Message from the Editor

Welcome to 2016 and our best wishes to your quality and safety projects.

Thank you for your support to “Quality News” in the last couple of years. “ISRQSA News” is a continuation of “Quality News.” While the name has changed, the purpose is the same: to share experience, promote awareness, and facilitate improvement in radiological quality and safety (RQS) in different settings. The contents are listed in a single page with embedded links. This mobile-friendly format facilitates dissemination, assists selection, and minimises duplication of articles.

ISRQSA News is honoured to provide an inclusive platform to spread the voice of and share the ideas with RQS stakeholders from different disciplines. The articles represent the opinions of the authors and not the International Society of Radiology unless specifically stated.

The importance of collaboration is consistent with “Alone we can do so little; together we can do so much” as stated in Dr. Moore’s article.

Mr. George reminded us that quality improvement started with Wilhelm Conrad Roentgen. Since the formation of the International Commission on Radiological Protection in 1928, the radiology community has been working steadily on improvements in RQS. In the last decade, we followed the successful launch and strengthening of interdisciplinary RQS campaigns, started by the Image Gently Alliance 8 years ago. In this edition, Drs. Frush and Strauss give an account of the future aspirations from the Image Gently Alliance. Informative updates from RQS campaigns include AFROSAFE, Canada Safe Imaging, EuroSafe Imaging, Image Wisely, JAPANSAFE, and LATINSAFE Alliance, and RQS actions from Ireland, Korea, and Turkey. The common features of these actions are good communication and teamwork amongst the stakeholders.

Following awareness, education provides the training necessary to facilitate changes in practice. System-wide and facility-based actions are complementary. Accelerated and collaborative development, dissemination and implementation of evidence-based recommendations and guidance tools are required. With limited resources, this is a challenge requiring perseverance and collective effort. The key is to bridge the gaps between recommendations and their use in practice, e.g. referral guidelines, radiation safety standards, etc. Adoption of implementable policies and formation of teams in facilities are essential. A team approach ensures appropriate actions are taken, and responsibilities are shared for every stage of the patient journey. Everyone could contribute and make a positive influence.

ISRQSA News is YOUR newsletter. The breadth and depth of the contents and their usefulness hinge on your input. It is a catalyst!

Thank you to the contributors for your time and effort! Thanks to everyone for your support by promoting and disseminating this publication, and encouraging colleagues to contribute in future editions!

Kindly direct distribution or contribution query to mhierath@isradiology.org or LSLAU@bigpond.net.au

Lawrence Lau, FACP, FAMS, FRANZCR, FRCR
Editor, ISRQSA News
Chair, International Commission on Radiological Quality and Safety
The weekend of 7th to 8th November saw celebrations in Wuerzburg, Germany to mark the 120th Anniversary of the discovery of X-rays by Wilhelm Conrad Roentgen. These celebrations included a special function hosted by the University of Wuerzburg with a presentation by noted Medical Physicist Professor Wolfhard Semmler reviewing all of the many facets of x-ray related science flowing on from the initial work of Roentgen, including Medical Imaging and Radiation Therapy, non-destructive testing, astronomy and even security screening.

The International Society for the History of Radiology (ISHRAD) also held a special meeting to recognise the occasion and Society members from several countries presented papers on historical topics associated with our Professions including the development of CT Scanning, early and ongoing efforts on dose reduction for staff and patients, and the development of x-ray crystallography in molecular imaging.

Notable in these was the emphasis on improving quality in imaging even from the earliest days following the discovery. One has only to see the difference from Roentgen’s original famous image of his wife Bertha’s hand (left) to the later hand image of von Kolliker (right) to see evidence of the improvement in image quality.

Robert George, Past President, International Society of Radiographers and Radiological Technologists; Founding Member, International Society for the History of Radiology
"Alone we can do so little; together we can do so much"

Helen Keller

While private radiology practices find themselves in a competitive environment, Strategic Radiology (“SR”) has found a way to collaborate to improve quality of care and safety for the patients they serve. SR is a radiologist-owned organisation composed of large, clinically advanced radiology groups geographically dispersed across the United States. Founded in 2009, Strategic Radiology now represents over 1,400 radiologists who practice in 25 groups nationwide.

The mission of Strategic Radiology is: Improving lives by creating superior radiology value through collaboration and innovation. SR Clinical Quality and Safety Guiding Principles are:

Keeping the patient at the centre of the healthcare equation

- SR is committed to formulating processes that reduce the cost of healthcare delivery while maintaining an environment to deliver the highest quality of clinical care and satisfaction.

Leveraging data to establish clearly defined metrics for clinical quality

- By utilising data amalgamated on a national scale, SR is committed to leveraging its unique position as the largest independent coalition of radiology group practices, comprised of 1,400+ physicians performing more than 20 million interpretations/procedures per year, to create metrics for patient care excellence.

Transparent collaboration and effective sharing of best practices

- Through a culture based on trust and mutual respect, SR member groups can advance the levels of quality and safety within the radiology industry at a speed that could never be realised within the silo based healthcare platform that existed prior to the establishment of this dynamic coalition.

Strategic Radiology members collaborate to prepare for the future and improve the quality and safety of patient care provided in their diverse populations. As part of the collaboration SR formed a Patient Safety Organisation (PSO). The SR PSO is the first radiology specific PSO in the country, designed to help clinicians, hospitals, and healthcare organisations improve patient care by advocating for quality and safety analyses.

SR PSO activities will have broad implications for SR member groups as they seek to improve quality. SR member groups participate in quality workgroup and advisory teams with their peers around clinical quality and patient safety activities. SR has access to a large aggregation of data in the radiology community. With our data warehousing, we have a better opportunity to identify areas for improvement in our patient care. These efforts are a key differentiator for SR member groups and provide tangible, consistent value for healthcare providers and patients.

Projects completed as part of the 2015 SR Quality Plan included:
- Lung Cancer Screening Recommendations
- Clinical Practice Program Recommendations
- Peer Review Best Practice Recommendations
- Critical Findings and Managing Urgent and Non-urgent Findings
- Incident and Adverse Event Reporting
- The Role of Physician Extenders in Radiology

In 2016, SR is rolling out a multi-year quality and safety plan. The six strategy areas include:
- Instituting a Culture of Quality and Safety
- Promulgating Standardisation across the Enterprise
- Demonstrating Value of Radiology
- Enhancing Customer Satisfaction
- Eliminating Waste and Economise Utilisation of Services
- Improving Radiology Performance

Without high-quality radiology interpretations, everything from lengths of stay to readmissions can be negatively affected. Radiology impacts every service line and all patient types. As SR focuses on quality, decreased overall patient care cost follows. This has been proven across every industry that has implemented quality assessment/improvement programs. It’s just a good business strategy. SR utilises collaboration across the groups focusing on quality, safety and process improvement as a key business strategy. Working together SR groups are positioned to improve care provided not only by its individual members but across radiology as an industry as best practices are adopted and refined nationwide.

Ari Van Moore MD, CEO Strategic Radiology; Bill Keyes MD Quality Medical Director; Lisa Mead RN, Director Quality and Safety
Quality Assurance Audits for Diagnostic Radiology Improvement and Learning (QUAADRIL): A Tool for Quality Improvement

Medical exposure is by far the largest artificial source of exposure to ionising radiation and continues to grow at a substantial rate. Diagnostic radiology, due to the very high number of procedures, comprises the largest component of medical exposure. Although Diagnostic Radiology has been established for many years, the quality of the services provided has been always taken for granted. However, in the modern era, quality comes as the result of a structured process that requires effort and involvement of all associated staff and commitment from the management.

A key element of quality in radiation medicine is the comprehensive and critical review of the practice in a medical radiation facility. This audit process is synonymous with an independent external evaluation, assessment, or peer review. Comprehensive clinical audits are an integral part of a good clinical quality assurance (QA) scheme and the IAEA has invested considerable efforts and resources in strengthening QA in radiation medicine. In principle, an external audit requires that the auditors are independent of the service or process to be audited, removing subjectivity and bias, thus improving the probability for possible issues to be recognised and tackled. However, clinical audits can often be internal, even within the same institution, as a routine activity within a good quality system. In this case independence may be upheld by appointing auditors from different departments.

