and the lifetime ahead of such children, necessitates that we place priority on providing excellent rehabilitation at both the earliest point of intervention and on an ongoing basis to ensure healthy childhood and, in the future, a young adult who can fully participate.

EARLY IDENTIFICATION AND REFERRAL

Causes of visual impairment in children include congenital structural abnormalities that are sometimes associated with other systemic disorders (e.g., optic nerve hypoplasia, chorioretinal colobomas involving the maculae), genetic disorders (e.g., Leber congenital amaurosis, achromatopsia, cone or cone-rod dystrophies, congenital stationary night blindness, albinism, aniridia), and acquired abnormalities (e.g., uncontrolled glaucoma, severe residua of retinopathy of prematurity, ocular and/or cerebral trauma). Parents and caregivers may note that children have difficulty identifying the parent across the room, particularly when multiple adults are present, or that they seem to have even more reduced visual function in a visually crowded environment (e.g., shopping mall). In addition, these children may be photosensitive or have more difficulty seeing in unfamiliar environments with reduced illumination. Some may have reduced contrast sensitivity and have difficulty with steps or curbs, or may trip over objects on the floor. Reports of delayed visual development are also common. In children with severe visual impairment (e.g., Leber congenital amaurosis), the parents will often volunteer that the child pushes on their eyes with their thumbs or fingers, recognized by the eye care provider as the oculodigital sign of severe vision loss.
Most children with visual impairment will have nystagmus (although those with cortical visual impairment may not show nystagmus). A compensatory head posture to dampen the nystagmus and afford improved vision may be used. When measuring visual acuity, it is important to not only assess monocular acuity, but to also measure binocular visual acuity, as monocular occlusion can increase the amplitude of nystagmus, further reducing visual acuity. As with other children, the preferred method of visual acuity testing involves linear or crowded optotypes, although the test distance may need to be reduced for children with visual impairment. (See Pediatric Eye Evaluations PPP.89) The acuity card procedure can be used to estimate visual acuity and comparison to normative values can be helpful, however, the acuity card acuity may not predict optotype visual acuity. In addition to a comprehensive eye examination, all children require cycloplegic retinoscopy as correction of significant refractive errors may improve visual acuity, even in children with visual impairment. A child may prefer one eye and amblyopia therapy may be indicated, although if ocular abnormalities severely limit vision in the second eye, adherence to amblyopia therapy may be challenging.

Discussion of the cause of visual impairment often requires an increased amount of time with the parent/caregiver. In addition to the cause of visual impairment, the eye care provider should discuss additional testing that is necessary (e.g., cerebral imaging of the pituitary in optic nerve hypoplasia, genetic testing for inherited disorders, renal ultrasound for aniridia). Parents can, understandably, be upset and often grieve for the loss of vision in their child. They may require increased support during office visits. Parents frequently ask about prognosis and usefulness of procedures that have not been shown to be helpful (e.g., vision therapy, offshore stem cell infusions). The eye care provider can provide guidance in these areas. Parents should be reassured that it does not hurt the eyes to sit close to the television or to hold visual targets close to the eyes as children are using their innate ability to accommodate and see smaller print at a closer focal distance.

Depending on services available locally, the evaluation by the clinician providing rehabilitation may overlap with the evaluation by the pediatric ophthalmologist. An accurate evaluation of current visual function (visual acuity, contrast sensitivity and visual field) appropriate to the child’s age and overall status will be conducted. With school age or older children the assessment will be similar to the evaluation outlined for adults and can include fundus-related macular perimetry, visual field testing and reading evaluation. Regardless of
the age, offering family support and rehabilitation promptly at the time of initial diagnosis is key to starting the family on a trajectory of success, as they deal with the challenge of living with chronic vision loss.

**Preschool Child**

When a young child is diagnosed with bilateral visual impairment, consideration should be given to enrollment in an early intervention program. Such a program can be supportive for the family, offer important stimulation for the child and performance in such a setting can provide insight into options for effective rehabilitation. These programs can also facilitate development of an Individualized Educational Plan (IEP) when the child reaches primary school grades. In preschool, the child may be given a second copy of a book the teacher is reading to the class, so that the child’s attention is maintained without obstructing the view of the other children.

