

EARL Accreditation Projects and Possible Evolutions

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In 2010 the European Association of Nuclear Medicine (EANM) initiated a PET/CT system accreditation program under the EANM Research Ltd (EARL) to enable quantitative multi-center FDG oncology studies by harmonising PET/CT system performances^[1,2,3]. The program has been running very successfully for almost seven years now and the database contains data from more than 150 PET/CT systems located worldwide. Over the past years several new technological developments took place, such as the introduction of hybrid PET/MR systems and PET/CT systems with digital PET technology and improved image reconstruction algorithms that include a resolution model of the PET system (so-called PSF reconstructions). Because of these new evolutions PET/CT system performances have changed, although to date still 50% of the PET/CT systems in the field do not contain one of these new technologies. In addition, there is increased interest in the use of other isotopes such as 89Zr to evaluate the uptake and distribution of antibodies^[4] and 68Ga labelled to PSMA. Finally, there is a need to support multicentre quantitative brain PET imaging studies.

In this presentation current status of the EARL PET/CT program and an overview of the results obtained during the last 6 years will be given. Moreover, we will address the evolution of the EARL PET/CT specification to accommodate new PET/CT technologies and to prepare the EARL program for the next generation of PET/CT systems. Other new initiatives are the start of a 89Zr accreditation program and a first feasibility analysis of harmonizing PET/CT systems for quantitative (FDG) PET brain imaging. Finally, we have shown that hybrid PET/MR system performances can be harmonized to the same extend as PET/CT system provided use of dedicated phantom MR attenuation correction sequences and procedures^[5].

References:

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