The International Atomic Energy Agency (IAEA) has developed comprehensive guidelines that can support the auditing process in all major disciplines, namely Radiation Therapy, Nuclear Medicine, and Diagnostic Radiology. The IAEA guidelines provide audit checklists, assisting the auditors during the audit and at the same time facilitating independence of the review process. The corresponding tool for Quality Assurance Audit for Diagnostic Radiology Improvement and Learning (QUAADRIL) is the latest of these documents and has begun to be recognised for its usefulness in diagnostic radiology practice.

The QUAADRIL approach is multidisciplinary, implemented through an audit team (usually composed by a medical physicist, a radiologist and a radiology manager or radiographer). The team reviews and evaluates the quality of all elements involved in the practices, including staff, equipment and procedures, patient protection and safety, and overall performance of the diagnostic radiology facility. Clinical audit thus reflects the clinical directorate and health care team setting as well as their relationship to the overall management structure.

By comparing the practice of the service against the standards of good practice, clinical audits can help identify gaps in the overall clinical service and give guidance and reassurance on issues such as safety and efficacy, which are essential for continuous development. An overall strengthening of the QA programme is expected as an outcome of a QUAADRIL audit.

Under the QUAADRIL scope, the auditing process is carried out voluntarily aiming to identify weaknesses in an impartial and effective way. It is not designed for the purpose of licensing of facilities or investigation of accidents. Another important issue is confidentiality. It is essential that auditors and auditees respect the confidentiality of patient data, the interviews/discussions with staff and the audit check sheet/performance data. Confidentiality will facilitate the discussion of important quality assurance issues.

Support to IAEA Member States

The IAEA recognising the importance of comprehensive quality audits in Diagnostic Radiology and provides further support to its Member States in terms of:

- Training of auditors. IAEA supports the training of future auditors through training courses and workshops. Until know approximately 65 professionals (radiologists, medical physicists, radiographers and radiology managers) have received training in QUAADRIL. Furthermore standardised training material is being prepared to be used in all QUAADRIL related events or even online.

- Functioning as the independent auditing body. Following a request by a hospital, the IAEA is responsible for forming the auditing team, ensuring the principle of independence between the auditors and the audited department. For low and middle income countries, funding for the audit might be granted through a national or regional technical cooperation project.

IAEA methodologies for support of comprehensive clinical audits in diagnostic radiology, nuclear medicine and radiotherapy.

Section of Dosimetry and Medical Radiation Physics, Division of Human Health, Department of Nuclear Sciences and Applications, International Atomic Energy Agency
The two basic objectives of the radiological protection quality assurance programme are to evaluate patient radiation dose periodically, and to monitor occupational radiation dose for workers in cardiology facilities where radiation is used.

Training in radiological protection (both initial and retraining) should be included in the quality assurance programme for all staff involved in imaging procedures and interventional cardiology procedures.

A cardiologist should have management responsibility for the quality assurance programme aspects of radiological protection for cardiology procedures, and should be assisted by a medical physicist.

A senior interventionalist and a medical physicist should be included in the planning for and installation of a new cardiology interventional fluoroscopy laboratory, computed tomography scanner, x-ray or nuclear medicine system, or upgrade of existing equipment.

The QA programmes in cardiology should include patient dose audits for fluoroscopy, CT, and scintigraphy.

Periodical evaluation of image quality and procedure protocols should be included in the QA programme.

The QA programme should ensure the regular use of personal dosimeters and include a review of all abnormal dose values.

The QA programme should establish a trigger level for individual clinical follow-up when there is a risk of radiation-induced skin injuries.

Patient dose reports should be produced at the end of procedures, archived, and recorded in the patient’s medical record. If dose reports are not available, dose values should be recorded in the patient’s medical record together with the procedure and patient identification.

The QA programme should include patient dose audits (including comparison with diagnostic reference levels) for fluoroscopy, computed tomography, and scintigraphy.

Reference:
Radiological Protection in Cardiology. ICRP Publication 120. Ann ICRP 42(1), 2013
Prof. Eliseo Vañó, Chairman Committee 3, International Commission on Radiological Protection
Communicating Significant Unexpected Radiologic Findings From Radiologist to Ordering Physician: There is No Substitute For the Human Voice

Suspecting renal colic in a 42-year-old man who was admitted to a hospital ED (emergency department) because of acute right flank pain, the ED physician ordered an abdominal-pelvic CT without contrast. The on-call radiologist immediately interpreted the exam and faxed the following written report to the ED: “CT performed with stone protocol shows a 1 mm stone in right UVJ with mild hydronephrosis. There are several low attenuation liver lesions, the largest measuring 1.2cm. These are indeterminate, but likely benign. If clinically indicated, these could be further characterised with MRI.”

The ED physician faxed the report to the on-call urologist, who advised conservative treatment and scheduled the patient for an outpatient appointment the following day. After passing the small stone, the patient did not see a physician until 1 year later, when he experienced abdominal pain and weight loss. He was then diagnosed with intrahepatic cholangiocarcinoma, and died several months later. His wife filed a medical malpractice lawsuit alleging that the radiologist, ED physician, and urologist were negligent for not following up immediately with additional studies on the liver lesions reported by the radiologist on the original CT.

In their respective depositions, the radiologist testified that “I said the lesions were indeterminate, which is a strong signal that I couldn’t be sure what the lesions were, which is why I mentioned the possibility of an MRI scan, and it was incumbent on the doctors to figure out whether the patient needed additional studies. There was no reason for me or the ED physician because I knew he received my written report and the liver findings were not urgent.” The ED physician testified that “We get a lot of incidental findings, and if there is a critical or urgent finding, the radiologist calls us. There was no phone call here.” The urologist testified, “I understood the radiology report to mean that the CT was not normal, but not suspicious or worrisome. There was nothing that struck me to be alarmed about. I’m not trained to read liver lesions, and I have to rely on the radiologist for that.”

The lawsuit was settled out of court for an undisclosed payment made on behalf of all three defendant-physicians.

In another case, a 66-year-old woman underwent routine annual chest radiography ordered by the internist whose care she had been under for many years. The interpreting radiologist issued the following report: “Comparison is made to prior exam dated 1 year ago. There is a patchy density somewhat increased in size in the right upper lung field. CT scan of the chest is recommended for evaluation of possible neoplastic process.” Receiving the report, the internist wrote in his office notes, “Fibrocalkotic disease, chest x-ray stable.” Fifteen months later chest radiographs disclosed an obvious lung cancer. The woman died 18 months later, and her family filed a malpractice lawsuit against the radiologist and the internist.

In their respective depositions, the radiologist testified, “I knew the internist received my report and there was no reason for me to call him. I call only if I see an urgent finding.” The internist testified, “I read the report but didn’t order a follow-up CT because when she was young and living in South America, the woman was treated for tuberculosis. Periodic chest x-rays over the years always showed scarring in the right upper lung. Had the radiologist called me saying he was worried about cancer, I certainly would have followed up.” The lawsuit was settled out of court with payment made on behalf of both physicians.

In each of these cases, radiologists found and correctly reported findings that were suspicious for carcinoma. Neither saw any reason to telephone the ordering physician, because the findings were “not urgent” and they felt confident that the ordering physicians received the written reports. The ACR Parameter on communication states that radiologists should directly communicate significant unexpected findings to the ordering physician. The “Radiology 3.0” movement promulgated by the ACR calls for radiologists to be consultants, members of the medical team, and make non radiologist-physicians feel radiologists are important and essential for good patient care. However, an ACR survey disclosed that only less than 30% of radiologists telephone ordering physicians for significant unexpected but non-urgent findings. Common reasons put forth by the remaining 70% include: “I’m too busy and don’t have time to call,” “There are no RVUs and thus no payment for calling,” and, “If the docs don’t read my report, it’s their fault and problem, not mine.”

An American court has defined communication as “the sharing of knowledge by one with another, or the deliberative interchange of thoughts or opinions of two or more persons. It encompasses the idea that knowledge is shared in a manner that is capable of bringing about a true communicative exchange. True communication occurs only if knowledge, thoughts, and opinions are successfully conveyed.”

In both of the cases described here, a telephone call from the radiologist to the ordering physician may well have saved the patient’s life. Does not failure to communicate a significant unexpected finding by the radiologist’s human voice to the referring physician that causes harm to the patient violate not only the radiologist’s legal duty, but even more importantly his or her ethical and moral duty? Would not the radiologist be subject not only to the legal consequences, but also suffer personal guilt as well? Legal repercussions terminate after a finite period and are eventually forgotten. However, a guilty conscience can linger forever, especially if the error committed had been avoidable.

