32ne Annual Congress of the European Association of Nuclear Medicine | October 12-16, 2019







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Control/Tracking Number: 2019-T-1692-EANM Activity: Technologist Programme Current Date/Time: 10/21/2019 7:56:03 AM

Analysing and improving working procedures in radiopharmacy laboratories in three European countries

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Abstract:

Aim/Introduction: Introduction: The finger doses of technologists preparing radiopharmaceuticals can be quite high, exceeding the annual dose limits. Recommendations to reduce radiation exposure for standard nuclear medicine procedures were developed. Despite these efforts, differences in preparing and administering radiopharmaceuticals exist. **Aim:** The aim of the project was to improve a daily routine in three European countries focusing on radiation protection and aseptics in radiopharmacy. Materials and Methods: All together 15 healthcare professionals from 10 hospitals in three countries participated in the project. In a first-round participants were asked to film their daily radiopharmaceutical preparation. These films were analysed using a checklist based on the human health campus of the IAEA, with a focus on sterility and radiation protection. A score was given on 56 items during the different stages. Participants wore finger dosimeters over a period of three to four weeks to see if a correlation could be found between the procedures used and the dose to the fingers. In February 2019 participants started an eight weeks on-line refresher-course which addressed different aspects of radiopharmacy work. The course contained tasks, readings, videos and discussions. In a second round the filming process and finger dosimetry were repeated. Results: The baseline results varied between countries. Based on analysed films 57% scores were positive. This means that in the three countries 43% of the manipulations in the hot lab did not comply with the IAEA guidelines. For some items only a few complied with IAEA guidelines. When only the manipulations related to radiation safety are considered 56% of all participants comply with the guidelines. Regarding the manipulations related to sterility 46% of all technologists complied to the guidelines. These results ask for attention since there is a strong urge for sterility when preparing material for injecting patients. The results from finger dosimeters are not yet available. Course feedback will be available in summer and second round finger dosimeter results in late summer. Conclusion: The results of the first-round show that there is a need to improve daily routines in the radiopharmacy laboratories in the participating countries. The results also show that the IAEA guidelines might need an update. An online refresher course on daily routine in the radiopharmacy laboratory was presented to the participants. We expect to have data on the impact of this course on daily routine and finger doses of the participants in late summer or early autumn 2019. References: none :

Author Disclosure Information:

G. De Mol: None.

Topic (Complete): 5.3 General Radiopharmacy **Disclosures (Complete)**:

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