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Continuing Professional Development Needs Amongst University of Toronto's Department of Radiation Oncology Faculty

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Abstract

Continuing professional development (CPD) and lifelong learning are core tenets of most healthcare disciplines. Where undergraduate coursework lays the foundation for entry into practice, CPD courses and offerings are designed to aid clinicians in maintaining these competencies. CPD offerings need to be frequently revised and updated to ensure their continued utility. The purpose of this qualitative study was to better understand the CPD needs of members of the University of Toronto's Department of Radiation Oncology (UTDRO) and determine how these needs could be generalized to other CPD programs. Given that UTDRO consists of members of various health disciplines (radiation therapist, medical physicists, radiation oncologists, etc.), eleven semi-structured interviews were conducted with various health professionals from UTDRO. Inductive thematic analysis using qualitative data processing with NVivo® was undertaken. The data was coded, sorted into categories, and subsequently reviewed for emergent themes. Participants noted that a general lack of awareness and lack of access made participation in CPD programs difficult. Members also noted that topics were often impractical, irrelevant, or not inclusive of different professions. Some participants did not feel motivated to engage in CPD offerings due to a general lack of time and lack of incentive. To address the deficiencies of CPD programs, a formal needs assessment that engages stakeholders from different centers and health professions is required. Needs assessments of CPD programs should include analyzing elements related to access, how to utilize technology-enhanced learning (TEL), determine barriers to participation, and understand how to better engage members.

Keywords Continuing professional development · CPD · Radiation oncology · TEL · Technology enhanced learning · Interprofessional · Needs assessment · Qualitative study · Distance learning · Competency based education

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Introduction

The skills and knowledge obtained after formal undergraduate and postgraduate medical education are inadequate to sustain competence and performance throughout a medical career [1]. Thus, healthcare professionals are expected to remain current in their practice by engaging in lifelong learning strategies. Continuing professional development (CPD) programs aim to improve the health of individuals and populations through the discovery, application, and dissemination of knowledge [2]. CPD programs disseminate this knowledge by developing courses, conferences, and other offerings. Programs must be re-evaluated and updated in an effort to remain relevant to changing practices.

The University of Toronto's Department of Radiation Oncology (UTDRO), established in 1991, is now one of the largest radiation medicine programs in North America with a significant impact on the healthcare community in terms of

research, education, and clinical care [3]. To continue to serve its mandate, UTDRO has strived to continue to provide high quality relevant continuing professional development opportunities for its members. As such, the UTDRO has expanded its CPD offerings in both number of programs offered and professions targeted. Target audiences now include radiation therapists, medical physicists, medical and surgical oncologists, specialty nurses, and other allied healthcare workers [3]. Given UTDRO's interprofessional faculty and trainees, there are challenges in the development of a CPD portfolio that can fulfill the learning needs of such a diverse group of learners.

Several CPD programs that have been organized in the department in the past decade include the Radiation Therapy Inquire, Inspire, innovate (RTi3) annual meeting, biannual Evening Journal Club, Accelerated Education Program (AEP), Clinical and Experimental Radiobiology Courses, and Quality and Safety in Radiation Therapy courses [3–5].

Each of these programs was designed to address a learning need of UTDRO members. The UTDRO Evening Journal Club provides a means of exchanging clinical experience amongst regional cancer centers in Toronto, Ontario [4]. The RTi3 conference aims to advance radiation therapist research across the country. The annual Target Insight (TI) Conference focuses on translating recent innovations in radiation medicine into clinical practice. The TI conference was also designed to address the needs of UTDRO's interprofessional community including radiation therapists, nurses, trainees, and additional health care professionals within [5].

A review of the literature emphasizes the need for specialized CPD. Marionopolous et al. state that despite the broad range of continuing education offered, doctors continue to overuse, underuse, and misuse therapeutic and diagnostic interventions [6]. This is due to the discrepancy between evidence and practice. Integrating knowledge translation (KT) into CPD offerings has been touted as a solution in bridging these gaps [7, 8].

Given that healthcare is increasingly being delivered in teams, there is a focus on education being developed in a team-based fashion. Olson et al. indicate that changes in technology, accreditation requirements, new reimbursement models, and public demands for transparency mandate newly developed CPD [9]. However, providing up-to-date offerings that are both interesting and relevant to multiple professionals has proven to be challenging [10]. Physician learning and improvement must focus on the competencies required for physicians to function within teams and to learn from members of the health care teams in which they participate [11]. Despite the TI conference's contribution to the development of professional communities of practice and to the interprofessional academic culture of radiation medicine, no formal assessment has been completed to see if this addresses the needs of UTDRO's interprofessional community.

