Reduction of Dose with Our New Siemens 3D PET/CT Scanner & MEDRAD Dose Administrator

The Problem
In order to achieve acceptable imaging results:
- High energy doses of radiopharmaceuticals administered for a PET/CT scan needed to be manually handled and injected by the technologist.
- One standard dose is given to all patients with a standard higher dose given to obese patients.
- This resulted in high doses for some patients and insufficient dose for other patients.
- Technologists were routinely being monitored at the ALARA II level.

Aim/Goal
Using our new Time of Flight 3D PET/CT scanner, our goal is to:
- Reduce the patient dose of radiopharmaceuticals injected for PET/CT scans (F-18 FDG)
- Reduce the dose our technologists receive when handling radiopharmaceuticals during patient injection and patient positioning.

The Team
Jeffrey English, Dace Jansons and Gerald Kolodny

The Interventions
- Using the MEDRAD dose administrator, individualized doses of radiopharmaceuticals were calculated based on the patient’s BMI.

The Results/Progress to Date
- A 46% decrease in the dose of radiopharmaceuticals received by patients and technologists due to the lower radiopharmaceutical requirements of our new PET/CT scanner.
- Using our new MEDRAD dose administrator, there is an additional average dose reduction to our technologists of 30%.

Technologist Average Monthly Badge Readings

Lessons Learned
By applying new technology, it is possible to lower patient and technologist radiation dose without sacrificing quality of imaging.

Next Steps/What Should Happen Next
- We intend to further our efforts to lower patient and technologist radiation dose by examining additional factors that bear on radiation burden to patients and technologists.

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