

International Radiation Protection Association

**IRPA Task Group on the Impact of the Implementation of the Eye Dose Limits**

**Questionnaire**

*January 2019*

In 2012 IRPA established a task group (TG) to identify key issues in the implementation of the revised eye lens dose limit. The TG reported its conclusions in 2013[1-2]. In 2015, a second TG was created to review progress with the implementation of the recommendations from the early report and to collate the practitioner experiences. Recommendations derived from the survey were approved by IRPA Executive Council on 31 January 2017 and published in IRPA report[3-4] .

This questionnaire is distributed to all the IRPA Associate Societies (ASs) with the objective to collect and report the experience and the evaluation of the IRPA community about: the methods for monitoring dose to the lens of the eye and protecting the eye lens; and the implementation of the revised lens dose limit in the different countries and occupations, such as medical applications (including radiology, interventional radiology and cardiology, nuclear medicine, etc.); nuclear applications, and industrial applications in general. While filling in the questionnaire, you will be requested to specify the occupation to which you are referring. At the same time this is an opportunity to have the view of the professionals of the IRPA ASs about wider issues, including the attention being paid to tissue reactions.

**Topic 1 Implications for Dosimetry:**

This topic concerns the implications for monitoring and assessing dose to the lens of the eye and the interpretation of the results.

**Q1.** What is (are) the method(s) used for the assessment of the equivalent dose to the lens of the eye? Consider and specify in terms of the location, the types of dosimeters and the use of correction factors. For example, what methods are used by staff involved in medical imaging with X-rays, for which there are a number of alternatives: use of double dosimetry (over-apron at neck and under-apron at chest), use of a single collar dosimeter, outside the apron, use of a supplementary dosimeter placed in a position adjacent to the eye, and methods for obtaining an indication of exposure to both the eye lens and whole body or deriving eye lens equivalent doses from whole body ones. Consider both passive and active dosimeters.

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**Q2.** Have there been or is your country involved in pilot studies on lens dosimetry? Please specify details or references and any result of your related experience.

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**Q3.**  For workers, a prospective risk assessment should be performed *a priori*, taking into consideration also the estimate of the equivalent dose to the lens of the eye that an individual worker is liable to receive. Is it considered, as recommended, to proceed to individual monitoring to compare results with prospective risk assessments?

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**Q4.** Which level of exposure to the lens of the eye for a worker is proposed in your country as significant (or even seen as a constraint) for the need of routine monitoring (for example for assessed/calculated equivalent dose per year of 15 mSv, 10 mSv, 6 mSv, 5 mSv, …)?

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**Q5.** Are there any foreseen problems in achieving compliance in the wearing of eye dosimeters by different occupational groups and if so, what strategies are recommended to overcome these problems?

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**Q6.** In your country, are there any experiences in the evaluation of dose to the lens of the eye, in relation to possible contamination of the individuals because of handling of radioactive contaminated components or unsealed radioactive sources?

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**Q7.** Do you foresee any changes in workers’ dose recording associated with eye lens monitoring? Are there any particular issues in the case of itinerant workers (“outside workers” - i.e. people who work at more than one location)?

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**Q8.** Has there been any additional education and training introduced and performed in your country, in relation to eye dosimetry. If so, for which professional groups and with reference to which situations and working activities, has specific training been developed?

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**Q9.** What cost implications are foreseen for additional dosimetry in relation to monitoring for the lens of the eye equivalent dose? Consider in term of different areas such as medical applications (including radiology, interventional radiology and cardiology, nuclear medicine, etc.), nuclear applications and industrial applications in general.

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**Q10.** Are you aware of the development of any small dosimeters suitable for monitoring dose to the lens of the eye in your country?

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**Topic 2 Implications for Methods of Protection:**

This topic concerns the implications related to the methods (e.g., procedures or the design phase of equipment, facilities, and protective equipment) used to reduce dose to the lens, in the context of optimizing the protection. When answering, please, consider the different areas such as medical applications (including radiology, interventional radiology and cardiology, nuclear medicine, etc.), nuclear applications and industrial applications in general, and the different types of personnel involved (nurse, physician, technician, etc.)

**Q11.** What types of procedures and equipment are used in order to reduce the dose to the eye and how is the effectiveness of the protection evaluated in the different areas?

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**Q12.** What methods have been developed to ensure that the use of protective equipment is optimized in the practice? Do you consider that the design of protective eyewear currently available has been optimized?