Leonard Berlin, MD, FACR, Radiology Department, Skokie Hospital, Skokie, Professor of Radiology, Rush University, and University of Illinois, USA. An international expert in malpractice issues in radiology.
The ‘Diagnostic Imaging Pathways’ (DIP) Western Australian Health Department website is an evidence-based and consensus-based decision-support and educational tool for referrers to diagnostic imaging (DI), aimed at improving the appropriateness of DI requests.

Access to DIP is free. It has gained accreditation from the National Institute for Health and Care Excellence NICE (UK) and is internationally acclaimed. Its developers are pleased to announce that a free App, based on the academic content of DIP is available for smartphones and other portable devices using iOS or Android operating systems. The apps are available at the Apple Store and Google Play Store.

In addition, the DIP team is collaborating with the Australian Commission on Safety and Quality in Health Care (ACSQHC) in producing an App focusing on reducing inappropriate ionising radiation exposure to children – particularly from CT scans. This App (DIP4Kids) will be available for free download in January 2016.

Lastly, and also available early in 2016, will be an App based on the successful Ionising Radiation Training Module hosted on the DIP website. This will provide a ‘stand-alone’ module independent of the website. Currently, the taking of this module and passing the accompanying quiz, are mandatory for Western Australian medical students to graduate, and for employment as a junior medical officer in the Western Australian public hospital system.

Prof. Richard M. Mendelson, Royal Perth Hospital, University of Western Australia and Notre Dame University, Western Australia
Lung Cancer Screening in China by Low Dose CT

In China, lung cancer is the most common cancer in men and second most common cancer in women. Lung cancer carries the highest mortality for both men and women amongst all cancer types. In 2010, 605,900 cases of lung cancer were diagnosed, and 486,600 patients died from this condition. The Age-Standardised Rates (ASR) for lung cancer incidence is 49.27, 25.89, 35.23 per 100,000 for male, female and combined respectively. The corresponding ASR for lung cancer death is 39.79, 16.62, and 27.93 respectively. The mortality of lung cancer has dramatically increased over the last three decades.

Currently, there are more than 10,000 CT scanners in hospitals in China. Rural community hospitals have one or more CT scanners. The capacity of having CT scanners is 8.6 per million population. The price of CT examination is relatively cheap in China, such as 15-32 € per plain CT head examination. Together with rapid economic development, the number of CT examination is rising progressively in China.

Lung cancer screening is still controversial worldwide. While assuring the important significance of screening for lung cancer for detection of early lesions and reduction of the mortality of lung cancer, it still has many problems, which need to improve.

In May 2015, the Cardiothoracic Subcommittee of Chinese Society of Radiology (CSR) launched the latest Chinese experts’ consensus on low-dose spiral CT (LDCT) for lung cancer screening. They recommended LDCT screening for lung cancer in the high risk Chinese population as summarised in the accompanying table.

The way to reduce radiation exposure includes CT of above 16 rows for lung cancer screening. The scanning range is from the apex to the costophrenic angle level. For helical scanning mode, the pitch setting is ≤1, gantry rotation time is ≤1.0s, scanning matrix set is not less than 512 x 512 (specific technical parameters are set based on different models), and with large visual field (FOV=L). Those with no iterative reconstruction technique can use the scanning parameters of 120 kW, 30~50 mAs, whereas those with new generation of iterative reconstruction technique can use 100~120 kW, <30 mAs as scanning parameters. If the reconstruction slice thickness is ≤ .625 mm, gapless reconstruction can be performed; if reconstruction slice thickness ranged from 0.625 to 1.25 mm, reconstruction interval should be ≤ 80% of slice thickness. Reconstruction is performed by using standard algorithm, or pulmonary algorithm with standard algorithm. During the procedure, it is recommended to activate the “dose report” function, so that automatically generated dose report by the device will be stored for routine storage.

Population at higher risk for lung cancer

50 to 75 years of age with at least one of the following risk factors:
1. Smoking ≥20 pack/year, including those with past smoking history, but less than 15 years of smoking cessation;
2. Passive smokers;
3. Occupational exposure history, e.g. asbestos, beryllium, uranium, radon, etc.;
4. With a history of malignancy or a family history of lung cancer; or
5. With COPD or diffuse pulmonary fibrotic disease.

Chinese research demonstrates that LDCT for early detection of asymptomatic lung cancer [individual health assessment (IHA)] has a high sensitivity. Patients only need to receive fewer radiation dose and similar images as produced by conventional dose can be obtained, thus the radiation dose can be minimised and diagnosis can be made. The scanning parameters are tube voltage of 120kV, tube current of 20mAs, CTDIvol of 1.38mGy (77.8% lower than the conventional dose), DLP of 44mGy.cm (75% lower than conventional dose of 180mGycm).

Chinese government has issued a series of laws and regulations concerning radiation safety under statutory authority. Adequate use-specific safety training program is repeated annually for each practitioner and employee engaged in radiation to increase awareness of the safety. All practitioner and employee engaged in CT hold a radiation user license to ensure the safety of protection under statutory authority. Any use of CT for IHA in asymptomatic people is clearly documented (time, doses, and indications) and strictly followed by the physician and technologist. Standard operating procedures/ protocol for CT should be instituted and monitored to answer specific clinical concerns of each individual patient.

Multidisciplinary research efforts is profoundly changing our understanding of the use of CT for IHA of asymptomatic people in China.

Prof. Liang Wang, MD, PhD, Department of Radiology, Tongji Hospital, Tongji Medical College, Huazhong University of Science & Technology, Wuhan, PRC; Molecular Imaging Subcommittee, Chinese Society of Radiology
AFROSAFE Activities in 2015

The stakeholders launched the AFROSAFE campaign in February in Nairobi during the 8th scientific congress of PACORI. The 2015 July newsletter reported on the development, organisation, vision, goals, strategic objectives and proposed actions of the AFROSAFE campaign.

Collaborations with Eurosafe Imaging, Image Gently and Image Wisely

AFROSAFE owes its smooth start to the assistance, partnership and collaboration with global agencies like IAEA and WHO, global professional societies like ISR, and ESR, national government like the Government of Kenya and Uganda and other radiation safety campaigns like EuroSafe Imaging, Image Gently and Image Wisely. WHO through Dr. Maria Perez encouraged the conception, realisation and launch of AFROSAFE at the PACORI 2015 Meeting. WHO has publicised the AFROSAFE campaign to Portuguese speaking African Countries in the Lisbon meeting on radiation safety in August 2015. In IAEA supported PACORI 2015, and other avenues of creating awareness through RPOP Update. No. 78. EuroSafe Imaging gave the vision for AFROSAFE, and through Prof. Guy Frija supported AFROSAFE from conception to realisation, sponsoring AFROSAFE representation at ECR 2015 and ECR 2016 and assisting in the designing of the AFROSAFE website. Image Gently through Prof. Kimberly Applegate has advised and mentored AFROSAFE, availing content for adopting an adapting. Collaboration with patients for patients’ safety (PFP) initiatives in Africa

AFROSAFE realises that effective sensitisation to patients and public is best achieved through collaboration with PFP’s initiatives. The Uganda Chapter of AFROSAFE has now established a relationship with the PFP initiative, and held a joint workshop. Ms. Nittita Prasopa Plaizier, Program Manager and Technical Lead Patients for Patient Safety, WHO Geneva, attended the Uganda Society for Advancement of Radiology and Imaging (USOFARI) 2015, during which the Uganda AFROSAFE Chapter was launched.

Achievements

The presence of AFROSAFE as a legitimate radiation safety campaign has been recognised and its objectives publicised at the following meetings: PACORI 2015, African Society of Radiology (ASR) 2015 meeting, RSNA 2015, World Health Assembly Side-Event (WHA 68), Global Summit for Radiology Quality and Safety (GSRQS) 2015, USOFARI 2015, IAEA workshop in Kenya 2015 and the IAEA Workshop in Cairo 2015.

The Uganda Chapter of AFROSAFE was officially launched by a representative of the Minister of Health during the USOFARI 2015 meeting. On the International Day of Radiology (IDoR) 2015, dedicated to paediatric imaging, AFROSAFE in Kenya, conducted an awareness radio talk and marched through the streets of Nairobi sensitising the public on radiation safety in paediatrics imaging.

