-ray imaging saves lives. Medical imaging that uses x-rays includes radiography (such as a chest x-ray), fluoroscopy (an x-ray movie), and computed tomography (CT, sometimes called a CAT scan). These x-rays can be used to form pictures of the human body and provide valuable information that can help in the care of your child.

Why can x-rays ‘see’ inside the body? There are different types of radiation including everyday light, microwaves, and electromagnetic radiation from cell phones. To ‘see’ inside the body requires a type of radiation that is more energetic (so called ionising radiation). In general, the term ‘radiation’ usually refers to ionising radiation, such as the energy made in nuclear energy plants or in the past with the atomic bomb. We know that radiation at very high levels (high doses), from the atomic bomb for example, can cause harm and cause tissues to die. This is the reason for radiation treatment (or therapy) of cancers, like lung cancer in adults. High dose radiation can also cause harm to healthy tissues, with effects such as skin burns, hair loss, cataracts (cloudy lenses) and the development of cancer. It is important to understand that the amount of ionising radiation used for medical x-ray imaging is very, very low compared with exposure that causes these kinds of damage. Doses used in medical imaging are usually hundreds to thousands of times lower than these tissue harming doses. We know there is little risk of tissue damage at these doses, but what the risk of cancer is at the lower doses used in medical imaging is not as clear. While we don’t know if there is a risk (and if there is, it is very, very small) of cancer with the low doses of radiation used to take pictures in children, we must be very careful about protecting the children we image. For example, we have a responsibility to use these examinations only when necessary, and to use only as much radiation dose as is needed to provide helpful pictures.

Those of us who care for children understand that children are not small adults. They have different med-
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ical problems compared to adults. A doctor would not think of giving the same dose of antibiotics to a football player as she would an infant. Similarly, for x-ray, doses must be based on patient size. Smaller children need less radiation dose than larger children to create appropriate pictures. Too much radiation should be avoided but too little radiation may not give detailed enough pictures.

Concern and lack of understanding about radiation used for medical imaging may come from patients and caregivers as well as the medical profession. It is vital to communicate clearly with all these groups. One method for providing information and guidance to parents and the public is through a technique called social marketing. Social marketing uses advertising or marketing techniques to reach a target audience to provide information about a topic for the purpose of improving behaviour to improve society. One organisation recognised the need for guidance about medical imaging. This professional organisation is the Alliance for Radiation Safety for Pediatric Imaging, known as the Image Gently® Alliance.

The Image Gently Alliance was formed in July 2007. The alliance leadership committee is made up of experts from four professional imaging organisations: the Society for Pediatric Radiology, the American College of Radiology (ACR), the American Association of Physicists in Medicine (AAPM) and the American Society of Radiologic Technologists (ASRT). These groups represent the critical triad of people taking care of children in medical imaging, the radiologists (physicians, with specialty training in medical imaging), radiological technologists (who perform the examinations), and medical physicists (responsible for the imaging equipment). The Image Gently Alliance leadership committee also includes media expertise as well as a patient advocate.

In addition to the four founding organisations, there are more than 95 affiliated professional organisations.
These include not only radiology and dental groups but also referring doctors (such as the American Academy of Pediatrics). In addition, the alliance has gone global, with over 25 international partners joining. Through these affiliations, the alliance represents almost one million medical and dental professionals.

The mission of the Image Gently Alliance is to promote safe and effective imaging care of children worldwide. How does the Image Gently Alliance work to fulfil its mission? The principal strategy of Image Gently is social marketing. Social marketing takes advantage of successful commercial marketing techniques through various media such as a website (imagegently.org), the internet, and information in both scientific journals and the public press, to promote the message of radiation safety for children.

The goal of the Image Gently campaign is to keep the message simple. The key message is: imaging saves lives but when you need to image, image gently, choosing the right test, and using the right dose (child-size). This message is positive and one of advocacy, rather than alarm. This alliance seeks to be independent and remain free from any true or perceived conflict of interest. For example, the alliance operations are not supported financially by manufacturers or other commercial interests. While the four founding organisations support the administrative costs, these expenses are kept to a minimum. The work of the alliance is largely performed by passionate volunteers who enable the organisation to operate efficiently and economically. The affiliate organisations do not make financial contributions, but do have a very important role in spreading the philosophy of Image Gently to its members.

What are the alliance’s activities? A website has been developed to communicate with medical imaging professionals and the public. The website includes free, downloadable parent leaflets about various imaging procedures and has a frequently asked questions section. Educational modules and PowerPoint presentations have been prepared to help technologists better understand paediatric medical imaging, which have been translated into more than 15 different languages.

Over the eight years since the start of Image Gently, there have been six campaigns, each focused on one aspect of children’s imaging. These include campaigns highlighting the benefits and risks of CT scans, interventional radiology (where x-ray studies help in
The message of the Image Gently Alliance is that for radiation use, “one size doesn't fit all”
treatments), fluoroscopy, standard x-ray studies, nuclear medicine, and dental imaging. Three medical conferences have been hosted, and Image Gently representatives speak at conferences of other professional societies and organisations around the world. Dozens of articles about Image Gently have been written for both the public press and scientific journals.

To date, Image Gently has achieved wide recognition and international acclaim for its efforts. Several publications have detailed the impact the content has made in changing radiology practice so that imaging is performed in a more child-friendly way, often with reduced radiation dose. The social marketing strategy, which raises awareness, provides education and promotes advocacy for paediatric radiation protection, has also been influential.

In the United States, a close relationship exists with Image Wisely®, the adult counterpart started three years after Image Gently. Newer international medical radiation protection campaigns including EuroSafe Imaging and AfroSafe have also formed relationships with the Image Gently Alliance. In addition, Image Gently has worked together with the International Atomic Energy Agency and the World Health Organization on educational content about paediatric radiation protection.

There are challenges and opportunities as the Image Gently Alliance work continues to work at full speed. Volunteer efforts are essential, as committed professionals work with their heads, their hands and importantly their hearts. The needs are growing on an international scale and require firm partnerships to be sure that efforts are not being duplicated, and that they offer consistent and fact-based messages. It is easy to see that the extended relationships and cooperation achieved by Image Gently has been based on the shared need and recognition of appropriate childhood imaging, delivered in a positive manner and through modern and effective communication strategies to all those who are involved with this aspect of patient safety. There is an increasingly recognised need in many parts of the world and in many different aspects of imaging. And it is the right thing to do for children: one size cannot fit all.

www.imagegently.org
CHAPTER 1: AN INTRODUCTION TO PAEDIATRIC IMAGING

References

