CTE 2 – Interactive (Technologists/EARL)
Sunday, October 22, 11:30-13:00

Session Title
Technologist Role in Research and EARL Accreditation

Chairs
Ronald Boellaard (EARL, Groningen)
Giorgio Testanera (London)

Programme
11:30 - 11:50 Kunthi Pathmaraj (Melbourne): Research Opportunities as a Nuclear Medicine Technologist
11:50 – 12:10 Ronald Boellaard (EARL, Groningen): EARL Accreditation Projects and Possible Evolution
12:10 - 12:30 Giorgio Testanera (London): Technologist Involvement in Accreditation and Future Directions
12:30 - 13:00 General Discussion

Summary
In 2010, the European Association of Nuclear Medicine (EANM) initiated a programme for the accreditation of PET/CT scanners using [18F]fluorodeoxyglucose (FDG) in order to support compliance with requirements regarding quality control and quality assurance of PET/CT systems. The programme, run within the scope of EANM Research Limited (EARL) activities, is based on the *FDG-PETand PET / CT*: *EANM procedure guidelines for tumour PET imaging*: *version 1.0*, published in the *European Journal of Nuclear Medicine and Molecular Imaging* (*EJNMMI*) in the same year (Boellaard et al. 2010). This widely accepted guideline aims to provide a minimum standard for the acquisition and interpretation of PET and PET/CT scans obtained with FDG.
The FDG-PET/CT accreditation ensures harmonised quantitative performance of PET/CT systems within a multicentre setting through the standardisation of acquisition and processing of PET/CT scans. This rigorous harmonisation of the imaging systems enables PET/CT sites to compare, exchange and combine FDGPET/CT findings as data are collected and processed. Standardised uptake values (SUVs) can also be reliably used owing to the resultant reduction in inter-/intrainstitute variability (Boellaard et al. 2013). The standardisation achieved by the accreditation programme relates to imaging procedures and methodology, including patient preparation, scan acquisition and image processing and analysis, which is of the utmost importance for quality assurance in daily clinical practice as well as in multicentre trials. The EANM/EARL accreditation programme represents a successful model for the implementation

of a system to improve quality in clinical trials and clinical practice. The cost of the process is negligible compared with the benefits that can be conferred by such a programme.
The programme is going to be extended, with application of quality accreditation not only to other fluorine-18-labelled radiopharmaceuticals but also to radiopharmaceuticals labelled with other radionuclides, such as zirconium-89 or gallium-68.
Other future activities for the EARL accreditation programme will be related to the standardisation of advanced imaging techniques, the use of PET/MR scanners and therapeutic applications of radiopharmaceuticals.

Educational Objectives

- Shortly introduce to the meaning of EARL including the benefits of being an EARL accredited
  centre
- Give an overview on how research project are performed in Nuclear Medicine Departments
- Describe the importance the role of Nuclear Medicine Technologist in performing scanning procedure for Clinical Trials.
- Notify the processes involved in EARL accreditation
- Analyse the importance of reproducibility of results and standardisation of methodology throughout the centres
- Describe quality controls needed for scanner accredited for clinical trials
- Identify education and training for Nuclear Medicine Technologist involved in both research and accreditation

Key Words

Accreditation, Quality Controls, Standardization, Technologist Education, PET/CT, SUV

Take Home Message

Quantitative PET-CT with surrogate markers is growing in importance as fundamental tool for evaluating effects of therapy in oncological clinical trials enrolled patients. It is fundamental that scanners and professionals ensure high quality and reproducibility of studies. This can be achieved through accurate quality controls of scanners and technologists' accuracy in performing examinations.