Guidance issued on radiation dose monitoring software

The mission of the UK’s National Institute for Health and Care Excellence (NICE) is to provide national guidance and advice to improve health and social care. A recent innovation briefing (MIB127) issued by NICE in NOVEMBER 2017, provides advice on the use of radiation dose monitoring software for medical imaging with ionising radiation to aid local decision-making. The technologies described in the briefing are eight radiation dose monitoring software technologies from different suppliers. The systems automatically gather and analyse information on patients’ exposure to ionising radiation from medical imaging and X-ray-guided procedures.

The systems described and the producing company are DOSE (Qaelum); DoseM (Infinitt); DoseMonitor (PACS Health); DoseTrack (Sectra); DoseWatch (GE Healthcare); DoseWise (Philips); OpenREM (OpenREM); Teamplay (Siemens Healthineers). Dose-related data from medical imaging with ionising radiation can be systematically collected, monitored and analysed in a largely automated way with the systems. The technologies are designed to improve image quality while minimising radiation exposure to the patient. The intended use of the systems is to replace manual radiation dose data collection for people undergoing medical imaging with ionising radiation. The key points from the evidence summarised in this briefing are from ten studies investigating three of the technologies. Most of the evidence comes from retrospective observational studies, four of which are available as conference abstracts only. The software varies in technical features, allowing for various ways to acquire and analyse data from different kinds of imaging. Key uncertainties of the briefing are that published evidence is only available for three of the included technologies. None of the studies were comparative. The cost of the technologies ranges from no cost to £20,000 per year, depending on local requirements. Some companies also charge a fee per modality price that varies according to patient numbers, whereas some offer the software as free and open source. With adequate resource input and time to implement the technologies, the resource impact may be faster and more detailed audits of radiation exposure data compared with standard manual audits.

Dutch national breast cancer screening program decides on mammography systems

Hologic has announced that, in partnership with Tromp Medical, Hologic’s distributor in the Netherlands, it will provide all mammography systems for the Dutch Breast Cancer Screening program. Under the tender, Hologic’s new, state-of-the-art 3Dimensions mammography systems will be installed in mobile and stationary screening facilities across the country, starting in 2018. The multi-year agreement is the result of a comprehensive public procurement process conducted by Facilitaire Samenwerking Bevolkingsonderzoeken (FSB) on behalf of the five regional screening organizations responsible for nationwide breast screening in the Netherlands. The Dutch Breast Cancer Screening program provides women between 50 and 75-years-old with a mammogram once every two years. Through the program, approximately 1.3 million women in the Netherlands are invited for screening each year. “Hologic is grateful for the opportunity to extend access to its new, state-of-the-art 3Dimension system to Dutch women starting in 2018,” said Jan Verstreken, Hologic’s Regional President for EMEA and Canada. “We were proud to learn that during the procurement process, the 3Dimensions system was ranked number one in ergonomics and patient comfort by clinicians and screening participants, and are hopeful that all Dutch women will take advantage of the invitation to get screened on this system.” On behalf of the five regional screening organizations, the FSB launched a public procurement process in 2016. A special prioritization was placed on finding new digital mammography systems that would improve the ergonomics of the screening experience for clinicians and the participating women. In addition to extensive testing among clinicians, a group of 30 participants in the screening program underwent tests on the equipment of all bidders. Both clinicians and participants ranked the 3Dimensions system number one in ergonomics and patient comfort.

In Europe, the 3Dimensions system is available in both 3D and 2D configurations. The 2D system is easily upgradeable to Hologic’s 3Dimensions, which has been shown to detect up to 65 percent more invasive breast cancers and is the only mammogram approved by the U.S. Food and Drug Administration as superior for women with dense breasts compared to 2D alone.

HOLOGIC,
MARLBOROUGH, MA, USA
www.hologic.com
CE approval for capsule endoscopy system

The Silicon Valley-based company CapsoVision has announced CE Mark approval for its CapsoCam Plus System in patients ages 2 and above. The systems is the only wire-free capsule endoscopy system on the market that provides a full 360° panoramic lateral image of the small bowel mucosa.

“Gastroenterologists and patients have told us that CapsoCam Plus provided them with comfort and convenience compared to other capsule endoscopy systems,” CapsoVision President Johnny Wang said. “Since CapsoCam Plus does not require patients to wear a data recorder as with ordinary capsule endoscopes, these benefits are more pronounced for use with younger patients and their caregivers.”

