



WP7 - Digital skills for Therapy Radiographers (TR)- a document analysis

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SAFE Europe
Safe And Free Exchange of
EU Radiography Professionals
across Europe

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Background

- ◆ EU Digital skills agenda
- ◆ Digital Skills for TRs

Literature review

- ◆ Methodology
- ◆ Results
- Discussion/Conclusion

Future directions



Content

EU Digital Skills agenda

“Digital skills and related concepts, such as digital competence, have become key terms in the discussion on the kind of skills needed by citizens – in Europe and beyond – to participate and thrive in our society...”

European Commission 2010; Ferrari 2012; Gallardo-Echenique et al. 2015



And Digital Skills for TRs?

- Key role in health care provision
- New technological challenges (diversity of software)
- Role expansion and shift of responsibilities



<https://www.coventrytelegraph.net/lifestyle/nostalgia/gallery/old-news-sports-photos-taken-11295826>



<https://www.itnonline.com/content/establishing-igrt-program-observations-two-treatment-centers>

Digital Skills for TRs

I just told you that there is no common regulation for that, yet !!!

What????



Aim: Assess the literature and identify the relevant digital skills for Trs.

Methodology

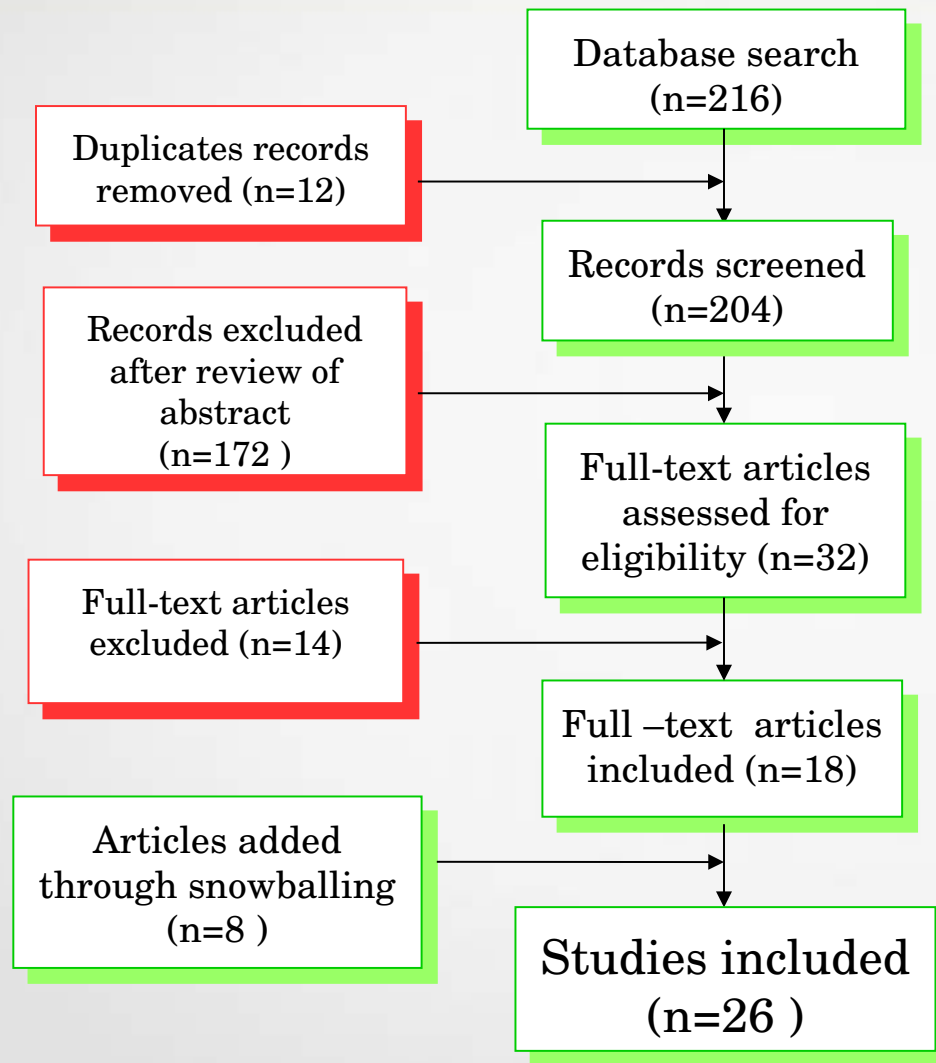
Systematic search:

- ✓ Databases and Journals:
 - ✓PMC
 - ✓Science Direct
 - ✓ERIC
 - ✓Cochrane Library
 - ✓PubMed.gov
 - ✓IEEE Xplore
 - ✓Radiography Journal
 - ✓TipsRO Journal
- ✓ Zotero Software
- ✓ Two reviewers

