

# OCCUPATIONAL RADIATION EXPOSURE DURING CERTAIN INTERVENTIONAL PROCEDURES

A. Zailae\*<sup>1</sup> & A.Sulieyman<sup>2</sup>

Presenting author; [zaym77@gmail.com](mailto:zaym77@gmail.com)

<sup>1</sup>King Saud Medical City (KSMC), Ministry of Health, Kingdom Riyadh, Saudi Arabia

<sup>2</sup>Prince Sattam bin Abdulaziz University, College of Applied Medical Sciences, Radiology and Medical Imaging Department. Alkharj, Kingdom of Saudi Arabia

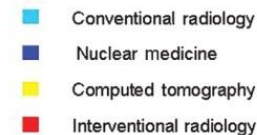
# Presentation outline

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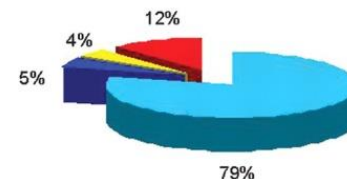
# Introduction

- Cardiac catheterization remains the gold standard and an essential component in the diagnosis and treatment since its emergence in the last century .
- Interventional procedures are only 12% of all radiological procedures but contribute to about 48% of the total collective dose per head in the adult cardiological patient (Bedetti G et al 2008).



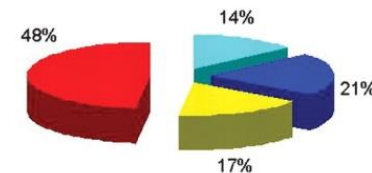
(a) Frequency of examinations

N= 2,256



(b) Total collective dose

mSv= 4,150



# Introduction

- A number of radiation induced skin injuries have been reported in patients undergoing cardiac interventions and younger patients may face an increased risk of future cancer.
- This observation alerts the radiological community reduce the potential for radiation-induced skin injuries



Spiker,2012



Fig.1 skin injury (www.fda.gov)

# Objectives

- The purposes of this study were to measure staff radiation dose during interventional cardiologic procedures before and after training program of radiation protection.

# Materials and Methos

- Staff were monitored using thermoluminescent dosimeter (TLD) chips for 118 procedures ( 27 procedures before the training program and the 91 procedures after the training program).
- Staff doses were monitored in 5 locations: forehead, thyroid, leg and chest.
- 



**Figure 1: A &B: GR 200A chips**

# Results

- The mean radiation dose for cardiologist were before the training program were: 0.9 mGy for the forehead, 0.95 mGy for the thyroid, 1.42 mGy for the chest, 1.31 mGy and 1.44 mGy for the leg and for the hand.
- and the total effective dose was 0.09mSv .
- while the mean radiation doses for assistant were 0.78 mGy for the chest, 0.91 mGy for the hand and the total effective dose was 0.06 mSv.

# Conclusions

- A reduction of radiation dose for staff up to 45% was obtained after the training program.
- High patient and staff exposure is due to the lack of training and experience and protective tools.
- Interventional procedures remain operator dependent; therefore, continuous training is crucial.



# References

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**Thank you for your attention**