**School-age Child**

Education can pose particular challenges for the visually impaired child. A bright child with a moderate visual disability might not be recognized as having special needs and “fall through the cracks,” failing to attain supports that ensure optimal school success. The vision rehabilitation clinical team and the vision resource teacher or consultant in the school district may collaborate to provide an assessment of visual performance and recommendations for devices, training and accommodations. In the early grades, print size may be sufficient for the child to see, although a closer focal distance than normal will be adopted. Children wearing a high myopic refractive correction may prefer to look over the top of their glasses, or remove their glasses, for small print. In general, sighted children should receive preferential seating in the classroom. As children mature, print size may become too small to read with ease; audio books, enlarged print, a bifocal, a video magnifier or an optical magnifier may be needed. Due to the small symbols used in math, math text typically requires enlargement before text reading. Learning to write can be a challenge for visually impaired children. Visually impaired children may find writing easier with a dark felt tip pen than with a pencil. Papers should have bold, high contrast lines to use as a writing guide. When children lean over the desk to read or write, a slant board can be introduced to improve posture. Early keyboarding should be encouraged as to optimize computer accessibility options. Electronic readers, laptops and video magnifiers are important tools for the child with low vision in a classroom or home setting.
If a significant head turn is noted, the teacher should generally be positioned in the direction of the head turn (e.g., a child with a marked left head turn should have the teacher or paraprofessional to the child’s left side). The child with photophobia may prefer to sit in a position where windows in the classroom are behind the child.

The needs of individual children differ and an Individualized Educational Plan is recommended to facilitate an educational environment appropriate for each child’s visual needs. The Individuals with Disabilities Act mandates that schools provide education in the “least restrictive environment” for the child. The eye care provider, the vision rehabilitation clinician and the parents all need to advocate for the child to receive educational adaptations to facilitate learning, healthy peer relationships, opportunities to engage in physical activity and social and emotional growth and development.

Teenage and Young Adults

Students in these grades can be offered a full range of technology options such as cell phone accessibility, computer accessibility, optical character recognition and even global positioning system (GPS) technology. As standardized testing becomes more common in older grades, teachers should ensure that answer sheets are available in preferred format, whether enlarge print, audio or Braille. When children reach driving age, discussion regarding whether the patient meets the state’s requirements for a driving license, and completion of forms for a limited license, are additional areas to be addressed by the eye care provider. During these teenage years the child becomes increasingly their own advocate.

GENERAL RECOMMENDATIONS

At any age, referral to support networks specific for the child’s diagnosis can also be useful. In some cases of severe visual impairment, children learn best with Braille, and in others, a combination of print, audio and Braille learning may be used. Texts should be available in audio format for all students who prefer this. Because reading enlarged print or alternate formats takes more time, it is recommended that children take tests in a separate room where they can be given more time without the attention of their peers. Distance viewing in the classroom can also present difficulties for the visually impaired child. A video magnifier to view the blackboard and the teacher is often successful. A SMART Board (Smart Technologies, Calgary, Canada), which allows digital entry and projection on a white board, combined with a desk computer, can be successful for many visually impaired children. To
improve contrast, chalkboards should be washed daily and only dark, saturated markers (e.g., black and purple) should be used on white boards. Children may receive copies of overhead projection of educational material so they can more easily follow the teacher. In some cases, use of a monocular telescope is helpful, particularly if it is small enough to be used inconspicuously. While children may be reluctant to use a magnifier or receive enlarged print to avoid drawing attention from their peers, they often embrace the use of electronic media as it can be less stigmatizing. Protective eyeglasses are recommended and may include correction of significant refractive errors, and photochromic or tinted lenses if the child is photophobic. Reversing the polarity (white print on black background) on a computer or a video magnifier can be helpful for the child who is photophobic or has poor contrast sensitivity. Use of a cap or visor pulled down low on the forehead or a brimmed hat can also reduce photosensitivity. The visually impaired child needs to learn to be a self-advocate in the educational arena. They should let the teacher know when they cannot see the visual target. In many situations, letting the other children know about their visual disability can reduce socially inappropriate comments.

