

# Occupational and patient exposure in interventional cardiology in Bosnia and Herzegovina

A. Beganović<sup>1</sup>, B. Bašić<sup>2</sup>, M. Gazdić-Šantić<sup>1</sup>, A. Skopljak-Beganović<sup>1</sup>, A. Drljević<sup>1</sup>, D. Samek<sup>3</sup>

<sup>1</sup>Dept. of Med. Physics and Rad. Safety, Clinical Centre of Sarajevo University, Sarajevo, Bosnia and Herzegovina,

<sup>2</sup>Radiation Protection Centre, Institute of Public Health, Sarajevo, Bosnia and Herzegovina

<sup>3</sup>Veterinary Faculty, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

# Monitoring occupational exposure

- Monitoring of professionally exposed workers in Bosnia and Herzegovina started in 1960s.
- It was interrupted 1992 and resumed in 1999 when the IAEA provided TLD-reader (Harshaw 4500) and the first set of TLDs.



# Dosimetry in interventional cardiology

- In 2002 staff in interventional cardiology was provided by a set of two dosimeters – one to be worn under, and other above the lead apron.



# Staff doses

Period	Monitored workers	Measurably Exposed Workers <sup>a</sup>	Annual Collective Effective Dose (person Sv)	Average Effective Dose (mSv)	
				Monitored workers	Measurably Exposed Workers
1999–2003	51	37	0.14	2.7	3.6
2004–2008	86	54	0.18	2.1	3.2

<sup>a</sup>Workers who received  $\geq 1$  mSv/y

# Staff doses

- In comparison with doses in other practices, the interventional cardiology is on the second place.
- Higher doses are reported in industrial radiography.



# Patient doses

- Regarding patient doses, it is safe to say that interventional cardiology is most likely to cause deterministic effects (skin erythema) due to radiation overexposure.
- DAP-meters and radiochromic films were used to assess patient doses. The results differ for diagnostic (CA) and therapeutic (PTCA, stent placement) procedures.

# Patient doses

Procedure	Average Kerma Area Product (Gycm <sup>2</sup> )	Average Peak Skin Dose (Gy)
CA	22.5	0.1
PTCA	52.5	0.7
Stent placement	44.4	1.0

# Conclusions

- The results of occupational and patient doses in interventional cardiology are similar to results reported in literature.
- It is of great importance for professionals working in this field to be educated in radiation protection and proper use of x-ray equipment. This would improve their safety and safety of examined patients.