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## **Management of personal dosimeters: the lessons learned from mistakes.**

### **Background**

Dosimeter management in the Radiotherapy Department, Pereira-Rossell Hospital (HPR) Montevideo-Uruguay, has been difficult due to: 1) The Dosimetry Service (Ministry of Industry) has increased the cost of the personal dosimeter replacement. It was warned that the cost could be transferred to radiation workers (RWs). 2) HPR has a delay in the payment to the Dosimetry Service; thus, RWs of Radiotherapy-HPR do not have their month exposure value in Sievert since August-2021. 3) The hired transportation for dosimeters left RWs without them for two and three days every month. It must be highlighted that all technicians, some physicians and physicists work for at least two institutions, so they have a personal dosimeter in each one (1,2,3).

### **The present problem**

The Linear-Accelerator at HPR has a failure since October 18, 2021. Patients were derived to the Clinicas-Hospital (CH) Radiotherapy Department, as well as certain HPR technicians. Dosimeters were not given to these RWs at first, understanding that the HPR Accelerator would be repaired in a few days. At the end of November it was notified that the Magnetron was definitely broken and the new installation would require months. To redistribute the dosimeters it was taken into account that some physicians, physicists and technicians had another dosimeter in the alternative institutions in which the patients would be sent (CH and National Institute of Cancer [INCA]). The situation was evaluated with the National Radiation Regulatory Authority and the Dosimetry Service. On December 17, the dosimeters reached the RWs which had begun to work their entire work time outside HPR: five technicians and one physicist. Since certain technicians, physicians and physicist already had personal dosimeter at CH/INCA, they used them during the work with HPR patients. Six HPR physicians and two physicists went to work at the Radiotherapy Department of the two alternative institutions without dosimeter; it was assumed that their main exposure probability was at HPR where they work most of the time. From this group, four physicians continue performing tasks in HPR-brachytherapy and they attended CH/INCA once a week; however, two physicians transferred their radiation work almost entirely to CH/INCA and their dosimeters remained at HPR.

### **Conclusions**

The main errors detected were: 1) a delay of 8 weeks in providing a dosimeter to certain RWs whose tasks were completely transferred to another institution; 2) no additional dosimeter was given to RWs who went on to work in more than one institution; 3) lack of communication between the Radiation Protection Officers from the involved institutions.

The variety of errors in the redistribution of personal dosimeters showed the need of an action protocol for future and similar situations. Our team must take training courses in safety culture and occupational radiation protection.

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