Guideline on Prescribing Dental Radiographs for Infants, Children, Adolescents, and Persons With Special Health Care Needs

Originating Committee
Ad Hoc Committee on Pedodontic Radiology

Review Council
Council on Clinical Affairs

Adopted
1981

Reaffirmed
1997

Revised
1992, 1995, 2001, 2005

Purpose

The American Academy of Pediatric Dentistry (AAPD) intends this guideline to help practitioners make clinical decisions concerning appropriate selection of dental radiographs as part of an oral evaluation of infants, children, adolescents, and persons with special health care needs. The guideline can be used to optimize patient care, minimize radiation burden, and allocate health care resources responsibly.

Methods

The American Dental Association (ADA) initiated a review of *The Selection of Patients for X-ray Examinations: Dental Radiographic Examinations*[1] in 2002. The AAPD, along with other dental specialty organizations, participated in the review and revision of these guidelines. The ADA then submitted the recommendations to the Food and Drug Administration (FDA), which accepted them in November 2004.[2] The AAPD endorses the revised guidelines for prescribing dental radiographs.

Background

Radiographs are valuable aids in the oral health care of infants, children, adolescents, and persons with special health care needs. They are used to diagnose oral diseases and to monitor dentofacial development and the progress of therapy. The recommendations in the ADA/FDA guidelines were developed to serve as an adjunct to the dentist's professional judgment. The timing of the initial radiographic examination should not be based upon the patient's age, but upon each child's individual circumstances. Because each patient is unique, the need for dental radiographs can be determined only after reviewing the patient's medical and dental histories, completing a clinical examination, and assessing the patient's vulnerability to environmental factors that affect oral health.

Radiographs should be taken only when there is an expectation that the diagnostic yield will affect patient care. The AAPD recognizes that there may be clinical circumstances for which a radiograph is indicated, but a diagnostic image cannot be obtained. For example, the patient may be unable to cooperate or the dentist may have privileges in a health care facility lacking intraoral radiographic capabilities. If radiographs of diagnostic quality are unobtainable, the dentist should confer with the parent to determine appropriate management techniques (eg, preventive/restorative interventions, advanced behavior guidance modalities, deferral, referral), giving consideration to the relative risks and benefits of the various treatment options for the patient.

Because the effects of radiation exposure accumulate over time, every effort must be made to minimize the patient's exposure. Good radiological practices (eg, use of lead apron, thyroid collars, and high-speed film; beam collimation) are important. The dentist must weigh the benefits of obtaining radiographs against the patient's risk of exposure.

Recommendations

The recommendations of the ADA/FDA guidelines are contained within the following table. "The recommendations in this chart are subject to clinical judgment and may not apply to every patient. They are to be used by dentists only after reviewing the patient's health history and completing a clinical examination. Because every precaution should be taken to minimize radiation exposure, protective thyroid collars and aprons should be used whenever possible. This practice is strongly recommended for children, women of childbearing age, and pregnant women."[2]

References

1. Joseph LP. *The Selection of Patients for X-ray Examinations: Dental Radiographic Examinations.* Rockville, Md: The Dental Radiographic Patient Selection Criteria Panel, US Dept of Health and Humans Services, Center for Devices and Radiological Health; 1987. HHS Publication No. FDA 88-8273.
2. American Dental Association, US Dept of Health and Humans Services. The selection of patients for dental radiographic examinations—2004. Available at: http://www.ada.org/prof/resources/topics/radiography.asp. Accessed February 15, 2005.