The AFROSAFE implementation tool has been published and is available for dissemination to all African countries. AFROSAFE is promoting the development of DRLs and adoption and adaption of Imaging Referral guidelines, in African countries, reinforcing the efforts of IAEA and WHO. The AFROSAFE website will act as a resource for radiation workers in Africa enabling access to relevant data and forging networks for radiation-safety projects in Africa, aimed at implementation of the new BSS and Bonn Call for Action. Creation of AFROSAFE, following the example of EuroSafe Imaging, has in turn motivated other regions like South America to form similar campaigns.

Plans for 2016

The plans will be to bring on board all African countries so that the campaign takes route all over the continent thus enhancing its impact. An attempt will be made to launch AFROSAFE Chapters in every country which is willing to be part of the campaign and Country “Champions” will be identified and appointed. AFROSAFE will enlist “friends of AFROSAFE” through its website. The website will be enriched to provide up to date information for all users. The implementation tool will be circulated to all countries through the country champions. The focus will be on the Action 1 and 2 in the Bonn Call for Action, so as to enhance the adherence to the principals of radiation protection namely justification and optimisation. Collaboration and networking with other global campaigns will be strengthened.

Prof. Michael G. Kawooya, Ernest Cook Ultrasound Research and Education Institute (ECUREI), Mengo Hospital, Kampala, African Society of Radiology, and AFROSAFE Campaign
The Image Gently Alliance is approaching the end of its first decade and it is worth both a look back and a look ahead. This was the emphasis at the 2015 RSNA where the annual Alliance Meeting occurred for the 8th straight year. After noting that the past year included a revised mission statement, development of a 5-year strategic plan and a transition in leadership from Marilyn Goske to Donald Frush and Keith Strauss (yes, it will take two to fill her shoes), discussion centred around reaffirming the Image Gently essence and what is planned for the upcoming one to two years.

First, the essence of Image Gently. We have struggled a little for the past few years to craft a phrase or word that distills elements of the Alliance, something that reverberates like the phrase Image Gently has. The organisation has long promoted education and a position of advocacy, working hard to have a positive and compelling message. But it has become evident over the past eight years that the Image Gently Alliance is at its core an assurance organisation. Assurance is defined by the Oxford Dictionaries as “A positive declaration that is intended to give confidence: a promise”. Many of the past campaigns and other organisational efforts are evidence of this assurance.

Nearing the end of this first decade, is it time for Image Gently … 2.0? The basic strategy of social marketing will continue, with educational materials, presentations, coordinated release of information, and the cultivation of content experts [1]. But the Alliance will also be embarking on a path that began in 2014 with the dental campaign: a partnership between Radiology expertise and expertise from our colleagues in other specialties. One campaign taking shape for 2016 is the Think A-Head campaign which will be a collaboration including paediatric experts, emergency medicine physicians, technologists, surgical professionals, nurses, and others. This campaign will encourage adherence to decision rules and practice guidelines/parameters for imaging minor head trauma in the paediatric population and to paediatric-based head imaging protocols such as the recently released guidelines by The Alliance for Quality Computed Tomography (AQCT), a working group organised by the American Association of Physicists in Medicine.

Image Gently 2.0 is an increasing footprint of assurance of justification of the imaging exam, management of radiation dose to the patient and production of diagnostic quality images. Parallel with this is a new campaign partnering paediatric cardiology and radiology expertise in an Image Gently campaign for children with congenital, acquired cardiac and relevant vascular disorders. The moniker for the campaign has yet to be established but the leadership is arising from cardiology and is expertly headed by Kevin Hill MD, MS at Duke and senior campaign consultant Andrew Einstein MD, PhD, MS from Columbia. This campaign embraces the idea of awareness, accountability, and action with respect to ionising radiation use for these children.

As with the Image Gently model for radiology specialists, these efforts may resonate with other organisations, and find global relevance. In the end, while organisational/society structure, function, mission, and objective elements may vary somewhat, all groups are aligned with the concept of improving imaging care of the patients they serve—assurance. Image Gently is now out of its adolescence, matured and respected, and in an excellent position for upcoming opportunities and challenges.

References:

Donald P. Frush, MD Chair, Image Gently Alliance; Keith J. Strauss, MS Vice Chair, Image Gently Alliance
The Image Wisely campaign was launched in 2010. The July 2015 newsletter reported about its formation, rationales, activities and the Image Wisely Pledge.

**Bonn Call-for-Action**

In 2014, Image Wisely® reassessed its existing activities (and those of its member organisations to prevent duplication of effort) in context of the 10 Bonn action items. As a result, in 2015, a new charge for Image Wisely® was developed and approved by the ACR and RSNA:

**Image Wisely® is an initiative (developed in 2010) by the ACR, RSNA, AAPM and ASRT to raise awareness and provide up-to-date educational resources for radiology professionals and referring clinicians regarding the use of ionising radiation in adult medical imaging examinations.**

The goals of Image Wisely® are to provide information on:

- Optimising ionising radiation techniques to clinical indication and patient size, and
- Monitoring exam radiation dose indices to enable comparison to established reference levels

This educational and awareness initiative is conducted through a website, which provides links to current literature and dose-related news, information on imaging protocols, links to pertinent regulatory and standards organisations, as well as instruction through the Image Wisely Radiation Safety Case series.

The Image Wisely Executive Committee is responsible for:

1. Responding to issues regarding adult radiation protection in imaging.
3. Identifying opportunities to further promote the initiative, and
4. Reporting to the RSNA and ACR Boards.

Along with developing a new charge, the Executive Committee evaluated the impact of Image Wisely® by assessing awareness of and participation in its informational and educational offerings.

**Image Wisely Website**

There were approximately 65,000 visits to imagewisely.org in January - June 2015. The website includes regularly updated content on safe practices in CT, nuclear medicine and fluoroscopy for radiologists, medical physicists, imaging technologists, referring practitioners and patients. The front page regularly features current news and important “what we’re reading” (journal articles). The Executive Committee is regularly reviews and updates all Image Wisely® content for accuracy, currency and interest to the radiology community.

**Pledges**

Pledging has increased significantly. As of October 2015, 37,274 individuals pledged to Image Wisely® (a 37% increase from October 2014). In addition, 1,336 facilities and 57 associations pledged.

In order to simplify Image Wisely® pledging, it makes more meaningful, drive more traffic to the Image Wisely® website and complement the new Joint Commission requirements (see below), ACR and RSNA leadership has approved a new pledge approach for 2016:

- The 3 current facility pledge levels will be reduced to 1, all-inclusive pledge that requires accreditation and participation in a dose index registry
- Pledges will only be valid for 1 year

**Image Wisely Radiation Safety Cases**

Eight free cases have been published since September 2013 and they remain one of the most popular educational programs offered through ACR. As of October 2015, 99,622 individuals enrolled in the cases (a 214% increase since October 2014).

**Recognition by the Medical Community**

The Joint Commission included both Image Wisely® and Image Gently® in new standards that went into effect July 1, 2015.

The ACR Diagnostic Imaging Centers of Excellence (DICOE) designation requires all facilities to pledge to Image Wisely® and Image Gently® in order to achieve DICOE status.

**Recognition by Regulators**

Image Wisely® collaborated with the US Food and Drug Administration (FDA) in the development of the Patient Imaging History Record Card. The FDA has recognized Image Wisely® in their White Paper: Initiative to Reduce Unnecessary Radiation Exposure from Medical Imaging report as well as on their website and in presentations.

Several State Regulatory Agencies in the US encourage participation in Image Wisely® by their registrants. They include Minnesota and Delaware.

**Recognition by Lay Media**

Image Wisely® gained further recognition in 2015 in a January Consumer Reports article, “When to Question X-rays and CT Scans.”

Priscilla Butler, MS, William Mayo-Smith, MD, Richard Morin, PhD and Wil Creech, Image Wisely®
LATINSAFE: An Alliance for Radiation Protection of Patients in Latin America

History of LATINSAFE

LATINSAFE Alliance was first envisioned during the 45th Jornadas Paulista de Radiologia (JPR) held on May 2015 in Sao Paulo, Brazil. During this meeting, organised by the Sociedade Paulista do Radiologia (SPR) “Diagnostic Imaging at the right dose” was the central theme.