SUMMARY

In summary, visual rehabilitation of the child depends on the age of the child, the degree of visual impairment, other physical disabilities, and the educational needs of the child. Children with visual impairment have individual needs that typically require multiple adaptations in the classroom environment. The eye care provider can provide written documentation of the level of visual impairment and the cause of reduced vision. The combined efforts of the eye care provider, vision rehabilitation clinician and the vision teacher can all contribute to the need for modification of the school environment to facilitate learning. Planned follow-up visits address the needs at each subsequent developmental stage, assure that spectacle correction is accurate, provide new information about the cause and management of the child’s specific visual impairment, allow new technologies to be introduced, encourage the child to be a self-advocate, and continue to support the parents/guardians.
SMARTSIGHT™ - Patient Handout
An American Academy of Ophthalmology Initiative in Vision Rehabilitation

Locate services near you at
www.afb.org/services.asp
by clicking on "AFB Find Services"

MAKING THE MOST OF REMAINING VISION

Is it difficult to read newspapers and price tags, set dials or manage glare? If so, SmartSight™ information can help with tips about the tools, techniques and resources of vision rehabilitation. Losing vision does not mean giving up your activities, but it does mean applying new ways of doing them.

Patterns of Vision and Vision Loss

- **Central vision** is the detailed vision we use when we look directly at something. Age-related macular degeneration (AMD) affects central vision.
- **Peripheral vision** is the less detailed vision we use to see everything to the sides. Glaucoma affects peripheral vision first. Strokes can affect one side of the peripheral vision.
- **Contrast sensitivity** is the ability to distinguish between objects of similar tones such as coffee in a black cup or facial features. All eye problems can decrease contrast sensitivity.

The Experience of Vision Loss

It is always a shock to learn that your vision loss is irreversible. It is important to acknowledge the loss, anger or frustration you may feel, get help working through these feelings and apply the strategies of vision rehabilitation in order to stay active to avoid isolation and depression, which may appear as fatigue or lack of interest. If depression occurs, address it with treatment and counseling. A support group can help you recognize that your value to yourself and others does not depend on your vision. You are worth the effort to make the most of your remaining vision.

The Phantom Visions: Charles Bonnet Syndrome

About 25% of people with vision loss see life-like images they know are not real. This is called Charles Bonnet Syndrome. It is not a loss of mental capacity, but just part of vision loss for some. If there are additional neurological problems, the hallucinations may be due to other diseases.

Making the Most of Remaining Vision

The following practical suggestions help many patients.

**Use Your “Next-Best Spot”**

When the center of your vision is obscured by a blind spot (scotoma), you use more peripheral vision in which you may find your “next best spot” (Preferred Retinal Locus or PRL). Most patients find this automatically but often can benefit from training to use the spot more effectively.

**Making Things Brighter**

- **Improve lighting.** Use a lamp directed toward your task. Carry a penlight.
- **Reduce glare.** Indoors you can cover tables and shiny counters. Many wear yellow clip-on or fit-over glasses. Outdoors, try dark plum or amber glasses and visors.
- **Increase contrast.** Use a black ink gel or felt pen, not a ballpoint. Draw a dark line where you need to sign. Use a white cup for coffee, for example.
Making Things Bigger

- **Move closer.** Sit close to the TV, and at the front for performances.

- **Enlarge.** Get large print playing cards, bingo cards, crosswords, checks, TV remotes, calendars, keyboards and books.

- **Magnify.** Magnifiers are available in many powers and types which are suited to different people's needs and to different tasks. There are hand-held magnifiers, stand magnifiers, video camera magnifiers, magnifiers using the cameras in cell phones and a magnifier computer mouse.

Organize

Designate spots for items in your refrigerator, and for your keys and wallet. Minimize clutter. Keep black clothes in a separate area from blue ones.

Labeling

Mark thermostats and dials with high contrast markers label medications with markers or rubber bands or use a safety-pin in labels of similar colored clothing.