The incidence of Inflammatory Bowel Disease (IBD) in pediatric patients worldwide is on the rise, particularly in Europe. According to a recent report commissioned by United European Gastroenterology (UEG), childhood onset of IBD now accounts for 20-30% of all IBD cases. Capsule endoscopy is one of the tools that pediatric gastroenterologists use to identify abnormalities of the small bowel that may lead to an IBD diagnosis.

Dr. Salvatore Oliva, pediatric gastroenterologist at the Sapienza University of Rome, Italy, gave a presentation discussing the use of CapsoCam Plus in patients ages 2 and above at the recent United European Gastroenterology Week (UEGW) in Barcelona on October 31, 2017.

CapsoVision mission is defined as being to strive to empower physicians and patients with innovative technologies that will provide superior clinical outcomes and improve quality of life. CapsoVision is currently working in 70+ countries through strong distribution partners.

With advanced ultrasound processing built into Lumify hand-held ultrasound transducers, a physician simply needs to download the Lumify app to a compatible tablet or smartphone, connect the transducer and initiate the scan. The Lumify enables physicians to make fast, informed decisions where needed, to facilitate more expeditious care.

Featuring exceptional image quality, Lumify has a variety of clinical applications, including cardiology, abdominal, musculoskeletal, lung and obstetrics/gynecology exams. Equipped with the full range of transducers, physicians have the ability with Lumify to assess a number of different potential injuries.

“Philips’ app-based ultrasound delivers exceptional image quality through a compatible smart device,” said Carmen Silverstandt, Business Manager Ultrasound at Philips Benelux. “This supports our vision of putting high-quality industry news...
ultrasound in the hands of more professionals to serve more patients in more locations."

Philips and PSV Eindhoven have a unique partnership that spans more than a hundred years. Philips employees founded PSV in 1913, and since then the soccer club, which is based in Eindhoven, has played in both national and European leagues. Philips has been closely involved with PSV’s activities, not only as sponsor but also by providing cutting-edge technologies to support the club.

PHILIPS EINDHOVEN, THE NETHERLANDS
www.philips.com

Three new subspecialty radiology journals launched

The Radiological Society of North America (RSNA) has announced that it will begin publication of three new subspecialty journals in 2019. The journals will be published solely online and will cover the topics of cancer imaging, cardiothoracic imaging and machine learning/artificial intelligence.

The cancer imaging journal will address cancer screening, differential diagnosis and treatment planning across imaging subspecialties, organ systems and modalities and present an interdisciplinary perspective on cancer imaging.

The cardiothoracic imaging journal will emphasize research advances and technical developments in imaging that drive cardiothoracic medicine.

The machine learning/artificial intelligence journal will highlight the emerging applications of machine learning and artificial intelligence in the field of imaging across multiple disciplines.

“The RSNA Board of Directors is tremendously excited about the society’s new journals,” said board chair, Dr Valerie P. Jackson. “These will build upon RSNA’s long tradition of publishing the premier journals in our field”.

RSNA currently publishes two peer-reviewed journals. Radiology is the authoritative reference for the most current, clinically relevant and highest quality radiology research. RadioGraphics, with its educational content, is a leading source for earning continuing medical education credits. The new journals will complement Radiology and RadioGraphics and provide a way to keep practicing physicians and imaging researchers up-to-date on the best emerging science in each subspecialty.

RSNA members will receive access to all of these journals as a benefit of membership. The subspecialty journals will accept new submissions in 2018 and will also provide a forum for transferred submissions within the family of Radiology journals. Each journal will contain a mix of original research and topical reviews. The search for editors for the journals will begin in November 2017.

www.rsna.org

No end in sight for UK’s radiologist staffing crisis

Figures recently released by The Royal College of Radiologists (RCR) underline the increasingly desperate situation in UK radiology, with the ongoing shortage of imaging doctors making late hospital diagnoses and delayed scan results a very real likelihood for patients.

In 2016 the NHS paid out an estimated £88 million for out-of-hours reporting of X-rays and CT scans, while nearly two-thirds of vacant radiologist posts sat empty for 12 months or more.

Key findings of the Clinical radiology UK workforce census 2016 report include;

Nearly one-in-ten UK radiologist posts (8.5%) were vacant during 2016, nearly two-thirds of which (61%) were unfilled for a year or more

The need for scans continues to grow. In England from 2013-16 the number of computed tomography (CT) and magnetic resonance imaging (MRI) scans respectively rose more than 30% - three times more than the rate of workforce growth. Technological advances mean that these scans are more complex than ever before and take longer to interpret.