During the Congress a Panel dedicated to discuss radiation dose reduction and optimisation was held. Once the session concluded a group of panelists gathered and decided to create LATINSAFE, a Latin American Alliance devoted to advocate for “Radiation Dose Reduction and Dose Optimisation in Diagnostic Imaging in Latin America”. Radiologists from Argentina (Alfredo Buzzi), Brazil (Antonio Soares Souza, Pedro A. Daltro and Renato Adam Mendonca), Chile (Pablo Soffia) and from the USA (George Bisset, Maria Inês Boechat, and Donald Frush) participated in this first meeting.

Aim of LATINSAFE

Ongoing campaigns and alliances advocating for radiation protection of patients exist in the USA, Europe and Africa. However, until LATINSAFE was created, no such organisation existed in Latin America, nor in our languages (Spanish and Portuguese). The aim of LATINSAFE is to promote radiation protection for patients in Latin America, following the Bonn Call for Action and inspired by the Image Gently and Image Wisely alliances.

LATINSAFE aims to build a strong marketing campaign to promote best practices for patient radiation protection in Latin-American and to define strategies and undertake initiatives that contribute to a better understanding of the importance of this topic among radiologists, prescribing physicians, technicians, patients and the general population.

Despite the fact that most of the radiologists involved in the genesis of LATINSAFE are active members of other Latin American radiological associations, their participation in LATINSAFE is as individual experts and not as official representatives of other Latin American radiological organisation. This is important to keep the role, strategies and actions of LATINSAFE neutral and independent from other national / regional organisations.

What we have we done so far

The “founding” members of the LATINSAFE Alliance Group began their work after the meeting held during the JPR2015. A second meeting was held in early August 2015, during the “Feres Secaf Course” (another meeting promoted by SPR). Between August and October, the working group of experts was defined resulting in the following composition:

- Claudio Bonini, MD (Argentina)
- Alfredo Buzzi, MD (Argentina)
- Pedro Daltro, MD (Brazil)
- Renato Adam Mendonca, MD (Brazil)
- Rubén Michaux, MD (Argentina)
- Martha Edith Oyuela, MD (Colombia)
- Antonio Soares, MD (Brazil)
- Pablo Soffia, MD (Chile)
- Gloria Soto, MD (Chile)

A third meeting took place on September 12 during the Congress of the Argentinean Society of Radiology (SAR) held in Buenos Aires. Doctors Alfredo Buzzi, Antonio José da Rocha, Antonio Soares Souza, Pablo Soffia and Renato Adam Mendonca took part of it. The need to define the legal status of the Alliance was raised, and short-term goals were set.

During the Chilean Congress of Radiology held in Santiago in October the 15th-17th 2015, another meeting of the working group was held and a seminar on CT radiation dose optimisation took place.

With occasion of the celebration of the International Day of Radiology (IDoR 2015), some regional LA activities were carried out under LATINSAFE’s umbrella such as lectures highlighting the importance of CT dose reduction and optimisation to paediatricians in paediatric hospitals.

During the RSNA 2015 Annual Congress, LATINSAFE held meetings with the leadership of Image Gently and Image Wisely, and representatives attended a meeting organised by the International Society of Radiology that gathered the various continental and regional radiation protection campaigns with the aim to exchange information, experience and ideas. Participants in this meeting were: Canada Safe Imaging, Japan Safe, AFROSAFE, EuroSafe Imaging, Image Gently, Image Wisely and the International Society of Radiology.

LATINSAFE will be officially launched during the Jornadas Paulistas de Radiologia on April 2016, in Sao Paolo, Brazil.

The legal status (Bylaws) of the Alliance has been defined and in the upcoming weeks it will be registered on the official bureaus in Brazil, according to the law.

The LATINSAFE Alliance Group is now preparing its official logo and an informative and educational web site, which will be online before the official launching.

Dr. Pablo Soffia and Dr. Renato Mendonca, LATINSAFE Alliance.
What is the Faculty of Radiologists?
The Faculty of Radiologists, Royal College of Surgeons in Ireland is the body responsible for the provision of postgraduate training in Diagnostic Radiology, Interventional Radiology and Radiation Oncology in Ireland. Both programmes are spread over five years training and after satisfactory completion of 5 years training, having passed the Fellowship exam, candidates are eligible for inclusion on the Specialist Register of the Medical Council of Ireland. Most of our trainees pursue further training abroad after completion of training in Ireland, principally the United States, Canada and the UK, but increasingly in other European countries and Australia.

How many Consultants are there in Ireland?
There are approximately 300 Consultant Radiologists in full time practice in the Republic of Ireland. The ratio of consultants to population is low in comparison to most EU countries, and the numbers of studies performed by individual consultants is high by international standards. Understandably, this places great pressure on practicing Radiologists and Radiation Oncologists, but despite this, the research output of our trainees and consultants is consistently very high.

What are our strengths?
The specialties of Radiation Oncology and Radiology are strong and well-respected in Ireland. We aspire to continue our leadership role in the development and deployment of programs designed to help radiological professionals deliver safe, high-quality care. We place a high priority on making tools and resources available that enable our members to provide the highest quality services to their patients. Our specialties attract among the brightest graduates every year, and competition for places among our training schemes is very intense. We work closely, with employing and regulatory authorities to keep our standards high and we look forward to a strong future with our Fellows and trainees remaining at the centre of high quality medical care delivery.

The Irish Health Services Executive has sponsored the centre of high quality medical care delivery. The highly-professional work of all radiologists in Ireland is commended but we are aware that radiology, like many diagnostic services, involves decision making under conditions of uncertainty and a certain degree of error is inevitable. Few formal measures are currently in place to measure the public that error is kept to an absolute minimum and few national benchmarks for key aspects of diagnostic services are currently in place to measure performance. Recognising the importance of these elements, the National Quality Improvement Programme in Radiology is led by the Faculty of Radiologists, Royal College of Surgeons in Ireland (RCSI) in collaboration with the National Cancer Control Programme (NCCP) and the HSE’s Directorate of Quality and Clinical Care.

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Aim
The central aim of the programme (combined for diagnostic and interventional radiology) is to ensure enhanced patient care and patient safety with timely, accurate and complete radiology diagnoses and reports. The QI programme provide guidelines for practical and implementable QI measures, which, in conjunction with existing local quality systems, will enable each hospital to monitor and evaluate their own performance in an effort to improve patient safety.

Benefits of the Programme
• Improved patient care and increased public confidence in diagnosis
• Standardised QI systems
• Data available to individual departments to review their own performance against national targets, called Quality Marks
• Identification of good practice and areas of improvement
• Improved communication within and between institutions

Key Quality Activities
• Peer Review
• Multidisciplinary Meetings
• Quality improvement meetings
• Critical Alerts
• Focused Audit
• Report completeness
• Turn around times
• External Reviews

Version 3 QI guidelines
In our recent revision of the National Quality Assurance Programme, quality continues to be the core value. The third revision of the QA guidelines, includes dispensing with the RoxiPeer scoring system, and moving to a category based system, which has been shown to have greater educational value. In the same vein, discrepancy meetings have been renamed Radiology Quality Improvement meetings, to allow for a greater spread of referrals to the meeting e.g. on the basis of teaching, complementary referrals, and expertise sharing within groups. This name change is primarily to focus the attention on the learning potential of the meeting with a view to constantly improving the quality and safety of our work.

Peer Review
The infrastructure for peer-review and learning is still evolving. There are now radiology specific frameworks for understanding and classifying errors to further reduce them. With the evolution of better tools, radiology practices have the capability to conduct peer-review and learning as part of their normal practice without having to set aside dedicated time. The tool may optimise case selection and streamline workflow to better integrate peer-learning.

The PeerVue software permits the replacement of the previous cumbersome paper-based systems and facilitates these processes to occur seamlessly with reporting duties so that the latter are neither hindered nor replaced by these additional QI duties. The resultant data will ultimately be uploaded to a national QA database (National Quality Assurance Information System – NQAS – currently in development by Open Apps in conjunction with the QI working group of the Faculty), which will in turn feed back to departments as to how they are performing relative to the national median. It appears self-evident that any deficiencies identified will provide evidence to support the correction of departmental resource deficiencies and the promotion of patient safety.

Eventually, benchmarking and reporting as part of the quality management framework initiatives will identify all aspects of radiological care that are most meaningful to monitor for improved diagnostic performance.

Conclusion
The Faculty of Radiologists has a long-standing commitment to quality and safety in radiology. The Faculty QI programme is just one step designed for advancing safe and effective radiological care for the foreseeable future.