Query:

(digital) AND (competenc* OR task* OR skill*) AND (“therapeutic radiographer” OR “therapeutic radiography” OR radiographer* OR radiotherapist* OR RTT* OR “radiation therapist” OR “radiation technologist” OR “radiation therapy technician” OR “Radiological technologist” OR “Radiological technician”) AND (radiotherapy OR “radiation therapy” OR “radiation oncology”)

Literature Selection Process



Inclusion criteria:

- 10 year period
- Languages: EN/PT
- Focus on TR's digital skills

Exclusion criteria:

- Focus on digital skills of other healthcare professionals
- Irrelevancy to the topic of research

Methods

Radiotherapy

- ✓ Benchmarking documents
- ✓ Recommendations documents
- ✓ Educational guidelines

Digital skills/competencies

- ✓ EU' Digital Programmes
- ✓ European projects (reports)
- ✓ International frameworks

Technical Publications

- ✓ User guide manuals
- ✓ Reference guide manuals

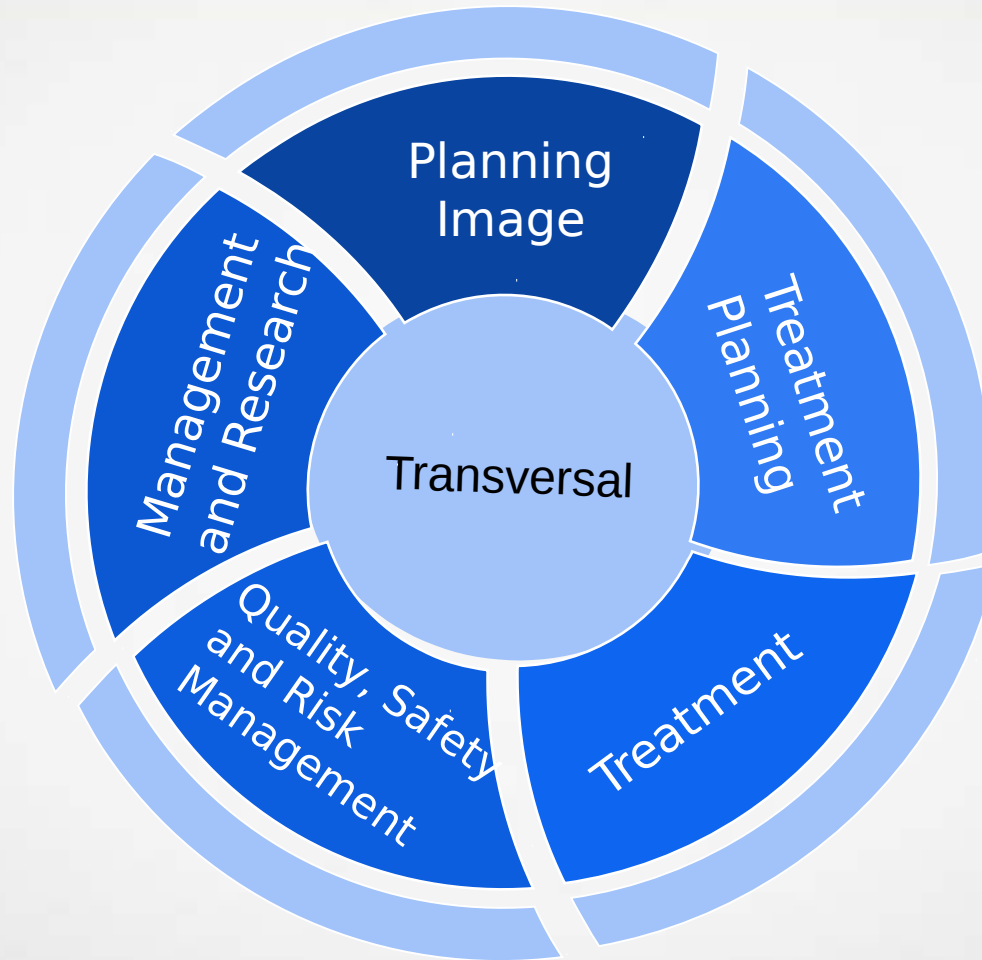


Results

I can't find anything!



