Dental X-rays: Diagnostic tool or health hazard
Virtually everyone who visits the dentist will have X-rays (radiographs) taken at some point. It’s natural to be concerned about potential risks from too much exposure to radiation. However, it is important to understand that X-rays are an often necessary and important part of the dental health examination process. The potential benefits from early detection of problems far outweigh the risks when performed following standard guidelines.

X-rays allow dentists to see and interpret signs of disease or potential problems that are not visible to the naked eye. Avoiding X-rays could result in an inaccurate diagnosis or incomplete treatment. If dental problems are found and treated early, dental care is usually more comfortable and affordable.

Do X-rays cause cancer?
Dental X-rays have been in the news recently because of a new study in the American Cancer Society’s journal Cancer that suggests people who had more frequent and certain types of dental X-rays in the past may be at an increased risk for developing a meningioma, one of the most common types of diagnosed benign brain tumors. Delta Dental cautions consumers against being overly influenced by any one study featured in the news. In this case, the study results compared two groups of individuals, one group with a certain type brain tumor, a similar group without such a diagnosis. The results relied on these individuals’ ability to recall how many and what type of dental X-rays they received over the course of their lifetime, including decades ago in their youth. The study’s authors acknowledge the difficulties of asking individuals to recall past events without having dental records to draw from. Nevertheless, the authors’ findings provide an important reminder that cumulative exposure to even low-level radiation over a lifetime can negatively affect overall health.

Moderation is key
What is important is how often and how many dental X-rays should be taken for each individual. The American Dental Association (ADA) and the U.S. Food and Drug Administration (FDA) recommend that dentists follow the jointly developed ADA/FDA Guidelines for Prescribing Dental Radiographs. These guidelines were developed to serve as an aide to the dentist’s professional judgment of how to best use diagnostic imaging for each patient.
Many people believe that if their dental plan provides for X-rays at a given frequency, they should take advantage of that benefit. However, for most patients this yearly X-ray exposure is unnecessary. Dental X-rays should only be utilized by those individuals that the dentist determines may need that additional information to make a proper diagnosis.

New technologies may increase or decrease the overall radiation exposure from dental images. Today, dental offices use several safeguards to protect patients from unnecessary X-ray exposure, such as lead body aprons and modern X-ray equipment, using high speed film or digital X-rays. For example, digital X-ray technology requires as little as 10 to 20 percent of the amount of radiation needed to create a traditional X-ray image on film. On the other hand, one popular new technology that actually increases radiation exposure is cone beam computed tomography (cone-beam CT). Cone-beam CT is a type of X-ray that produces three-dimensional images that can be valuable in specific instances, but typically exposes an individual to significantly more radiation than conventional X-rays.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>First visit</th>
<th>Active tooth decay or history of cavities</th>
<th>No active tooth decay or history of cavities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young children, with no permanent teeth</td>
<td>Personalized exam consisting of bitewing and select individual films or a panoramic X-ray</td>
<td>Bitewing X-rays every six to 12 months</td>
<td>Bitewing X-rays every 12 to 24 months</td>
</tr>
<tr>
<td>Older children, with permanent teeth</td>
<td></td>
<td>Bitewing X-rays every six to 12 months</td>
<td>Bitewing X-rays every 18 to 36 months</td>
</tr>
<tr>
<td>Adolescent, with permanent teeth but no wisdom teeth</td>
<td></td>
<td>Bitewing X-rays every six to 18 months</td>
<td>Bitewing X-rays every 24 to 36 months</td>
</tr>
<tr>
<td>Adult, with all or most permanent teeth</td>
<td></td>
<td>Bitewing X-rays every six to 18 months</td>
<td>Bitewing X-rays every 24 to 36 months</td>
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Dental X-rays are safe and effective
Dental X-rays, whether digital or conventional, provide great value for the early and improved diagnosis of dental disease or conditions. In fact, dental X-rays used appropriately represent a smaller risk than undetected and untreated dental problems. See your dentist for regular checkups and expect that while X-rays may be necessary, routine practice guidelines and safety precautions make this important tool a safe and beneficial component of oral health care. If you are concerned about your potential radiation exposure from dental X-rays, discuss any concerns you have with your dentist.

For more information on X-rays and other oral health topics, visit Delta Dental’s oral health library at oralhealth.deltadental.com.