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Uncertainties in Proton Radiotherapy
Master Zubin
National Cancer Centre Singapore, Singapore

Synopsis:
Protons are a fantastic particle to deliver radiotherapy, capable of giving a high therapeutic dose to the target while significantly reducing OAR and integral doses in the body. However, they are incredibly sensitive to many factors, and there are many 'uncertainties' associated with the delivery of protons, which need to be managed very carefully to deliver proton therapy safely to the patient. We will discuss some of the main uncertainties in proton therapy and how they can be managed.

Treatment Planning Optimization in Proton Therapy – NCCS experience
Ashley Ong
National Cancer Centre Singapore, Singapore

Synopsis:
The presentation will be focusing on the use of intensity modulated proton therapy (IMPT) in treatment planning. A brief introduction on proton physics provides an overview on the differences between proton and photon as well as the associated uncertainties that need to be considered to maximize the dosimetric advantage of proton dose distribution. Robust planning and evaluation to simulate worst case scenarios will also be presented. Proton planning on challenging clinical cases and the dosimetric differences between the two modalities will be reviewed. In-depth discussions on the use of protons in pediatrics and the significant reduction in integral dose to various organs at risk will be shared. Lastly, apart from performing robust optimization in treatment planning, the use of image guidance and adaptive planning are the essential steps to minimize uncertainties in proton dose delivery.

Various roles of proton therapy: clinical perspective
Taeyoon Kim
National Cancer Center, South Korea

Synopsis:
In the recent decades, radiation therapy has been remarkably advanced.
Proton therapy, using charged particles, is one of the most advanced modalities, and it has been given more roles to play over time in the radiation treatment field. However, there are some limitations of using proton therapy because of its specific characteristics such as range uncertainties and motion management. To achieve a better treatment outcome in proton therapy, an appropriate treatment technique must be carefully considered. There has been a lot of research to prove the effectiveness of proton therapy for various treatment sites. This presentation explains the characteristics of proton beam delivery techniques and introduces various roles of proton therapy in clinical aspects.

ROBotic assisted UltraSonography sysTem (ROBUST) for radiographers in the healthcare industry
Rafidah Abu Bakar
Singapore General Hospital, Singapore

Synopsis:
The increase in demand for healthcare workforce due to the aging population has compounded the shortage of ultrasound radiographers and increased work-related musculoskeletal disorder (WRMSD). To work around this problem, a group of ultrasound radiographers from SGH and SKH had used technology to support their work. This presentation shares experiences on the collaboration with the physiotherapists and industry partners, and the various stages of developing and assessing the clinical feasibility of an ultrasound robotic arm system called ROBUST (ROBotic assisted UltraSonography sysTem).

Red Dot Commenting System in CGH – Past, Present and Future
Jun Jet Wong
Changi General Hospital, Singapore

Synopsis:
Commentary on the Red Dot Commenting System (RDCS) formation in CGH, the current landscape and impact for Singapore healthcare as well as its potential evolution in the future.

The Radiographer Preliminary Image Evaluation: What is happening in Australia
Andrew Murphy
Princess Alexandra Hospital, Australia

Synopsis:
Since 2013 the expectation of radiographers to identify abnormal images on radiographs and alert referrers has been a requirement by the Medical Radiation Practice Board of Australia. Despite these expectations, uptake has been slow and sometimes stifled by both radiographs and other professional colleges. This is a continuation of a systematic review of radiographer led Preliminary Image Evaluation (PIE) in Australia. We screened all the available literature exploring this topic to ascertain why it is working or why it is not. Since this review, there have been exciting developments into the rollout of PIE in Australia; this presentation will be an overview of the policy and literature of PIE in Australia and how we can ensure effective implementation of PIE in local departments

Redefining Tomorrow's Radiography
Wei Yow Sim
Singapore General Hospital, Singapore

Synopsis:
COVID-19 has affected all healthcare institutions around the world. Since the outbreak in 2020, we have observed changes to the way we care for patients, our personal protective equipment requirements etc. In Singapore, radiography imaging remains a crucial component in aiding the diagnosis and screening of COVID-19 patients. Join me in a virtual journey to review current radiography practices, evidence-based practices and to look ahead towards the future for innovations that may impact radiography practices.

SCIENTIFIC ORAL COMPETITION ABSTRACTS

Routine X-ray QC testing adapted from RANZCR and AAPM 190 Recommendations – Our Experience So Far at NUH
Koon Liang Chia, Jannie Beatrice Antonio Tingcay
National University Hospital, Singapore

Purpose: In diagnostic imaging, Quality Control (QC) tests are a component of the Quality Assurance (QA) program. We share our experience and lessons learnt from implementing x-ray QC tests adapted from the RANZCR General X-ray QA and QC Guideline Version 1 and the Report of the AAPM Imaging Physics Committee Task Group 190.
Methods: In brief, the tests were carried out for room x-ray CR and DR systems, and encompass DAP indicator accuracy, x-ray light-field alignment, image uniformity and artefact evaluation, and consistency of AEC response.
Results: Some of our findings include: a 9mm x-ray light-field misalignment after an x-ray tube change, a DAP chamber overresponding by 78%, and a previously undiscovered dent in a grid. Remedial actions were carried out by contacting the service engineers for their assessment and follow-up where necessary
Conclusion: We concluded that these routine x-ray QC tests are an essential cornerstone for identifying and correcting possible x-ray equipment deviations to ensure that patients are imaged safely and optimally.