

Dear All,

April 2012

Recently, a study published in *Cancer*, the journal of the American Cancer Society, got picked up by national media. The study associated an increased risk of developing meningioma (a commonly diagnosed type of brain tumor) with dental X-rays. The American Dental Association (ADA) and the American Association of Pediatric Dentists (AAPD) released corresponding statements.

"The ADA has reviewed the study and notes that the results rely on the individuals' memories of having dental X-rays taken years earlier. Studies have shown that the ability to recall information is often imperfect. Therefore, the results of studies that use this design can be unreliable because they are affected by what scientists call "recall bias." Also, the study acknowledges that some of the subjects received dental X-rays decades ago when radiation exposure was greater. Radiation rates were higher in the past due to the use of old X-ray technology and slower speed film."

Please take the time to review the full ADA statement, <http://www.ada.org/6972.aspx>, and the statement from the AAPD, http://www.aapd.org/hottopics/news.asp?NEWS_ID=1450.

By comparison, the dental imaging equipment that is designed and manufactured by DEXIS today benefits from significantly advanced technology that provides superior clinical benefits at considerably lower radiation exposure for patients. In addition to advances in hardware, DEXIS provides proprietary imaging tools that offer choices to clinicians, allowing them to select the right image for the specific patient's needs based on their clinical evaluation and the radiation safety principle of ALARA (As Low as Reasonably Achievable).

The safety of our associates, customers, and patients is of our utmost concern, and this is why we follow stringent procedures for the design, manufacture, quality, and efficacy of our products. We are proud of the products we build and the benefits they deliver to the patients as well as the clinician.

The study is based on dental X-rays believed to be taken in the 1960s by equipment that was in use at that time (outdated X-ray and film technology).

- Modern dental imaging equipment significantly reduces radiation exposure to the patient when compared to equipment used even 25 years ago.
- Newer generation X-ray units reduce soft X-rays (lower energy particles) which are most harmful to sensitive tissues.
- Digital sensors can reduce the radiation required for an intra-oral image by more than 50% compared to film X-rays.

The DEXIS digital sensor provides clinical benefits while supporting the ALARA principles on the use of radiography:

- X-rays are an established and essential part of every dental clinical practice.
- Intra-oral X-rays provide valuable information that allows clinicians to better evaluate what is happening beneath the surface of teeth and gums.
- Intra-oral X-rays assist in precise diagnosis and treatment plans with the goal of better clinical outcomes.
- It is the dentist that will make a decision, based upon clinical evaluation, as to whether intra-oral X-rays are warranted and consistent with ALARA principles.

Radiation dose: Intra-oral sensors do not emit radiation (the source of the radiation is from the X-ray generator). Digital sensors require less radiation than film to produce an image. DEXIS sensors are uniquely designed to enable the dentist to further reduce radiation dose, thus exposing the patient to less radiation than other digital sensors.

- Relative radiation doses:
 - A digital sensor BW/PA is 0.004 – 0.006 mSv¹ (50 – 75% less than equivalent D-speed film image)
 - A D-speed film BW/PA is 0.017 mSv¹
 - A round-trip flight from London to LA is 0.16 mSv ~ equal to 10 panoramic X-rays²
- DEXIS has several resolution settings limiting the radiation required.
 - The DEXIS sensor uses the most advanced detector technology to minimize dose (CsI coatings, fiber optics, and the widest dynamic range available).
 - DEXIS uses advanced algorithms to minimize the dose required for an image.
- With every newly installed DEXIS sensor, DEXIS provides dentists with qualified in-office training. Our Certified Instructors educate on the proper use and functioning of the equipment and software.

1 European Commission. Radiation Protection 136. European Guidelines on Radiation Protection in Dental Radiology. Luxembourg: Office for Official Publications of the European Communities, 2004. http://ec.europa.eu/energy/nuclear/radioprotection/publication/dxcr/136_em.pdf

2 Optimisation of radiation protection for pediatric and adult patients in radiography and computed tomography. Geleijns, Jacob. Proceedings of Third European IRPA Congress, June 2010. <http://www.irpa2010europe.com/pdfs/proceedings/R.pdf>