

# Survey on patient doses in cardiology in Latin America. Criteria for high skin doses follow up

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## Abstract

As part of the International Action Plan for Protection of Patients and supporting by the IAEA, a survey on patient doses in fluoroscopy guided procedures in cardiology in Latin America has been conducted since 2006. One of the objectives of the survey was to set criteria for the identification and evaluation of high skin doses in a certain number of patients to recommend a clinical follow up for potential radiation injuries (more than 3 Gy at the skin).

The used methodology for the survey was initiated with two dedicated workshops held in Santiago de Chile (2005) and San Jose de Costa Rica (2007) involving relevant cardiologists from 15 different Latin American Countries. Some sessions were also attended by experts from the Regulatory and Health Authorities. Standardized forms to collect demographic and patient dosimetric data were agreed. Considering that most of the involved centres had still not dosimeters installed in the cardiology x-ray systems, it was agreed to collect data on fluoroscopy time and total number of cine frames per procedure. Relevant factors influencing radio sensitivity of the skin were also collected.

Data from 10 countries representing a sample of 709 patients were received during the first year. Procedures included were diagnostic (DG) (coronary angiography and electrophysiology studies), therapeutic (TH) (percutaneous transluminal coronary angioplasties, cardiac ablations and valvuloplasties) or including both DG and TH. A total of 26 patients (3.7%) were selected for potential high skin doses. Initial considered criteria for selection were more than 30 minutes of fluoroscopy, more than 3,000 cine frames per procedure or patients with more than 100 kg of weight.

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Maximum reported values were 72 minutes and 8,100 frames. In addition, 5 of these patients were diabetic, 6 have previous fluoroscopy procedures and 5 were over 95 kg.

The percentage of selected cases for clinical follow up derived from potential skin injuries seem reasonably and in agreement with other reported values. It must be highlighted that this approach has significant inaccuracies derived from the different dose rates in fluoroscopy and the different dose per frame in cine, but it is an available practical solution for the follow up of the patients when built-in dosimeters are not available in the x-ray systems used for these procedures.

***KEYWORDS: interventional cardiology, patient dosimetry, skin radiation injuries.***