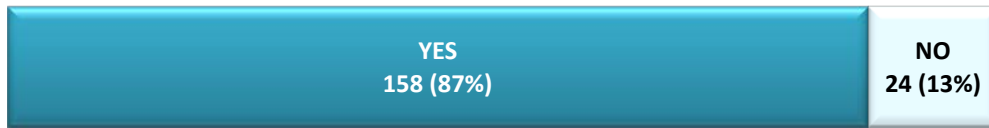


The survey comprised 30 questions grouped in 5 sections. The summary of the responses is presented herewith.

I. Declaration of Pregnancy

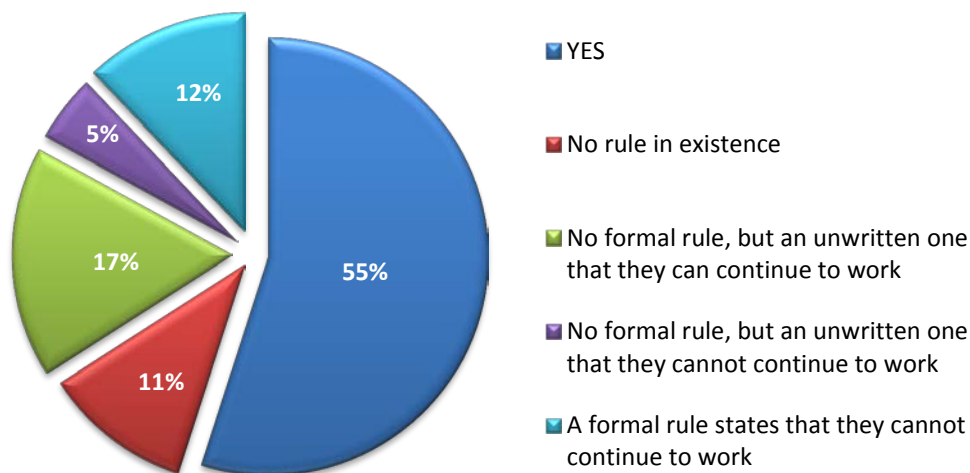
Does your facility/hospital have a formal policy or administrative procedure for the declaration of pregnancy in female workers? (182 responses)



If yes, is the declaration a regulatory requirement or is it voluntary? (158 responses)



Does your facility/hospital have a formal policy that states that declared pregnant workers can continue to work? (182 responses)



II. Risk Assessment & Monitoring

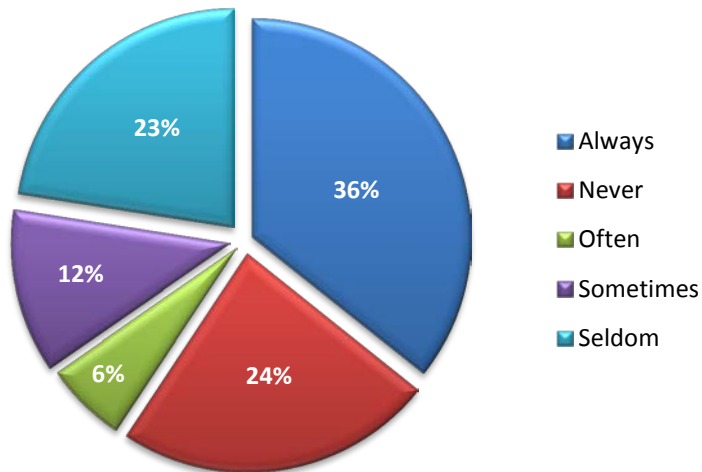
Do you have a regulatory limit for foetal exposure in your medical facility? (182 responses)



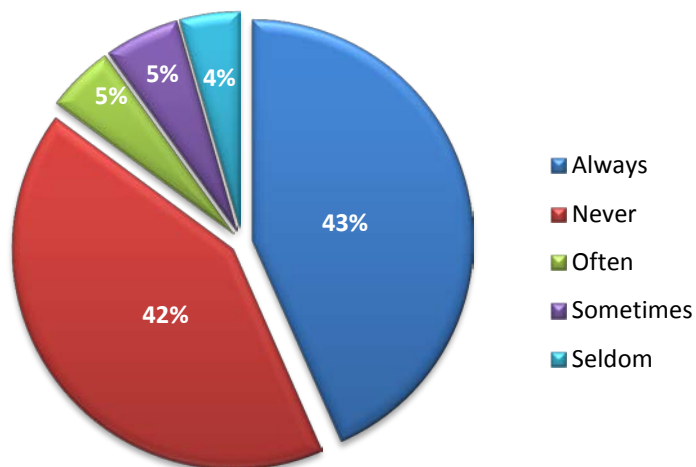
If yes, how much is the dose limit for the entire pregnancy? (151 responses)