As UTDRO's member base continues to change and the learning needs of its members evolve, UTDRO needs to determine if its current offerings are in line with the learning needs of its CPD participants and the UTDRO community (faculty and interprofessional staff). As a result, we undertook this qualitative study to better assess what deficiencies exist in the current UTDRO CPD offerings and how CPD programs could be better improved to serve the UTDRO community.

Methods

Overview

An exploratory approach to faculty needs was analyzed using a generalized qualitative research design. Participants were asked to share their experiences with CPD programming. Study participants were asked to generate recommendations on how to improve CPD programming and delivery and how to improve collaborations between cancer centers and increase attendance at CPD offerings. Participants who had consented to the interview process where phoned and interviewed using a semi-structured interview guide. Their interviews were digitally recorded. The interviews were then professionally transcribed, coded, and further categorized until emerging themes were identified. This process continued until data saturation was achieved. This study received approval from the Research Ethics Board at the Sunnybrook Health Sciences Centre and University of Toronto.

Methodology

A generic qualitative methodology focusing on emergent themes was used to explore faculty members' beliefs; this was done by collecting data from a variety of UTDRO faculty members. The semi-structured interview guide was developed by study investigators after a thorough literature review on continuing professional development with input from collaborating scientists.

Sampling

Purposive sampling was used to identify participants that would be eligible for enrolling in CPD offerings at UTDRO. Inclusion criteria were limited to licensed healthcare professionals including radiation oncology resident trainees. Participants were recruited with the aid of the principal investigators at the Odette Cancer Centre in Toronto, Ontario. The principal investigator contacted a list of potential CPD attendees and asked for their permission to be contacted by the research associates to schedule an interview. Interviewees were from Sunnybrook Hospital, University Health Network (UHN), Princess Margaret Hospital (PMH) and Royal Victoria Regional Health Centre (RVH). A total of eleven participants were interviewed. There was a representation from the fields of radiation oncology, radiation therapy, and medical physics.

Interview Process

The research associate scheduled semi-structured phone interviews with identified candidates who had consented to the interview process. Immediately preceding the interview, the research associate reviewed the consent form and then proceeded with the phone interview. The participants were interviewed using the semi-structured interview guide, lasting approximately thirty minutes. The interviews were digitally recorded and stored on an encrypted laptop.

Data Analysis

Interviews were transcribed and initially coded by Reserca™, an external research support company. This coded information was generated using qualitative data processing software (NVivo® version 11), employing an inductive thematic analysis approach. Transcripts were reviewed to form preliminary ideas for analysis and annotations were noted for any striking, contrasting, or anomalous findings. Upon a second review of the transcripts, words and phrases were highlighted and "codes" were issued. These initial codes were then reviewed by a member of the research team (AK) to ensure accuracy and appropriateness, and similar codes were merged. Codes were further examined by researchers to determine if there were any relationships that existed between different ideas, with subsequent reorganization of codes into "categories." Similar to the previous process with codes, the categories were reviewed and then organized into final over-arching "themes."

Results

We identified six overarching themes from the data as described below:

Awareness and Participation in CPD Programs

While most participants were aware of CPD programs available at UTDRO, not all participants had attended a CPD offering. Clinicians indicated that competing priorities and a lack of advertising on specific CPD offerings were barriers.

> Participant: having multiple forms of advertising [is important], if its being sent through an e-mail or listserv then it sometimes just gets filtered with everything else

> Participant: having certain events publicized on social media goes a long way. You know, I'm active on Twitter and Instagram and I know UTDRO is also on Twitter…

Content and Accessibility of CPD Offerings

Lack of Variety of Programs

Participants were not satisfied with the variety of CPD programs and conference being offered. Other participants noted that CPD programs were often physician-centered and limited in scope.

> Participant: It's very physician directed and it's a lot of the same people [who attend and speak at these events] usually.

Participants cited journal clubs as another way to engage UTDRO members in a meaningful learning environment that also added variety.

> Participant: …journal club, I think is a great way. For radiation oncology, journal clubs actually do involve different institutions, like it's basically a fellow presenting, with staff supervising from either the princess margaret hospital (PMH), or odette cancer centre (OCC).