Dr. Max Ryan, Dean Elect, Faculty of Radiologists, Royal College of Surgeons in Ireland
Quality management in health care and radiology is of increasing interest and importance in South Korea. In the early 2000s, an increased rate of self-referrals has resulted in an overutilization of radiological exams in Korea. Also, due to the absence of specific regulations, there was a large second-hand equipment market with many poor quality radiology machines in circulation, which often resulted in poor image quality.

Subsequently, the Korean Society of Radiology (KSR) actively engaged in various radiology quality management activities, such as the creation of guidelines and standards, the formation of a professional organization for quality inspection, and active advocacy for the development and implementation of quality management related legislation.

Newly passed legislation due to these activities included a “Special Law for Management of Specific Medical Equipments” which was approved by the National Assembly of Korea in January 2001, requiring mandatory CT, MRI, and mammography accreditation. After the legislation requiring accreditation of radiology equipment was introduced in 2005, the failure rate of accreditation for the first year in 2005 was about 12%, and this steadily decreased to less than 3% in 2015, suggesting an improvement in quality management resulting in improved imaging quality and equipment commissioning, maintenance, and use.

Currently, these quality management efforts are expanding to include not only imaging quality but also radiation protection. These efforts include collaboration with the Korean Food and Drug Administration (KFDA) in 2007 for a nationwide survey targeting plain radiography, mammography, CT, paediatric CT, paediatric radiography, and fluoroscopy to define diagnostic reference levels (DRLs). There are plans to perform another nationwide survey and update the prior defined diagnostic reference levels in 2016.

During the Korean Congress of Radiology (KCR) in 2014, which was hosted by KSR, a three-part pre-congress symposium was held in collaboration with the World Health Organization (WHO), International Atomic Energy Agency (IAEA), and National Evidence-based Collaborating Agency (NECA).

This symposium was titled “Asia-Pacific Symposium: Evidence and Values in Medical Imaging” and topics included: justification in medical imaging, patient-centered approach for imaging, and future perspectives for justification of medical exposure in Asia-pacific region. There was a high interest in participants with a very lively and passionate discussion during the symposium.

This symposium and participation of Korean members in recent IAEA technical meeting regarding the justification of medical exposure facilitated the preparation of clinical imaging guidelines in Korea. This resulted in the KSR to collaborate with the NECA to develop comprehensive clinical imaging guidelines. These guidelines are continually being reviewed and revised while simultaneous efforts are being made to make these guidelines more well-known and clinically used.

The Korean Advocacy Group for Radiation Protection and Quality Management (KARQ) is a voluntary group formed in 2013 focusing on quality management in radiology. In 2015, the KSR converted KARQ into an official committee called Radiology Advocacy Network of Korea – Quality and Safety (RANK-QS). Serving in an official capacity, the RANK-QS is now actively involved in radiological quality and safety activities on behalf of the KSR. These activities include education and promotion of radiology quality management issues to members, residents, and public. Also, advocacy targeting proper legislation regarding radiology value improvement is being pursued.

In September 26th to 29th to 2016, there are plans for an event on “Justification of the Use of Computed Tomography for Individual Health Assessment of Asymptomatic People” in Seoul to be hosted by the KSR in collaboration with the WHO.

In conclusion, KSR is actively engaged in radiology quality and safety, and will continually expand our efforts in the future. This will result in an increase of radiology value and improvement of public health.

Prof. Seung Eun Jung, MD, Department of Radiology, Seoul St. Mary’s Hospital, The Catholic University of Korea, Korean Society of Radiology
Actions to Improve Radiological Quality and Safety in Turkey

Improvement of quality in Radiology services is new target for many of the Turkish Hospitals. New regulations issued from governmental body dictate the annual quality assurance measurements of radiological equipments in health facilities. It is expected to build up a technical team for every hospital to conduct and coordinate the measurements and correction of the discovered errors. The development of new regulation took a few years but final product came just after some studies performed by governmental and non-profit organisations from radiology community of the country struggling to disseminate knowledge about radiation safety and patient protection.

Radiation protection of the patients and radiology workers needs a good level of radiation awareness within health professionals. Even if the low level of awareness between hospital employees is a well known entity from medical literature, current survey organised by Turkish Society of Radiology (TSD) showed similar results between radiology consultants, residents and technologists. The aim of the survey was to understand the situation between radiology professionals and design the action plan for educational activities targeting radiology staff.

One of the educational actions came from a collaborative study of Turkish Atomic Energy Authority (TAEA) and TSD to translate the posters of IAEA about radiation protection of the patients. Turkish version of the posters is available in IAEA website now. Many professional organisations also published posters in their websites to inform members in country.

Health physics division of the TAEA started a project to measure the doses and give optimisation recommendations to the health facilities having Computed Tomography (CT). First part of the project is a dose measurement survey in hospitals and following second part to ask CT exposure parameters to all hospitals for different age group of patients. Reported exposure parameters from responsible staff and results of the measurements were collected to create Dose Reference Levels (DRLs) of the country. Results also published in literature showed slightly increased third quartiles for adult head and paediatric body CT studies. These clues also triggered new educational activities in addition to already planned national meetings and local courses for technologists.

Nationwide surveys for radiographic exposures also showed some increased skin entrance dose levels for postero-anterior chest x-rays but acceptable exposure levels for other body parts.

Since transition from conventional to digital technology is still in progress, TAEA conducted another survey to understand facility preferences for diagnostic monitors, mostly neglected part of imaging chain in Radiology departments. It is apparent that at least half of the health facilities still use film screen combinations; monitors in use for digital equipment are acceptable for quantity and numbers per facility.

Warning for possible pregnancy in order to decrease unintentional delivery of ionising rays before any radiological investigation, may decrease the possible danger. Another study from TAEA revealed increased foetus doses especially from CT exams. After calculation of foetal doses for unintentional exposure of unnoticed early pregnancies, the possible culprit was unoptimised practice of exposure parameters of some of the facilities. Survey also showed increased foetal exposures for some of the abdominal x-ray exams from different part of the country.

Improving the quality of services in Radiology department should be the primary concern since patients only count on radiology workers for their protection. Expanded surveys, new knowledge dissemination methods and research projects are planned and some are still in progress nationwide.

Assistant Prof. Dr. G. Kaan ATACA and Prof. Dr. Orhan OYAR, Turkish Society of Radiology
The International Basic Safety Standards (BSS) jointly sponsored by eight international organisations, document the requirements and guide safe practice in the use of ionising radiation. In cooperation with the World Health Organisation, Pan American Health Organisation and International Labour Organisation, the International Atomic Energy Agency (IAEA) is preparing a Safety Guide on Radiation Protection and Safety in Medical Uses of Ionising Radiation (DS399) to guide users on how to fulfill the BSS requirements.

A Training Course was held at the IAEA Headquarters in Vienna from 2-6 November 2015 to present an overview of the BSS requirements in medicine and to provide recommendations and guidance on how to meet such requirements in medical facilities.

Representatives from member states including regulatory and health authorities, radiologists, technologists and physicists participated and exchanged practice experience and approaches on how to implement the new safety guide.

The five day course included training on roles and responsibilities and competencies of each professional including how to collaborate with regulatory bodies and health authorities.

All four international professional organisations: International Society of Radiology (ISR), International Society of Radiographers and Radiological Technologists (ISRRT), International Organisation for Medical Physics (IOMP), and European Society for Radiotherapy and Oncology (ESTRO) presented on how their organisations are contributing to the implementation of the BSS.

Professional organisations are identified in the BSS as having a key role in radiation safety and protection to the patient. Chapter 2 Section 2.61–2.69 in the safety series defines the role of professional bodies and describes how they are contributing to the radiation protection and safety in medical uses of ionising radiation. Setting standards for education is one of the professional body’s key roles as well as the following:

- Setting training standards;
- Setting qualifications and competence for given specialty;
- Setting technical standards;
- Giving guidance on practice;
- Developing referral guidelines and appropriate criteria for use in justification of medical exposure in individual patients;
- Adopting and developing resources and Quality Management System;
- Encouraging members to contribute to safety reporting and learning systems, e.g., Safety in Radiation Oncology (SAFRRON) and Radiation Oncology Safety Information System (ROSISS);
- Disseminating information on standards and guidance relevant to radiation protection and safety; and
- With health authority and radiation protection regulatory body establishing: DRL’s, dose constraints, safety guide for carers and comforters and volunteers in biomedical research, and criteria and guidance for release of patients after therapy.