Results



Transversal

- Technologies/ Information Systems (IS)
- Communication
- Electronic Patient Record (EPR)
- Patient Agenda
- Workstation

Planning Image

- Computerized Tomography
- 4D Computerized Tomography
- Image Processing and Enhancement
- Image Registration and Correlation
- Image Segmentation and Contouring

Treatment Planning

- Plan treatment
- Plan parameters
- Dose calculation
- Inverse planning (IMRT/VMAT)
- 4D planning
- SRS/SBRT planning
- Plan evaluation
- Prerequisites for treatment

Treatment

- System setup
- Treatment delivery planning
- Treatment verification: conventional techniques
- Treatment verification: advanced techniques
- Image matching
- Image analysis
- Treatment delivery
- Respiratory gating treatment delivery
- SRS/SBRT treatment delivery

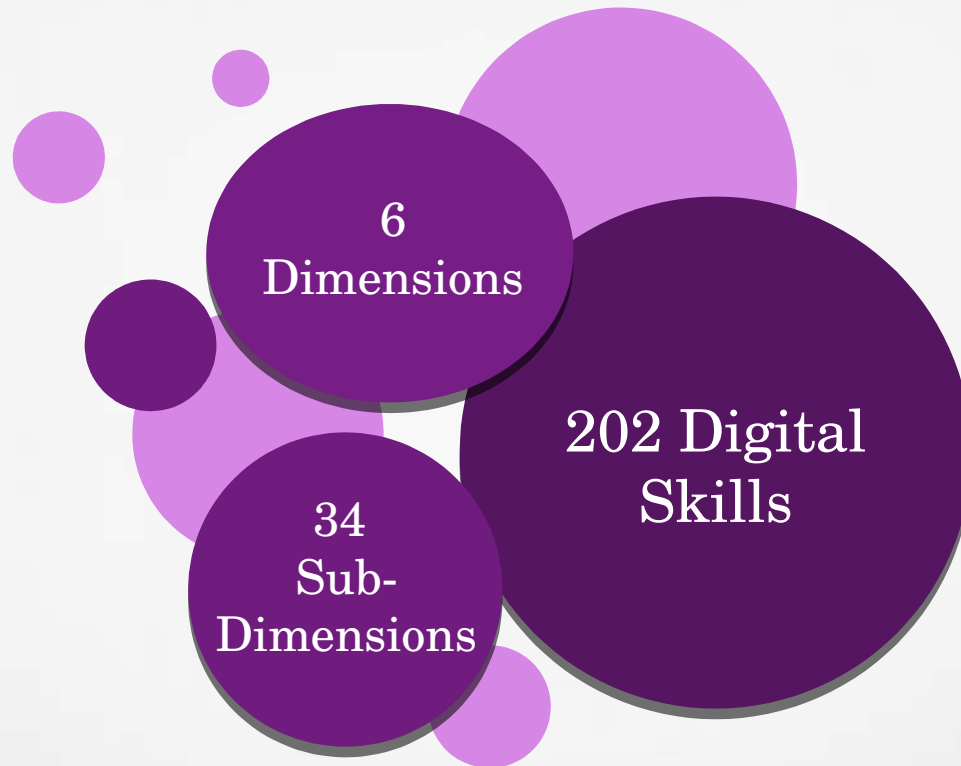
Quality, Safety and Risk Management

- Quality assurance
- Security
- Risk management
- Data protection
- Information integrity

Management and Research

- Department administration and management
- Education and research

Results



Results

Transversal	Communication	<ul style="list-style-type: none">• Use an internal communication channel• Create multimedia content for patient education
Planning Image	Computerized Tomography	<ul style="list-style-type: none">• Create scan protocols• Set acquisition parameters
Treatment Planning	Dose Calculation	<ul style="list-style-type: none">• Select calculation parameters• Calculate dose distribution
Treatment	Image analysis	<ul style="list-style-type: none">• View online/offline images• Use analysis tools
Quality, Safety and Risk Management	Security	<ul style="list-style-type: none">• Record all procedures concerning the radiation delivered• Review LINAC, MLC and imaging system failures/interlocks
Management and Research	Education and research	<ul style="list-style-type: none">• Use data analysis software• Create training programs

Conclusions

- ✓ TRs need to deal with the digital revolution! Digital skills are already in use in daily practice!
- ✓ Ensure that TRs are trained with the necessary skills (from early education to CPD), to adopt the best practice across Europe.
- ✓ Closing the digital skills gaps will improve the quality of practice which will result in better patient outcomes.
- ✓ TRs must have a good level of digital skills, or risk losing autonomy and influence.
- ✓ Make TRs co-developers of digital solutions for Radiotherapy workflow.
- ✓ This set of digital skills will also allow for the anticipation of future needs, regarding the new technologies (such as machine learning, big data and cybersecurity).

Future directions - WP7

- Survey distribution (Europe)
- Focus group interviews - design
- Recommendations and webinars

74. Indique o seu nível de desenvolvimento na realização das seguintes tarefas relativas à aquisição de imagens de verificação para tratamentos convencionais *

MV - MegaVoltagem; KV - KiloVoltagem; 2D/3D/4D - 2, 3 e 4 dimensões, respectivamente; mA - miliampere; ms - milisegundos; CBCT - "Cone-beam Computed Tomography".
Marcar apenas uma oval por linha.