Participants believed a rigorous needs assessment had to be conducted to develop and deliver effective programming that was varied and relevant to interprofessional faculty.

> Participant: If you're going to make a CPD type curriculum, what events are other professionals considering as important?...You need to have events that spark interest in your stakeholders.

Impractical Topics

Interactive, experiential topics that were practical had the most utility by participants in the study. Cited topics included project management, team communication, and leadership courses.

> Participant: ...if you saw somebody's eight-minute presentation where you can go away and read the paper… what can separate us from those kinds of events is practical and experiential learning

Lack of Online Resources

The most commonly cited recommendation by study participants centered around using online learning as a means of increasing accessibility, while allowing for increased flexibility to accommodate busy schedules. Recommendations around learning platforms included

synchronous, asynchronous, and archived webinars to allow participants to learn at their own pace. Participants were also keen on the idea of developing a repository of online reference materials (e.g., research studies) that could be organized by topics and specialty.

> Participant: Webinar is a good idea. That's something that you can access. Everybody [can]. You can even do it, like a live discussion-based webinar, so as to help with the access.

> Participant: So, oncologyeducation.com is run by the medical oncologists…they obviously have the latest information, latest study on each sites and they also do like "the best of breast cancer" or … "best of ASCO"... So, then the oncologist can actually go anytime at their convenience to look at those powerpoint and the talk. Sometimes I think they videotape the talk and they put it on the web…I think that model is pretty good.

Motivations for Participating in CPD Programs Outside of Content/Accessibility

Lack of Networking Opportunities

Interviewees favored conferences and retreats because of the opportunity to network with colleagues, while simultaneously learning about new research trends. Specific suggestions included incorporating social events into the conference (e.g., dinner) or having a presentation followed by a question and answer period (similar to international conferences).

> Participant: The model that I've seen that people like at the Ontario Medical Association is having all these CME (Continuing Medical Education) activities on the sea. They happen at a cruise, they attend the conference for 3 hours, and the rest of the time they are enjoying a cruise. That might appeal some of the staff and family members to go on a weekend or for vacation.

Lack of Formal Accreditation

Study participants suggested offering CPD credits to increase overall participation.

> Participant: If there is something you go to online, and you participate in those programs at your convenient time, at a convenient location, and then will be able to both learn the material and earn some educational credit.

Challenges to Participation in CPD Programs

Lack of Time

Lack of time was a commonly cited challenge to participating in CPD programs. Participants noted that their clinic and academic workload was too significant to allow time for participating in CE events, and also noted that they did not want CE events encroaching on their personal time.

> Participant: We have a lot of clinical responsibilities and our clinical work load is high. Our academic workload in research and teaching is high…enrolling in a course to kind of help us improve is a great idea but its just not within our schedule.

Competing Conferences

Competing international conferences made it difficult for participants to attend local CPD programs. They preferred to connect with international experts in their field to advance their learning, while networking on an international level.

> Participant: If you've got 10 days conference leave a year…you're gonna say, well you know what - ASTRO's in Boston this year, I've never been to Boston. I'm going to Boston! I think people resent having things happening at the weekends. I think that's a big no no, …if you have family…you do not want to be put in a position where you're not available to your family when you've been not available to them most of the week.

Collaboration Between Different Cancer Centers (UTDRO, PMH, OCC, and Peripheral Cancer Centers)

Participants identified a need for better communication between cancer centers to foster a collaborative environment. For this to occur, the development of a coordinated system with leadership buy-in was considered imperative. Several participants wanted to see departmental heads taking onus to create synergy amongst all cancer centers. Alternatively, the idea of "champions" that encourage buy-in and elevate the work taking place outside of their community was discussed.

> Participant: I can call people and e-mail them and they're more than happy to participate…"Hey, I saw you at such and such conference and you've got an interesting perspective on CE for radiation therapists, why don't you come and sit on this committee with us" – people are always[willing]

> Participant: These events should have a leader at Odette, PMH, and then you need to have chair of RVH and Southlake, Credit Valley and Oshawa. You need them engaged and at some of the smaller sites, they could benefit from these educational initiatives because they don't get a lot…so having something that is available for them to attend and having champions who are interested will get buy-in from those sites.