Type of Encounter	Patient Age and Dental Developmental Stage				
	Child with Primary Dentition (prior to eruption of first permanent tooth)	**Child with Transitional Dentition** (after eruption of first permanent tooth)	**Adolescent with Permanent Dentition** (prior to eruption of third molars)	**Adult Dentate or Partially Edentulous**	**Adult Edentulous**
New patient* being evaluated for dental diseases and dental development	Individualized radiographic exam consisting of selected periapical/occlusal views and/or posterior bitewings if proximal surfaces cannot be visualized or probed. Patients without evidence of disease and with open proximal contacts may not require a radiographic exam at this time.	Individualized radiographic exam consisting of posterior bitewings with panoramic exam or posterior bitewings and selected periapical images.	Individualized radiographic exam consisting of posterior bitewings with panoramic exam or posterior bitewings and selected periapical images. A full mouth intraoral radiographic exam is preferred when the patient has clinical evidence of generalized dental disease or a history of extensive dental treatment.		Individualized radiographic exam, based on clinical signs and symptoms.
Recall patient* with clinical caries or increased risk for caries**	Posterior bitewing exam at 6-12 month intervals if proximal surfaces cannot be examined visually or with a probe			Posterior bitewing exam at 6-18 month intervals	Not applicable
Recall patient* with no clinical caries and no increased risk for caries**	Posterior bitewing exam at 12-24 month intervals if proximal surfaces cannot be examined visually or with a probe		Posterior bitewing exam at 18-36 month intervals	Posterior bitewing exam at 24-36 month intervals	Not applicable
Recall patient* with periodontal disease	Clinical judgment as to the need for and type of radiographic images for the evaluation of periodontal disease. Imaging may consist of, but is not limited to, selected bitewing and/or periapical images of areas where periodontal disease (other than nonspecific gingivitis) can be identified clinically.				Not applicable
Patient for monitoring of growth and development	Clinical judgment as to need for and type of radiographic images for evaluation and/or monitoring of dentofacial growth and development		Clinical judgment as to need for and type of radiographic images for evaluation and/or monitoring of dento-facial growth and development. Panoramic or periapical exam to assess developing third molars	Usually not indicated	
Patient with other circumstances including, but not limited to, proposed or existing implants, pathology, restorative/endodontic needs, treated periodontal disease and caries remineralization	Clinical judgment as to need for and type of radiographic images for evaluation and/or monitoring in these conditions				

***Clinical situations for which radiographs may be indicated include but are not limited to:**

A. Positive Historical Findings

1. Previous periodontal or endodontic treatment
2. History of pain or trauma
3. Familial history of dental anomalies
4. Postoperative evaluation of healing
5. Remineralization monitoring
6. Presence of implants or evaluation for implant placement

B. Positive Clinical Signs/Symptoms

1. Clinical evidence of periodontal disease
2. Large or deep restorations
3. Deep carious lesions
4. Malposed or clinically impacted teeth
5. Swelling
6. Evidence of dental/facial trauma
7. Mobility of teeth
8. Sinus tract ("fistula")
9. Clinically suspected sinus pathology
10. Growth abnormalities
11. Oral involvement in known or suspected systemic disease
12. Positive neurologic findings in the head and neck
13. Evidence of foreign objects
14. Pain and/or dysfunction of the temporomandibular joint
15. Facial asymmetry
16. Abutment teeth for fixed or removable partial prosthesis
17. Unexplained bleeding
18. Unexplained sensitivity of teeth
19. Unusual eruption, spacing or migration of teeth
20. Unusual tooth morphology, calcification or color
21. Unexplained absence of teeth
22. Clinical erosion

****Factors increasing risk for caries may include but are not limited to:**

1. High level of caries experience or demineralization
2. History of recurrent caries
3. High titers of cariogenic bacteria
4. Existing restoration(s) of poor quality
5. Poor oral hygiene
6. Inadequate fluoride exposure
7. Prolonged nursing (bottle or breast)
8. Frequent high sucrose content in diet
9. Poor family dental health
10. Developmental or acquired enamel defects
11. Developmental or acquired disability
12. Xerostomia
13. Genetic abnormality of teeth
14. Many multisurface restorations
15. Chemo/radiation therapy
16. Eating disorders
17. Drug/alcohol abuse
18. Irregular dental care

From: American Dental Association, U.S. Food & Drug Administration. The Selection of Patients For Dental Radiograph Examinations. Available on www.ada.org