Substituting: Let's Hear it for Ears!

There are many free audio books/magazines available. Talking watches, glucometers and memo recorders can be purchased. Screen reader software speaks aloud what is on a computer monitor.

Participating

Don’t isolate yourself. Keep your social group, volunteer job, or golf game. It might require lighting, large print cards, a magnifier, a ride, or someone to help you. Ask for the help you need. There is nothing independent about staying home to avoid asking for help.

Driving

Pick your times, map routes carefully, and consider using a GPS or tinted lenses. Ask yourself: Do cars appear unexpectedly? Do drivers honk at you? Are you having fender-benders? If the answer is “yes,” consider an on-road driving assessment, driving rehabilitation or the following transportation alternatives.

Transportation Alternatives: Be Creative!

Hire a driver, share your car, arrange for a taxi, buy gas for a friend who drives or use senior or public transit systems. Try a three-wheel bike or battery-powered scooter at walking speed. Walk if you are able. Set the pace for your peers by using these alternatives now. The future will offer even more solutions.

For Family and Friends

Your loved one with vision loss needs to be empowered to do as much as possible independently. Recognize the challenge of vision loss, and don’t take over their tasks. Instead, help identify the adjustments they need to make to maximize their independence.

Vision Rehabilitation

A low vision evaluation and rehabilitation training can help you make the most of your vision.

**Ask providers if services include:**

- A low vision evaluation by an ophthalmologist or optometrist.
- Advice about devices. Are some devices loaned before purchase or returnable?
- Rehabilitation training: reading, writing, shopping, cooking, lighting and glare control.
- Home assessment. Mobility training. Information about support groups.
- Are services free, billed to Medicare or other insurances? If not, what is the charge? Medicare
covers most services, but not devices. Be a smart consumer and remember that a vendor’s job is to sell you something. Consult family or friends you trust before you make expensive purchases.

RESOURCES

Audio digital books, magazines and textbooks:

- Public libraries

Large books, newspapers and checks:

- Public libraries
- Checks/registers: your bank or check catalog

Large print materials – crosswords, bingo cards, address books, calendars, etc.:

- Shoplowvision: 1-800-826-4200, www.shoplowvision.com
- Perkins Products: www.perkins.org/store/about/perkins-products-brand.html

Computer enlargement:

- Accessibility features built into your computer: www.microsoft.com/enable/products/default.aspx

Video magnifiers

- Many vendors, see outline: www.afb.org/ProdBrowseCatResults.asp?CatID=53

National organizations, for support, information, and research updates:

- American Foundation for the Blind: 1-800-AFB-LINE (1-800-232-5463), www.afb.org
- American Macular Degeneration Foundation: www.macular.org
- Clinical trials: http://clinicaltrials.gov/
- Hadley online courses: www.hadley.edu
- Association for Macular Diseases, www.macula.org
- MD Support: 816-761-7080 (toll call), www.mdsupport.org
- National Eye Institute: www.nei.nih.gov
- National Federation of the Blind: www.nfb.org; news by phone 1-866-504-7300
Vision Aware: www.visionaware.org

Self-Help Books:


Eligible Veterans:


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APPENDIX 5: SMARTSIGHT™
VISION REHABILITATION AS PART OF THE CONTINUUM OF OPHTHALMIC CARE

SMARTSIGHT™ OVERVIEW

The Academy's Initiative in Vision Rehabilitation
The Academy urges you to help your patients make the most of their remaining vision with SmartSight™ (www.aao.org/smart), an initiative to assist your patients who have visual acuities less than 20/40, scotomas, field loss or contrast sensitivity loss.

Materials for Patients
The SmartSight Patient Handout is for you to give to patients. It provides essential tips for making the most of remaining vision and offers information about how patients can access vision rehabilitation options in their community.

Materials for Ophthalmologists
SmartSight™ also outlines the model of how vision rehabilitation can be incorporated in the continuum of ophthalmic care.

