Continued Evolution in a Global Curriculum in Medical Oncology-what next?

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Abstract

The 2016 update to the Global Medical Oncology Curriculum (GC 2016) is a major achievement. However, curriculum renewal is a continuous process and there are currently major changes happening in medical education with moves to a competency based curriculum across multiple stages of life-long learning in medicine. We have reviewed the GC 2016, in comparison to other relevant curricula, with the aim of identifying potential issues that need consideration for the next iteration of the curriculum. We identified the following issues in the curriculum: defining the underlying values, role, scope and external relationships of the global curriculum; expanding the stakeholders involved in its design; further integration of various aspects of professionalism; defining strategic meta-competencies; and finally, defining and aligning core competencies, activities and assessment for medical oncology training. Ongoing curriculum development is required in order to ensure that the global medical oncology curriculum remains relevant in a changing medical and educational environment. Moving to a fully competency based oncology curriculum is a key step in the process of changing the educational focus to outcomes that deliver better quality care.

Keywords: medical oncology; curriculum; competency-based medical education; entrustable professional activities

Introduction

Since 2004, the European society of Medical Oncology (ESMO) and the American Society of Clinical Oncology (ASCO) jointly endorsed the training standards for a physician to be qualified as a medical oncologist through the Global Curriculum (GC)[1]. The most recent update in 2016 (GC 2016) is an expanded edition with contributions from 96 experts from various countries giving a global perspective [2]. The GC 2016 edition has multiple additional new sections and chapters that cover recent advances in medical oncology such as immunotherapy and molecular pathology. Another major change is the incorporation of four categories (objectives, awareness, knowledge and...
skills) in each chapter to provide a template-based framework. Achieving a broad consensus through a large number of international experts on a global curriculum was a major achievement.

The GC 2016 has been released at a time when views on medical education are undergoing a rapid evolution. In the field of education, there is a movement to change the focus of the curriculum and associated assessments to a framework based on competency based education (CBE) that can be applied through all stages of lifelong learning. A competency based educational framework is defined as an "outcomes-based approach to the design, implementation, assessment and evaluation of medical education programs, using an organising framework of competencies"[3]. The characteristics of a competency based curriculum are given in Table 1. The main advantage of CBE is that it provides a framework for integrating knowledge, skills and attitudes by specifying key competencies derived in reference to societal needs and expectations. Core competencies provide a link between the learning objectives, learning activities and the assessment of tasks through workplace based assessments. Such a framework aligns the curriculum, practice and assessment to deliver quality clinical care. The learner becomes responsible for driving this process and the focus is on outcomes rather than process (time spent learning) [4].

Recognising the importance of CBE in medical training, this framework has been adopted by professional bodies across the world. For example, CanMEDS 2015, a physician competency framework has been endorsed by 12 Canadian medical organizations [3]. Similarly, other countries including the European Board of Internal Medicine have changed the design of the medical curricula with a move towards competency based education (CBE) [5–7]. Due to its rising importance, CBE has been called as the defining framework even for post-graduate medical education in the 21st century [8]. The International Association of Regulatory Medical Authorities now considers that a competency based framework is the standard for medical education programs [8]. As curriculum development is an ongoing process, there is a need to identify issues for inclusion in the next iteration of the global medical oncology curriculum. We therefore decided to critically review the 2016 GC against the recent developments in post graduate medical education including CBE in order to identify future directions.

Methods

A review of internal medicine post graduate curricula published in Australia, Canada, Europe, United Kingdom and United States before May 2017 was undertaken by the authors who are practising oncologists with expertise in curriculum design. A convenience sampling strategy of the available curriculum was used for the review with a focus on medical oncology curricula. A list of potential standards was generated from the available curricula. Each author identified emergent themes. Resultant themes were consolidated by consensus.

Results

Identified Reference Curricula and Standards

We identified the following published curricula and standards: CanMEDS 2015 [3] and McGill university 2011 medical oncology [9]; United Kingdom Medical oncology curriculum, Joint Royal Colleges Training board 2010 [10], Accreditation Council for Graduate Medical Education (ACGME) Core competencies [11] Program requirement medical oncology [12], and Royal Australasian College of Physicians (RACP) curriculum framework [12].

Emergent Themes
The following emergent themes were identified: defining the role of a global curriculum, methodology, values, relationship to other curricula, elements of a curriculum to be included, integration of professional qualities, meta-competencies and as indicated initially, competency based education.