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**Q13.** Is the reduction of equivalent dose from personal protective equipment (e.g., glasses, aprons) taken into account in the designation/classification of workers and their needs for dosimetry in your country? If not, is only the equivalent dose level outside the personal protective equipments considered?

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**Q14.** In the use of protective personal equipment, such as lead glasses, it could be difficult to find an adequate position for the dosimeter, in order to ensure that the dose equivalent measured by the dosimeter is the same as that to the eye lens. What consideration has been given to this?

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**Q15.** What procedures are in place to ensure that there is a good level of quality of protection, for the individual workers?

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**Q16.** What are the cost implications related to the introduction of adequate procedures and equipment for protection to reduce the equivalent dose to the lens of the eye?

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**Topic 3 Wider Implications of Implementing the Revised Limit:**

This topic aims to identify any direct or indirect impacts on current practices, which may result from implementation of the revised dose limit. When answering, please, consider the different areas such as medical applications (including radiology, interventional radiology and cardiology, nuclear medicine, etc.), nuclear applications and industrial applications in general.

**Q17.** What are the concerns or acquired experiences in implementation of the reduced exposure limits to the lens of the eye in terms of revised dosimetry and methods of protection?

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**Q18.** Are there any potential long-term issues which may have an impact on working activities on a more permanent basis?

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**Q19.** Are there any implemented or foreseen changes in the health surveillance of the workers? Consider for example the question of eye examinations before starting radiation work, and in particular the case of workers who may have already accumulated a dose higher than the threshold of 500 mGy, and the associated costs.

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**Q20.** Are there any circumstances in which you foresee (or you have experience of) specific claims for compensation in relation to the change of eye lens exposure limits for workers?

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**Q21.** What are the issues to be considered in relation to exposures for the lens of the eye for the patients undergoing medical diagnosis and treatment, and for the public? In case of patients, consider, for example, interventional radiology, fluoroscopically guided procedures, head CT and other medical exposures.

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**Q22.** Are there any additional matters regarding the equivalent dose to the lens of the eye that you wish to bring to the attention of the Task Group?

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**Topic 4 Legislative and other general aspects.**

**Q23.** Are there, in your country, guidelines or documents, addressing eye lens monitoring related to the new equivalent dose limit for workers? (Please, if affirmative, indicate references for the documents and/or the corresponding weblinks).

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**Q24.** What is or was the involvement of your Association with governmental or regulatory advisory bodies regarding consultation and preparation for updated legislation, at national level, about radiation protection?

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**Q25.** What changes have been made or are being considered in the legislative processes related to the new limits for the lens of the eye in your country?

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**Q26.** How is the equivalent dose limit to be enforced in your country? Is a strict annual dose limit of 20 mSv to be imposed, or is the limit to be taken as averaged over a period of 5 y with any single year not exceeding 50 mSv, or is a different dose limit to be used for the lens of the eye?

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**Q27.** Are you analyzing and taking into consideration the wider issue of tissue reactions and in particular the case of circulatory disease, because of recent evidence of higher incidences of injury occurring at lower doses than had been reported previously?

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**References**

[1] Broughton J, Cantone M C, Ginjaume M, Shah B. Report of Task Group on the implications of the implementation of the ICRP recommendations for a revised dose limit to the lens of the eye. J Radiol Prot. 2013;33(4):855–868. <http://www.irpa.net/members/Phase%20I%20Report%20IRPA%20TG.pdf>

[2] Broughton J, et al. Implications of the implementation of the revised dose limit to the lens of the eye: the view of IRPA professionals. Ann ICRP. 2015;44(1 Suppl):138–143. <http://journals.sagepub.com/doi/pdf/10.1177/ANIB_44_1S>

[3] Cantone MC,Ginjaume M, Miljanic S, Martin C J, Akahane K, Mpete L, Michelin S C, Flannery C M, Dauer L T, Balter S. Report of IRPA task group on the impact of the eye lens dose limits. J Radiol Prot. 2017;37(2):527–550. <http://iopscience.iop.org/article/10.1088/1361-6498/aa604b/pdf>

[4] IRPA. IRPA Guidance on Implementation of Eye Dose Monitoring and Eye Protection of Workers. 2017. <http://www.irpa.net/docs/IRPA%20Guidance%20on%20Implementation%20of%20Eye%20Dose%20Monitoring%20(2017).pdf>

These views of the ……………………………………………. (Associated Society)

have been compiled by ………………………………………………….. (Name)

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and represent the collective views of the Society

Dated ………………………………………….