Addressing Global Radiation Medicine Human Resource Gaps Through Educational Innovation

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ICARO2 – Abstract 125
Background

New cancer cases will increase by 54% by 2030 unless a huge gap in radiotherapy access around the world is filled for >200,000 new health professionals by 2035 to meet demand. Additional models of education will not meet the demand.
Educational Innovation Concepts

- Professional scopes of practice and task shifting
- Systems-based competency model for curriculum development
- Educational technology to support blended learning
How Did We Get Here?

- How did existing scopes of practice come to exist?
- How do they continue to evolve?
- How do technological innovations disrupt traditional boundaries?
- Regional and international differences can be significant...
Task Shifting?

Task shifting involves appropriate redistribution of tasks among health workforce teams
- Promote more efficient use of the available HHR
Technology drives task shifting
- IGRT implementation
- Regional differences are profound

Emerging Disciplines
Task Shifting?

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Emerging Disciplines
### The Right Time

**Figure 7:** Processes, technologies, and professionals involved in radiotherapy

A course of radiotherapy is typically divided into a series of 1–40 fractions depending on the type of cancer and the clinical objective.
## The Right Time

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<tr>
<th>Process</th>
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Automated Planning Summary

rapid adoption and higher quality
Fast Track RT Process

Harnessing automation, task shifting & team co-ordination

Target Delineation:
• RO to CSRT: 1 day time savings

Planning:
• Dosimetrist to Automation: 3 days saved
Systems-based competency model for curriculum development

- 1900
  - Science based
  - Problem based
  - Systems based
  - 2000+

- Instructional
  - Scientific curriculum
  - University based

- Institutional
  - Problem-based learning
  - Academic centres

- Competency driven: local-global
  - Health education systems

1969
### Task-Based Competency Frameworks

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Emerging Training Priorities

Healthcare economics
Health information technology
Health systems science
Health policy
Quality & outcomes
Innovation
Change management
Leadership
Humanistic Qualities
Social and Emotional Learning
Emerging Priorities vs Existing Tensions

Program Accreditation Standards

Certification Exams

Standards of Training/Required
Ten Emerging Technologies

- Computerized Grading
- Electronic Textbooks
- Simulation Technology
- Gamification
- Equipped Classrooms
- Active Learning Classrooms
- Massive Open Online Courses
- Collaborative Distance Learning Environments
- Active Learning Forum™ platform
- Learning Management Systems
Blended Learning & Sustainability

Blended learning approaches:
- Maximize learning opportunities & equity
- Promote decentralization
- Sharing of educational resources as global public goods
- Standardization with local customization
- Promote loco-regional retention
- Foster team-oriented, collaborative environments

The Traditional Classroom
Teacher’s Role: Sage on the Stage

LECTURE TODAY  Homework
Reading and questions for tomorrow

The Flipped Classroom
Teacher’s Role: Guide on the Side

ACTIVITY TODAY  WATCH lecture online tonight!
The Walled Garden Problem
Conclusions

- Task shifting models should be explored using local contextual information & global training standards
- New competency profiles require attention to emerging training priorities
- Global consortia of educational institutions may be able to address “walled garden problems” and facilitate educational products as global public goods