

# RADIATION DOSE PATIENT INFORMATION

## WHICH DIAGNOSTIC IMAGING PROCEDURES USE RADIATION?

- **X-ray procedures:** X-rays pass through the body to form pictures on a computer monitor, which are viewed by a radiologist.
- **Computed Tomography (CT) exams:** A special X-ray machine takes cross-sectional images of the body, which provide greater detail than traditional X-ray images.
- **Interventional procedures:** Physicians use fluoroscopy to guide procedures inside the body.
- **Nuclear medicine & PET procedures:** In a nuclear medicine procedure, a special camera detects energy given off by the radioactive material in your body, forming a picture of your organs functioning on a computer monitor. The radioactive material typically disappears from your body within a few hours or days.

## REGULATIONS

There are no regulatory limits on the cumulative amount of radiation a patient may receive from medical diagnostic X-ray procedures. The physician is the individual who determines what is medically necessary diagnostic testing based on clinical decisions. However, it is important to be aware of diagnostic testing that utilizes radiation. You can work with your physician to make informed decisions about radiation exposure.

### Typical Radiation Doses (mSv)

Average annual technologist dose	3.2
Natural background radiation	3.0
Dental X-rays (panoramic)	0.01
Chest X-ray (single view)	0.10
Barium enema	7.0
CT abdomen/pelvis	10
PET/CT	14



**NORTHSIDE HOSPITAL**  
RADIOLOGY SERVICES

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## **ALARA, IMAGE GENTLY & IMAGE WISELY**

ALARA is an acronym for "As Low As Reasonably Achievable" as it pertains to radiation exposure. ALARA encompasses the use of safety techniques such as limiting the scan area to the region of interest, adjusting the technique according to body size and using lead to shield patients. The Image Gently campaign ([www.imagegently.org](http://www.imagegently.org)) is an initiative of the Alliance for Radiation Safety in Pediatric Imaging focused on increasing awareness and seeking lower radiation doses when imaging children. The Image Wisely campaign ([www.imagewisely.org](http://www.imagewisely.org)) is a campaign to increase physician, patient and imaging technologist collaboration for increasing awareness and lowering radiation dose to all populations.

## **WHAT IS NORTHSIDE HOSPITAL DOING?**

- All Northside Hospital radiation-emitting equipment is evaluated by an independent medical physics group.
- We use Image Gently, Image Wisely and ALARA principles to minimize dose.
- We follow the guidelines and protocols for radiation exposure that have been established by the FDA and the American College of Radiology (ACR).
- All Northside Hospital Radiology diagnostic technologists are required to be registered with the American Registry of Radiologic Technologists (ARRT).
- We use weight and age based imaging parameters for our CT scans.
- We are making providers, professionals and patients more aware of the risks as well as the benefits of ionizing radiation.

## **WHAT CAN YOU DO AS A PATIENT?**

- Make your physician aware of your examination history.
- Discuss with your physician exam alternatives not utilizing ionizing radiation that will provide the same information.
- When a CT or PET/CT exam is ordered, ask that your provider consult with a radiologist to confirm the test best matches the clinical question being asked.

## **WHEN WE IMAGE, RADIATION MATTERS**

Imaging procedures using radiation help save lives.

Work with your physician to make informed decisions about radiation exposure.

### **Source Information**

1. "Radiation Exposure from Medical Exams and Procedures Fact Sheet." Health Physics Society, [www.hps.org](http://www.hps.org). January 2010.
2. The Alliance for Radiation Safety in Pediatric Imaging, Image Gently, [www.imagegently.org](http://www.imagegently.org). November 2010.
3. Image Wisely, [www.imagewisely.org](http://www.imagewisely.org). December 2011.