A. DESCRIPTION AND CLASSIFICATION

Presbyopia is an irreversible, normal physiologic condition that impairs the ability to see clearly at near. It is the result of a gradual decrease in accommodative amplitude (i.e., from about 15 diopters in early childhood to 1 diopter before the age of 60 years) due to changes in the elasticity of the capsule and lens and to changes in the overall size and shape of the lens.

Classification of presbyopia, described in Table 1, includes:

- Incipient presbyopia
- Functional presbyopia
- Absolute presbyopia
- Premature presbyopia
- Nocturnal presbyopia

B. RISK FACTORS

- Age (e.g., usually occurring at or after age 40)
- Uncorrected hyperopia
- Occupations involving near visual demands
- Gender (earlier onset in females)
- Ocular disease or trauma (e.g., removal or damage to lens, zonules or ciliary muscle)
- Systemic disease (e.g., diabetes mellitus, multiple sclerosis, cardiovascular accidents, vascular insufficiency, myasthenia gravis, anemia, influenza, measles)
- Side effect of both prescription and nonprescription drugs (e.g., alcohol, antianxiety agents, antidepressants, antipsychotics, antispasmodics, antihistamines, diuretics)
- Iatrogenic factors (e.g., scatter laser photocoagulation, intraocular surgery)
- Geographic proximity to equator (e.g., higher average annual temperatures, greater exposure to ultraviolet radiation)
- Poor nutrition, decompression sickness, ambient temperature

C. COMMON SIGNS, SYMPTOMS, AND COMPLICATIONS

The onset of presbyopia is gradual with symptoms reaching significance only when the patient’s accommodative amplitude becomes inadequate for his or her individual vocational or avocational needs. Table 1 summarizes the signs, symptoms and complications of presbyopia.

D. EARLY DETECTION AND PREVENTION

Because presbyopia is part of the normal aging process, the condition cannot be prevented. Emphasis must be on detection, diagnosis and management of its consequences as optical correction can successfully remediate presbyopia no matter when the patient seeks treatment. Public education and health promotion of the symptoms and management options for presbyopia can

NOTE: This Quick Reference Guide should be used in conjunction with the Optometric Clinical Practice Guideline on Care of the Patient with Presbyopia (Reviewed 2006). It provides summary information and is not intended to stand alone in assisting the clinician in making patient care decisions.
contribute to persons seeking treatment for their symptoms at an earlier age, resulting in the early detection and intervention of other diseases associated with aging (e.g., glaucoma, cataract, macular degeneration, diabetes mellitus, hypertension).

E. EVALUATION

The evaluation of patients with signs and symptoms suggestive of presbyopia or patients diagnosed with presbyopia includes all areas of a comprehensive adult eye and vision examination with particular emphasis on the following areas:

1. Patient History
   - Nature of the presenting symptoms and chief complaint
   - Visual, ocular and general health histories
   - Medication usage and medication allergies
   - Family eye and health histories
   - Vocational and avocational vision requirements

2. Ocular Examination
   - Visual acuity testing (distance and near)
   - Refraction (retinoscopy, keratometry, subjective refraction, trial frame or trial lens clips)
   - Binocular vision and accommodation (plus lens to clear near vision, balanced range of accommodation, amplitude of accommodation, crossed cylinder test, accommodative convergence/accommodation ratio, phoria, and vergence, vertical imbalance)
   - Ocular health assessment and systemic health screening

3. Supplemental Testing
   - Near retinoscopy
   - Intermediate distance testing

F. MANAGEMENT

Appropriate management of the patient with presbyopia depends on the type of presbyopia and on the patient’s specific vocational and avocational needs. Table 2 (adapted from Figure 3 in the Guideline) provides an overview of patient management.

1. Basis for Treatment
   The goals for management of presbyopia are clear, comfortable, efficient binocular vision and good ocular health.

2. Available Treatment Options
   - Optical correction with spectacle lenses – single vision, bifocal, trifocal, blended bifocals, progressive addition or occupational lenses
   - Optical correction with contact lenses – monovision or bifocal lenses (e.g., alternating vision, simultaneous vision, aspheric design, concentric design or diffraction design bifocals)
   - Optical correction with a combination of contact lenses and spectacle lenses
   - Refractive surgery
   - Experimental surgical techniques

3. Patient Education
   The clinician should inform the patient about the signs, symptoms, clinical course and management options for presbyopia. Information should be provided about the potential visual implications of alternative types of optical correction and their use. Education should begin at the time of the examination, be reinforced at the time of dispensing, and continued, as appropriate, at subsequent visits for follow-up evaluation or spectacle adjustment.

