

NHL-ChirEx : An interprofessional cross-border education Initiative in the Greater Region with a focus on radiation morbidity and patient safety

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Summary

NHL-ChirEx is an interprofessional cross-border education project that address the potential excess of radiation induced morbidity throughout the radiation planning and treatment process. NHL-ChirEx is supported by ESTRO and the University of the Greater Region and has been recently approved and funded under INTERREG VA Programme.

The GR is Europe's largest cross-border region counting 11.5 million inhabitants from four member states. Each year 84,550 people are newly diagnosed with cancer (2,450; 23,500; 13,000; 33,000 and 12,900 respectively in Luxembourg, Walloon, Lorraine, Rhineland-Palatinate and Saarland) – half of them are treated with radiotherapy (RT). Up to 15% experience toxicity that can lead to sequelae and additional societal costs.

The GR members share a common cultural, economic and historical heritage as well as a unique "University of the GR" confederation.

In 2016, the GR Radiotherapy Consortium was founded by five of the leading universities, the associated comprehensive cancer centers and the radiation technologist (RTT) schools of the area. **We aim to share research approaches regarding radiation induced morbidity, strengthen the treatment quality and encourage cross-border exchange of students/professionals.**

We stated that:

- 1 RT follows a unique organizational model in a complex technical environment, within which multiple health professionals interact (Figure 1)
- 2 Respectively about fifteen radiation oncologists, as many medical physicists, 80 RTT/dosimetrists and a few quality managers are trained in the GR each year with limited cross-border exchange. Despite recommended European core curricula, initial training between the partners is highly heterogeneous.
- 3 Supplementary and avoidable morbidity could be induced during some critical steps of the RT process. We could propose initial and continuing educational initiatives (Figure 1) to address this issue.

Interprofessional Education (IPE) initiatives within the field of RT are lacking.

Consequently, and in collaboration with the departments of Surgery and Emergency Medicine of the GR academic hospitals, our consortium applied to the INTERREG VA program relying on educational innovations in health and each partner's research areas. Examples include **simulation learning** in Liège, research in **functional imaging** in Homburg, the EU-awarded excellence simulation center "**Hôpital Virtuel de Lorraine**" (HVL) in Nancy and the culture of **radiation vigilance** in Luxembourg.

NHL-ChirEx has been supported by ESTRO and the University of the GR, and awarded a total of 4.7 million euros (Grant N°043-1-01-125).

We have therefore elaborated a 5-axes IPE program. The training will be displayed in 3 languages (French, English, German):

- 1 Conceptualization of the training program; definition of the IPE training catalog
- 2 Simulation-based learning: 3D radioanatomy, basics of radiophysics and instruments, RT concepts and techniques, positioning/immobilization and image acquisition procedures, introduction of simulated errors and impact on the patient and the trainee's behavior, comparison of ballistics, quality assurance, maintenance of skills; improvement of interprofessional communication. Two virtual linacs will enrich the offer of the HVL. E-learning in radioanatomy and practical training in OAR contouring on a web platform accessible from the local planning system
- 3 Definition of functional OARs and adapted planning
- 4 Core curriculum for quality managers and development of a shared morbidity and mortality register for monitoring radio-induced toxicities in real time
- 5 Mega base of educational and clinical data collected throughout the program to address its impact on the quality of care provided in the GR.

At the end of this pilot program, we would propose a common qualification to enhance the cross-border mobility and employability of RT professionals. Harmonization of RT process will foster the emergence of a multimodal database shared in GR and interprofessional research initiatives.

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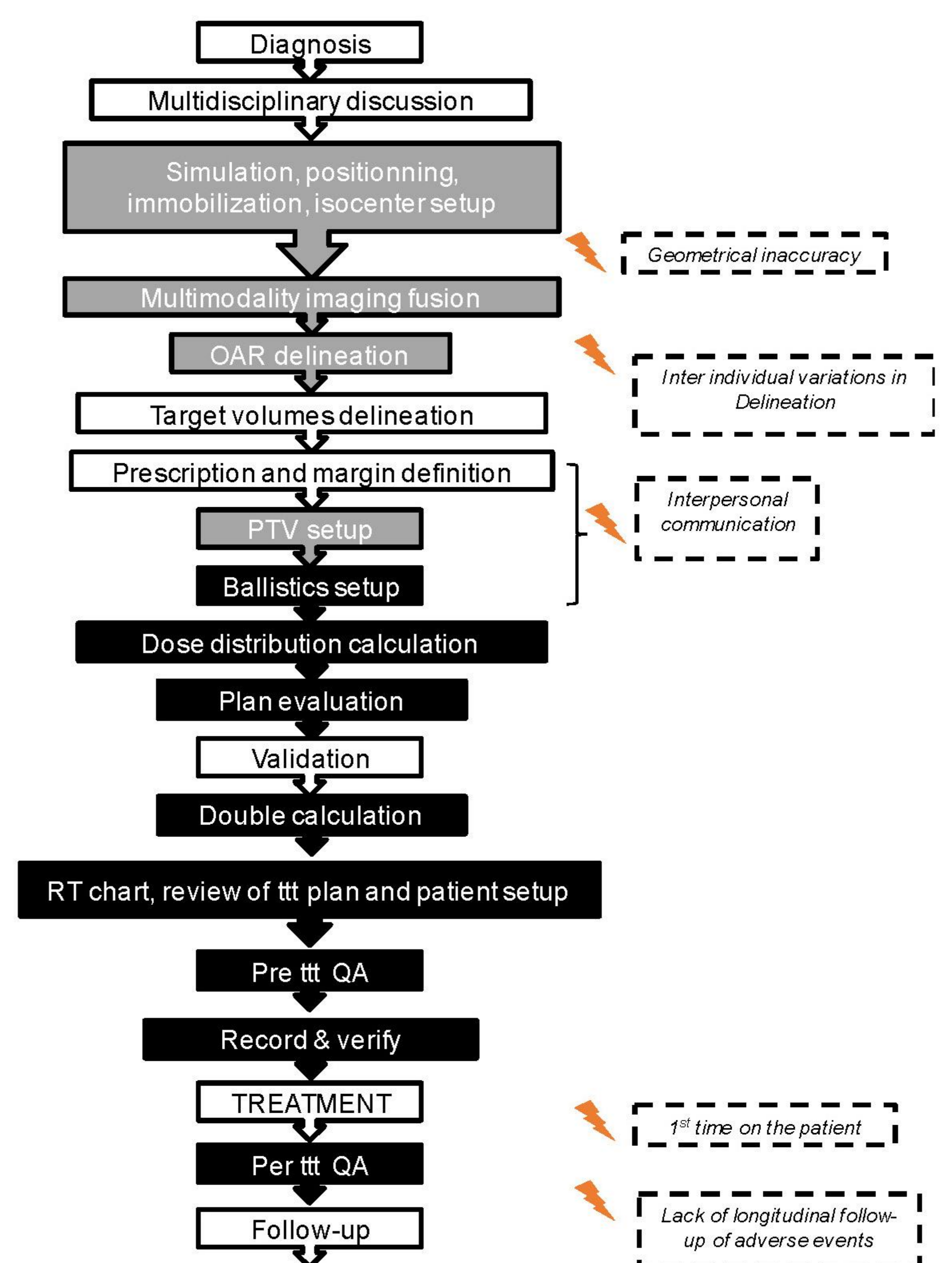


Figure 1:
The RT planning process (left column) and IPE actions addressing weak links (right column)