



Defining leaders in radiotherapy

Defining a Leader Role curriculum for radiation oncology: A global Delphi consensus study



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ARTICLE INFO

Article history:

Received 15 November 2016
Received in revised form 9 April 2017
Accepted 9 April 2017
Available online 25 April 2017

Keywords:

Curriculum
Competency
Leadership
Postgraduate education
Radiation oncology

ABSTRACT

Background and purpose: The need for radiation oncologists and other radiation oncology (RO) professionals to lead quality improvement activities and contribute to shaping the future of our specialty is self-evident. Leadership knowledge, skills and behaviours, like other competencies, can be learned (Blumenthal et al., 2012). The objective of this study was to define a globally applicable competency set specific to radiation oncology for the CanMEDS Leader Role (Frank et al., 2015).

Methods: A modified Delphi consensus process delivering two rounds of on-line surveys was used. Participants included trainees, radiation/clinical oncologists and other RO team members (radiation therapists, physicists, and nurses), professional educators and patients.

Results: 72 of 95 (76%) invitees from nine countries completed the Round 1 (R1) survey. Of the 72 respondents to R1, 70 completed Round 2 (R2) (97%). In R1, 35 items were deemed for 'inclusion' and 21 for 'exclusion', leaving 41 'undetermined'. After review of items, informed by participant comments, 14 competencies from the 'inclusion' group went into the final curriculum; 12 from the 'undetermined' group went to R2. In R2, 6 items reached consensus for inclusion.

Conclusion: This process resulted in 20 RO Leader Role competencies with apparent global applicability. This is the first step towards developing learning, teaching and assessment tools for this important area of training.

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Developing skills in leadership and taking responsibility for leading change are deemed high priorities for healthcare professionals [3–7]. The case has been made for doctors and other front-line health workers to be key drivers in patient-centred quality improvement, safety and efficiency initiatives in our ever more complex and stretched healthcare systems [1,8–10]. In order to lead, professionals must be equipped with the tools and knowledge around quality improvement process and a perspective across wider healthcare systems. They need to take responsibility for the efficient and fair use of available resources. They must exhibit personal skills and behaviours allowing them to effectively engage and manage teams through change.

The predicted explosion of cancer cases in our rapidly ageing population demands that a pipeline of future radiation oncology leaders be actively fostered. Radiotherapy is already underutilized, poorly accessed or completely unavailable in many countries around the world [11]. Without strong leadership by radiation oncology professionals at all levels and across all regions, this situation can only worsen, along with a risk of unsafe implementation of radiation technologies.

In 2015, the latest version of the Canadian Medical Education Directives for Specialists (CanMEDS 2015) was released, laying out the updated framework for the training and education continuum for doctors from entry to post-medical school training (residency) through to retirement [2]. As for previous iterations of CanMEDS, now the most widely applied curriculum framework for post-graduate medical training worldwide, it describes seven overlapping domains (or roles) of competence. Within each of these, key and enabling competencies are articulated. This frame-

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work underpins the Core Curriculum of ESTRO [12] as well as other radiation oncology curricula worldwide. Significantly, in CanMEDS 2015, the previous 'Manager' Role was updated and renamed 'Leader' to reflect an emphasis on attaining skills to lead change (as well as manage) within healthcare environments [13].

Despite a growing demand to address the perceived gap in leadership capability for health professionals, attempts to ensure they are universally equipped to meet this challenge lack consistency. Leadership courses, for doctors in particular, abound. Most are held outside the workplace, are generic in nature (i.e. not discipline-linked) and deal with doctors already in, or directly aspiring to, senior management positions [14].

The goal of this study was to develop a Leader Role competency profile for all radiation oncologists entering independent practice that might have wide applicability across countries. This competency set can then serve as the foundation for defining a full curriculum aiming to embed learning and assessment in this area within all radiation oncology training programmes.