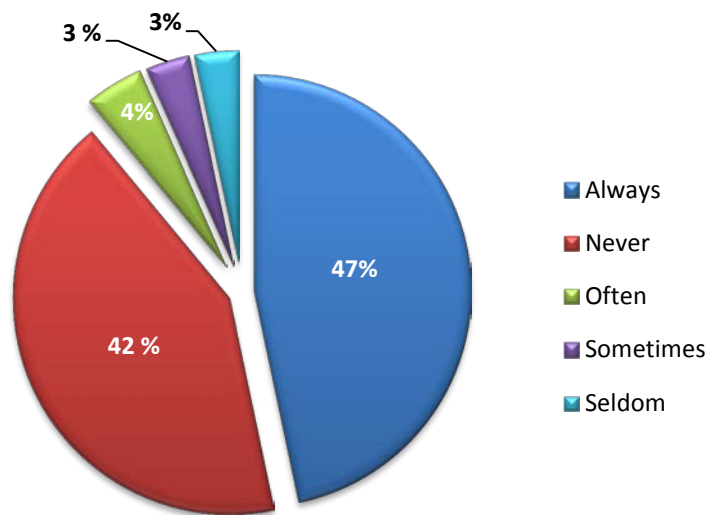
Do you carry out individual risk assessments for potential foetal exposures for declared pregnant workers? (182 responses)



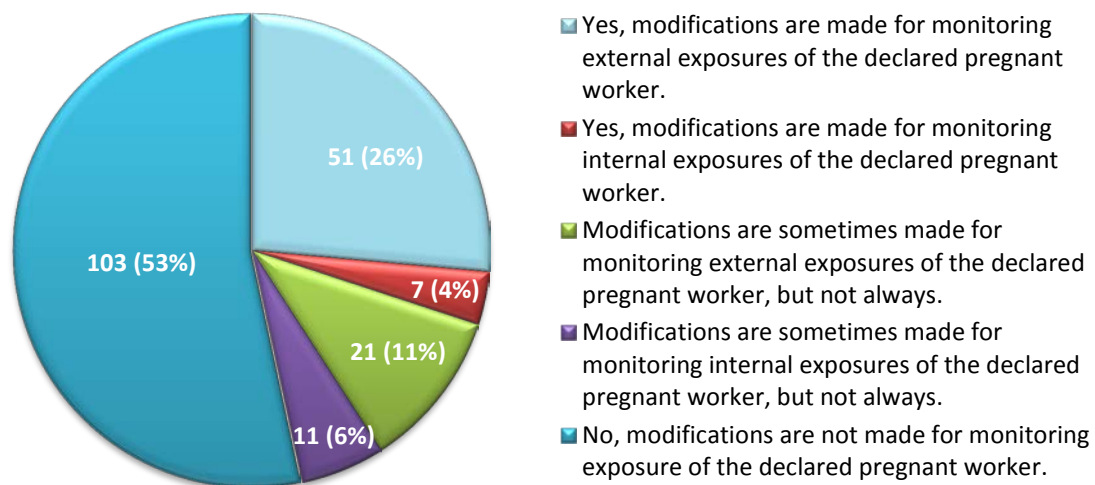
Do you provide a separate dosimeter for foetal dose monitoring? (182 responses)



Are foetal doses recorded along with the doses from the main dosimeters of declared pregnant workers? (182 responses)



Are any modifications made to the radiation exposure monitoring programme for declared pregnant workers? (182 responses, some of the responders has indicated more than 1 answer)



If yes, please specify the modifications.