Participants noted that smaller centers often feel isolated and disregarded by some of the larger more well-known centers. This was partially due to a lack of resources to support in-person attendance at learning and networking events. Using technology to include geographically remote centers was noted to be one way of being inclusive and creating a greater sense of community across various cancer centers. Joint programming with involvement of peripheral cancer centers was also considered important.

> Participant: Individual cancer centers don't have that kind of money or proposal, so we have to think about what the conflicts are and try to find something in the middle – we're not all comfortable with the online environment but I think it's the new reality and it will make things more cost-effective.

> Participant: If there was some mechanism where, you know, the idea was to promote joint programing that would be a kind of draw.

Interprofessional Engagement

One of the most commonly cited recommendations was to encourage interprofessional attendance by ensuring discussions were applicable to a broad range of specialties. Presenting patient cases that incorporated the contribution of different disciplines was one identified strategy. Ensuring that a variety of speakers from various specialties are present, particularly those who have some expertise in interprofessional collaboration to facilitate learning was considered tantamount

> Participant: I think choosing people to speak that can also address other groups…I find interactive activities very useful as well, especially when they're team based. At school, they often will do a group activity and you'll have physicians, and therapists, and physicists all in the group…If it was just a talk, you wouldn't get everybody's perspectives.

> Participant: I don't think you're going to get somebody to come to a conference where all the speakers are medical, if you want to get physics or therapists, or nursing, you have to have segments of the conference that are of prime interest to that different audience.

Discussion

CPD and lifelong learning are core tenets of many different healthcare fields. Further education after entry into practice is a universally accepted responsibility of most healthcare workers. Our study identified what barriers were experienced by members in attending UTDRO's CPD programs. The results and recommendations based on the following discussion are summarized in Table 1.

Awareness of CPD Program

Up-to-date awareness of when CPD programs are being offered was important to interviewees. They recommended incorporating social media, personalized e-mails, and other online platforms to increase awareness. The role of social media as a means of engaging healthcare professionals in CPD activities has been described in the literature, with positive views by clinicians as means of improved opportunities for CPD [12]. Collaboration through social media demonstrate new ways of networking and making connections [13] that would fit into a busy work schedule of many healthcare professionals.

Concerns Around Content and Accessibility in CPD Courses

A lack of relevant practice-based content in CPD is a commonly cited barrier in other studies as well [14]. Some data recommend using knowledge translation and quality improvement to inform new CPD courses. A recent review article by Wareing et al. demonstrated that a flexible multi-modal program was successful in targeting the many different wants and needs of its audience [15]. Therefore, CPD directors and leaders should aim to conduct a thorough needs assessment to determine relevant, practical topics, while focusing on educational design strategies that would attract more participants.

Given that accessibility was a predominant issue identified by participants, integration of online learning into CPD via synchronous and asynchronous archived webinars/e-learning modules would allow for greater learner autonomy and access for members in peripheral centers. This in turn would increase the number of people who utilize CPD offerings.

Flexible multi-modal programs are associated with the most success in uptake and satisfaction [15]. Technology-enhanced learning (TEL) has been growing in acceptance and is now seen as an expected reality in postgraduate training in modern healthcare [16]. As such, it stands that CPD program directors need to embrace TEL as a key method of delivering future CPD modules. CPD directors also need to ensure that TEL systems themselves are evaluated by members to ensure that it is not only easy to use but also constantly evolving to meet the needs of learners.

Table 1 Deficiencies seen in CPD programs and methods to address deficiencies

Identified deficiencies	Proposed solutions
Lack of awareness of CPD programs	• Advertising on multiple platforms including social media (Facebook™, Twitter™, LinkedIn™, etc.) • Personal advertising by messages from CPD directors • Invoking Champions at each site to engage members
Scheduling issues	• Ensuring up-to-date calendar is available • Ensure CPD offerings do not conflict with major international conferences that members attend
Topics are repetitive and not practical	• Needs assessment to determine which topics are important and practical for members
Lack of access to CPD programming	• Using technology enhanced learning to create a database that has modules, past seminars, and course material that members can work on in their own time • Using needs assessment to inform the development and management of TEL • Live seminars to be hosted after regular working hours
Lack of motivation in attending	• Increase networking opportunities by incorporating social media and increase guest speakers • Ensure credits are available for attending members as part of continuing education requirements of respective health colleges
Lack of collaboration between different centers and hospitals	• Ensure members from all hospitals are engaged in the needs assessment process • Determine "champions" at each site that will advocate for their members as well as keep members informed of any updates • Ensure there is respect and collaboration between different centers and topics are relevant to all centers
Lack of interprofessional engagement	• Ensure needs assessment involves stakeholders from all health professionals that are a part of the department • Have TEL programs reviewed by experts in interprofessional collaboration • Have representation from each profession in leadership involved in disseminating CPD offerings

