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

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Background

- The finger dose of NM workers could exceed the maximum skin dose limit of 500 mSv, averaged over 1 cm2 (ICRP, 2007)
- For the same type of work, there is a wide range of exposure
- Feedback from students after internships show the need for improvement (BE)

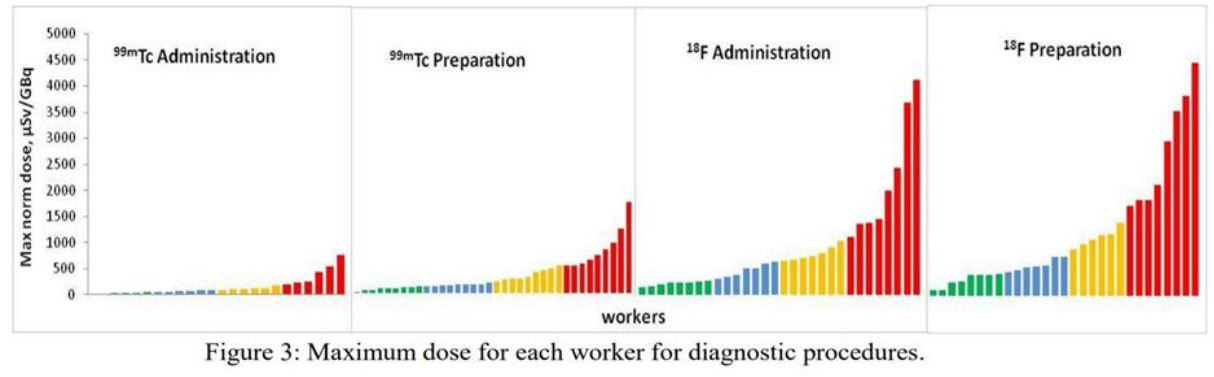

Figure 3: Maximum dose for each worker for diagnostic procedures.

Guidelines to Optimize Extremity Monitoring and to Reduce Skin Doses in Nuclear Medicine. Results of the ORAMED Project M. Ginjaume , A. Carnicer , M. Sans Merce , S. Baechler , I. Barth , L. Donadille , P. Ferrari , M. Fulop , G. Gualdrini , S. Krim , F. Mariotti , X. Ortega , A. Rimpler , N. Ruiz and F. Vanhavere
Radiation dose to the hands of nuclear medicine workers: a challenge for accurate assessment

Aim

- Analyse routine working procedures
- Development and implementation online course
- Can an online course, in which student interact, improve working procedures in radiopharmacy laboratories ?

Selection of participants

- Invitation via national professional bodies
- Open for hotlab workers
- All eligible candidates selected:

  - 10 departments
  - 15 participants
    - BE: 5 departments, 6 participants
    - FI: 3 departments, 4 participants
    - SLO: 2 departments, 5 participants

Material and method

- Analysis of the routine procedures
    1. Filming daily routine
    2. Compared to a checklist based on IAEA Human Health Campus
    3. Monitoring finger dose (each participant and a colleague)
- Development of an interactive online course
- Running the course with an international group of participants
- Re-analysis of the routine procedures
    1. Repeating step 1 tot 3 first analysis

Results analysis routine procedures

	Pre online course %	Post online course %
Overall score BE, FI, SLO	59	66 + 7%
Radiation protection BE	43	55
Radiation protection FI	70	73
Radiation protection SLO	63	83
Sterility BE	32	40
Sterility FI	68	72
Sterility SLO	38	51

In depth: radiation protection

	Pre online course %	Post online course %
Use 10 ml syringe shield during lab. proc. BE	0	0
Use 10 ml syringe shield during lab. proc. FI	67	67
Use 10 ml syringe shield during lab. proc. SLO	25	75
Use tongs to put syringe in dose calibrator BE	0	0
Use tongs to put syringe in dose calibrator FI	0	0
Use tongs to put syringe in dose calibrator SLO	0	0

In depth: sterility

	Pre online course %	Post online course %
Entering the hotlab BE	19	19
Entering the hotlab FI	85	90
Entering the hotlab SLO	28	39
Disinfect LAF cabinet BE	17	17
Disinfect LAF cabinet FI	100	100
Disinfect LAF cabinet SLO	50	100
Disinfect rubber closure vials BE	17	50
Disinfect rubber closure vials FI	67	50
Disinfect rubber closure vials SLO	63	63

Finger dosimetry

Unfortunately these results are not yet available

Conclusion

	Active participation online course %
BE	95
FI	90
SLO	60

- Active participation only during weekdays, not weekends
- A lot of encouragement is needed to get participants active on discussion fora
- Some participants were offended despites open minded discussion
- Demonstration movies are considered very useful

- An online course can change routine working procedures in radiopharmacy laboratories to a certain extent
- Despite a positive evolution there is still a lot of room for improvement
- Hotlab workers often cannot independently decide on many necessary adjustment/changes but should get a greater sense of responsibility, especially when these adjustments/changes can influence the patient’s and his/her own health