Frequent answers:

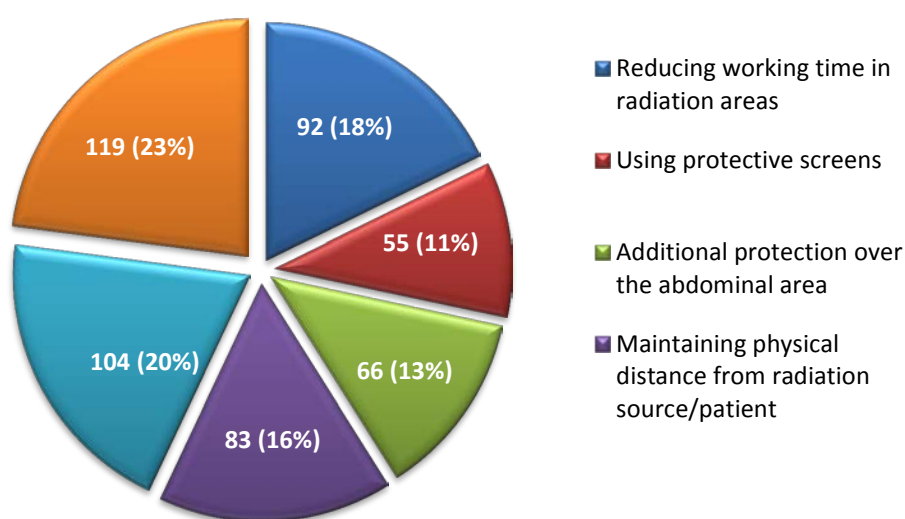
- Additional dosimeter for foetal monitoring is positioned in abdomen (EPD, OSL, TLD) (21)
- The scope of work for declared pregnant worker is changed (12)
- 3-monthly control period changed to 1-monthly control period or higher monitoring frequency (10)

III. Safety Measures

Does your facility/hospital have a formal policy or regulation regarding safety measures for the protection of declared pregnant workers? (182 responses)



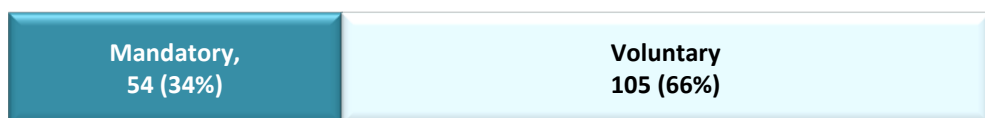
What safety measures are performed or instructed to be performed for the protection of fetuses and pregnant workers? (519 responses, some of the responders has indicated more than 1 answer)



Can pregnant workers be assigned to different work or moved to a different department within the facility/hospital where potential exposure is lower? (182 responses)



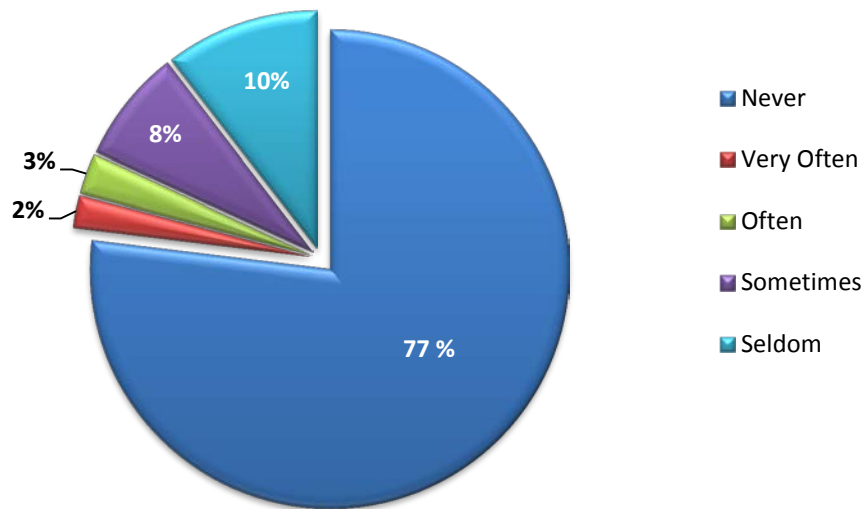
If yes, is this mandatory or voluntary? (160 responses)



Are pregnant workers allowed to work in areas where there is a potential for internal exposure? (182 responses)