ISRRT has developed a new web-based decision tool for radiographers for the Authorisation and justification of imaging procedures using ionising.

Technologists are the Front Line in imaging and the last person with patient before the exposure, so they have an important role in justification in the team approach. Technologists have a duty of care to review the requisition to ensure that it isn’t a duplicate and that the indication matches the guideline established by practitioner.

Although the ISRRT has been involved with many more projects I tried to highlight projects that were directly related to the BSS and Safety series. ISRRT collaborates with IAEA, WHO, HERCA, international professional organisations and other international NGO’s on stakeholder projects that affect our profession including the successes that have happened in the last few years. Examples include: “WHO - Communicating Radiation Risks in Paediatric Imaging to Support Risk – Benefit Dialogue For Referring physicians”, “Joint Position Statement on the IAEA Patient Radiation Exposure Tracking”, and “Referral Guidelines for Diagnostic Imaging For referring Physicians.”

Core members from the writing team of the Safety Series were invited to present in depth on how to meet the requirements in the BSS which are spelled out in the Safety Series. Session were dedicated to detailed discussions on how to improve radiation protection of patients, staff and public in diagnostic radiology and imaging-guided interventional procedures, in nuclear medicine and in radiation therapy, and actions needed to prevent unintended and accidental exposure.

Several powerful tools are identified in the BSS for optimisation of protection, including equipment design and maintenance, quality assurance program, equipment quality control, calibration, patient dosimetry, as well as optimisation of protocols for procedures, taking records and performing periodic reviews. As you can see, professional organisations play a vital role in radiation protection and safety.

Donna Newman, Director of Professional Practice, International Society of Radiographers and Radiological Technologists
Portuguese Speaking Countries Join Efforts to Improve Radiation Safety in Medicine: the Lisbon Commitment

More than 120 key stakeholders involved in the medical use of radiation participated in a Workshop on Justification and Optimisation of Medical Exposures held in Lisbon on 10-12 September 2015.

This was the first ever meeting on radiation safety in medicine for the Community of Portuguese-Speaking Countries (CPLP). It was co-organised by the Portuguese Society of Radiology and Nuclear Medicine (SPRMN), the Brazilian College of Radiology (CBR), the Lisbon School of Engineering, Science and Technology (IST), and the Coimbra School of Health Technologies (ESTeSC), co-sponsored by the World Health Organisation (WHO) in cooperation with the International Atomic Energy Agency (IAEA).

Radiologists, nuclear medicine physicians, radiographers, radiological technologists, nurses, medical physicists, occupational health professionals, hospital managers, health authorities, radiation regulators, and radiation protection experts worked together during nine plenary sessions and two breakout sessions to share experiences, identify challenges and opportunities and propose solutions to implement the Bonn Call for Action in the CPLP.

Participants coming from Angola, Brazil, Cabo Verde, Guinea-Bissau, Mozambique, Portugal, Sao Tome e Principe and Timor Leste approved the “Lisbon Commitment” ("Compromisso de Lisboa") to join efforts for improving radiation safety in medicine in Portuguese-speaking countries. They proposed actions to improve justification of diagnostic and interventional procedures, implement and use clinical imaging guidelines, enhance optimisation to reduce radiation exposure without compromising the diagnostic quality, encourage use of clinical audit in medical imaging, enhance radiation protection education and training of health professionals, strengthen patient safety culture, and promote technical cooperation between international agencies and national authorities.

More information available from the Brazilian College of Radiology, the Lisbon School of Engineering, Science and Technology.

Dr. Jose Venancio and Dr. Filipe Caseiro Alves, Portuguese Society of Radiology and Nuclear Medicine; Dr. Marcelo Valente, Brazilian College of Radiology; Prof. Pedro Vaz, Lisbon School of Engineering, Science and Technology; Prof. Graciano Paulo, Coimbra School of Health Technologies; Dr. Jenia Vassileva, International Atomic Energy Agency and Dr. Maria del Rosario Perez, World Health Organisation.

Compromisso de Lisboa

Por uma melhor prestação de cuidados de diagnóstico por imagem aos cidadãos dos Países de Língua Oficial Portuguesa,

a) Reconhecendo a importância que o diagnóstico e terapia por imagem representam na prestação de cuidados de saúde;

b) Tendo em consideração a permanente evolução tecnológica e a necessidade de estabelecer as melhores práticas no diagnóstico e terapia por imagem;

c) Atendendo ao incremento exponencial do número de procedimentos de imagem e o consequente aumento da exposição da população à radiação ionizante;

Os representantes dos Países da CPLP presentes no primeiro workshop sobre justificação e otimização das exposições médicas a radiações ionizantes acordam os seguintes princípios:

1. Criar mecanismos com vista ao estabelecimento de normas e orientações relativas à justificação dos procedimentos de diagnóstico e terapia por imagem;

2. Produzir orientações com vista à implementação de programas de otimização, com vista à redução da exposição à radiação ionizante, salvaguardando a integridade da qualidade diagnóstica;

3. Desenvolver mecanismos que conduçam à utilização generalizada de normas de orientação clínica no diagnóstico e terapia por imagem;

4. Definir e desenvolver ações de auditoria clínica que permitam monitorizar e avaliar de forma integrada o processo da realização dos procedimentos de imagem;

5. Cooperação no desenvolvimento da educação e formação dos profissionais de saúde no âmbito da justificação, otimização e proteção contra as radiações ionizantes, decorrentes de exposições médicas, com vista à implementação de uma cultura de segurança do doente;

6. Desenvolver estratégias com o objetivo de obter a ajuda e cooperação técnica das agências internacionais, em estreita ligação com as autoridades nacionais, principalmente no apoio à formação e ao desenvolvimento do conhecimento, das competências e das aptidões dos profissionais da área do diagnóstico por imagem e terapia.

Lisboa, 12 de setembro de 2015
The Second Regional IRPA-IOMP-WHO Workshop on Radiological Protection Culture in Medicine

The Second Regional IRPA-IOMP-WHO Workshop on Radiological Protection Culture in Medicine “Establishing a Sustainable Safety Culture Programme in Medicine” was held between November 30 and December 2, 2015, at the WHO Head Quarters in Geneva.

The International Radiation Protection Association (IRPA), based on an often low level of translation of radiation protection (RP) principles, rules and attitudes into daily practice, has taken an initiative to improve RP culture and issued the document “IRPA GUIDING PRINCIPLES FOR ESTABLISHING A RADIATION PROTECTION CULTURE”.

RP culture was defined by IRPA as “the way in which RP is founded, regulated, managed, performed and preserved by professionals but also reflects the attitudes, beliefs, perceptions and values that they share in relation to RP”. While RP principles, the basic safety standards and RP legislation are widely recognised, essential elements of RP culture are neglected in daily life, in medicine as in other areas of RP.

To mobilise the stakeholders in medicine, and to collect their feedback and ideas on how to improve RP culture, IRPA is currently organising several regional workshops in cooperation with IOMP and WHO; these will support the development of a document providing guidance for the establishment and maintenance of a radiation safety culture in health care settings. The first workshop had been held in Buenos Aires in spring 2015, and the Geneva meeting was the second. Others will follow in the other regions, namely in Africa but probably also in Asia and Northern America.

The Geneva workshop attracted 44 participants, most of them Europeans, representing the organising organisations, regulatory authorities, medical physicists and RP experts, radiographers, radiologists, radiation oncologists, cardiologists, dentists, referrers, the industry, and the patients.

The initial plenary sessions introduced the history, scope and purpose of RP culture, the views of the international organisations (IRPA, IOMP, WHO, ICRP, IAEA), and a report on the first regional workshop. Next, the stakeholders (as listed above) were asked to give their point of view on how to develop RP culture and to define 5 key issues. A panel round table discussed the options of moving forward with building RP culture in medicine. To discuss these issues in detail and to answer specific questions, four ad-hoc working groups were then created.

The groups had to define the key elements for establishing and developing RP culture in radiology/image-guided intervention, in nuclear medicine, or in radiotherapy whereas the regulators were asked for the key elements regarding organisational matters. Furthermore, a SWOT analysis was performed, the role of patients and patients’ associations was evaluated, and priorities as well as tools and indicators for assessing RP culture were discussed. The results of the group work were then presented to the plenum and discussed.

