

Competence by Design (CBD) Implementation Pulse Check

CBD Program Evaluation Operations Team
Fall 2020



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Executive Summary

Introduction

This report outlines the findings of a study conducted by the Royal College CBD Program Evaluation Operations Team to understand how CBD implementation is going on the ground, as well as benefits, challenges, advice for moving forward, and any early outcomes. This study primarily examines fidelity of implementation at various points in implementation, which is the extent to which critical components of CBD are present in a program, as well as the occurrence of some very early outcomes. Information gathered in this study will allow for the monitoring of trends in CBD implementation over time, and will ensure lessons learned and necessary adjustments are systematically incorporated into subsequent cohorts implementing CBD.

This study involved a survey to measure a program's overall implementation, implementation of key features of CBD, methods and topics of faculty development, benefits, challenges, and advice for moving forward. 30% of programs completed the survey. A subset of these respondents (18 programs) also participated in a follow up interview to delve more deeply into their experience.

Key Findings

Overall Implementation and Key Features of Implementation

74% of the 88 programs who completed the 2020 Annual Pulse Check Survey agreed, or strongly agreed, that CBD implementation is going well in their local programs, and the majority of programs surveyed have all key features of implementation in place to at least some degree. Competence Committee implementation is the most fully implemented feature with 96% of programs having a competence committee in place that regularly reviews resident progress, using either robust or limited data to make promotion decisions. On the other hand, many programs are still in the progress of implementing individualized resident stage-based learning plans, with 20% of programs rarely or never using them. The other key features of implementation (curriculum mapping, direct observation, electronic portfolio, workplace-based assessment, and coaching) are well on their way to being fully implemented by many programs.

Faculty Development and Resources

Faculty development for CBD implementation is commonly delivered through email communications, presentations, and workshops. Other avenues of faculty development often include grand rounds, orientation sessions, and outreach visits. The topics that were often covered, as noted by interview participants, included "what is CBD", "what are EPAs", the role of faculty, and competence committees. Topics for workshops often included "how to" topics, such as, "how to do an EPA assessment" or "how to run a competence committee".

The most commonly used resources for faculty development often came from the local department/program, however resources delivered by the Faculty of Medicine and Royal College were also used. Some programs also indicated that they have benefited from faculty development delivered by other programs that had previously transitioned to CBD. Overall, many programs seemed generally satisfied with the support they have received from their PGME offices, local

program departments, and the Royal College. However, some programs did note that additional resources in the way of financial support, more administrative support, IT support, and further training on the use electronic platforms would have been helpful.

Challenges and Benefits

Challenges

A common challenge reported in the survey and during interviews was assessments. This challenge included a couple different factors, including faculty not completing assessments, or completing assessments after the fact, the quality of assessments, including confusion around the assessment scale, and difficulty attaining certain EPAs.

Issues with the electronic platform were also brought up frequently as a challenge for programs. Some programs are having difficulty with mobile access, which is creating barriers in being able to record on-the-spot observations. Furthermore, many programs have reported that the electronic platform they are using does not adequately collate and report data, resulting in programs having to find work arounds, or perform time consuming, manual extraction and analysis of the data.

Another commonly reported challenge is the additional work for residents, faculty, program directors, and program administrators. Some programs are finding that their residents are feeling overwhelmed with the frequency of evaluation and are stressed about always having to track down faculty to complete the assessments. Program Directors have also noted that it is sometimes difficult to convince faculty to fill out EPAs, because it takes more of their time and is more work for them. Finally, many programs noted that majority of the tasks associated with CBD implementation rest with the Program Directors and Program Administrators.

Finally, many programs noted challenges with culture change. They stated that it is sometimes difficult to motivate faculty and get them involved with CBD and that there is some pushback from residents and faculty who prefer the traditional system. Additionally, residents have yet to embrace a growth mindset, and may only ask for EPAs when they have succeeded, or only go to certain faculty for EPAs.

Benefits

A common benefit of CBD is that residents receiving more frequent, meaningful, and targeted feedback, allowing them to focus their learning where it is needed. Furthermore, with more frequent observation and documentation, more data is available to inform decision making around resident progress and to identify and address issues when they arise.

