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Medical physics outsourcing in radiotherapy in France: services, practices, limits and points of vigilance

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Introduction
The practice of radiotherapy includes medical physics activities prior to patient treatments (acceptance and commissioning of medical devices), during the care of each patient (dosimetry planning) and concomitantly with clinical activity (quality control). These activities, which guarantee the quality and effectiveness of the treatment delivered to each patient, are partly or totally distinct from clinical activity, temporally and/or materially. Consequently, radiation therapy departments are exploring the possibility of outsourcing some of these activities when they can be carried out remotely - this is the case with dosimetry planning - or of delegating them to external service providers for those that require additional staff or are heavy consumers of medical physics human resources and "machine time" resources. In France, consulting medical companies and physicists, independent or employees of medical establishments, offer occasional services for the commissioning of medical devices or the deployment of new techniques, and recently, routine services linked to clinical management and individual patients. If the carrying out of certain activities remotely can make it possible to offer equity in access to care, the fact remains that the benefits / risks balance induced by these practices must be assessed. If necessary, the activity should be supervised, in particular in an area such as radiotherapy.
In this study, the IRSN did an inventory of the practices of outsourcing in radiotherapy in France and has evaluated the limits, points of vigilance from the technical, organizational and human points of view.
• Methodology
This study is based on a literature review and survey analysis. One survey was sent to 16 external service providers identified as working in France. The survey was defined in order to make an inventory of the services provided in medical physics in radiotherapy currently in France and to collect information on the progress of the services, the staff involved, the risk analysis and control, the relations with the manufacturers and the responsibilities. Two other surveys are planned to be sent to customers and manufacturers.

• Results
In France, the services provided by the external providers are machine commissioning, clinical implementation of advanced treatments (VMAT, stereotactic treatment or other advanced techniques), radiation protection, clinical "routine"task (quality control, treatment planning), audit and consulting. No service provider declared to be concerned by the outsourcing of a long-term activity. All companies involved in "routine" activities offer treatment planning. Regarding exchanges with on-site medical physicists, half of the providers specified to interact with them before establishing a quote, unlike the others. Half of the service providers declare that they provide feedback at the end of the service. In half of the cases, the services are provided during treatment hours. An external service provider indicated that its company routinely carries out activities outside of these time slots. All the answers pointed to a responsibility transferred to the customer during the validation of the service. The two most cited positive aspects of external services are providing a strong expertise and saving time.
From external provider's survey, one point of vigilance is about conflict situations between hospital management and physicists: providers need a framework to be able to work properly with on-site physicists, transmit the necessary information and provide the necessary skills.
Regarding outsourcing, some regulations exist in other domains than radiotherapy as bank and operating nuclear power plants. For example, for activities related to the core business, skills are required. Preliminary results on medical physicists interviews show two first points of vigilance: the need to frame the clinical validation of the service (the responsibility transfer to the clinical physicist appears not clear) and the need to manage services provider's skills and specially training followed. Medical physicists and radiotherapy departments also need to have information on the quality of the service offered.
• Conclusion
There is no regulation for radiotherapy outsourcing in France. The provider's practices are heterogeneous. The surveys made by the IRSN started to highlight points of vigilance that deserve to be processed with regulation or good practice guides. They concern provider's training and skills, clinical validation but also risk management for conflict situations.

Country or Int. Organization

France

Affiliation

IRSN

Primary author: EDOUARD, Magali (IRSN)

Co-author: Mrs ISAMBERT, Aurélie (IRSN)

Presenter: EDOUARD, Magali (IRSN)

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