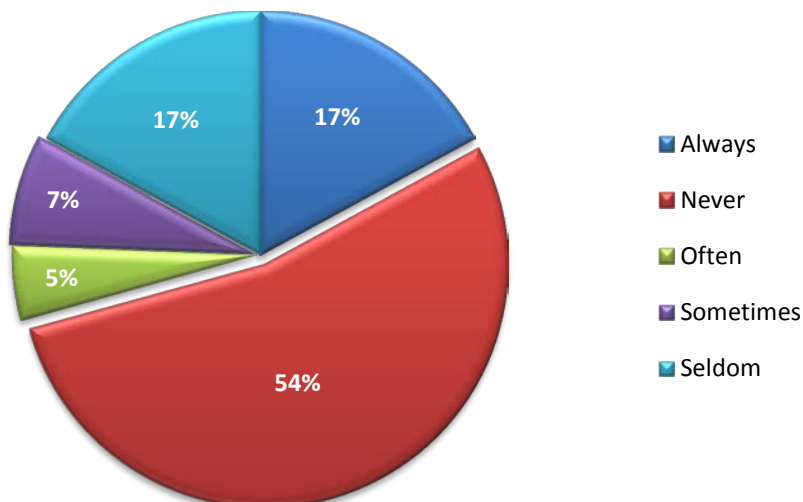
Have there been any cases where a pregnant worker was dismissed from their job or was moved to another job against the pregnant worker's wishes? (182 responses)



IV. Breastfeeding Among Nuclear Medicine Workers

Answers to this section were provided by 123 (68%) of all respondents.

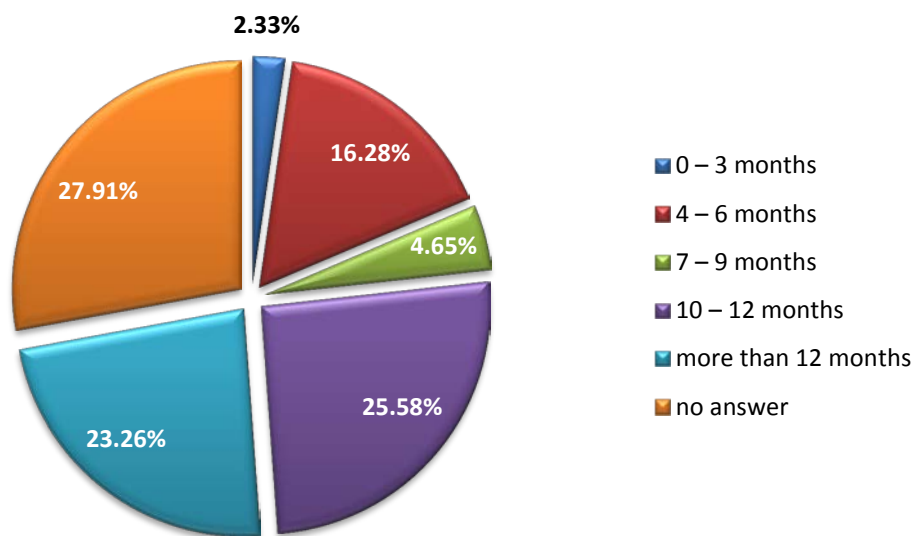
Do you perform a separate risk assessment regarding breastfeeding for workers who have returned to work, especially for ones working with unsealed radiation sources? (123 responses)



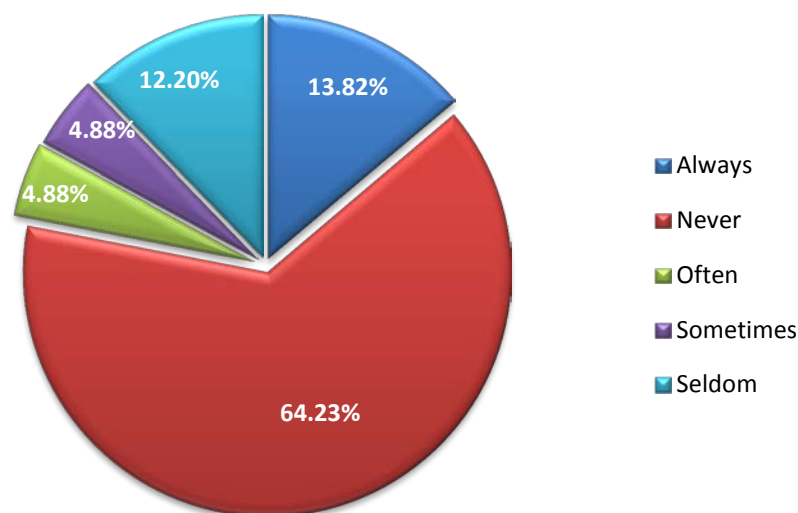
Do you have a formal policy or regulation in which employers assume that workers breastfeed after the delivery of a child? (123 responses)



If yes, how long do you assume that the employee will breastfeed their child? (43 responses)



