



Complete Summary

GUIDELINE TITLE

Screening examination of premature infants for retinopathy of prematurity.

BIBLIOGRAPHIC SOURCE(S)

Screening examination of premature infants for retinopathy of prematurity.
Pediatrics 2001 Sep; 108(3): 809-11. [10 references] [PubMed](#)

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SCOPE

DISEASE/CONDITION(S)

Retinopathy of prematurity

GUIDELINE CATEGORY

Diagnosis
Management
Screening

CLINICAL SPECIALTY

Family Practice
Nursing
Ophthalmology
Pediatrics

INTENDED USERS

Advanced Practice Nurses
Health Care Providers

Hospitals
Physicians

GUIDELINE OBJECTIVE(S)

To outline principles on which a screening program to detect retinopathy of prematurity (ROP) might be based and to present guidelines for the United States

TARGET POPULATION

Low birth weight premature infants in the United States

INTERVENTIONS AND PRACTICES CONSIDERED

Screening Examination and Management of Retinopathy of Prematurity

1. Carefully timed fundus examination after pupillary dilation using binocular indirect ophthalmoscopy
2. Ablative therapy
3. Parental counseling
4. Follow-up after hospital transfer or discharge

MAJOR OUTCOMES CONSIDERED

- Occurrence of posterior retinal traction folds or detachments
- Blindness

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

- Infants with a birth weight of less than 1500 g or with a gestational age of 28 weeks or less, as well as selected infants between 1500 and 2000 g with an unstable clinical course who are believed to be at high risk by their attending pediatrician or neonatologist, should have at least 2 fundus examinations performed after papillary dilation using binocular indirect ophthalmoscopy to detect retinopathy of prematurity (ROP). One examination is sufficient only if it unequivocally shows the retina to be fully vascularized bilaterally.
- Examination for ROP should be performed by an ophthalmologist with sufficient regular experience and knowledge in the examination of preterm infants for ROP to identify the location and sequential retinal changes in this disorder using binocular indirect ophthalmoscopy. The location and sequential retinal changes, if any, should be recorded using the International Classification of Retinopathy of Prematurity (Committee for the Classification of Retinopathy of Prematurity, 1984).
- The first examination should normally be performed between 4 and 6 weeks of chronologic (postnatal) age or, alternatively, within the 31st to 33rd week of postconceptional or postmenstrual age (gestational age at birth plus

- chronologic age), whichever is later, as determined by the infant's attending pediatrician or neonatologist. If using the postconceptional age guideline, examinations are generally not needed in the first 4 weeks after birth. The timing of the initial screening examination may be adjusted appropriately on the basis of other reliable data, such as local incidence and onset of ROP or the presence of other recognized risk factors (Committee for the Classification of Retinopathy of Prematurity, 1984; Hussain, Clive, & Bhandari, 1999). The initial screening examination and subsequent examinations should be timed to permit sufficient time for treatment, including, any extra time required for transfer to another facility for treatment, if necessary. Treatment should generally be accomplished within 72 hours of determination of the presence of threshold 1 ROP to minimize the risk of retinal detachment before treatment.
- Scheduling of follow-up examinations at the recommendation of the examining ophthalmologist is best determined by the findings at the first examination using the International Classification of Retinopathy of Prematurity.
 - Once an infant has been determined on first examination to be at risk for ROP, the following schedule is suggested:
 - A. Infants with ROP that may soon progress to threshold ROP should be examined at least weekly. These include:
 1. Any infant with ROP less than threshold in zone I
 2. Infants with ROP in zone II, including:
 - a. those with stage 3 ROP without plus disease (defined as posterior pole dilation and tortuosity of the retinal vessels);
 - b. those with stage 2 ROP with plus disease; and
 - c. those with stage 3 ROP with plus disease not yet extensive enough to justify ablative surgery.
 - B. Infants with less severe ROP in zone II should be examined at 2-week intervals. Those without ROP but with incomplete vascularization in zone I should be seen at 1- to 2-week intervals until retinal vascularization has reached zone III or until threshold conditions are reached
 - C. If the retinal vascularization is incomplete in zone II but no ROP is detected, follow-up examination should be planned at approximately 2- to 3-week intervals until vascularization proceeds into zone III.
 - D. Retinas with incomplete vascularization only in zone III usually mature completely; ROP in zone III normally regresses (involutes) without adverse consequences. However, the finding of normal vascularization in zone III is unusual in the initial examination of very low gestational age infants. In cases in which zone III vascular maturation seems to be present on initial examination of very low birth weight infants, this finding should be verified by at least 1 repeat examination within 2 to 3 weeks.
 - Infants reaching threshold 1 disease (stage 3 ROP in zone I or II in 5 or more continuous clock hours or 8 cumulative clock hours [30-degree sectors] with plus disease [posterior retinal vessel dilation and tortuosity]) should receive ablative therapy for at least 1 eye within 72 hours of diagnosis, generally before the onset of retinal detachment. Stage 3 ROP with vascularization in zone I or borderline zone I to II may appear different from purely zone II stage 3 disease in that proliferation may appear flat, only appearing to be significantly elevated when it has become extremely severe. In view of this