**Role of a global curriculum**

The GC 2016 is a major project that provides a common curriculum across the United States and Europe, therefore, sets a global standard. Despite being a major achievement, GC 2016 has significant limitations, which need to be understood. Consensus across such a diverse group is difficult to achieve and important considerations in one country may not receive consensus across the group. The extended geographical scope also limits the range of issues across which a consensus can practically be obtained.

A major strength of a global curriculum is its ability to advocate for neglected areas. The inclusion of a global perspective through explicit addressing of the low resource context is a major strength in the updated GC 2016, and will hopefully stimulate broader inclusion of this topic and increase the value of this curriculum in parts of the world that carry a major part of the global cancer burden.

**Methodology**

A major quality criteria for any consensus statement is addressing the question of "who is in the room" [13]; or more importantly who is not ?. The GC 2016 has been developed by an extraordinarily eminent group of oncologists. The processes (such as needs assessment, selection of experts) involved in the development of the document are not well described in the publications.

There are stakeholders who do not seem to have been involved. A key omission is academic medical educators from outside of oncology, who can contribute in curriculum design from a broader perspective and consistency with other medical communities. Another omission is inputs from other stakeholders such as trainees, patients and professional bodies reflecting the difficulty of assembling a representative panel on a global scale. These omissions have consequences on the apparent validity of the decisions made and the relationship to other curricula inside and outside of oncology. Co-ordinating international stakeholder engagement is a major challenge, but would be a major quality improvement. Oncology has led the way in promoting consumer involvement in patient care. It is appropriate for this to extend into the area of curriculum development.

**Values**

The values that lie behind published curricula are not often stated. Prideaux states "A curriculum is underpinned by a set of values and beliefs about what students should know and how they come to know it" [14]. The choices made reflect the values and priorities of the training program. These values if not made explicit, are part of the hidden curriculum [15]. It would be helpful to have a clear statement of the values that underlie the GC 2016 document.

Among the values that are current in the educational literature, professionalism, quality improvement and inter-professional learning often have high priority [8,16]. While the Association of American Medical Colleges has made teaching for quality improvement a strategic goal [17] and ASCO has established it as a strategic direction (e.g CancerLinq Program), the GC 2016 does not address learning to conduct quality improvement projects. Similarly, GC 2016 does not highlight opportunities for inter-professional learning [18] or on promoting high value care and avoiding unnecessary care [19]. Caring for self as well as caring for others has been included in the latest CANMEDS revision [3] and there is increasing awareness of this issue in oncology [20]. These and other emergent priorities will need to be reflected in the next version of the curriculum.
Relationship to other curricula

Since the original ESMO/ASCO curriculum guide for medical oncology was released, other oncology associations have developed or are in the process of developing global curricula. The GC 2016 references the European Society of surgical oncology core curriculum in 2010 in section 4.3.1. However, the relationship to other curricula such as surgical oncology, gynaecological oncology, haematology, is not specified [10–12,21] The Global Radiation Oncology Collaboration in Education (GRaCE) is in the process of establishing a global core curriculum [22]. Failure to link to curricula related to other oncology specialties creates problems especially for joint training programs. The existence of GC 2016 provides an opportunity to coordinate with other cancer professionals to establish areas of commonality and difference.

Included elements of a curriculum

There are a variety of definitions of a curriculum and hence a variety of purposes. A curriculum is expected to provide not just what to learn (the content), but, how to learn (educational strategies, teaching and learning tools), assessment, educational environment and learning outcomes [23,24]. The GC 2016 comprehensively deals with content, objectives and educational environment but minimal guidelines for teaching/learning and assessment strategies.

References provided within GC 2016 are standard oncology textbooks and online databases. There is an opportunity to expand the categories of resources available to trainees to include audio visual aids and other videos, online learning modules, etc. The references provided are not connected to other learning strategies, such as learning in practice. The work in identifying and curating such a diverse group of resources is a major barrier. There is however an opportunity to utilise the expertise of learners in identifying and rating what works for them. This is a potentially powerful way to expand the learning resources associated with the curriculum.

The GC 2016 focus on content is acknowledged by the GC working group [2]. There are issues for a global curriculum with specifying some operational problems that will vary between jurisdictions. If the global curriculum needs to be connected to other documents to create a complete curriculum then the purpose of the global curriculum should be made explicit.

Competency based education

The content of GC 2016 lists aspirational goals addressing various aspects of a qualified trainee in medical oncology to provide optimal cancer care. However, a competency based curriculum (CBE) is considered to be international best practice [25,26]. Such a competency based curriculum is based on utilising entrustable professional activities (EPA’s) to integrate curriculum requirements with tasks in practice and to identify milestones of expected competencies according to stage of training [27–29]. An entrustable professional activity is a "unit of professional practice that can be fully entrusted to a trainee as soon as they have developed the competencies required to execute this activity unsupervised" [27]. Milestones provide a "developmental roadmap for competencies, they are behavioural descriptions of the developmental progression of each of the (sub)competencies” [28]. Together, both EPA and milestones describe what is expected of each trainee at key stages in their training for core tasks.