- Level 1 calls on all ophthalmologists to recognize that vision loss impacts their patients' function and respond by offering patients with the following, a copy of the SmartSight™ Patient Handout:
  - Acuity less than 20/40
  - Scotoma
  - Visual field loss
  - Loss of contrast sensitivity

Please encourage patients to read the handout and act on it. It directs patients to services in their community. Many academic ophthalmic departments in the United States have comprehensive vision rehabilitation services where patients can be directly referred.

- Level 2 outlines multidisciplinary vision rehabilitation services that are important when vision loss impacts more than reading fine print. Comprehensive vision rehabilitation may be a limited clinical encounter when patient goals are limited or it may be a more extensive intervention involving many professionals. Visual acuity, however, does not determine the need for service. The intervention is determined by the impact of vision loss on the patient. Patients with early vision loss may benefit from not only devices but also the opportunity to discuss the impact of their vision on their life, to see other strategies and devices that may benefit them in the future, and overall, an education that supports them and training that can allow them to continue to participate in activities despite ocular disease. Important references about vision rehabilitation for ophthalmologists are appended.

If you have any questions about vision rehabilitation or SmartSight™, please contact the Academy at smartsight@aao.org.

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APPENDIX 6: SMARTSIGHT™ INITIATIVE IN VISION REHABILITATION – LEVEL 2

SMARTSIGHT™

MAKING THE MOST OF REMAINING VISION

Academy Initiative in Vision Rehabilitation
Level 2 – Vision Rehabilitation

COMPREHENSIVE VISION REHABILITATION ADDRESSES:

- Reading
- Activities of daily living
- Patient safety and mobility
- Social participation
- Physical well-being
- It includes training with optical devices, non-optical adaptive devices and alternate strategies, as well as multidisciplinary supports.

PART I: LOW VISION EVALUATION

Complete History

- A medical and ophthalmic history
- Social history including living situation, driving history, supports and responsibilities
- History regarding how vision loss impacts safety, including falls, medication errors and safety in the vocational setting
- Enquiry about adjustment to vision loss: coping strategies, anxiety, hallucinations and depression

Assessment of Patient’s Goals with Rehabilitation

Each patient is unique and will be able to describe how vision loss has impacted their ability to do things and what tasks they wish to address with rehabilitation. Consider such activities as: shopping, meal preparation, financial management, medication management, self-care, near tasks, distance tasks, ambulation using transit and driving.

Assessment of Visual Function

a) Visual Acuity and Refraction

- Record best corrected distance visual acuity. Precise acuity can be measured to very low levels with the Berkeley Rudimentary Vision Test (www.precision-vision.com).
- Retinoscopy and manifest refraction may be done in a phoropter or trial frame; the latter often allowing a wider aperture for the clinician to see the reflex and for the patient to eccentric view. Prescription for new distance eyeglasses is best delayed until completion of occupational therapy training (when the potential benefit of new eyeglasses can be reassessed relative to purchasing other devices), unless the refraction varies substantially from the current.
- Record near acuity, reading add used and distance. Near acuity will change with the reading add. Patients with higher reading adds will read smaller print, despite having the same distance visual acuity.

b) Contrast Sensitivity

Loss of contrast sensitivity impacts function greatly. There is no current standard of measurement, although the FDA is in the process of developing one. Awareness of contrast sensitivity offers insight into functional problems and potential solutions.

c) Central Field: Scotoma and Fixation

The size, shape, position of any central scotomas and the location of fixation relative to a scotoma impact the performance, choice of device and specific patient training. Patients may fixate with the fovea or use eccentric fixation (Preferred Retinal Locus or PRL). Assessment of the scotoma and fixation assists in optimizing rehabilitation interventions.
Scotoma and fixation can be determined using perimeters which monitor fixation by tracking retinal location. Three devices are available commercially, two use scanning laser ophthalmoscope technology (OPKO and MAIA) and a third uses a camera to view the retina (NIDEK). A method using flashcards or a modified tangent screen, conducted at near with a laser pointer, offers useful information about binocular scotomas and facilitates patient education about scotomas.

d) Peripheral Field, Glare, Color Vision

Map peripheral field, as indicated, with manual, automated perimetry or confrontation field. Glare and color vision are sometimes measured.