4. Prognosis and Followup
   Virtually all presbyopic patients can succeed with one or more of the available treatment options. Occasionally, changes in lens design or prescription power may be required. Presbyopia results in a gradual loss of accommodation that may require annual or biannual visits, especially during the period of need for increases in near addition power. Regular follow-up over an extended period of time is generally required for patients with contact lenses. Additional follow-up visits may be required for some patients (e.g., patients new to optical correction, patients who have a history of difficulties adapting to visual correction). The frequency and composition of follow-up visits for the various forms of presbyopia are summarized in Table 2 (adapted from Figure 3 in the Guideline).
<table>
<thead>
<tr>
<th>Type of Patient</th>
<th>Description</th>
<th>Etiology</th>
<th>Signs, Symptoms and Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incipient</td>
<td>Patient performs well visually on testing but requires extra effort to read small print</td>
<td>Changes in elasticity of capsule and lens, Changes in overall size and shape of lens</td>
<td>Small print is read with effort, Beginning gradual decrease in accommodative ability, One or more of the symptoms listed below in the functional presbyopia section may be reported on an occasional basis.</td>
</tr>
<tr>
<td>Function</td>
<td>Patient reports visual difficulties confirmed by clinical findings</td>
<td>Continuous gradual decline in accommodative amplitude, Continued near task demands</td>
<td>Blurred vision and inability to see fine details at customary working distance, Delays in focusing at near or distance, Ocular discomfort, headache or asthenopia, Squinting, Fatigue or drowsiness from near work, Need for increased working distance, Need for brighter light for reading, Diplopia, Decreased amplitude of accommodation, Increased exophoria and reduced positive fusional vergence</td>
</tr>
<tr>
<td>Absolute</td>
<td>Occurs when functional presbyopia progresses until virtually no accommodative ability remains</td>
<td>Functional presbyopia</td>
<td>Exacerbation of same signs and symptoms as above, Lack of accommodative ability, If untreated, a significant visual disability is likely to develop</td>
</tr>
<tr>
<td>Premature</td>
<td>Accommodative ability becomes insufficient for patient’s usual near vision tasks at an earlier age than expected</td>
<td>Environmental, nutritional, disease-related or drug-induced causes</td>
<td>Same signs and symptoms for functional presbyopia but developing earlier than age 40, Insufficient accommodative ability to perform usual tasks</td>
</tr>
<tr>
<td>Nocturnal</td>
<td>Decrease in accommodative ability in dim light conditions</td>
<td>Increased pupil size, Decreased depth of field</td>
<td>Reduction in clear range of near vision and in accommodative ability in dim light</td>
</tr>
</tbody>
</table>
## TABLE 2*

### Frequency and Composition of Evaluation and Management Visits for Presbyopia

<table>
<thead>
<tr>
<th>Type of Patient</th>
<th>Number of Evaluation Visits</th>
<th>Treatment Options</th>
<th>Frequency of Followup Visits**</th>
<th>Composition of Followup Evaluations</th>
<th>Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Visual Acuity</td>
<td>Refraction</td>
<td>Accommodation/Vergence Testing</td>
</tr>
<tr>
<td>Incipient presbyopia</td>
<td>1-2</td>
<td>Optical correction; modify habits and environment</td>
<td>Every 1-2 yrs</td>
<td>Each visit</td>
<td>Each visit</td>
</tr>
<tr>
<td>Functional presbyopia</td>
<td>1-2</td>
<td>Optical correction</td>
<td>Every 1-2 yrs</td>
<td>Each visit</td>
<td>Each visit</td>
</tr>
<tr>
<td>Absolute presbyopia</td>
<td>1</td>
<td>Optical correction</td>
<td>Annually</td>
<td>Each visit</td>
<td>Each visit</td>
</tr>
<tr>
<td>Premature presbyopia</td>
<td>2-3</td>
<td>Optical correction; Medical management</td>
<td>3-6 mo</td>
<td>Each visit</td>
<td>p.r.n.</td>
</tr>
<tr>
<td>Nocturnal presbyopia</td>
<td>1-2</td>
<td>Optical correction; Modify habits and environment</td>
<td>Every 1-2 yrs</td>
<td>Each visit</td>
<td>Each visit</td>
</tr>
</tbody>
</table>

p.r.n. = as necessary

*Adapted from Figure 3 in the Optometric Clinical Practice Guideline on Care of the Patient with Presbyopia.

**Patients prescribed contact lenses may require more frequent followup to monitor eye health and lens performance.