Universal dose electronic ID (UdoseeID): a step into the future without barriers

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Purpose

The European Directive 2013/59/Euratom was unanimously adopted by the Council of the European Union and it was expected to have a relevant and positive impact on European radiology practice. It put on paper the need for justification of medical exposure, introduces requirements concerning patient information and strengthens those for recording and reporting doses from radiological procedures.

The main objective of this purpose was create, apply and develop a universal application on site for registration and monitoring of radiation doses to which patients are exposed in radiology exams in all healthcare facilities that use ionizing radiation. Also radiotherapy doses and nuclear medicine.

We have developed a multi-profiled site, based on user authentication permissions, where the diagnostic and therapeutic radiographers can register the exposure dose and, in non-registered institutions, credentials are provided to patients. The patient with the Dose electronic ID can consult and provide information from clinical exposures through a simple internet login.

According to the Directive, the professionals involved in medical exposure are fundamental to ensure adequate protection to patients undergoing medical radiodiagnostic and radiotherapeutic procedures. With the provided tool and the patient collaboration the universal dose electronic ID, could be the answer for accomplish the European Directive 2013/59/Euratom.

Several organizations and health institutions increased the optimization of radiological protection related to radiological studies and radiotherapy treatments. Based on international guidelines of the diagnostic reference levels (DRLs) and using quality audits of radiation doses was possible obtain the values which patients are exposed during medical exams and evaluated improvement allows optimization of the patient safety.

In Portugal, the Ministry of Health published the law 180/2002 which demonstrate that diagnostic radiology institutions should ensure recommendations on the benchmarks for medical exposures and also guarantee the conformity of the reference levels for radiodiagnostic examinations, taking into account the reference levels of European diagnosis, if defined (European Council Directive 59, 2013).
Methods and materials

With the development of the preliminary version (Abrantes et. al., 2015) and their respective integration platforms already in use in the several healthcare centers, hospitalar units and radiotherapy and nuclear medicine centers, this software will enable diagnostic and therapeutic radiographers, to check and record the exposure doses of each patient in each procedure, whether therapeutic or diagnostic.

The patient also has access to all this information online, and they can perform with their electronic ID Dose, the registration of their radiation dose if the healthcare facility does not have access to the platform or the procedure has been held abroad. For example in radiotherapy treatments, with the assistance of the healthcare professional, patient can enter the irradiated region and respective number and duration of sessions.

Online access allows a fast access to information, before and after examination, enabling healthcare professionals and the referring physicians to get an estimated feedback dose that the patient has been exposed, essential in cases where the limit of exposure for clinical purposes is close to being exceeded. The platform can also send an alert, via email or sms for the healthcare facility and to the referring physician.
Results

This platform provides to the healthcare professionals a fast and simple access to dosimetric information of each patient, in radiology or radiotherapy, safeguarding their safety and security.

The patient participation in this application leads to a well informed patient regarding his healthcare, as well as increase its collaboration and concern in providing accurate information about the radiation exposure doses.

To optimize this universal software platform in various types of diagnostic imaging and treatment, it is necessary the implementation and partnership among all health facilities that use ionizing radiation for clinical purposes (both public and private facilities).

The feedback from the several health professionals in terms of improvements and modifications of the platform software, is proposed including the possibility of meetings with all the coordinators of image/radiotherapy departments to further develop the platform, surpassing difficulties and suggesting corrections and improvements.
Conclusion

This tool is universal and give the possibility to the patient to have a long-life registry of all doses that is exposed in clinical procedures as in radiology, radiotherapy and nuclear medicine.

The software, when fully operational, with all registration of professionals, referrers and patients, is a beneficial tool for patient safety and protection. This project follows on the need for compliance with the Euratom directives and aims to overcome the difficulties involved in its implementation, developing a universal software platform that allows healthcare professionals in Radiology, Nuclear Medicine and Radiotherapy to register and control the doses received by patients in a simplified manner.
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