Enhanced clarity around the curriculum and the required competencies is another benefit of CBD. Having EPAs that are clearly mapped out, and documenting observation of them, ensures that residents have the experience and exposure needed to be competent. Understanding the structure of the program and knowing exactly what they need to achieve to be competent allows residents to take more ownership of their learning.

It was also frequently noted that residents appreciate having a coach or mentor, whether it is an academic advisor, faculty, or a senior resident. Receiving targeted feedback on specific aspects of

training allow the residents to focus on what they need to do to be successful. Coaches also allow the load of mentorship to be distributed.

Discussion and Recommendations

Discussion

Improving over time

There is some evidence that the implementation of CBD is improving over time, as overall ratings on the Pulse Check generally increased from 2019 to 2020 in terms of how well implementation is going and the degree to which the key features of CBD are implemented. However, when probed further during the interviews, it seems that many programs continue to struggle with the adoption of some of the underlying principles of Competence by Design, despite having many of the key features in place.

Fidelity and Integrity of Implementation

Implementing a new curriculum is a journey towards both fidelity and integrity. Fidelity is the degree to which the key elements of a curriculum are in place, such as having a competence committee, performing direct observation, using an electronic portfolio, etc. Integrity is about embracing the underlying principles and understanding the reasons for change. In CBD, integrity of implementation means shifting culture and adopting a growth mindset; for example, using direct observation to provide meaningful feedback with the purpose of coaching a resident towards improving their performance, and a resident embracing that feedback so they can adjust their learning accordingly. The results from this study indicate that the majority of programs are well on their way to achieving fidelity of implementation, however, the journey towards integrity is still very much in progress for many programs.

Recurring Challenges

With longitudinal data now available, it is becoming apparent which challenges tend to be recurring challenges (i.e. EPA completion, electronic portfolio issues, resources and workload, culture change), versus those that may be unique to the time, or situation specific. Moving forward it will be important to dig deeper into the underlying nature of these challenges so that they can be appropriately addressed and to ensure that unintended, negative effects are mitigated.

Recommendations

The data presented in this study, as well as from other program evaluation initiatives and discussions with stakeholders, point to some key challenges. Preliminary recommendations, which will be shared and discussed with internal teams at the Royal College, were created to address these challenges.

1. Further explore the workload and/or resource challenges with CBD implementation to determine whether there are tangible opportunities for the Royal College, PGME offices, and/or local programs to further address the issue.
2. Facilitate the sharing of best practices for the completion of assessments.
3. Evaluate existing faculty development resources focused on assessments and the O-score to gauge stakeholder's awareness, examine their effectiveness, and determine if further resource gaps exist.

4. Publicize the process of providing feedback on EPAs and milestones to those on the ground implementing CBD.
5. Examine the Royal College processes for identifying and resolving issues with the ePortfolio, and encourage institutions to do the same with their platforms.

CBD Pulse Check Report

Background

Competence by Design (CBD) is the Royal College of Physicians and Surgeons of Canada's major change initiative to reform the training of medical specialists in Canada. It is based on a global movement known as Competency Based Medical Education (CBME), and is led by the medical education community. The objective of CBD is to ensure physicians graduate with the competencies required to meet local health needs, and it aims to enhance patient care by improving learning and assessment in residency. It will eventually be implemented across the continuum from residency to retirement.

In CBD, progression of competence occurs within a structured but flexible curriculum consisting of five core components (Appendix A). More specifically, in a competency-based approach, competencies required for practice form a **framework** and are accordingly organized into a **progressive sequence**. Promoting resident progression forms the basis for the design of all curricular elements: **learning experiences that are tailored** to the acquisition of competencies, **instruction that is competency-focused** and **assessment that is programmatic** in approach (Van Melle et al., 2019). For more information on CBD, please visit the [Royal College website](#).

CBD is being implemented across the system of specialty medicine in Canada in stages. The first disciplines launched in July 2017, and on July 1st each year, additional disciplines implement CBD. As of July 1st, 2019, 20 disciplines had launched CBD – 2 in 2017, 6 in 2018, and 12 in 2019. These 20 disciplines are the focus of this current report; implementation will be monitored for these 20 disciplines 1, 2, and 3 years after launch.