	1 - Pouco desenvolvida	2	3	4	5 - Extremamente desenvolvida	Não sei
Adquirir imagens MV (2D e 3D/2D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adquirir imagens KV (2D e 3D/2D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Otimizar a qualidade das imagens KV (ex: ajustar KV, mA e ms)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adquirir imagens CBCT (3D/4D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Definir parâmetros do CBCT (ex: modo, ângulo e espessura de corte)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adquirir topogramas e ajustar o "scan range"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Definir parâmetros de reconstrução (ex: volume, distância entre cortes e supressão de artefactos)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realizar detecção de marcadores (simétrico ou manual)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

75. Indique em que contexto acha que deveriam ser desenvolvidas as aptidões digitais referidas na questão anterior *

CPD - "Continuous Professional Development"
Marcar apenas uma oval.

- Formação académica base (bacharelato, licenciatura)
- Formação pós-graduada (ex: mestrado, doutoramento)
- CPD obrigatório (formações exigidas para a prática profissional e/ou pela entidade empregadora)
- CPD voluntário (formações não obrigatórias, estágio profissional)
- CPD informal (aptidões adquiridas na prática)
- Outro

Aptidões Digitais dos Radioterapeutas - "Digital Skills of the Therapeutic Radiographers"

Caro participante,

O presente questionário enquadra-se no projecto "Safe and Free Exchange of EU Radiography Professionals across Europe – SAFE EUROPE" (grant agreement 2018-2993/001-001), ao abrigo do programa "Erasmus + Sector Skills Alliances" da União Europeia (UE).

O consórcio europeu deste projecto é representado pela Ulster University - UU (UK), University of Malta - UoM (MT), European Federation of Radiographer Societies - EFRS, Associação Portuguesa de Radioterapeutas - ART (PT), Instituto Português de Oncologia do Porto - IPOP (PT), Society of Medical Radiographers - SRM (MT) e Towarzystwo Naukowe Techników Medycznych Radioterapii - TNTMR (PL).

Esta investigação insere-se no "Work Package" 7 (WP7), designado por "Digital Skills for TRs", sendo liderado pela equipa do IPOP.

Objectivo:

O objectivo deste questionário é avaliar o nível de desenvolvimento das aptidões digitais, no exercício da Radioterapia, bem como os factores que o influenciam. Pretende-se também identificar quais as aptidões digitais emergentes e a(s) fase(s), mais adequadas, no percurso profissional, para a aquisição e desenvolvimento destas mesmas aptidões.

Metodologia:

Este questionário será aplicado a nível nacional nos seguintes países: Portugal, Malta, Reino Unido e Polónia (participantes no SAFE EUROPE).

Considerações éticas

A identidade dos participantes será mantida confidencial. Nenhuma informação que permita a identificação dos participantes será publicada.

Todos os dados recolhidos serão tratados de acordo com o Regulamento Geral de Protecção de Dados (UE) e analisados pelos investigadores do projecto SAFE EUROPE.

O questionário demorará aproximadamente 30 minutos a preencher. Pode sair do questionário em qualquer momento antes da sua submissão.

Desde já muito obrigado pela sua participação.

Caso tenha alguma questão por favor não hesite em contactar.

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Conclusions



Care Economy

Emerging Jobs

- 1 Medical Transcriptionists
- 2 Physical Therapist Aides
- 3 Radiation Therapists
- 4 Athletic Trainers
- 5 Medical Equipment Preparers
- 6 Veterinary Assistants and Laboratory Animal Caretakers
- 6 Exercise Physiologists
- 8 Recreation Workers
- 8 Personal Care Aides
- 8 Respiratory Therapists
- 11 Medical Assistants
- 12 Fitness Trainers and Aerobics Instructors
- 13 Occupational Health and Safety Technicians
- 13 Orderlies
- 13 Healthcare Support Workers, All Other

Top 10 Skills

- 1 Respiratory Therapy
- 2 Caregiving
- 3 Sterile Procedures / Techniques
- 4 Transcription
- 5 Radiation Treatment
- 6 Medical Dosimetry
- 7 Vital Signs Measurement
- 8 Simulation
- 9 Advanced Cardiac Life Support (ACLS)
- 10 Radiologic Technology

January 2020

 Rank Scale of Opportunity:  Small-scale  Large-scale
Skill Type:  Industry Specialized

A man in a dark suit and tie is pointing his right index finger upwards. The background is a dark blue, semi-transparent overlay featuring a world map on the left and various data charts and graphs on the right. The text 'THANK YOU' is centered in a white rectangular box.

THANK YOU

“Digital skills require the mastery of particular relatively complex operations, interfaces, and applications of digital technology...Thus, digital skills are a complex policy problem that calls for both technological and educational solutions.”

Van Dijke, 2014