

Every Micro-Sievert counts in PET/CT

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Introduction

Radiation dose exposure is extremely important to the mobile PET/CT Health Care Worker. Staff could get larger monthly doses than their contemporaries working in static sites. This is generally down to wall shielding and a smaller working area. As a result staff need to work together as a team, follow a system of work and be very aware of every micro-sievert when dealing with their patients. The InHealth staff working on the NHS PET/CT South contract have successfully reduced their monthly dose exposures through diligence and imagination.



Giving instruction from a distance

Here are the different areas that we have attributed our success to.

We have found that one of the things that help the most in keeping our doses down is preparation of the patient;

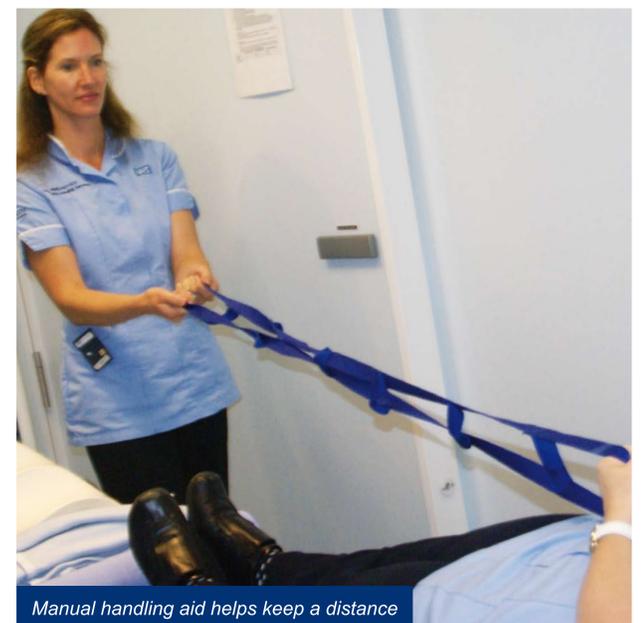
- We explain to them that we are going to be keeping are distance and why. Most are very happy once they know we are protecting ourselves and work with us in keeping distance
- We try to get our chatty conversations out of the way pre injection
- If patients have major mobility problems then they are advised when booking to bring someone with them that can help with moving and wheelchairs
- We get the patients to do as much as they can on their own.

Equipment design has helped;

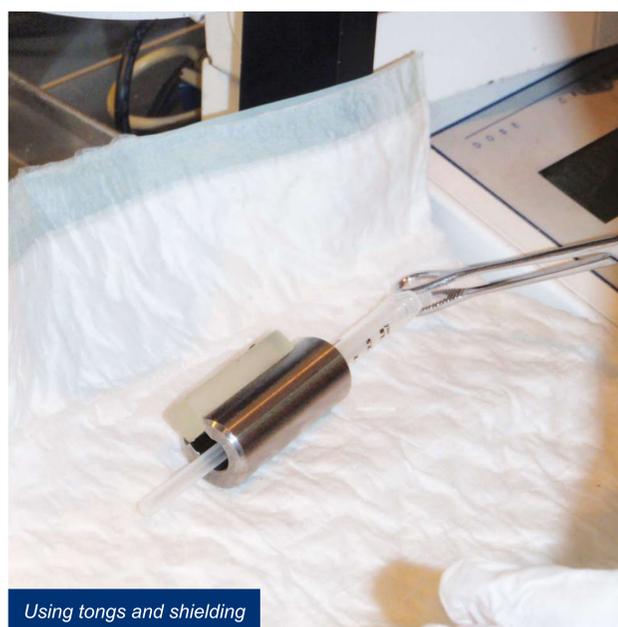
- The trailers have been equipped with remote buttons that operate the doors and lift. This enables you to open them without getting near the patients
- If we are speaking to patients who are in the uptake bay area then we use the lead doors as a shield as much as possible
- Our manual handling aid used for helping patients to sit up also helps us keep a distance.
- Purpose made dispensing area with sunken calibrator well chamber and waste bin.

Refining the system of work on the ground by looking at every detail has been the main input from the RPS:

- You do not need to be standing right next to most patients to advise them about getting on and off the bed
- When escorting patients to a remote toilet we no longer just keep 1 meter distance from them. We keep 3 meters and walk behind. This enables us to control spacing better
- We utilise the information from the Radiation Dose Scenario map provided by our Physics department
- We also share the radiation workload equally
- When injecting the isotope we make sure that the syringe shield is positioned correctly and that there is a trolley on the side that you are working so that it is a quick process
- If there is more than one patient that needs the lift then this is shared by more than one worker. We try to avoid getting on the lift if possible by using the remote buttons for its operation. The patients' carer is on the lift with them at this time
- Speed has come with practice in performing tasks and has brought down exposure levels. You need to combine speed with use of shielding and tongs for the best results.



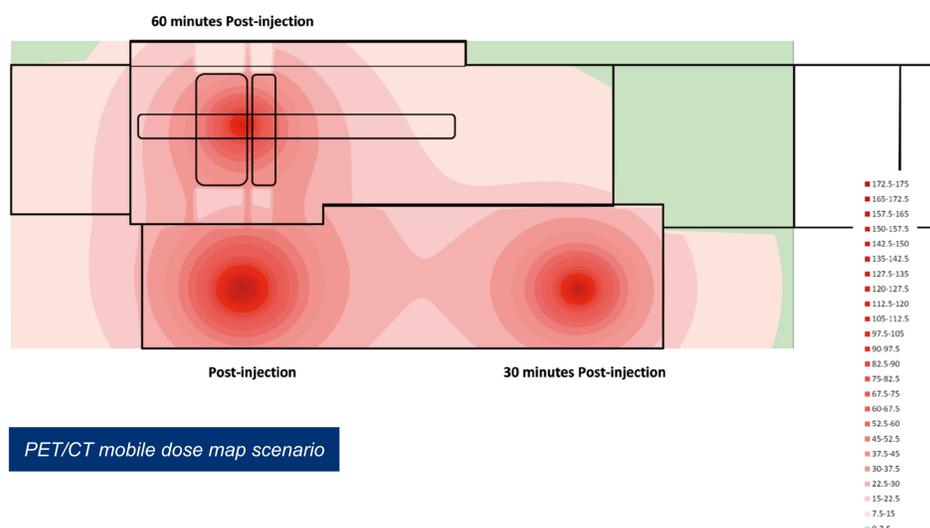
Manual handling aid helps keep a distance



Using tongs and shielding

Monitoring

- The RPS also keeps a close eye on the monthly dosimetry and discusses readings with staff. Practice is occasionally reviewed
- We do an occasional workload study to see who is getting their exposures with which task
- Finally, we also make good use of our electric dosimeters. They are useful for a rough comparison with your work colleagues, but more importantly, they allow you to critique your own exposures for a given task and work on reducing them.



Conclusion

We use the basic principles of distance, shielding and time. They are just used to an extreme level. For the total of the last calendar year nobody reached the investigation level with the TLD badge readings. Individuals may have had occasional investigation for a month but this was good incentive for them to work harder on the details. These mobile PET/CT units were first used in 2008. The average staff dose in July 2008 was reduced 37% by June 2009 and 65% by June 2010. This reduction has been due to support from the company, advice of RPA, use of equipment, teamwork and maintaining good practice once a standard had been reached. It is mainly due to hard work and innovation by the staff.