CBD Program Evaluation

The purpose of this study is to contribute to the longitudinal program evaluation of CBD. CBD is a complex initiative and the program evaluation will require a systematic, longitudinal approach that continuously monitors implementation, challenges, and opportunities for improvement. Many projects will be undertaken over the course of the evaluation.

The program evaluation will help to answer specific questions about CBD for the purpose of decision making, including if CBD is being implemented as intended, identifying areas for improvement and understanding program impacts (Van Melle, Frank, Brzezina, & Gorman, 2017).

The CBD program evaluation has three goals, each of which is addressed by a pillar of the evaluation.

1. To foster successful implementation of CBD.

It is important to understand what factors influence a successful implementation (Durlak & DuPre, 2008). This goal will be addressed by the readiness to implement pillar. Readiness to implement examines an organization's resolve (beliefs, attitudes, and intentions) and capacity (capabilities, resources, structure) to implement CBD (Scaccia, 2016).

2. To understand the influence of local contexts, adaptations and innovations.

Local sites will adapt CBD to fit their local context, and it is important to understand these adaptations to determine if there is a point where they compromise the fundamental principles of CBD. Without understanding this, we cannot determine if a lack of impact is from poor implementation or inadequacies in program theory (Palacios et al., 2016). This goal will be addressed by examining fidelity of implementation (the extent to which critical components of CBD are present in the program) (Century, Rudnick, & Freeman, 2010) and integrity of implementation (the extent to which the program embodies the qualities of CBD that will lead to desired outcomes over time) (Patton, 2016).

3. To build an evidence base of the impact of CBD-Residency Education overtime.

It is important to understand the impact of CBD, and what it is about CBD that works, for whom, in what circumstances, and why (Pawson et al., 2005). To meet this goal, intended and unintended outcomes will be examined over time.

For more information on the program evaluation initiative, please email educationstrategy@royalcollege.ca.

Focus

The Pulse Check was conducted to monitor the implementation of CBD across the system of specialty medicine in Canada. Results were used to explore the status of CBD implementation, to gain a better understanding of the challenges and opportunities for improvement in implementation, to examine early outcomes, and to gather advice for moving forward.

In relation to the Program Evaluation pillars, the Pulse Check will focus primarily on fidelity of implementation, and touch on integrity of implementation, by examining the degree to which key features of CBD are implemented, and how they have been implemented in programs. It will also examine early outcomes through current benefits and challenges in implementation.

The Pulse Check is conducted 6 months after a discipline launches CBD, and annually thereafter. This allows for the monitoring of trends in CBD implementation across the system of specialty medicine in Canada over time. Findings will also ensure lessons learned and necessary adjustments are systematically incorporated into subsequent cohorts implementing CBD.

Methods

Participants of this study were program directors or program CBME leads of the 2017, 2018, and 2019 CBD launch disciplines – only one response per program was requested. Participants were contacted by email and asked to participate in an online survey, and were asked at the end of the survey if they would like to participate in a follow up interview. The survey response rate was 30% (88/294) and 18 respondents participated in a follow-up interview. (see Table 1). Interviews were spread out across programs and Faculties of Medicine for maximum representation.

Specialty (Year officially launched CBD)	Survey Response Rate	Number of Interviews
Anatomical Pathology (2018)	42.9% (6/14)	1
Anesthesiology (2017)	(47.1%) 8/17	1
Cardiac Surgery (2018)	45.5% (5/11)	0
Critical Care Medicine - Adult (2018)	23.1% (3/13)	0
Critical Care Medicine - Pediatric (2018)	37.5% (3/8)	1
Emergency Medicine (2018)	42.9% (6/14)	3
Gastroenterology - Adult (2019)	14.3% (2/14)	0
Gastroenterology - Pediatric (2019)	42.9% (3/7)	0
General Internal Medicine (2019)	31.3% (5/16)	0
General Pathology (2019)	33.3% (2/6)	1
Geriatric Medicine (2019)	9.1% (1/11)	1
Internal Medicine (2019)	29.4% (5/17)	2
Medical Oncology (2018)	14.3% (2/14)	0
Neurosurgery (2019)	14.3% (2/14)	0
Nephrology - Adult (2018)	37.5% (6/16)	4
Nephrology - Pediatric (2019)	28.6% (2/7)	0
Obstetrics and Gynecology (2019)	37.5% (6/16)	1
Otolaryngology - Head and Neck Surgery (2017)	23.1% (3/13)	1
Radiation Oncology (2019)	15.4% (2/13)	0
Rheumatology - Adult (2019)	60.0% (9/15)	0
Rheumatology - Pediatric (2019)	50.0% (1/2)	0
Surgical Foundations (2018)	23.5% (4/17)	1
Urology (2018)	25.0% (3/12)	1

Table 1. Survey and interview response rates by program.

