

Knowledge and awareness of Circular Economy and Green skills among Therapeutic Radiographers/Radiation Therapists and educational needs

Background

Climate change, resulting from global warming represents a threat to life on Earth. Global warming is caused by emissions of air pollutants, especially greenhouse gases, which produce large-scale effects on the climate. This long-lasting increase in emissions and resource use across all sectors, including healthcare, have dire consequences for the planet and its population.

Additionally, the healthcare sector is considered one of the largest industries, with a carbon footprint corresponding to 4.4% of global net emissions.

To gain a better balance between economic growth, environmental sustainability, and the population's well-being, the economic paradigm is changing from a linear to a circular economy (CE). CE is defined as an "economy where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised". CE is the most recent attempt to sustainably integrate economic activity and environmental well-being while decoupling economic growth from the negative consequences of resource depletion and environmental degradation.

This WP aims to analyse the Therapeutic Radiographers/Radiation Therapists (TR/RTTs) knowledge and awareness of CE and green skills (GS) and their engagement with CE within hospitals across Europe. The study also aims to identify educational needs regarding CE and GS to inform the curriculum and the appropriate academic level at which these should be developed.

This WP feeds this information to WP10, where webinars on the least developed knowledge and awareness on CE and GS will be made available to the profession and the public.

Methodology

- Comprehensive literature review

Thematic analysis to identify knowledge, awareness, perceptions, behaviours, and attitudes regarding CE relevant to the professional practice of TR/RTTs across the EU and to identify GS.

- Survey

Self-designed and validated by 8 experts (academics, researchers, and TR/RTTs clinicians). It comprised a mix of closed and open-ended questions, divided into three parts and six sections.

1st part
Section I – Socio-demographic evaluation
2nd part
Section II – Knowledge of CE and GS
Section III – Personal/Individual attitudes towards CE practices
Section IV – TR/RTTs professional group attitudes towards CE practices within the working environment
Section V – TR/RTTs perception of the importance of CE
3rd part
Section VI – TR/RTTs perception regarding educational needs on CE and GS

Partners

UU – Ulster University (UK) – *SAFE EUROPE* coordinator
 PTE – Polskie Towarzystwo Elektroradiologii (PL) – *WP leader*
 UM – University of Malta (MT)
 EFRS – European Federation of Radiographer Societies (EU)
 ART – Associação Portuguesa dos Radioterapeutas (PT)

Results

When referring to sustainability in hospitals were identified the following dimensions of CE applied to healthcare: "green travel/transportation/telemedicine", "green team", "water reduction", "environment-friendly procurement", "hospital building design", "food process optimisation", "energy consumption/ efficiency and alternative energy generation", "waste management" and "behaviour".

European survey

- 190 valid respondents from 31 European countries.
- 42% aware of the term CE
- 36% knew what GS are
- 38% of TR/RTTs neither agree nor disagree with the statement: 'TR/RTTs behaviour and attitudes underline GS and competencies', showing that there is still a considerable amount of TR/RTTs who do not fully apply environment-friendly practices
- Knowledge regarding CE and GS was not related to the country of training, country of practice, or the specialisms in the education programme ($p > 0.05$)
- 34% were aware of national policies encouraging CE
- 36% were familiar with department policies encouraging CE
- TR/RTTs individual and professional group attitudes related to CE daily practice were limited to waste management, such as waste separation, recycling and reuse, showing no knowledge about the applicability of CE practice
- 78% perceive that environmental issues are important
- 80% say it is important to be conscious of the consequences of climate changes
- 73% think that it is important to have ecological objectives/goals in the hospital environment
- 92% think that environmental training is important
- 87% considered environmental knowledge, awareness and behaviour must be a concern of the TR/RTTs
- 79% perceive that GS must be part of the TRs/RTTs education
- 91% would like to know more about CE and green skills

Conclusions and Recommendations

TR/RTTs' knowledge and awareness of CE and GS are incomplete, but they consider it essential to develop these topics. It is crucial to develop an awareness of the application of CE to healthcare beyond "waste management", so these professionals are aware of how they can improve their practice in other domains.

- Educational needs – Top 4 topics to be developed:
 - Waste management
 - Energy reduction/efficiency
 - Green transportation
 - Water reduction
- Academic level:

TR/RTTs training is a lifelong process. Green skills can be acquired as part of basic mandatory education, during and after graduation, such as part of Continuous Professional Development (CPD). This education would allow them to practice more sustainably. Their training may need to be lifelong, starting during basic high school education and continuing as healthcare professionals after graduation.

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