Do employees submit formal notification about their breastfeeding status and duration? (123 responses)



Do you have a set of rules, regulations, or safety measures in place to protect breastfeeding employees? (123 responses)

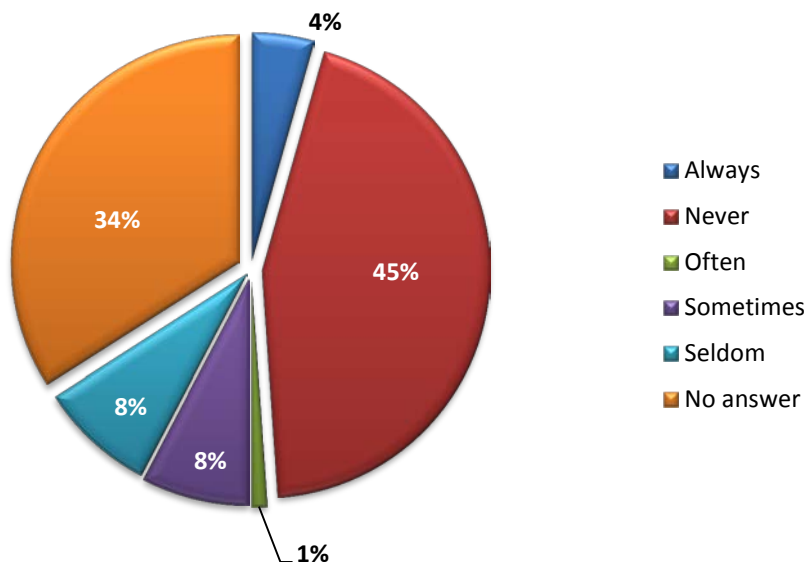


If yes, please specify the rules (16 responses)

- Prohibition by law to work with ionizing radiation (7)
- Women-employees do not work during breastfeeding period/ for 1 year after childbirth (3)
- Others (6) – e.g. financial support, period of rest during breastfeeding

V. Guidance & Training

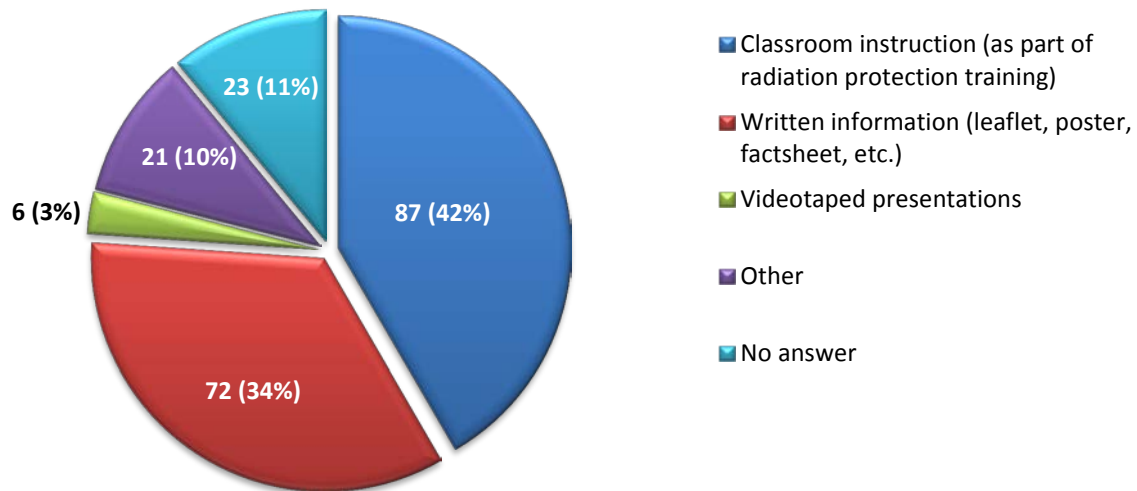
Do you carry out individual risk assessments for potential exposure to a breastfed child? (123 responses)