Methods

The Delphi consensus approach is commonly used in the healthcare setting to converge opinions to arrive at agreement between a number of experts or stakeholders around a particular topic [15–18]. In this study, a modified Delphi consensus technique was employed to define a Leader Role competency set. The Delphi was delivered through two rounds of on-line surveys. A special reference panel (SRP) worked with the main investigators to bring together the initial candidate competency item set and to refine items between rounds. Similar modifications have been used previously to help restrict the number of rounds completed by the full participant group [19,20], to provide efficiency in reaching consensus, and to reduce survey fatigue and drop-out [21].

Composition of the special reference panel (SRP)

The SRP was comprised of ten educational leaders from seven countries (six radiation oncologists, two clinical oncologists and two educational experts). The SRP included members of an ongoing international collaboration established to share resources, and address common challenges in radiation oncology education [22].

Selection of potential survey participants

Delphi invitees were identified by the research team and SRP through a snowballing technique [23] whereby initial participants proposed suitable others within their country or region. Invitees comprised mainly qualified and in-training radiation (and clinical) oncology professionals from 11 countries who were considered to display leadership in their field, not necessarily through formal positions, but as much through their behaviours, personal attributes and professional contributions. In addition, opinions were sought from other radiation oncology professional team members. The research team identified radiation therapists, radiation medical physicists and oncology nurses exhibiting leadership within their professions. Several patients who had undergone radiotherapy and who acted within official consumer representative capacities (in Australia) were also identified, as were a several educationalists. Potential participants were invited by email to take part in the Delphi project. This allowed them to proceed to the first round survey if they chose to take part. Approval to conduct the study was granted by the University of Sydney Human Research and Ethics Committee.

Identification of candidate competency items

Candidate competency items for the first round were identified from a review of both published peer-reviewed literature and the 'grey' (non-peer-reviewed, publically available) literature in English, dealing with capabilities, competencies, learning objectives, attributes, skills and/or behaviours in the area of health professional leadership. These items were sought across literature dealing with all levels of learner from medical student to senior professionals, and across health disciplines. Non-health leadership literature, including the military and business spheres, was also reviewed, especially where this had been drawn upon by the health sector previously. The emphasis, however, was on existing publications aimed at guiding learning for health professionals in this area [24–28].

First Round Delphi (R1)

The R1 survey was delivered via an Excel spreadsheet format, asking participants to rate (in the first column) each of the 97 candidate competency items as to their suitability for inclusion in a radiation oncology Leader Role curriculum. Ratings were recorded using a 5-point Likert scale, from 1 = definitely exclude from curriculum to 5 = definitely include. Where a score of ≤ 3 was given (possibly include/exclude, likely exclude or definitely exclude) participants were asked to indicate in free-text in the second column why they had made this choice. In the third column, the participants were asked about the clarity of each item through drop-down menu options. In the last column, participants were invited to indicate (using a drop-down menu) if they thought the item might fit better within another CanMEDS Role. Finally, country of practice, seniority and professional role were requested as were suggestions for additional items. An excerpt of the R1 survey tool is shown in the [Supplementary materials](#). An Excel format was used to allow participants to easily scroll back and forth during completion of the survey in order to reconsider their responses in the light of all items presented.

Second Round Delphi (R2)

The second (last) briefer survey was delivered via the SurveyMonkey™ on-line platform (www.surveymonkey.com). This tool consisted of three main sections. Again, work role and country demographics were collected. In the first section, the items for definite inclusion in the final curriculum were presented for information (14 items). In the second section, the competencies still requiring determination regarding inclusion (or exclusion) were presented, this time asking participants to mark them as either IN or OUT.

Analysis and consensus definitions

R1 responses were compiled from individual Excel spreadsheets into the Statistics Package for Social Sciences (SPSS) for analysis of means, medians and standard deviations around each candidate item. For R1, the consensus definition that was applied for 'inclusion' across each response was a mean of ≥ 4 on the 5-point Likert scale (i.e. agree or strongly agree), and a standard deviation (SD) of ≤ 1 , in accordance with other authors [21]. Items receiving a mean score of < 4 (regardless of SD) were designated items for 'exclusion'. In R2, consensus was defined as having been achieved if at least 75% of respondents scored the item as IN, as used by other investigators [20,29].

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