# Radiation dose for different dental radiograph modalities

Asst. prof

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AKT: 0.01 µSv/h
MSG:
Menu

X-rays are a form of energy – like light and radio waves.

X-rays are also called radiation.

Unlike light waves, x-rays have enough energy to pass through your body.

As the radiation moves through your body, it passes through bones, tissues, and organs differently.

This allows a radiologist to create images of them.

When radiation passes through the body, some of it is absorbed.

The x-rays that are not absorbed are used to create the image.

The amount the patient absorbs contributes to the patient's radiation dose.

Radiation that passes through the body does not contribute to this dose.

The scientific unit of measurement for whole body radiation dose, called "effective dose," is the millisievert (mSv).

1Sv=1000 mili Sv =1000000 micro Sv

Doctors use "effective dose" when they talk about the risk of radiation to the entire body.

Risk refers to possible side effects, such as the chance of developing a cancer later in life.

Effective dose considers how sensitive different tissues are to radiation.

If you have an x-ray exam that includes tissues or organs that are more sensitive to radiation, your effective dose will be higher.

Effective dose allows your doctor to evaluate your risk and compare it to common, everyday sources of exposure, such as natural background radiation.

We are exposed to natural sources of radiation all the time.
According to recent estimates, the average person in the **U.S.** receives an effective dose of about **3 mSv per year** from natural radiation, which includes cosmic radiation from outer space.
These natural "background doses" vary according to where you live.

People living at high altitudes such as **Colorado or New Mexico** receive about **1.5 mSv per year** morethan those living near sea level.
A coast-to-coast round-trip airline flight is about 0.03 mSv due to exposure to cosmic rays.

To put it simply, the amount of radiation from one adult chest x-ray (0.1 mSv or 100 microsevert) is about the same as 10 days of natural background radiation that we are all exposed to as part of our daily living

The risk associated with medical imaging procedures refers to possible long-term or short-term side effects.

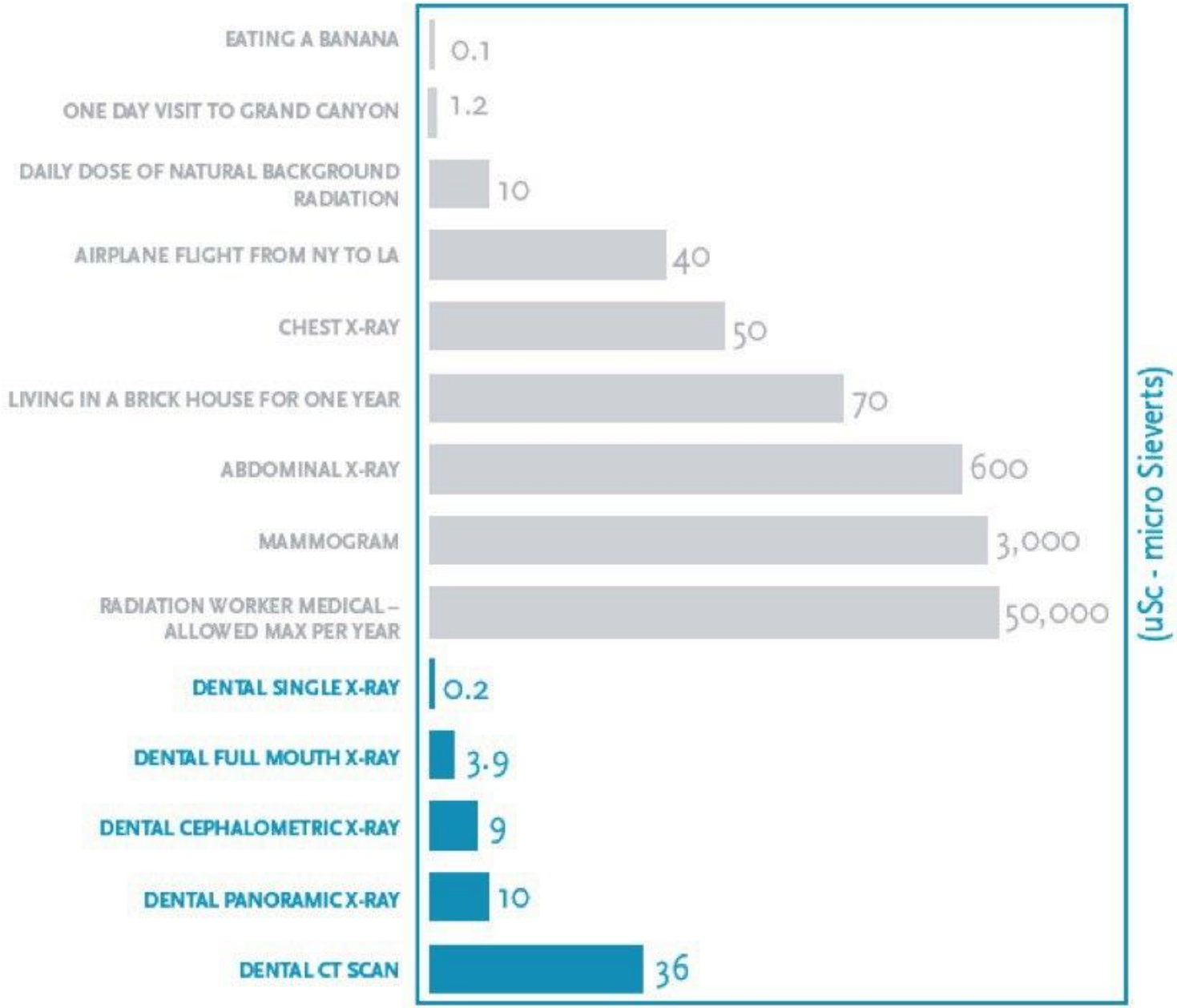
Most imaging procedures have a relatively low risk. Hospitals and imaging centers apply the principles of ALARA (As Low As Reasonably Achievable).

This means they make every effort to decrease radiation risk.

It is important to remember that a person is at risk if the doctor cannot accurately diagnose an illness or injury.

Therefore, it could be said that the benefit from medical imaging, which is an accurate diagnosis, is greater than the small risk that comes with using it.

# HOW MUCH RADIATION AM I GETTING?



intraoral dental X ray imaging procedure 0.2 μSv
Full mouth 4 μSv

panoramic examinations 10-20 µSv;
cephalometric examinations 9µSv,


CBCT 36 µSv

Dosimetry is the measurement of quantity of radiation exposure or amount of energy absorbed per unit mass at an interest site.

Radiation cannot be perceived by our normal senses, such as sight, touch or smell.

Varieties of techniques are available by which the detection of radiation dose is possible

Although some medical treatments such as X-Rays and CT scans will exposure you to higher levels, which cause you to exceed the annual dose limit guideline.

However, keep in mind that 20 mSv per annual is the guideline for any radiation worker and this is still considered a very safe levels.

* There is documented evidence associating an accumulated dose of 90 mSv from two or three CT scans with an increased risk of cancer