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ABSTRACTS**

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## Investigation on the potential of improvement in the field of medical applications of ionizing radiation via the future European Metrology Network

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Due to constant development in radiodiagnostic and radiotherapy procedures with increasing complexity, a need for high-level coordination of the ionizing radiation metrology community was recognized to better respond to the needs of end users. In order to facilitate knowledge dissemination and improve communication between stakeholders involved in medical applications of ionizing radiation, a Joint Network Project was started in 2020. One of the specific objectives of Work Package 2 of the project 19NETo4 MIRA, “Support for a European Metrology Network on the medical use of ionizing radiation” is to support the developing states, ensuring that the planned EMN is inclusive through improvements in the medical use of ionizing radiation [1]. Czech Republic, Romania and Serbia were defined as countries of interest to conduct the survey and collect relevant data from stakeholders in the category of medical staff and professionals, so that the potential for improvement for medical applications of ionizing radiation can be evaluated. For the purpose of data collection, an online questionnaire was prepared and distributed to the stakeholders. The questionnaire was structured in such a way to allow easier collection of information regarding availability of (1) calibration services; (2) documented technical protocols; (3) standard documentation in the establishments for different ionizing radiation applications. Implementation of a Quality assurance (QA) programme was investigated, as well as the consistency in realization of proficiency testing (PT) or audits. The stakeholders were asked if additional workshops or training programmes are needed in their area of expertise. The radiodiagnostic modalities included in the questionnaire were the general radiography, mammography, computed tomography and interventional procedures, while radiotherapy modalities included external beam radiotherapy (teletherapy) and brachytherapy. Although nuclear medicine (therapy and diagnostic) procedures were part of the questionnaire, none of the respondents have capabilities for these applications.

Based on the information collected via the online questionnaire, calibration services are available for most of the modalities, except for brachytherapy where traceability is not established. QA and PT are regularly performed in radiotherapy, while it is not the case in radiodiagnostic modalities. Improvement in knowledge transfer is needed for all of the applications investigated. Considering the acquired information, there is a clear need for EMN to support knowledge transfer, communication and technical exchange between the metrology community and the stakeholders involved in the medical applications of ionizing radiation. The forthcoming European Metrology Network will further elaborate the knowledge dissemination and stakeholder dialogue through its stakeholder panels and joint training efforts.

**Keywords:** European Metrology Network, ionizing radiation, radiotherapy, diagnostic radiology

### References

[1] 19NETo4 MIRA, Publishable Summary for 19NETo4 MIRA Support for a European Metrology Network on the medical use of ionising radiation, June 2020

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