Assessing Motivations for CPD Attendance

Networking opportunities were an important motivating factor for attendees. Ensuring that live conferences and events are held in addition to TEL systems is prudent. Incorporating aspects of social media in TEL such as online discussion forums could present a unique opportunity for networking amongst professionals. Lack of time was another theme that emerged from our interview. This can be partially addressed through TEL systems, where participants can work through the material at their own pace at any time they wish. Utilizing a calendar system with reminders, participants can also be notified about upcoming events/conferences so that they can plan ahead to avoid conflicts with competing conferences or other clinical duties.

Collaboration Between Different Centers

Peripheral cancer centers (PCCs) felt that communication and collaboration was lacking. This is often a reality in CPD programs that are run through multiple centers. A recent systematic review found that technology-based options have high utility in addressing these concerns [17]. However, the same review also noted that distance learning is often quite complex as online teleconference and other similar methods may reduce interactivity and not address learning needs that may be specific to peripheral centers [17]. Furthermore, not all material is easily delivered in an online environment. However, stronger leadership that is inclusive of PCCs would attract buy-in from members and in turn increase collaboration. The notion of champions to implement and empower practice change is not a new one [18]. As such, encouraging PCCs to select champions would be beneficial. Using these principles empower PCCs to ensure CPD offerings meet their learning needs will ensure ongoing engagement and inclusivity.

Interprofessional Engagement

CPD programs provide the opportunity to foster effective collaborations amongst different health professions [19]. Although we agree with recommendations by participants to increase collaboration, a formal needs assessment engaging all stakeholders would strengthen the effectiveness of future CPD offerings. By identifying the different learning needs of various professions and determining if the content is relevant, useful, and of interest to all those involved, CPD offerings can continue to sustain a culture of collaboration [20]. To ensure CPD offerings remain interprofessional, champions/experts in each profession should be identified and included as part of the scientific planning committee prior to production/dissemination of CPD materials.

Future Directions

Future studies should look at the actual impact of the recommendations made in this study. UTDRO should focus on conducting a thorough needs assessment with broad stakeholder engagement, to build relevant new CPD offerings that

incorporate TEL. UTDRO should then evaluate program attendance, satisfaction, and learning in the modified programs and compare those to data from prior available CPD offerings. This data can then be used to better inform the literature on what type of CPD programs are successful with an interprofessional audience and help inform other CPD programs on how to restructure their programs.

Study Limitations

There were various limitations identified in the study. This study is a qualitative study that was designed to improve CPD offerings of a specific department within a specific geographical context. As such, the results may not be generalizable to all departments in all geographic contexts. The results should be used as a framework to assist with developing future CPD programs.

Given the qualitative nature of the study and the small sample size ($n = 11$) of participants, CPD directors and leaders should use the results of this study to re-assess their own CPD programs as part of quality improvement mechanisms that exist at their institution. Further research will be needed to determine the effectiveness of the recommendations provided in this study. There exists a power differential between clinicians which could have an impact on interprofessional education [21]; further research will be needed to determine what impact this will have on ensuring CPD offerings have a reasonable mix of topics that are inclusive of all professions.

The majority of participants in the study were radiation oncologists and equal representation was not present from other health professions. Also, the majority of participants were from central cancer centers rather than PCC. Given this, the results of the study should be used cautiously.

Conclusion

Undergraduate education provides the basic knowledge required for entry into practice; however, CPD and lifelong continuous education is required to maintain the competencies needed to remain in practice [15]. CPD programs need to be flexible and dynamic in order to meet the needs of its targeted audience. By analyzing the needs of its members through a formal needs assessment, CPD offerings can remain relevant. The needs assessment should focus on how to improve members' awareness of CPD programs, determining what barriers exist in accessing, understanding, and engaging in the content, all while ensuring different stakeholders and different health professionals across various sites are consulted from start to finish. By using a mixture of TEL and in-person teaching and learning modalities, members can remain engaged and benefit from CPD offerings to improve their practice, and ultimately, the care of their patients.

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Conflict of Interest The authors declare that they have no conflicts of interest.

