

PROPOSAL FOR A PATIENT DATABASE ON CARDIAC INTERVENTIONAL EXPOSURES
FOR EPIDEMIOLOGICAL STUDIES

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Patients submitted to cardiac interventional procedures can receive relatively high organ doses due to long exposure times as well as to repetition of diagnostic and therapeutic procedures. Local skin doses up to some Sv have been reported. Doses up to one hundred mSv can also be estimated to lungs, while oesophagus, stomach and bone marrow can be irradiated to doses of the order of tens of mSv.

These findings suggest the opportunity to define these patients as a cohort to be followed forward in time to examine the occurrence of radiation-induced stochastic effects in an epidemiological study of the cancer risks associated with exposure to low dose ionising radiation.

To assess the risks of specific types of cancer, it is desirable to use the radiation dose to the organ under study. Organ doses can be reconstructed on basis of patient records and exposure measures in combination with dedicated computer models.

Though the type of cardiac fluoroscopy-guided procedures is fairly limited, nevertheless it is important to reach a consensus on their classification (nomenclature) or grouping in order to allow common assessment and comparison of doses.

For sufficient information to provide accurate dose assessment, a minimum dataset to be collected for every procedure would comprise: type of procedure, fluoroscopy time, number of exposures, total *Kerma-area-product (DAP)*, *Cumulative dose (CD)* to *Interventional Reference Point (IRP)*.

While CD can be used as a surrogate for maximum skin dose (though it tends to overestimate it), KAP measures can be used for organ dose estimation provided that patient-specific Monte Carlo simulations are available for the various types of procedures. For this, observational studies in every centre are needed to determine the technical factors of a typical procedure.

The proposed minimum dataset should be stored in a computerised database for every procedure and retrieved on a patient basis. It would be desirable to link this data to the hospital (or regional) patient information system in order to retrieve all the x-ray exposures of a given patient.

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