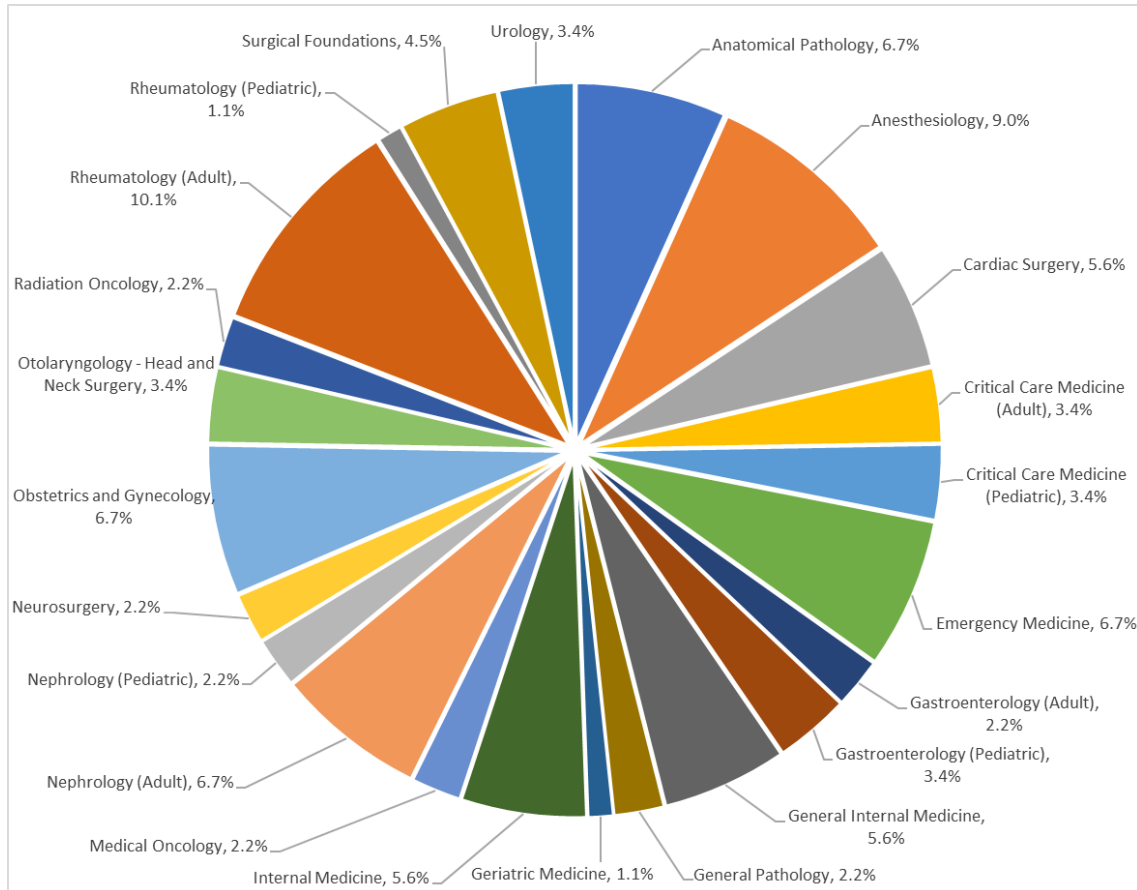


Figure 1. Distribution of Survey Responses.

ONLINE SURVEY

In June 2020, Program Directors of 2017, 2018, and 2019 CBD launch disciplines were sent an email requesting their participation in a brief online survey with the intent of obtaining an overall sense of how CBD implementation was going in their program (Appendix D). The survey was conducted through Survey Gizmo. The survey was open for 8 weeks, and participants received two reminder emails, the first at 4 weeks and the second at 7 weeks.

