Radiation Physics Consultants

Quarterly Newsletter

May 2009

Do You Need Help?

If you have any questions or need to contact us for physics testing, radiation shielding evaluations, or radiation safety training, please call or email us at anytime at the following:

General Diagnostic (Including CR, DR, Shielding and State Regulations):

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Mammography & CT:

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Nuclear Medicine & RSO:

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MRI:

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Radiation Dose to the Public has Doubled Since 1980

Recently the National Council on Radiation Protection (NCRP) released preliminary information on report number 160 that states that the radiation dose to the public has doubled since 1980. From the summary of the report available from NCRP it appears that the report attributes that increase to the more frequent use of advanced imaging modalities, particularly CT and nuclear medicine. The report does not specify any additional risks to the population from this increase in radiation given to the public and it also says that the increase is not to every member of the public, just subgroups of the population receiving those scans.

The state of Minnesota is forming a task group regarding NCRP 160; two physicists from RPC, Steve Nicholas and William Duppler are on the state task group. More information on this report will be available once the full report is in publication.

It should be remembered that these imaging procedures have saved countless lives over the years and the risk from radiation due to a medically necessary exam is always outweighed by the benefit from that exam. There is a risk to the public from the overuse of these exams and from improper techniques in any exam, and steps should be taken to minimize the radiation used on patients, while still providing adequate images.

RPC can help optimize the dose and image quality tradeoff for any of your imaging modalities, especially CT, and we are available to help you answer any questions about radiation that may arise.

RadiologyInfo.org – Helpful Link for Patient's Radiation Exam Concerns

With all the news on TV, radio and the internet about the risks of radiation and the dangers of cancer (such as NCRP 160 discussed above), patients are increasingly voicing their concern about health risks involved with their medical exams. There is a substantial degree of difference of patient dose and health risks from Nuclear Medicine treatment, CT Scans, fluoroscopic procedures, chest x-ray to bone density scans. We are often asked for insightful information to provide patients concerning radiation dose and health risks due to medical exams. The website of www.radiologyinfo.org is developed and funded by both the ACR and RSNA. This website provides a variety of helpful information to both medical imaging professional and patients. Patients can review many various types of exams and procedures. They will find pictures of the equipment, some video of various procedures, explanations of exams and suggestions how to prepare for their exam. There is also a section providing a comparative average patient dose for various types of exams and the comparison to background radiation. To find this dose information click on the "Radiation Safety" button in the lower right side of the webpage from the link above. Please feel free to share this website with both your staff and patients.

HealthPartners to Require Accreditation Beginning January 2010

Effective January 1, 2010, all outpatient imaging sites and clinicians that perform CT, CTA, MRI, and PET scans must have radiology imaging accreditation in order to receive payment. Accreditation requirements apply to billing on a 1500 Claim form or electronic equivalent for both global and technical services. Professional services are exempt from this requirement. Contact your billing department or HealthPartners to determine your status. Then call us for assistance in obtaining accreditation.

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Dose Watch:

CR (Computerized Radiography) has merged digital with radiology. But the cassette based systems for CR generally require more radiation to achieve proper exposure than most film/screen systems. Most CR systems are designed to be an equivalent Speed Class of 200 (most film/screen systems are a Speed Class of 400). This results in about double the patient dose. The Speed for CR is adjustable, but most vendors recommend calibrating them to a Speed of 200.

RPC strongly recommends working closely with your CR vendor and service engineers for all your radiographic equipment to help calibrate the CR and all AEC systems (photo-timers). We want to assure diagnostic quality, but we have noticed a tendency of over exposing with CR to achieve better image quality than necessary. RPC would be happy to assist you with assuring you are getting the most out of your CR system with the lowest dose possible. Please contact Jeremy Hulteen or David Eastman with any questions.

Nuclear Medicine – Questions about USP 797

USP 797 is a set of standards that describes the requirements for the preparation of sterile drugs, including radiopharmaceuticals. Aspects of USP 797 include building and equipment specifications for Nuclear Medicine departments. This has raised concern about current and new equipment compliance. If you have specific questions regarding USP 797, we recommend you review the "Government Relations" page on the Society of Nuclear Medicine's Website www.snm.org (look for the FAQs about SUP <797> page). Until we get more clarification we at RPC are recommending no additional equipment purchases (i.e. ventilation hood) for now. We do recommend that the "Hot Lab" be kept in a condition where you would be proud to show your patients. Please feel free to contact Doug Bennett with questions.

Notice – Recent Graduates May Not Be Qualified to Perform X-ray Exams in Minnesota

We were recently asked whether a recent graduate from a Radiology Technologist program is allowed to perform x-ray exams even if they have not yet past the ARRT certification exam. Kimberly Pappas (State Supervisor with the Minnesota Department of Health) informed us that there is NO grace period once an individual graduates from a radiology technologist program. Under the old 4730 rule there was a grace period. If an individual is not ARRT certified, they must be at least LMXO certified if they are to conduct x-ray exams on humans. If the individual is LMXO certified they can only performs exams in areas in which they have passed under the LMXO certification (i.e. chest, extremities, etc.). The state informed us that they recommend all students consider becoming LMXO certified in the event that they don't pass the ARRT certification exam on their first try. In conclusion, if the individual is not certified as an ARRT or certified as an LMXO (which allows them to conduct exams only on the specific regions of human anatomy which they passed), they cannot perform any exams that would expose humans to x-ray even if supervised under the direct vision of an individual within the facility. MN Rules 4732.0570 and MN Statutes 144.121 Subdivision 5.

To CT Shield or Not To CT Shield?

Recently we have had some questions about whether or not shielding a patient undergoing a CT scan is worthwhile. Although there have been mixed results from different studies on the subject, it appears that there are some benefits to the practice. These benefits are seen particularly in reduction fetal doses, from chest exams of pregnant patients, and in the reduction thyroid doses for patients undergoing a head CT. It appears that there might be benefits in other situations also, and patient shielding, if applied correctly, will not increase patient dose. The greatest benefit to the patient from shielding in CT appears to be a reduction in fear of radiation from a medically necessary procedure.

There has been a lot of mainstream news recently about high doses from CT, and if nothing else shielding the patient could make the patient or parents of the patient feel that steps are being taken to reduce that dose. At worst placing a lead shield on an un-imaged part of the patient does not affect the dose received; at best it reduces dose. Shielding of the patient can be used along with proper technique and limiting the scanned volume to the region of interest, to reduce the overall dose to a patient from CT.

If you do not want to receive this newsletter in the future, please email us at jhulteen@smdc.org to assure we remove you from our mailing list.