Hello friends,

I welcome you once again to our latest issue of the newsletter. We are happy to inform you about the latest paper published in European Radiology: IAEA survey of pediatric CT practice in 40 countries in Asia, Europe, Latin America, and Africa: Procedure and protocols. In some facilities the pediatric doses were higher than the adult.

Dr Aruna Pallewatte from Sri Lanka highlights positive effect of introduction of requisition Form that gives doses associated with exams. I would like to extend this further to include the referring clinicians. Very often, referring doctors forget the risks of radiation exposure and often request CT studies despite dubious indications. Occasionally I have to cancel staging investigations such as whole body CT and bone scan examinations in lesions that the clinician feels may be malignant. We have decreased such examinations to almost nil by educating the referring clinicians to only prescribe these studies after the diagnosis of malignancy has been confirmed and by vetting all CT requests the day before the study date.

We thank Dr Marilyn Goske for her contribution reminding us that plain radiographs still form a significant amount of radiation exposure to children.

Finally, I urge you to share and circulate this newsletter to all your colleagues in your hospital and country. I also request that more of you share your experiences through this newsletter. This network is useful because we can learn from each other’s experiences in our quest to reduce unnecessary radiation exposure to our children.

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From the Editor’s Desk
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Radiation Protection in Sri Lanka - Our Experience and Lessons Learnt
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During the implementation of IAEA project RAS9055/9065 specially in imaging of children, the main difficulty we encountered was lack of dose records. Often parameters important in pediatrics, were missing. Therefore we had to collect data prospectively or trace records at different hospitals to obtain the necessary data. With some hospitals now installing electronic data bases, our task will be easier in the future. However the dearth of physicists trained in the quality control and radiation protection is still a problem.

At the main pediatric interventional cardiology unit, patient dose records are now electronically maintained. Previous exposure data are taken into consideration by pediatric cardiologists.

In introducing low dose protocols for children, the lack of written guidelines is a major problem. Even in a single department protocols varied. Therefore the technologists and radiologists were periodically reminded of radiation dose reduction and in the use of pediatric protocols. 4 new CT units were installed recently and it is now mandatory to install dose measuring facilities with new equipment so that dose records can be reviewed.

The use of a new requisition Form indicating radiation doses of the examinations to the clinicians has resulted in replacement of 36% of CT’s with non-ionizing radiation imaging modalities for children.

Awareness, repeated reminders on use of protocols and information on dose has resulted in good results with the available resources.

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While there has been increasing attention to radiation dose from CT scans, the most common imaging examination that involves ionizing radiation is routine radiography. This procedure uses either screen-film or digital radiography detectors to capture the patient’s image. In the United States, this type of examination makes up 85% of all imaging and contributes less than 10% of the radiation dose to the U.S. population. Even though routine radiography and digital radiography are relatively low dose examinations, their use in children should always be justified and performed at the lowest dose to accomplish the clinical task.

For routine radiography or digital radiography in children, it is important to develop technique charts that are based on patient thickness, not age or weight. Therefore, calipers to measure patient thickness are used for accurate patient measurement. These technique charts are developed through a team effort of the radiologist, radiographer and medical imaging physicist and should be exam specific, meaning different charts need to be developed for chest radiograph, scoliosis, abdominal and extremity films. For digital radiography, the pre-sets provided by the manufacturer (anatomically programmed radiography or APR) may not be accurate for children.

The Image Gently “Back to Basics” campaign discourages the use of grids when the patient’s body part being x-rayed measures less than 10-12 cm. Grids are not necessary for small patients. Another key teaching point of the campaign is for radiographers to ensure accurate collimation. There is no need to include the orbits in a lateral chest radiograph! In particular, with digital radiography, the collimation should occur before the exposure. The use of electronic collimation after the exposure unnecessarily radiates body parts that the radiologist never even sees for interpretation. Automatic exposure control may not work well in small pediatric patients and the use of gonadal shielding can cover the cells and make the AEC work incorrectly. The use of breast and gonadal shields (when possible) is critical for dose savings to pediatric patients. Reviewing exposure indicators and image quality after the exam is most important.

The Image Gently website provides 5 open-source power point presentations. A parent pamphlet, scientific articles for technologists, poster, safety check list and practice quality improvement materials are all available. Let us know if you found any of these materials helpful at imagegently@aol.com!

Recent Publications of Results of Children network
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Many amongst you are aware that second paper [1] based on the work undertaken as a part of the network activity has been published in European Radiology, as cited below. Unfortunately, the Editor did not agree to satisfactorily include all authors’ name. My heartfelt thanks are to all those who have contributed to this very useful work. You might note that we find that widespread (up to 100 times) variation in radiation dose and specific CT protocols for certain age groups were frequently (ca. 50%) unavailable. We have provided feedback to all centres asking them to change technique and repeat measurements to document difference. The earlier paper [2] also had deficiencies in practice which were communicated to all concerned. We are trying to get impact assessment paper ready soon. You are welcome to write your experience in this Newsletter.