The survey was divided into 4 parts developed collaboratively by the CBD Program Evaluation Operations team (Appendix F) consistent with the overall objectives above. The survey was developed through an iterative approach and was ultimately piloted on a representative sample using a think aloud protocol. Recommendations gathered from the pilot were assembled and incorporated into the final survey (Appendix D).

Part one of the survey asked respondents to rate how CBD implementation had gone for their program until that point on a scale from one to five.

The second part of the survey specifically addressed the implementation of the key components of CBD. An innovation configuration map approach was used to identify not only the key components of CBD, but also as a means of defining what those key components would look like when they had been fully implemented (Richardson, 2004). Innovation configuration mapping is particularly useful in making clear what a new program such as CBD (the innovation) is, and what it is not (Richardson, 2004). For each of the key components, a scale of one to five was utilized that characterized the component from non-implementation to ideal implementation respectively. While innovation configuration maps can be used for multiple purposes, in this case respondents use it as a form of self-evaluation that assessed degree of implementation (Richardson, 2004).

Part three of the survey addressed faculty development as it related to CBD. Respondents were asked about what topics had been provided to faculty, how those topics had been delivered, and what resources had been used.

Finally, in part four of the survey, free text boxes were used to explore the benefits of CBD implementation, the challenges of implementation, ways that those challenges had been overcome, and any advice for moving forward. Within this section there was also a question that asked about how CBD has impacted resident wellness on a scale from one to five.

INTERVIEWS

At the conclusion of the survey, respondents were asked if they were interested in participating in a follow-up interview to delve more deeply into their experience with CBD thus far. A complementary interview guide (Appendix E) was assembled that consisted of twelve primary questions and associated prompts. Questions addressed themes similar to the survey including implementation and faculty development, but put additional focus on the benefits, challenges, and associated recommendations that respondents had compiled based on their experience with CBD. This guide was similarly created through an iterative approach by the CBD Program Evaluation Operations team.

Those who agreed to participate in an interview were contacted and polled for their availability. The interviews typically lasted between 30-45 minutes. One interviewer and one note-taker were present for most interviews. The interviewers were members of the CBD Program Evaluation Operations team who are not directly involved in CBD implementation.

Results

The results in the main part of this report present the aggregate data from the Annual 2020 Pulse Check Survey and Interviews. A comparison with the 2019 Annual Pulse Check is provided in Appendix A and, a comparison across cohorts and over time is presented in Appendix B.

Overall Implementation

Key takeaways

- More than 70% of respondents indicated that CBD implementation in their local program was going well (agreed or strongly agreed to statement)
- When asked about specific features of CBD implementation, Competence Committees were implemented most fully, whereas many respondents were still in the process of implementing individualized resident stage-based learning and coaching

Survey respondents were asked how much they agreed with the statement “Overall, CBD implementation is going well in my local program” on a five-point scale from strongly disagree (1) to strongly agree (5). The median rating was 4, with almost three quarters of respondents (73%) either agreeing or strongly agreeing with this statement.

