

## Abstract

**Goal:** To determine the amount of exposure to radiation one receives using a specific type of lead pig.

**Methods:** Radiation doses were measured using a solid-state detector through both lead and tungsten radiopharmaceutical containers (pig). With a dose greater than 50mCi Sodium Pertechnetate, measurements were taken at the surface, 1/2 meter, 1 meter, and 1 1/2 meters away from the source. Measurements were also taken using 10mCi of  $^{18}\text{F}$ -FDG at the same distances. These measurements were performed on six radiopharmaceutical pigs, three were made of lead and three were made with tungsten.

**Results:** The greatest radiation exposure comes when the top of the pig is off and is pointing directly at the detector from about 1/2 meter away, with both lead and tungsten. The last result showed that with higher energy gammas from  $^{18}\text{F}$ -FDG, a standard radiopharmaceutical pig could shield the radiation to within Nuclear Regulatory Commission standards.

**Conclusion:** From the results, there was no variation great enough to determine the best material to shield radiation. Although the pigs did shield the radiation for higher energies, the amount of gamma exposure still coming from the container would exceed the maximum amount of 5rem for a given person in a year.