References

1. Horsley T, Grimshaw J, Campbell C (2010) How to create conditions for adapting physicians' skills to new needs and lifelong learning. WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies, Copenhagen
2. Schneeweiss, S. 2005. CPD 2015 – leadership, innovation, and community engagement. https://www.cpd.utoronto.ca/ar15/ Accessed 29 April 2019
3. University of Toronto Department of Radiation Oncology. 2014. The transformative agenda–roadmap to 2017. http://www.radonc.utoronto.ca/sites/default/files/Strategic%20Plan%20Final.pdf Accessed 29 April 2019
4. University of Toronto Department of Radiation Oncology. 2017. Continuing education. http://www.radonc.utoronto.ca/continuing-education Accessed 29 April 2019
5. University of Toronto Department of Radiation Oncology 2019. Our history http://radonc.utoronto.ca/our-history. Accessed 29 April 2019
6. Marionopolous S, Dorman T, Ratanawongsa N, Wilson L, Ashar B, Magaziner J, Miller R, Thomas P, Prokopowicz G, Qayyum R, Bass E (2007) Effectiveness of continuing medical education. J EviRep Technol Assess 14:1–69
7. Ong IL, Diño MJS, Calimag MMP, Hidalgo FA (2018) Developing a valid and reliable assessment of knowledge translation (KT) for continuing professional development program of health professionals. PeerJ 6:e5323
8. Ong IL, Diño MJS, Calimag MMP, Hidalgo FA (2019) Development and validation of interprofessional learning assessment tool for health professionals in continuing professional development (CPD). PLoS One 14(1):e0211405
9. Olson CA (2012) Twenty predictions for the future of CPD: implications of the shift from the update model to improving clinical practice. J Contin Educ Heal Prof 32(3):151–152
10. Davis DA, Rayburn WF, Smith GA (2017) Continuing professional development for faculty: an elephant in the house of academic medicine or the key to future success? Acad Med 92(8):1078–1081. https://doi.org/10.1097/ACM.0000000000001777
11. Future of Medical Education in Canada Continuing professional development project (FMEC-CPD) (2019). Supporting learning and continuous practice improvement for physicians in Canada: a new way forward. Retrieved from https://www.fmec-cpd.ca/wp-content/uploads/2019/04/FMEC-CPD_Synthesized_EN.pdf. Accessed 27 May 2019
12. Hughes K (2018) The use of twitter for continuing professional development within occupational therapy. J Furth High Educ:1–13. https://doi.org/10.1080/0309877X.2018.1515900
13. Lawson C, Cowling C (2015) Social media: the next frontier for professional development in radiography. Radiography 21(2):e74–e80
14. Kitto SC, Bell M, Goldman J, Peller J, Silver I, Sargeant J, Reeves S (2013) (Mis)perceptions of continuing education: insights from

knowledge translation, quality improvement, and patient safety leaders. J Contin Educ Heal Prof 33(2):81–88
15. Wareing A, Buissink C, Harper D, Gellert Olesen M, Soto M, Braico S, van Laer P, Gremion I, Rainford L (2017) Continuing professional development (CPD) in radiography: a collaborative European meta-ethnography literature review. Radiography 23: S58–S63
16. Scott KM, Baur L, Barrett J (2017) Evidence-based principles for using technology-enhanced learning in the continuing professional development of health professionals. J Contin Educ Heal Prof 37(1):61–66
17. Berndt A, Murray CM, Kennedy K, Stanley MJ, Gilbert-Hunt S (2017) Effectiveness of distance learning strategies for continuing professional development (CPD) for rural allied health practitioners: a systematic review. BMC Med Educ 17(1):117. https://doi.org/10.1186/s12909-017-0949-5
18. Gesme D, Wiseman M (2010) How to implement change in practice. J Oncol Pract 6(5):257–259
19. Curran V, Sargeant J, Hollett A (2007) Evaluation of an interprofessional continuing professional development initiative in primary health care. J Contin Educ Heal Prof 27(4):241–252
20. Lown BA, Kryworuchko J, Bieber C, Lillie DM, Kelly C, Berger B, Loh A (2011) Continuing professional development for interprofessional teams supporting patients in healthcare decision making. J Interprofessional Care 25(6):401–408
21. Paradis E, Whitehead CR (2018) Beyond the lamppost: a proposal for a fourth wave of education for collaboration. Acad Med 93(10): 1457–1463