

Radiology during pregnancy: risks, radiation protection in medical practice, and communication with the patient

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Purpose: Radiation protection practices differ between hospitals when it comes to radiology during pregnancy. To remedy this best practices were identified by a literature review, interviews with radiographers, and interviews and a survey among pregnant women.

Materials and Method: The literature review was used as input for both the interviews and the survey. The interviews were conducted with 52 radiographers in focus group sessions. Three main topics were selected: (1) dose reduction, (2) confirmation of pregnancy, and (3) risk communication. In addition, 150 recently pregnant women were involved: 10 were interviewed and 140 filled in a questionnaire.

Results: The literature review showed: (1) deterministic effects will in radiological practice never occur, because of the threshold dose of around 100 mGy; (2) stochastic effects have not been observed in recent studies, but may occur when the fetus is inside the X-ray beam. However, even for high dose procedures, the risk is very low.

The outcomes of the focus groups were: (1) no consensus about shielding when the fetus is outside the X-ray beam, (2) better justification by requesting physicians, (3) a need for a multi-lingual, informative website and (4) a need for a list of dose-reducing measures. (5) Both the requesting physician and the radiographer should inquire after pregnancy (because of the time between request and actual procedure).

The interviews with pregnant women showed that radiation risk information fell short. The survey indicated that 68% would like to have information about radiation risks beforehand. Most women (56%) chose a pictogram matrix as their preferred way to visualize the risk.

Conclusions: The scientific literature shows that risks of radiology during pregnancy are minimal, but anxiety among patients can be reduced by proper communication about radiation risks and uniform evidence-based procedures in all hospitals.