

A Letter From the Radiologists

DIAGNOSTIC IMAGING AND RADIATION SAFETY



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Advances in medical imaging, with the improved ability to non-invasively diagnose disease in its early and most treatable stages, have been shown to contribute to greater life expectancy and declines in cancer mortality rates. Diagnostic imaging procedures are generally less expensive and associated with less risk than the invasive procedures that they replace. From the standpoint of an individual patient, the benefits of appropriate diagnostic medical imaging are immediate and can even be life saving. However, from the standpoint of the general population, widespread use of medical imaging, especially computed tomography and cardiac imaging, has resulted in increased radiation exposure to Americans, with concerns of potential increased risks of delayed radiation induced cancers. We take these concerns seriously.

From the start of residency training, Radiologists are taught to apply the principle of As Low As Reasonably Achievable (ALARA) when performing radiologic exams.

The advent of fast and powerful multislice helical CT scanners, which allow

imaging a patient through multiple phases of contrast enhancement, has created a risk of exposing the patient to higher doses of radiation, sometimes with little additional diagnostic benefit. We believe that it is the duty of the Radiologist to tailor each exam to provide the most diagnostic information at the lowest possible radiation exposure. When performing a CT exam at Olympic Radiology, the following dose reduction strategies are used for every patient:

- We utilize dynamic dose reduction technology, which varies the output of the x-ray tube during the scan to provide diagnostic images with the lowest dose. Thin parts such as the neck, or air filled lungs, require a lower dose to provide diagnostic images.
- Some studies, such as sinus CT (with large contrast between bone and air), are performed with a very low dose technique.
- Multiphasic imaging can be a very useful technique, but efforts are made to limit its use to those situations that require it.

In considering ordering diagnostic imaging exams, especially CT, we recommend adherence to the following guidelines:

- In ordering an imaging study utilizing

ionizing radiation, the benefit of the study to the patient should outweigh the potential risk of the radiation exposure. Factors that may increase the risk of radiation to a patient include age, as children are more radiosensitive than adults. As there is typically a 20 year lag between radiation exposure and radiation induced cancers, older individuals or those with a lower life expectancy are at very low risk.

- While CT remains the most efficacious exam in imaging the neck, chest, and abdomen, MRI (and, for some indications ultrasound) have seen similar improvements in diagnostic power and are free of ionizing radiation. Ultrasound is the preferred modality for evaluation of biliary and gynecologic pathology. MRI is often preferred first line modality for non-GYN pathology limited to the pelvis.
- The American College of Radiology, working with clinical experts, has developed appropriateness criteria which are of great benefit in determining the most effective strategy for medical imaging based upon presenting complaint or disease. These can be found at www.ACR.org under Quality and Safety Resources. Or call Olympic Radiology and ask for a Radiologist for any questions concerning exam selection.



Olympic Radiology's PET/CT service is now available every Monday and Wednesday



Key images allow you to view important findings indicated on the radiology report

PACS — key findings, key images

When interpreting an exam our radiologists often identify images that indicate any area of concern, or denote pathology. These images go hand in hand with findings on the radiology report. Often, the radiologist will point out measurements or note findings that are important to the diagnosis. The key images appear next to the final report in the patient folder in PACS, when you click to view the selected study icon.

As these images are important to the patient's diagnosis, referring clinicians may want to save them to the patient's medical record. Key images can be printed and saved to a paper file, saved to a file on a computer, or loaded into an EMR in a few easy steps. When viewing key images in the PACS patient folder, simply click the "Save" button to save the images as a bitmap, JPEG, or tiff to a file on your computer. Click "Print" to send to a printer, or print and save as a pdf.



During your MRI it may help to close your eyes, relax, and visualize yourself in a comfortable place.

Reducing MRI Fears (continued from page 1)

Breathe. Gently close your eyes, relax your muscles and let go of the tension. Visualize yourself in a comfortable place. Some patients find the hum of the MRI magnet so relaxing that they even fall asleep. Earplugs can be provided in addition to the headphones to make the experience quieter.

Evaluate your pain level. You will need to remain still for

the test. If you are claustrophobic, any pain you may have may increase your anxiety. Talk to your physician if you feel pain medication may be needed. Pain medication and/or sedatives must be taken before the exam in order to be effective. Be sure to communicate with the scheduling staff if you are considering sedation.

The MRI technologist will be

able to see you and hear you throughout the exam. You may also communicate with her if you have concerns or are feeling discomfort. She may be able to help by adjusting the temperature of the room, or by providing additional comfort items.

Taking just a few steps can help you relax and make it through your MRI without worry.



Are scanners at the airport safe?

Do air travelers need to worry about radiation exposure if full-body scanners are used as a security measure at the airport? Not according to the American College of Radiology (ACR). In a statement released in January, the ACR indicated:

- An airline passenger flying cross-country is exposed to more radiation from the flight than from screening by one of these devices.
- A traveler would require more than 1,000 such scans in a year to reach the effective dose equal to one standard chest x-ray

For more information on the scanners proposed and radiation exposure, visit www.acr.org

Calming MRI fears

MRI is a very important diagnostic tool for a variety of medical conditions. The idea of an MRI may conjure up scary images for some, but many who have been through the exam can tell you that there are ways to make the experience calm, comfortable and relaxing. Taking these few steps can help eliminate the anxiety and fear of the unknown.

Talk to the MRI technologist about the procedure. The technologist can thoroughly explain what is going to happen so you know what to expect. It's important that you tell her what bothers you. She may be able to offer you a wash cloth to cover your eyes, pillows, blankets, or supports so you are as comfortable as possible.

You will be given headphones that you can use to listen to music. This may keep your mind focused on something else. Talk to the scheduling department about the possibility of bringing your own CD or MP3 player to your MRI exam.



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Radiation exposure during medical imaging has become a current topic of discussion. While public health officials recognize the potential risks of radiation exposure in diagnostic imaging, many physicians and patients believe that the benefits (including possible early diagnosis and decreased need for more invasive procedures) far outweigh any risks the exam may pose.

Olympic Radiology's Dr. James Rohlfling addresses these concerns in this issue's "A Letter from the Radiologist" on page 3.

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