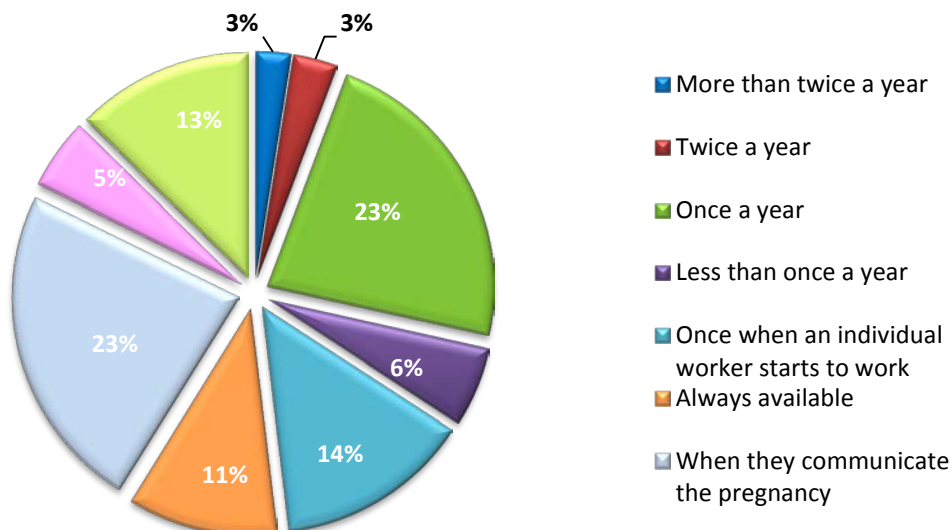
Do you have a formal policy or regulation which states that all female workers should be informed about the radiation risks posed to a potential foetus or breastfed child? (182 responses)



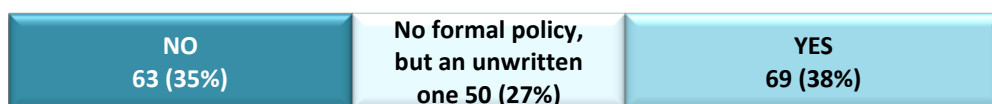
If yes, how are these instructions issued? (158 responders, some of the responders has indicated more than 1 answer)



If yes, how often is this instruction given? (140 responses)



Do you have a formal policy or regulation which states that a declared pregnant or breastfeeding worker should be further informed and trained on how to restrict exposure to the embryo, foetus and new born child? (123 responses)



If yes, how are these instructions issued? (129 responses, some of the responders has indicated more than 1 answer)



Conclusions

The survey demonstrated big variations in policies, procedures and practices among different Member States and different facilities, prompting for more guidelines and actions.

There is no requirement in the [International BSS, GSR Part 3](#) [1] for a female worker to notify the licensee that she is pregnant, but it is necessary that female workers understand the importance of making such notifications so that their working conditions may be modified accordingly. GSR Part 3 establishes requirements for the employers, in cooperation with registrants and licensees, to provide female workers with appropriate information in this regard (GSR Part 3 [1], para. 3.113 (b)).

The employer of a female worker, who has been notified of her suspected pregnancy, is required to adapt the working conditions in respect of occupational exposure so as to ensure that the embryo or fetus is afforded the same broad level of protection as is required for members of the public (GSR Part 3 [1], para. 3.114).

The limitation of the dose to the embryo or fetus does not mean that pregnant women should avoid work with radiation, but it does imply that the employer should carefully review the exposure conditions with regard to both normal exposure and potential exposure. A possible solution includes reassignment of a pregnant worker to a location that may have lower ambient dose equivalent; for example, from fluoroscopy to radiography or to CT. Such reassignments should be accompanied by adequate training. In nuclear medicine, a pregnant worker may be restricted from spending a lot of time in the radiopharmacy or working with solutions of radioiodine [2]. The main risk with radioiodine is that it crosses the placental barrier and concentrates in the fetal thyroid. A further consideration is the need to avoid having pregnant workers respond to an accident such as a radioactive spill, or in radiotherapy with a cobalt-60 unit or an HDR brachytherapy unit.

When the dose limit of 1mSv is applied for the embryo or fetus, the reading of the dosimeter may overestimate the dose to the embryo or fetus by a factor depending on the energy and type of the incident radiation (by a factor 10 for low energy X rays and by a factor of about 2 for cobalt-60 and MeV X rays) [2]. The dose to the fetus should be monitored using an additional dosimeter that is appropriately positioned. Information, advice and, if indicated, counselling for pregnant workers should be made available.

[1] EUROPEAN COMMISSION, FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, OECD

NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, WORLD HEALTH ORGANIZATION, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Series No. GSR Part 3, IAEA, Vienna (2014).

- [2] INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION. Pregnancy and Medical Radiation. ICRP Publication 84. Ann. ICRP 30 (1), (2000).