PEDIATRIC OPHTHALMOLOGY/STRABISMUS SUMMARY BENCHMARKS FOR PREFERRED PRACTICE PATTERN® GUIDELINES

Introduction

These are summary benchmarks for the Academy's Preferred Practice Pattern® (PPP) guidelines. The Preferred Practice Pattern series of guidelines has been written on the basis of three principles.

- Each Preferred Practice Pattern should be clinically relevant and specific enough to provide useful information to practitioners.
- Each recommendation that is made should be given an explicit rating that shows its importance to the care process.
- Each recommendation should also be given an explicit rating that shows the strength of evidence that supports the recommendation and reflects the best evidence available.

Preferred Practice Patterns 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 Preferred Practice Patterns 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.

The 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.

For each major disease condition, recommendations for the process of care, including the history, physical exam and ancillary tests, are summarized, along with major recommendations for the care management, follow-up, and education of the patient. For each PPP, a detailed literature search of PubMed and the Cochrane Library for articles in the English language is conducted. The results are reviewed by an expert panel and used to prepare the recommendations, which are then given a rating that shows the strength of evidence when sufficient evidence exists.

To rate individual studies, a scale based on the Scottish Intercollegiate Guideline Network (SIGN) is used. The definitions and levels of evidence to rate individual studies are as follows:

- I++: High-quality meta-analyses, systematic reviews of randomized controlled trials (RCTs), or RCTs with a very low risk of bias
- I+: Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias
- I–: Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
- II++: High-quality systematic reviews of case-control or cohort studies; high-quality case-control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
- II+: Well-conducted case-control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
- II–: Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
- III: Nonanalytic studies (e.g., case reports, case series)

Recommendations for care are formed based on the body of the evidence. The body of evidence quality ratings are defined by Grading of Recommendations Assessment, Development and Evaluation (GRADE) as follows:

- Good quality (GQ): Further research is very unlikely to change our confidence in the estimate of effect
- Moderate quality (MQ): Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
- Insufficient quality (IQ): 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; any estimate of effect is very uncertain

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Key recommendations for care are defined by GRADE as follows:

- Strong recommendation (SR): Used when the desirable effects of an intervention clearly outweigh the undesirable effects or clearly do not
- Discretionary recommendation (DR): 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

In PPPs prior to 2011, the panel rated recommendations according to its importance to the care process. This "importance to the care process" rating represents care that the panel thought would improve the quality of the patient's care in a meaningful way. The ratings of importance are divided into three levels.

- Level A, defined as most important
- Level B, defined as moderately important
- Level C, defined as relevant but not critical

The panel also rated each recommendation on the strength of evidence in the available literature to support the recommendation made. The "ratings of strength of evidence" also are divided into three levels.

- Level I includes evidence obtained from at least one properly conducted, well-designed randomized controlled trial. It could include meta-analyses of randomized controlled trials.
- Level II includes evidence obtained from the following:
  - Well-designed controlled trials without randomization
  - Well-designed cohort or case-control analytic studies, preferably from more than one center
  - Multiple-time series with or without the intervention
- Level III includes evidence obtained from one of the following:
  - Descriptive studies
  - Case reports
  - Reports of expert committees/organizations (e.g., PPP panel consensus with external peer review)

This former approach, however, will eventually be phased out as the AAO adopted the SIGN and GRADE rating and grading systems.

The PPPs are intended to serve as guides in patient care, with greatest emphasis on technical aspects. In applying this knowledge, it is essential to recognize that true medical excellence is achieved only when skills are applied in a such a manner that the patients' needs are the foremost consideration. The AAO is available to assist members in resolving ethical dilemmas that arise in the course of practice. (AAO Code of Ethics)

Amblyopia (Initial and Follow-up Evaluation)

Initial Exam History (Key elements)

- Ocular symptoms and signs [A:III]
- Ocular history [A:III]
- Systemic history, including review of prenatal, perinatal, and postnatal medical factors [A:III]
- Family history, including eye conditions and relevant systemic diseases [A:III]

Initial Physical Exam (Key elements)

- Assessment of fixation pattern and visual acuity [A:III]
- Binocular alignment and ocular motility [A:III]
- Binocular red reflex (Brückner) test [A:III]
- Pupillary examination [A:III]
- External examination [A:III]
- Anterior segment examination [A:III]
- Cycloplegic retinoscopy/refraction [A:III]
- Funduscopic examination [A:III]

Care Management

- All children with amblyopia should be offered an attempt at treatment regardless of age [A:III]
- Choose treatment based on patient's age; visual acuity; adherence with previous treatment; and physical, social, and psychological status [A:III]
- Treatment goal is equal visual acuity between the two eyes [A:III]
- Once maximal visual acuity has been obtained, treatment should be tapered and eventually stopped [A:III]

