

Coastlines for March 2010
Dr Wasley
Radiology Corner
How radiologists help to limit Radiation exposure

There has been much attention lately in the press concerning radiation overexposure to patients undergoing diagnostic radiologic procedures. Radiologic procedures are unquestionably invaluable in the diagnosis and follow-up of disease. As such, the utilization of these procedures has steadily risen year after year. Not only are new technological advancements in scanners creating better quality images, new diagnostic protocols and applications of existing equipment has created a plethora of ways patients get exposed to radiation. New generation CT scanners are now capable of generating thousands of images in just a few seconds. While there is no doubt that this can be advantageous in a diagnostic workup strategy, this can also lead to incredible radiation exposure to patients. There are several way we can reduce overall patient radiation exposure while maintaining diagnostic accuracy of tests.

Most important is to choose the right test. Appropriate diagnostic imaging might include ultrasound or MRI, rather than CT or X-ray, which do not create ionizing radiation. For example, the workup of acute abdominal pain in children or young women might best include abdominal or pelvic ultrasound as a first line choice rather than CT. If CT is necessary, it is probably best to use oral and IV contrast in the young patient to get the most useful information from the images, rather than rapidly scan the patient without contrast, only to have to repeat it with the more complete study the next day. While CT of the brain and cervical spine is very useful in the emergency setting, MRI is often much more helpful for second line neuro imaging or musculoskeletal and lumbar spinal symptoms. Radiologists at OCMMC are ALWAYS available for consultation. Please do not hesitate to ask us for advice. We have developed useful algorithms in the workup of several disease processes. Diagnostic imaging can be tailored to your patient's specific situation.

At OCMMC, we have always made every effort to keep the radiation exposure to patients at a minimum. CT, fluoroscopy, and x-ray protocols are written to ensure minimal possible exposure while maintaining diagnostic accuracy. While our new 64-row CT scanners and fluoroscopy units create excellent diagnostic images, they also are more efficient than past models and generally are capable of creating these images with less exposure to the patient. For example, the "smart mA" software on our new CT scanners modulates exposure based on the requirements of a particular body part. Thoracic regions need less radiation to generate an image than does the abdomen. CT angiography for the workup of suspected pulmonary embolism can even be relatively safely accomplished in pregnant patients with the correct low dose protocol and pelvic shielding. Overall radiation exposure is monitored for all patients in CT. X-rays are collimated to the body part of concern and fluoroscopy time is kept to a minimum.

Our existing PACS system and our new EPIC electronic medical record aids in historical correlation so that repeated exposures to patients can be identified. While repeat radiologic studies may be warranted (e.g. for follow-up of fractures), sometimes a different test may add further relevant information. With further electronic communication in the future, we envision records from other hospitals available to help us eliminate unnecessary repeat tests already performed at another institution.

At Orange Coast we are actively pursuing best practice medicine as it pertains to radiology. We are ensuring that the most appropriate test is performed on our patients. We always follow protocols to limit radiation exposure to as low as reasonably possible levels while maintaining diagnostic accuracy. We are available for consultation to individualize the diagnostic approach to your patients. Please do not hesitate to contact us at (714) 378-7520.