



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)



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Introduction *(continued)*

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

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

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)

Keratorefractive Surgery (Initial and Follow-up Evaluation)

Initial Exam History

- Present status of visual function
- Refractive error progression
- Prior correction, including contact lens wear
- Ocular history
- Systemic history
- Medications

Initial Physical Exam

- Distance and near visual acuity for each eye separately, with and without correction
- Cycloplegic refraction if accommodation cannot be relaxed, symptoms are not consistent with manifest refractive error and when accuracy of refraction is in question
- Computerized corneal topography/tomography
- Central corneal thickness measurement
- Evaluation of tear film and ocular surface
- Evaluation of ocular motility and alignment

Care Management

- Discontinue contact lenses before preoperative exam and procedure
- Inform patient of the potential risks, benefits, and alternatives to and among the different refractive procedures
- Document informed consent process; patient should be given an opportunity to have all questions answered before surgery, including costs
- Formulate a postoperative care plan and inform the patient of these arrangements
- Check and calibrate all instrumentation before the procedure

Postoperative Care

- Operating surgeon is responsible for the preoperative assessment and postoperative management
- For surface ablation techniques, examination on the day following surgery is advisable and every several days thereafter until the epithelium is healed
- For uncomplicated LASIK, examine within 36 hours following surgery, a second visit 1 to 4 weeks postoperatively, and further visits thereafter as appropriate

- Provide patients with a record or that the ophthalmologist maintains a record that lists the patient's eye condition, including preoperative keratometry readings and refraction, as well as stable postoperative refractions, so that it will be available if the patient requires cataract surgery or additional eye care

Patient Education

Discuss the risks and benefits of the planned procedure with the patient. Elements of the discussion include the following:

- Range of expected refractive outcomes
- Residual refractive error
- Reading and/or distance correction postoperatively
- Loss of or change to uncorrected habitual near visual function
- Monovision advantages and disadvantages (for patients of presbyopic age)
- Loss of best-corrected visual acuity
- Side effects and complications (e.g., microbial keratitis, sterile keratitis, keratectasia)
- Changes in visual function not necessarily measured by visual acuity testing, including glare and function under low-light conditions
- Night vision symptoms (e.g., glare, haloes) developing or worsening; careful consideration should be given to this issue for patients with high degrees of ametropia or for individuals who require a high level of visual function in low-light conditions
- Effect on ocular alignment
- Development or exacerbation of dry eye symptoms
- Recurrent erosion syndrome
- Advantages and disadvantages of same-day bilateral keratorefractive surgery versus sequential surgery. Because vision might be poor for some time after bilateral same-day photorefractive keratectomy, the patient should be informed that activities such as driving might not be possible for weeks.
- Possibility that it may influence predictive accuracy of IOL calculations for subsequent cataract surgery