Assessment of Performance on Visual Tasks

- Continuous print reading should be assessed noting errors, fluency and the size of print read. To read continuous print without fatigue, one must be able to read two or three lines smaller than desired text size.
- Observe ability to spot read visual targets, such as labels.
- It may be informative to observe how a patient completes a task that is important to them, such as reading a medication bottle, writing a check, using their cell phone or reading mail.
- Observe ambulation.

Assessment of Magnification Requirements, Tolerance for Devices, and Application of Devices to Desired Tasks

The appropriate power and type of device vary widely even with identical acuities depending on contrast sensitivity, scotoma/PRL pattern, and the patient’s physical attributes and needs. Patients with poor contrast sensitivity, for example, may require an illuminated magnifier or video magnifier. A small seeing area of retina surrounded by scotoma may necessitate a screen reader to present text on the computer monitor in audio format. A tremor or upper limb paresis may preclude the use of a handheld device.

Assessment of Benefit of Non-optical Devices

A wide range of non-optical devices is available and are of benefit to many patients according to individual goals.

Counseling and Advice

Counsel and advise the patient and family regarding:
- The disease process and its implications on performance
- Charles Bonnet Syndrome: hallucinations associated with visual impairment
- Minimizing risk: nutritional supplementation, smoking cessation, diet
- Fall prevention. A pamphlet is available from the CDC (www.cdc.gov/pubs/ncipc.aspx)
- Adjustment to vision loss and risk of depression
- Support groups, peer counseling, and/or professional counseling
- Local and national resources, such as community transportation, talking books (www.loc.gov/nls/)
- Veterans Vision Rehabilitation Services, if eligible

Order for Rehabilitation Training

The physician’s order for Medicare-reimbursed occupational therapy rehabilitation training should include: primary code (impairment), secondary code (disease causing impairment), the patient’s need for rehabilitation and potential to benefit, the therapy ordered, frequency and duration of treatment, and safety concerns.

Communication with Other Care Providers

Referring, and other primary care, providers can be informed about the impact of vision loss, rehabilitation plans, risk of injury, depression and Charles Bonnet visual hallucinations.
PART 2: REHABILITATION TRAINING – OCCUPATIONAL THERAPY

Occupational Therapy Assessment

Occupational therapy begins with the therapist’s assessment of the patient’s current level of performance with respect to desired and necessary tasks, consideration of contributing physical, cognitive, psychosocial and environmental factors, and setting of clear, achievable therapy goals in collaboration with the patient.

Occupational Therapy Training

Rehabilitation training may include any or all of the following:

- Scotoma awareness and efficient fixation
- Awareness of peripheral field loss
- Visual motor skills including scanning, tracing, tracking and target localization
- Reading and writing techniques and training
- Visual perceptual skills in, for example, CVA-related visual impairment
- Application of optical devices to specific tasks, care of devices
- Application of non-optical devices for specific tasks
- Adaptations to the environment in order to enhance safety and ability to do tasks: lighting, contrast, organization, labeling, glare control, hazard removal, and other safety measures
- Use of computer accessibility: magnification, contrast enhancement, cursor modification, speech output
- Safe mobility in home and community: use of support canes, glare filters and monoculars for orientation and spotting. [Long cane training is done by Certified Orientation and Mobility Specialists (COMS).]
- Recreational and avocational activities assessment and training
- Workplace assessments and adaptations
- Caregiver support and training
- Driver evaluation and training (not reimbursable by Medicare) and discussion of alternative transportation options
- Referral to further services as indicated. For example, State Society for the Blind, Veteran’s Administration Services, Orientation and Mobility Training, balance rehabilitation services, hearing rehabilitation services, psychology or psychiatry, support groups or aging community service agencies.

SUGGESTED READING


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RELATED ACADEMY MATERIALS

[Staff to review and complete before publication]

REFERENCES


Vision Rehabilitation for Adults

P.O. Box 7424
San Francisco,
California 94120-7424
415.561.8500