

The Impact of Workplace-Based Learning on Professional Development of Radiotherapy Technicians in Albania

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Abstract

This study analyzes the role of theoretical and practical learning from experienced colleagues in the workplace for imaging and radiotherapy technicians in Albania. In Albania, education for technicians has undergone a slow transformation, while radiotherapy technologies have significantly improved. This gap has created a need for hands-on learning from more experienced colleagues who help new staff acquire the skills needed to use new technologies and meet everyday clinical challenges. The methodology involves qualitative interviews, practical observations, and case study analyses. The findings reveal that this process has enhanced practical competence, rapid integration of new technologies and helped building a collaborative culture. This type of training positively impacts service quality and patient safety, although challenges include the lack of formal teaching structures, time constraints, overload of more experienced staff, increased stress and job responsibilities.

Keywords: impact, radiotherapy technician, practical training, mentoring.

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1. Introduction

The education and training of imaging and radiotherapy technicians in Albania have undergone a delayed yet rapid transformation. Only after 2007 were imaging technicians treated as a separate academic field with bachelor’s and master’s degrees, while radiotherapy, crucial for cancer treatment, had limited inclusion in academic curricula for a long period. Consequently, the implementation of new clinical techniques occurred without sufficient theoretical and practical preparation for new professionals directly using these technologies. After 2010, radiotherapy in Albania saw significant changes, transitioning from cobalt therapy to linear accelerators, orthovoltage radiotherapy, and radiosurgery. However, the curricula for technicians have not evolved at the same pace, changing somewhat but not significantly. Furthermore, many imaging and radiotherapy courses have been taught by doctors or individuals with medical experience but not necessarily with specialized technical expertise, creating gaps in training and professional development in radiotherapy. In this context, workplace-based theoretical and practical learning from experienced colleagues has become a key tool for acquiring new skills.

Objective: This study aims to analyze the role and importance of theoretical and practical learning from experienced colleagues in the workplace for radiotherapy technicians. Its focus is to identify the impact of this process on skill development among new staff, the improvement of service quality, associated challenges, and the benefits it offers in a context where the academic system has not always kept up with technological advances. Furthermore, it seeks to highlight the ways in which peer-to-peer training can bridge gaps left by academic curricula, fostering a collaborative environment that accelerates professional growth and adaptability to evolving technologies. By doing so, the study aims to propose actionable insights for optimizing on-the-job training practices.

Methodology: This comprehensive approach provides a detailed understanding of the learning dynamics within the workplace and their implications for professional development and service delivery in radiotherapy, by using a mixed-methods research approach, combining various data collection and analysis techniques, including qualitative methods and case study analysis. The qualitative research involved 25 radiotherapy and CT-simulation technicians in Albania through:

- Qualitative interviews with imaging and radiotherapy technicians who have undergone practical training from experienced colleagues. These interviews helped to identify the challenges, benefits and impact of this process on daily work.
- Practical observations of staff in clinics using advanced imaging and radiotherapy technologies used to document the interaction and acquisition of practical skills by young technicians.
- Additionally, case study analysis of the performance of trained staff has been used to assess the impact on patient care quality and the effectiveness of acquiring new skills.

Results: In the absence of an updated academic infrastructure for radiotherapy technicians, on-the-job learning has become essential. This process, which includes mentoring and hands-on training from experienced colleagues, is essential for developing new skills and preparing young technicians to meet the complex challenges of their profession. Radiotherapy work is dynamic, requiring careful management of every treatment aspect, including using advanced technologies and adhering to best international practices. We have analyzed the impact of this process, its main challenges, and its benefits.

Impact of the process:

1. Increased practical competence: Through learning from experienced colleagues, new technicians acquired advanced skills that enable them to effectively and safely manage clinical situations.
2. Rapid integration of new technologies: Acquisition of new methods and techniques through practical training makes the transition from theory to clinical practice easier.
3. Building a collaborative culture: This process has shown to improve professional relationships, creating a more supportive work environment.

Key challenges:

1. Absence of a training structure: Training provided by colleagues is often unstructured, resulting in inconsistent learning experiences for new technicians.
2. Time constraints for mentors: Experienced colleagues are often burdened with other clinical duties and may have limited time for detailed training.
3. Rapid technological advancements: The fast pace of imaging and radiotherapy technology requires experienced staff to stay constantly updated, which is challenging when balancing patient care and training new staff.
4. High costs of international training: Aligning with European and global standards often necessitates costly overseas training, which can be a burden for professionals and limit their development opportunities.

Benefits:

1. Quick adaptation to practice: Clinical context-based learning prepares new technicians to handle complex situations effectively.
2. Patient safety and improved care: Knowledge transferred through practical experience contributes to safer and more effective patient care.
3. Enhanced professional interaction: Mentoring strengthens professional bonds, fostering a collaborative culture that improves service quality.
4. Customized teaching methods: Practical learning allows experienced colleagues to adapt teaching methods to suit specific clinical scenarios and topics of interest.
5. Cost-effectiveness: This training model is cost-effective for the healthcare system, improving staff skills without substantial investment in specialized overseas courses.

Impact on outcomes: This type of training positively impacts the quality of radiotherapy services in Albania. Through mentoring and practical learning, new technicians can apply advanced methods and improve overall treatment standards.

Discussion: An important aspect of educating imaging and radiotherapy technicians, in addition to academic

curricula in Albania, is that international training opportunities align with European and global practices. However, these training programs abroad entail significant costs, including travel, accommodation, and fees, presenting a major barrier for most professionals relative to their salaries. This makes it difficult for new technicians to benefit from advanced skill development opportunities. Due to the lack of opportunities abroad and an outdated curriculum, new technicians often rely on the experience of colleagues in the workplace. Although this peer-based learning has many challenges, it is necessary and crucial for technical medical development in radiotherapy while highlighting the need for a sustainable and more affordable training system within the country. Currently, efforts should focus on ensuring sufficient coverage of radiotherapy in the curriculum, and this should be made uniform across university curricula. Additionally, another solution would be the development of a unified curriculum for new employees within the department.

Conclusions: The development of education for technicians has undergone a noticeable, very positive transformation, but it is still slow compared to the radiotherapy technologies implemented in the country, which have improved significantly, creating a gap between theoretical and practical training. This gap has driven the use of mentoring and practical training from experienced colleagues as a key tool for acquiring new skills and tackling clinical challenges. In a context where academic education is still developing and does not cover all modern practice needs, workplace mentoring is a crucial solution for preparing new staff. Despite significant challenges to address, the benefits of this process are clear, positively impacting service quality and the adoption of new practices. Results indicate that practical training has enhanced competence, facilitated the integration of new technologies, and fostered a collaborative culture. However, challenges include a lack of formal training structures, time constraints for mentors, and the workload of experienced staff.

While the benefits of this process include improved service quality and patient safety, it can also place a heavy burden on experienced colleagues, often already occupied with clinical duties, leading to increased stress and responsibilities. Additionally, the lack of a formal structure can limit effective and sustainable training for new staff, posing risks of professional and physical harm due to insufficient support. To maximize the effectiveness of this process, it is crucial to create an organized training and support system that balances job demands and training for new staff. Implementing a unified curriculum and a sustainable training system would ensure that all radiotherapy technicians receive the same quality of training and education, thereby minimizing gaps in knowledge and skills, and ultimately enhancing patient safety and service quality over the long term.

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