difficulty in distinguishing between stages 2 and 3 in posterior regions, infants with suspected stage 3 ROP in zone I or border zone I to II with plus disease should be examined especially carefully to determine if they meet the threshold criteria noted above.

- Parents of infants with ROP should be informed of the nature and possible consequences of this disorder throughout the infant's hospital stay, beginning at the time of first diagnosis and continuing on an ongoing basis with updates on its progression during hospitalization.
- Responsibility for examination and follow-up of infants at risk for ROP must be carefully defined by each neonatal intensive care unit. Unit-specific criteria for examination for ROP should be established for each neonatal intensive care unit by consultation and agreement between neonatology and ophthalmology services. These criteria should be recorded and should automatically trigger scheduled ophthalmology examinations.
- Follow-up
 - A. If hospital discharge or transfer to another neonatal unit or hospital is contemplated before retinal maturation into zone III has taken place, the availability of appropriate follow-up ophthalmologic examination must be ensured, and specific arrangement for that examination must be made before such discharge or transfer occurs.
 - B. The transferring primary physician should have the responsibility of communicating orally and in writing what eye examinations are needed and their required timing to the infant's new primary physician.
 - C. The new primary physician should ascertain the current ocular examination status of the infant from the record and through communication with the transferring physician so that any necessary examinations by an ophthalmologist with regular experience and knowledge of the examination of preterm infants for ROP can be arranged promptly at the receiving facility.
 - D. If responsibility for arranging follow-up after discharge is delegated to the parents, it must be clearly understood by the parents that blindness is a possible outcome, that there is a critical time window to be met if treatment is to be successful, and that timely follow-up examination is essential to successful treatment; this information should be transmitted to the parents orally and in writing.
 - E. If arrangement for follow-up after transfer or discharge cannot be made, the infant should not be transferred or discharged.

These recommendations replace the previous American Academy of Pediatrics statement on ROP (American Academy of Pediatrics, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus, 1997), are evolving, and may be modified as additional ROP risk factors, treatment, and long-term outcomes are known.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Identification of the relatively few preterm infants who require treatment for retinopathy of prematurity from among the much larger number born each year while minimizing the number of stressful examinations required for these sick infants.
- Decrease in the incidence of blindness in low birth weight premature infants

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
- Any screening program designed to implement an evolving standard of care has inherent defects, such as overreferral or underreferral, and cannot, by its nature, duplicate the precision and rigor of a scientifically based clinical trial.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Screening examination of premature infants for retinopathy of prematurity. Pediatrics 2001 Sep; 108(3):809-11. [10 references] [PubMed](#)

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001 Sep

GUIDELINE DEVELOPER(S)

American Academy of Ophthalmology - Medical Specialty Society
American Academy of Pediatrics - Medical Specialty Society
American Association for Pediatric Ophthalmology and Strabismus - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

GUIDELINE COMMITTEE

Retinopathy of Prematurity Subcommittee

Section on Ophthalmology

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

AAP Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Pediatrics \(AAP\) Policy Web site](#).

Print copies: Available from AAP, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 15, 2003. The information was verified by the guideline developer on June 9, 2003.

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