



Complete Summary

GUIDELINE TITLE

Radiation disasters and children.

BIBLIOGRAPHIC SOURCE(S)

Radiation disasters and children. Pediatrics 2003 Jun;111(6 Pt 1):1455-66. [70 references] [PubMed](#)

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.

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SCOPE

DISEASE/CONDITION(S)

- Radiation exposure
- Short-term effects of radiation such as nausea and vomiting, anemia, infection, generalized bleeding, thermal injuries
- Long-term effects of radiation such as thyroid cancer, thyroid adenoma, leukemia, chronic fear and anxiety

GUIDELINE CATEGORY

Counseling
Management
Prevention
Screening

CLINICAL SPECIALTY

Emergency Medicine
Endocrinology
Family Practice
Oncology
Pediatrics

INTENDED USERS

Health Care Providers
Hospitals
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

To present guidelines for pediatricians and government organizations on how to prepare for radiation disasters and how to manage children exposed to radiation

TARGET POPULATION

Children exposed to radiation

INTERVENTIONS AND PRACTICES CONSIDERED

Preparation for a Radiation Disaster

1. Local planning for a possible radiation disaster including creation of disaster management protocols, education of first responders and health care professionals, and acquisition of appropriate equipment and supplies
2. Providing potassium iodide (KI) to all citizens living within 10 miles of a nuclear power plant, developing evacuation and sheltering plans, establishing nuclear disaster response teams
3. Establishing the threshold radiation concentration that would require evacuation, and providing education for the public

Management/Treatment

1. Initiation of the emergency broadcast system
2. Implementation of evacuation and sheltering plans
3. Diagnostic measures such as nasal and skin swabs, urine and stool analysis, complete blood cell and platelet counts, absolute lymphocyte count, HLA antigen subtyping, and lymphocyte cytogenetics

4. Topical decontamination of children, establishing a site for the placement of contaminated clothing, preventing hypothermia, management of skin burns
5. Pharmacotherapy with KI

Note: Other drugs have been suggested but have not been proven effective or without serious adverse effects.

6. Thyroid function monitoring
7. Management of psychological harm to children, including screening children for the presence of anxiety and stress, providing advice to parents and supportive counseling to children, and referring children for mental health services as needed

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Systematic searches of electronic databases for original research papers and evidence reviews were performed. In addition, all major textbooks and monographs were obtained.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

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 applicable

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

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendations for Pediatricians

1. Pediatricians should increase their knowledge about emergency medical aspects of radiation exposure.
2. Pediatricians should become familiar with local preparedness and evacuation protocols and work with public health agencies on their development.
3. Pediatricians should assist local schools and child care facilities in developing protocols to reunite children with their parents in the event of a disaster.
4. All children at risk should receive potassium iodide (KI) before exposure, if possible, or immediately afterward. This will require that KI be available in homes located within 10 miles of a nuclear power plant. Child care facilities and schools within 10 miles of a nuclear power plant should plan to stockpile the agent. It may be prudent to consider stockpiling KI within a larger radius because of more distant windborne fallout, as occurred after Chernobyl; this will be determined by local and national public health authorities. For KI dosage and administration information refer to table 2 in the original guideline document.
5. The risks and benefits of using KI should be discussed with parents. KI is available without a prescription, and families should be cautioned against using the medication before consulting with authorities.
6. Because radioiodines pass into breast milk, pediatricians should caution lactating mothers not to breastfeed their infants after the release of radioiodines, unless no alternative is available. The restriction is temporary, until public health authorities declare it safe to go back to breastfeeding.

Public health authorities will also advise about the safe consumption of produce and milk after a radiation disaster.

7. The pediatrician should recognize and respond to the psychosocial consequences of disasters in children (National Council on Radiation Protection and Measurements, 2001; American Academy of Pediatrics, 1999; American Academy of Pediatrics, 2000).

Recommendations for Government

1. Pediatricians should be included in all aspects of planning for a radiation disaster. Disaster planning exercises should include pediatric casualties and victims with mock psychologic injuries.
2. Future sites for nuclear power facility construction should be selected to minimize the risk to populations. For existing power plants in populated regions, an accelerated timeline for decommissioning should be considered.
3. Guidelines for the population radius within which to recommend KI stockpiling should be developed; distribution plans should also be created.
4. The Food and Drug Administration (FDA) should facilitate the development of a pediatric preparation of KI.
5. Plans should be developed for rapid communication with the public about evacuation versus sheltering, the safety of breast milk, and local food consumption.
6. Government planners should make mental health a high priority in the response plan for a radiation incident.

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 supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate management of children exposed to radiation
- When taken promptly after a radioiodine release and at proper dose, potassium iodide (KI) is effective in preventing radiation-induced thyroid effects.

POTENTIAL HARMS

Side effects of potassium iodide (KI)

CONTRAINDICATIONS

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Potassium iodide (KI) should not be given to individuals with known iodine sensitivity or to those with dermatitis herpetiformis or hypocomplementemic vasculitis. KI should be used with caution in individuals with thyroid disease (such as multinodular goiter, Graves disease, and autoimmune thyroiditis), especially if dosing extends beyond a few days. Such individuals should have monitoring of thyroid function.

QUALIFYING STATEMENTS

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The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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
Safety
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: Guideline was not adapted from another source.

DATE RELEASED

2003 Jun

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

GUIDELINE COMMITTEE

Committee on Environmental Health

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Members of the Committee on Environmental Health, 2002-2003: *Sophie J. Balk, MD (Chairperson); Dana Best, MD, MPH; Christine L. Johnson, MD; Janice J. Kim, MD, PhD, MPH; Lynnette J. Mazur, MD, MPH; David W. Reynolds, MD; James R. Roberts, MD, MPH; *Michael W. Shannon, MD, MPH; William B. Weil, Jr, MD

Liaisons: Robert W. Amler, MD (Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry); Elizabeth Blackburn, RN (US Environmental Protection Agency); Martha Linet, MD (National Cancer Institute); *Robert W. Miller, MD, DrPH (National Cancer Institute); Walter Rogan, MD (National Institute of Environmental Health Sciences)

Staff: Paul Spire

**Lead authors*

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

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

Print copies: Available from American Academy of Pediatrics, 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 summary was completed by ECRI on December 11, 2003. The information was verified by the guideline developer on February 2, 2004.

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