GC 2106 is the first attempt to integrate a competency based approach with objectives, awareness, knowledge and skills listed for each content area. However, this does not yet fully represent a competency based approach. CBE requires integration of knowledge, skills and attitudes into assessable tasks [29]. GC 2106 lists hundreds of individual skills as outcomes. Competency based curricula need to prioritise and integrate knowledge skills and attitudes into a manageable number of priority tasks. A task such as prescribing chemotherapy could be an
entrustable activity which integrates competencies in patient assessment, tumour specific therapy, critical application of evidence, patient centred care, communication, and awareness of cost, financial and logistic issues. The next step towards implementing a competency based curriculum is defining what the core competencies required of a medical oncologist are and matching this to a manageable set of EPAs [29,30]. Such a task is required if the medical oncology curriculum is going to provide continuity with surrounding curricula.

Integration of professional qualities

Given the scope of the task of developing GC 2016, it is understandable that the scope has been restricted to medical oncology expertise. This, however, creates a problem in managing the relationship between learning to be a medical oncologist and learning professionalism. There is general agreement that professional qualities are a key aspect of medical practice and that it needs to be taught, but integration with medical expertise is a universal challenge [31,32]. GC 2016 has continued this process (communication, bioethical, legal and economic issues) but others such as social determinants of health, professionalism, teaching, research, teamwork, leadership and patient advocacy are not adequately covered [28,29]. The future versions of the global oncology curriculum should consider incorporation of various aspects of professionalism. EPA’s are one way of designing assessment to integrate multiple competencies including professionalism.

Conclusions

The ESMO/ASCO global curriculum edition 2016 in Medical Oncology provides a comprehensive list of content knowledge in the area of medical expertise for medical oncologists that can be used as a basis to harmonise content requirements globally. Its major strength is its global perspective and the update on important content areas like immunology. Creating a global competency based curriculum for medical oncology is a major challenge that will require building on the work of GC 2016. The next iteration of the global curriculum will need to be a significant revision in order to keep up with global changes in medical education.

The major change required is a move to a truly competency based curriculum and this will entail developing a consensus on how to integrate the knowledge skills and attitudes identified in GC 2106 into a list of EPA’s required for practice as a medical oncologist. This will allow elaboration of the curriculum to provide more specific guidance on what learning activities are required and what assessment will enable our communities to be sure that graduating oncologists have demonstrated competency. Integrating assessment of professional qualities into EPA’s includes these aspects of professional practice into the curriculum.

Another key issue is clearly articulating its purpose and underlying values. The validity of such a curriculum will be enhanced if a broader range of stakeholders can be involved. The utility of the curriculum will be enhanced if it is able to integrate with the curricula of undergraduate training and other cancer professions. Utility will also increase by linking to a broader range of learning activities. These are major logistic challenges, but, they are also opportunities for collaboration and sharing of the tasks required. The strength of a global curriculum provides enormous economies of scale. There is no doubt that the ongoing development of a global curriculum is of enormous strategic importance for the future of cancer care. The journey continues.

Table

Table 1. Characteristics of Competency Based Education (adapted from reference [29])

Page 1
| Characteristic                  | Comment                                                                 |
|--------------------------------|-------------------------------------------------------------------------|
| **Rationale**                  |                                                                         |
| Learner Centred                | Learners need to be actively engaged towards meeting competencies      |
| Societal Needs                 | Competencies are matched to societal expectations                       |
| Contrast with Time             | Focus on outcomes rather than time served                               |
| Organising Framework           | Orientated to outcomes                                                  |
| Defined Outcomes               | Relate to practice as an integrated task                                |
| Demonstrable assessment        | Aligns with demonstration of competency through assessment             |
| Curriculum of competencies     | Instructional design, learning activities and assessment all align around competencies |

**Take Home Messages**

- Global curriculum (edition 2016) is an updated recommendation on standards to qualify as medical oncologists
- Purpose and underlying values of the global curriculum need to be defined
- Moving towards competency based oncology curriculum in the next edition

**Notes On Contributors**

ML was responsible for conception of this work, both authors were responsible for analysis, interpretation, writing and final approval of the article.

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**Appendices**

**Declarations**

*The author has declared that there are no conflicts of interest.*

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