The high proportion of retirements versus new consultant numbers means the UK’s radiologist workforce will expand by just 1% year-on-year.

The workforce report highlights the critical UK-wide problem of not having enough imaging doctors to fill hospital vacancies.

Across the UK as a whole, 8.5% of radiologist posts are unfilled. In Wales, 13.1% of posts are vacant, whereas Northern Ireland has the highest vacancy rate, with 20% of posts now empty.

Around a fifth of the radiologist workforce is going to retire across the UK, England and Scotland within the next five years, whereas in Wales that number jumps to 30%.
The UK has the third lowest number of radiologists per population of 31 audited EU countries, with 7.5 clinicians (radiology trainees and consultants combined) per 100,000 patients. The EU average is 12.7 per 100,000.

Meanwhile, the NHS continues to spend millions to cover the shortfall in radiologists. Last year, the UK spent an estimated £87.9m on paying for its backlog of radiology examinations to be reported, with the bulk spent by English hospitals (£71.2m). Northern Ireland spent £6.5m in 2016, Scotland £4.6m and Wales £4.5m.

Dr Nicola Strickland, President of The Royal College of Radiologists, said:

“So much of modern healthcare depends upon diagnostic imaging scans and interventional radiology.

“The UK Government seems intent on sticking its proverbial head in the sand, constantly failing to invest in the much-needed trainee radiologists who will become the consultants of tomorrow. Instead, it is content to waste millions of pounds of NHS funds paying for scans and X-rays to be reported out-of-hours, as well as paying for expensive locum consultants just to keep hospital imaging departments afloat.

“Previous RCR workforce figures have made grim reading, and sadly 2016 numbers show there is no end in sight for the UK’s ongoing shortage of radiologists. The only lasting way to sort out this problem is to invest now in training many more radiologists, which will more than pay for itself in the near future”.

“Scans are integral to patient care, and demand for X-rays, MRI and CT scans is growing every year. As well as doctors having more scans to report, improving imaging technology means these scans are becoming ever more complicated, taking longer to interpret. Cutting-edge radiology, such as life-altering stroke intervention and cardiac imaging, can only keep pace if we have enough radiologist doctors to do it. Without more radiologists, more patients will miss out on vital new interventional procedures, and they will wait even longer for diagnoses of cancer and serious diseases.”

Clinical trial results published of intraoperative imaging technology in breast cancer surgery

Lightpoint Medical, a medical device company focused on developing innovative imaging technologies to improve cancer surgery, today announced positive clinical trial results for its intraoperative imaging technology in breast cancer surgery. The first-in-human clinical trial showed that intraoperative molecular imaging was a feasible, low-risk, and accurate procedure for assessing tumor margins intraoperatively. The study was conducted by Guy’s and St Thomas’ Hospital London, UK and published in the Journal of Nuclear Medicine. Breast-conserving surgery (BCS), also called lumpectomy, is the primary treatment for early-stage breast cancer yet approximately 1 in 4 patients undergoing BCS will need to undergo repeat surgery. Repeat operations are required so frequently because surgeons lack a means to precisely detect the cancer in the initial surgery. Intraoperative molecular imaging potentially provides a means to assess the extent of cancer during surgery and reduce the need for repeat operations. The study’s Principal Investigator, Professor Arnie Purushotham from King’s College London and Guy’s Hospital, commented: “We’re delighted to present these exciting first-in-human results on the use of intraoperative molecular imaging in breast-conserving surgery. This clinical trial showed that molecular imaging agreed strongly with gold standard pathology and was straightforward to interpret. Although the technology is still in its early days, we believe intraoperative molecular imaging holds considerable promise for improving clinical outcomes in breast cancer patients.”

Dr David Tuch, CEO of Lightpoint Medical, said: “These pilot clinical trial results are an important step in Lightpoint Medical’s mission to provide clinicians with more accurate tools to guide cancer surgery. We look forward to undertaking further clinical trials to validate these results in larger patient populations.”

The LightPath Imaging System is CE Marked and approved for sale in the European Union. The clinical trial was supported by funding from Innovate UK, Cancer Research UK King’s Health Partners Experimental Cancer Medicine Centre, Guy's and St Thomas’ Charity, and the National Institute for Health Research (NIHR) Biomedical Research Centre at Guy’s and St Thomas’ NHS Foundation Trust and King’s College London.

REFERENCES

www.lightpointmedical.com