Some out of many key elements suggested were to:

- improve RP culture education by starting it with the medical students;
- improve justification by including patient information and informed content;
- introduce internal and external clinical audits;
- enhance inter-professional communication and cooperation; and
- systematically learn from mistakes.

As intended by the organisers, this workshop did not primarily prepare a guidance document. Rather, in this early stage, it was important to collect a broad spectrum of ideas that will be put together after the workshop in order to prepare a first draft. It was interesting to see the slightly different approach in South America and in Europe; summarized in a simplifying way, South-Americans tended to rely more on authoritative actions, Europeans more on individual responsibility and learning organisations.

There was a serious discussion on definitions and terms to be used (e.g. RP vs. safety, healthcare vs. medicine). On the other hand, there was consensus that different adapted approaches will be needed, e.g. at national and at local levels, and there was no opposition against the following four ways:

- strong leadership involvement;
- education and training of those involved in RP applications;
- creating positive and total awareness about RP at working places; and
- establishing adequate and proper communication processes among all the practitioners involved in RP applications.

Prof. Peter Vock, European Society of Radiology and International Society of Radiology delegate
The quality and effectiveness of the applications of radiation in diagnostic and interventional radiology, reside in the precision of increasingly complex examination equipment and in the implementation of radiation protection of patients.

Medical physics is the profession that ensures optimisation and quality assurance in medical applications of radiation, directly contributing to patient safety. Despite its importance in healthcare (as also underlined in the International Basic Safety Standards), the medical physics profession is still largely unrecognised in many countries, resulting, especially in Diagnostic and Interventional Radiology, in a lack of clinically qualified medical physicists.

Education and training requirements for medical physicists are very diverse internationally, mainly due to a lack of understanding of medical physicists’ role and responsibilities. To support international harmonisation of the medical physics profession, the IAEA published a set of specific guidelines centred on defining the framework of practice of a clinical medical physicist in the three subspecialties (radiotherapy, nuclear medicine and diagnostic and interventional radiology) and providing recommendations for academic education, including practical guidelines for the clinical training specific for every subspecialty (e.g. Clinical Training of Medical Physicists Specialising in Diagnostic Radiology).

Reference material required for the education of clinical medical physicists working in diagnostic imaging has also been developed and published in the Diagnostic Radiology Physics Handbook, consisting in 24 chapters where the essential physics of diagnostic radiology is given. Accompanying slides for each chapter are also offered with the aim of facilitating students and teachers who want to use this material.

Additional educational material is provided on the IAEA web platform dedicated to learning, the Human Health Campus. This web space is a free virtual resources centre, providing coverage for the main clinical topics and offering a selection of links to useful documents and scientific articles. Furthermore, the IAEA supports the diagnostic radiology work of clinical medical physicists through practical guidelines, issued according to international best practice. These publications cover different aspects of medical physics applied to diagnostic imaging including:

- Development of quality assurance programs, as applied to different diagnostic technologies such as Digital Mammography, Screen Film Mammography, Computed Tomography.
- Harmonisation of dosimetry practices, through code of practices in dosimetry: International Code of Practice for dosimetry in diagnostic radiology and its implementation guidelines related to specific clinical applications: Paediatric Patients, and Wide Cone Beam CT Scanners.

To promote and facilitate the use of education and training material, all IAEA publications are freely downloadable from the IAEA publications website and the IAEA Human Health Campus.

The IAEA also offers practical support to clinical medical physicists by providing calibration services to Member States that have no other national possibilities, through the IAEA Secondary Standard Dosimetry Laboratory (SSDL), located in Seibersdorf, in the framework of the IAEA/WHO SSDL Network.

Further customised on-the-field support is offered through the Technical Cooperation (TC) programme, responding to Member States’ requests and operating in four geographic regions (Africa, Asia and the Pacific, Europe and Latin America). The support offered, through national or regional projects, includes advice on planning, expert missions, scientific visits and fellowships for on-the-job training, training courses and procurement of equipment.

The IAEA also encourages research in medical physics through Coordinated Research Projects (CRPs), which bring together experts from high income and lower and middle income countries to collaborate and improve developments and learning on topics of common interest, but also to develop scientific networks that could support sustainable research beyond the time frame of the CRP. The role of the IAEA is to facilitate this exchange and to ensure that the end results of the research findings and recommendations are freely available to all its Member States, usually through a publication in the form of a report. Examples of ongoing CRPs in Diagnostic Imaging are: “Evaluation and Optimisation of Paediatric Imaging” and “Advances in Medical Imaging Techniques (doctoral CRP)”.

Section of Dosimetry and Medical Radiation Physics, Division of Human Health, Department of Nuclear Sciences and Applications, International Atomic Energy Agency
Inspired by the advantage of a multidisciplinary approach, efforts have been encouraged to integrate the expertise in these different fields towards innovative advances in radiological sciences. Many scientific achievements in NIRS, including cancer therapy with carbon ion beams, molecular imaging with PET, and basic research on the effects of radiation, are based on an intensive collaboration among the experts of these fields. This multidisciplinary team with their breadth and depth of expertise in radiological sciences have made a significant contribution to the management of the nuclear accident in Japan five years ago.

The most striking outcome of recent joint efforts at NIRS is demonstrated by the successful development of cancer radiotherapy with carbon ion beams. Since the first clinical trial started in 1994, the total number of patients who have participated in clinical studies has reached over nine thousand. Significant improvements have been accomplished during the past two decades in treatment planning, irradiation techniques, and treatment in combination with chemotherapy, resulting in excellent treatment outcomes with improved prognosis.

However, the introduction of sophisticated new technology, such as carbon ion beam therapy, requires a careful consideration of each treatment process. Based on its experience, the NIRS team contributed to a recent ICRP publication on ion beam radiotherapy and provided guidance on radiation protection for this new technique [1].

NIRS aims to develop standards in radiological practice in cooperation with academic societies and international organisations. One of these is the Forum for Nuclear Cooperation in Asia (FNCA) project to establish standardised treatment protocols and QC/QA programs for external beam radiotherapy in Asian countries [2]. Another is a joint project with the Japanese Society of Nuclear Medicine to establish the QC program of clinical PET based on Good Manufacturing Practice (GMP) standard for production of PET radiopharmaceuticals. NIRS supports the activity of the Japan Network for Research and Information on Medical Exposure (J-RIME) which established the first diagnostic reference levels (DRLs) in Japan for the optimisation of medical exposure in diagnostic imaging and nuclear medicine [3].

Training medical professionals in radiation medicine is another important pillar of NIRS. As an IAEA Collaborating Centre, the training program covers three fields: ion beam radiotherapy, molecular imaging, and the effects of low-dose radiation. NIRS is a designated WHO Collaborating Centre for radiation emergency medicine (REM). More than five hundred medical professionals all over the world have visited NIRS to receive REM training during the past fifteen years. The most recent training course was held in NIRS in December 2015 in cooperation with IAEA and WHO gathered fourteen medical professionals from thirteen countries.

References:

2. Forum for Nuclear Cooperation in Asia website

Prof. Yoshiharu Yonekura MD, PhD, President, National Institute of Radiological Sciences, and Chair, Japan Network for Research and Information on Medical Exposure

Participants and staff in “NIRS Training Course on Radiation Emergency Medicine in Asia” held in Chiba in December 2015.
The Journal of Global Radiology (JGR), launched in April 2015, has just published its second issue. The mission of this open access radiology journal is to help bridge gaps in medical imaging between the developed and the developing societies. JGR seeks to improve global medical imaging access, quality, and education.

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New Journal Aims To Help Ensure Medical Imaging Access For All

This peer reviewed online journal focuses on general and local factors specific to communities of focus. JGR highlights opportunities for technology transfer and research, opinions and experiences that are at the centre of the differences between rich and poor environments. Subjects will include equipment availability, infrastructure, radiologists, technologists, training and education, socio-politico-economic factors and disease patterns, innovation in equipment and consumables, manufacturing, business entrepreneurship, and service delivery.

Editor in Chief Sarwat Hussain MD, FRCR, FACR of the University of Massachusetts, USA stated “The JGR promotes awareness of the state of radiology services and the skills of the workforce in the developing world. In that context, the journal will publish contents to foster dialogues with individuals and organisations that share visions of building and establishing cost effective and relevant diagnostic radiology services for all citizens in the world, through communication, collaboration, education, and advocacy.”

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