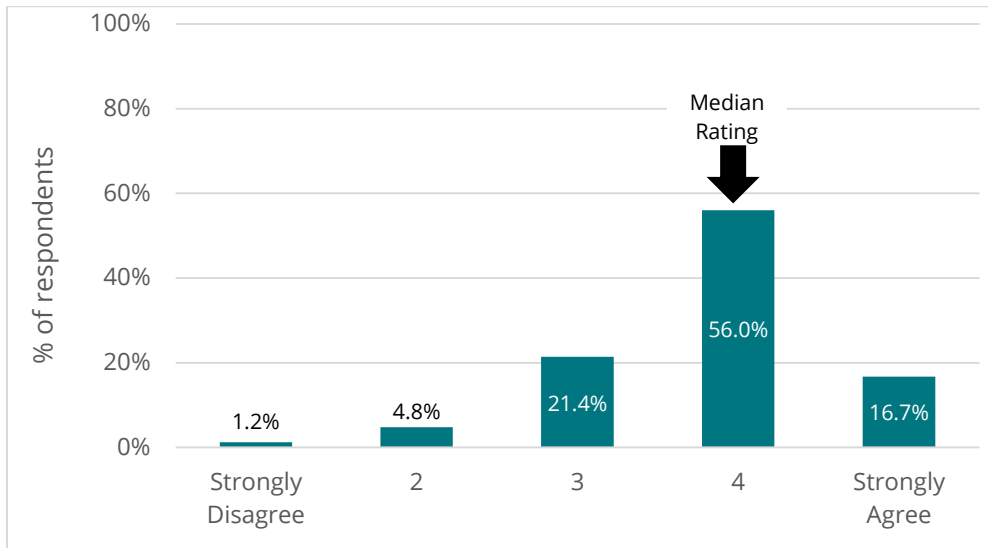


Figure 2 – Overall CBD Implementation (N=84)

In 2019, the median rating was 3, with 42% of respondents agreeing or strongly agreeing (See Appendix A for more details)

All three cohorts (2017, 2018, 2019), had a median of rating of 4 in 2020. (See Appendix B for more details)

When asked how fully they had implemented CBD in interviews, most respondents indicated they had fully implemented CBD. When probed, many programs had implemented all elements of CBD, but did still have room for development in some areas.

There was a positive correlation between scores on overall implementation and mean score on implementation of CBD features ($r(84) = .51, p < .01$).

Key Features Implementation

Key takeaways

- Most of the key features of implementation are well on their way to being fully implemented by many programs
- Competence Committees are most fully implemented with 96% of programs surveyed having a Competence Committee in place that regularly reviews resident performance.
- On the other hand, many programs are still in the process of implementing individualized, resident stage-based learning plans, with 20% of programs rarely or never using them.

When asked in interviews what changes they had made to their program in implementing CBD, the most commonly cited changes were forming a Competence Committee, creating a curriculum map, updating rotations with required training experiences, and onboarding faculty and residents with the electronic platform. This is in line with the highest scoring features on the survey.

In the survey, participants were asked the degree to which they had implemented key features of CBD on a five-point scale that ranged from non-implementation to full implementation. Median scores are provided in the graph below (Figure 3), in the order of degree of implementation. Competence Committee implementation is the most fully implemented feature, whereas many programs are still in the progress of implementing individualized, resident stage-based learning plans.

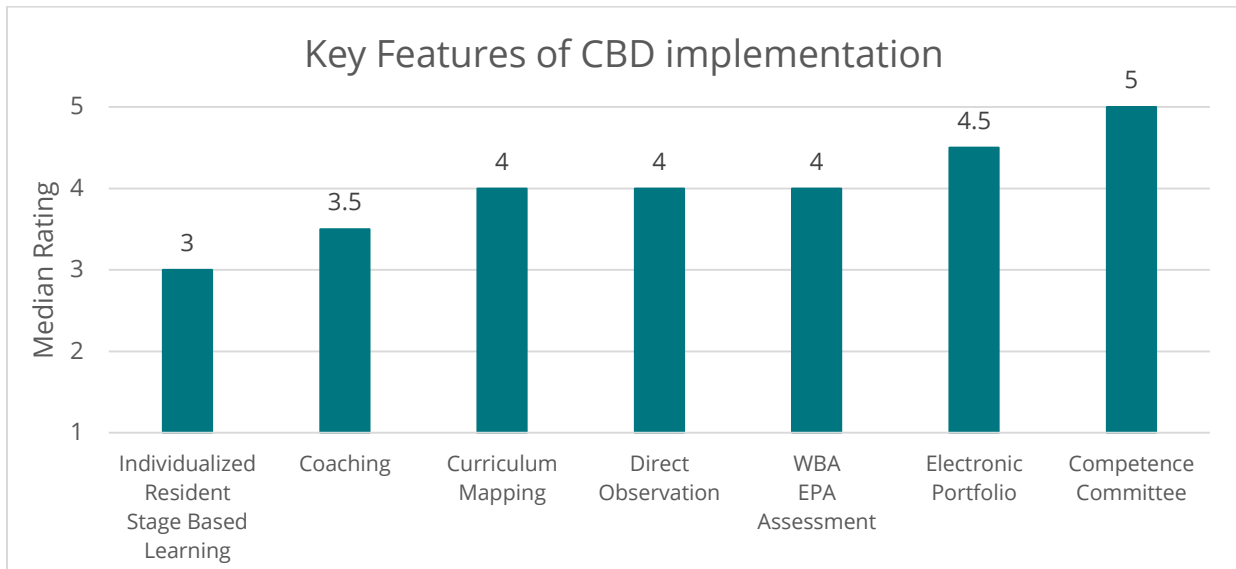


Figure 3. Median degree of implementation of key CBD features.