Follow-Up Evaluation

- Follow-up visits should include:
  - Interval history [A:III]
  - Adherence to treatment plan [A:III]
  - Side effects of treatment [A:III]
  - Visual acuity of each eye [A:III]
- Follow-up examination generally arranged 2 to 3 months after initiation of treatment [A:III]
- Timing varies according to intensity of treatment and age of child [A:III]
- Continued monitoring required because about one-fourth of children successfully treated experience a recurrence within the first year after treatment has stopped [A:III]

Patient Education

- Discuss diagnosis, severity of disease, prognosis and treatment plan with patient, parents and/or caregivers [A:III]
- Explain the disorder and recruit the family in a collaborative approach to therapy [A:III]

Esotropia (Initial and Follow-up Evaluation)

Initial Exam History (Key elements)

- Ocular symptoms and signs [A:III]
- Ocular history (date of onset and frequency of the deviation, presence or absence of diplopia) [A:III]
- Systemic history (review of prenatal, perinatal and postnatal medical factors) [A:III]
- Family history (strabismus, amblyopia, type of eyeglasses and history of wear, extraocular muscle surgery, genetic diseases) [A:III]

Initial Physical Exam (Key elements)

- Fixation pattern and visual acuity [A:III]
- Binocular alignment (at distance and near) [A:III]
- Extraocular muscle function [A:III]
- Monocular and binocular optokinetic nystagmus testing for nasal-temporal pursuit asymmetry [A:III]
- Detection of latent or manifest nystagmus [A:III]
- Sensory testing [A:III]
- Cycloplegic retinoscopy/refraction [A:III]
- Fundoscopic examination [A:III]

Care Management

- Consider all forms of esotropia for treatment and re-establish ocular alignment as soon as possible [A:III]
- Prescribe corrective lenses for any clinically significant refractive error [A:I]
- If eyeglasses and amblyopia management are ineffective in aligning the eyes, then surgical correction is indicated [A:III]
- Start amblyopia treatment before surgery to alter angle of strabismus and/or increase likelihood of binocularity [A:III]

Follow-Up Evaluation

- Periodic evaluations necessary because of risk of developing amblyopia losing binocular vision, and recurrence [A:II]
- Children who are well-aligned and do not have amblyopia may be followed every 4 to 6 months [A:III]
- Frequency of follow-up visits can be reduced as child matures [A:II]
- New or changing findings may indicate need for more frequent follow-up examinations [A:III]
- Hyperopia should be assessed at least annually and more frequently if visual acuity decreases or esotropia increases [A:III]
- Repeat cyclopegic refraction is indicated when esotropia does not respond to initial prescription of hyperopic refraction or when esotropia recurs after surgery [A:II]

Patient Education

- Discuss findings with the patient when appropriate and/or parents/caregivers to enhance understanding of disorder and to recruit them in a collaborative approach to therapy [A:III]
- Formulate treatment plans in consultation with the patient and/or family/caregivers [A:III]

Exotropia (Initial and Follow-up Evaluation)

Initial Exam History (Key elements)

- Ocular symptoms and signs [A:III]
- Ocular history (date of onset and frequency of the deviation, presence or absence of diplopia) [A:III]
- Systemic history (review of prenatal, perinatal and postnatal medical factors) [A:III]
- Family history (strabismus, amblyopia, type of eyeglasses and history of wear, extraocular muscle surgery, genetic diseases) [A:III]

Initial Physical Exam (Key elements)

- Fixation pattern and visual acuity [A:III]
- Binocular alignment (at distance and near) [A:III]
- Extraocular muscle function [A:III]
- Detection of latent or manifest nystagmus [A:III]
- Sensory testing [A:III]
- Cycloplegic retinoscopy/refraction [A:III]
- Fundoscopic examination [A:III]

Care Management

- All forms of exotropia should be monitored and some will require treatment [A:III]
- Young children with intermittent exotropia and good fusional control can be followed without surgery [A:II]
- Deviations that are present most or all of the time require treatment [A:III]
- Prescribe corrective lenses for any clinically significant refractive error [A:III]
- Optimal modes of therapy are not well established

Follow-up Evaluation

- Frequency of follow-up evaluations is based on age of child, ability to obtain an accurate visual acuity, and control of the deviation [A:III]
- Children with good fusional control of intermittent exotropia and without amblyopia are typically examined every 6 to 12 months [A:III]
- Intervals are reduced once visual maturity is reached [A:III]
- Includes interval history, adherence to treatment (if any), and assessment of ocular motility [A:III]

Patient Education

- Discuss findings with the patient when appropriate and/or parents/caregivers to enhance understanding of disorder and recruit them in a collaborative approach to therapy [A:III]
- Formulate treatment plans in consultation with the patient and/or family/caregivers [A:III]