The key features of CBD and their level of implementation, based on innovation configuration mapping, is broken down in the graphs below.

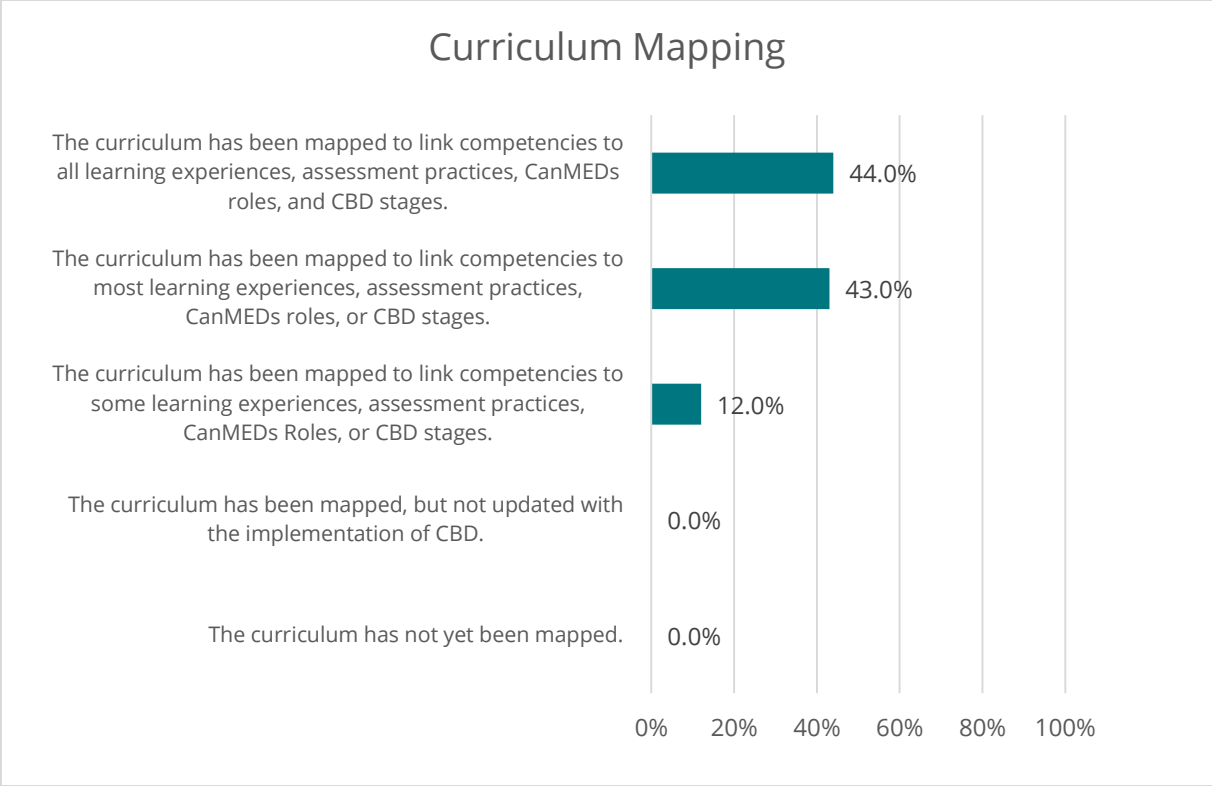


Figure 4. Curriculum Mapping responses.

Most programs (88%) had created a curriculum map to link competencies to most, if not all, learning experiences, assessment practices, CanMEDs roles, and CBD stages. The remaining programs (12%) had created a curriculum map to link competencies to *some* learning experiences, assessment practices, CanMEDs roles, and CBD stages. This is in line with the responses received during the interviews, where many program directors indicated that as part of implementation they had updated the curriculum to ensure that EPAs were mapped to appropriate rotations.

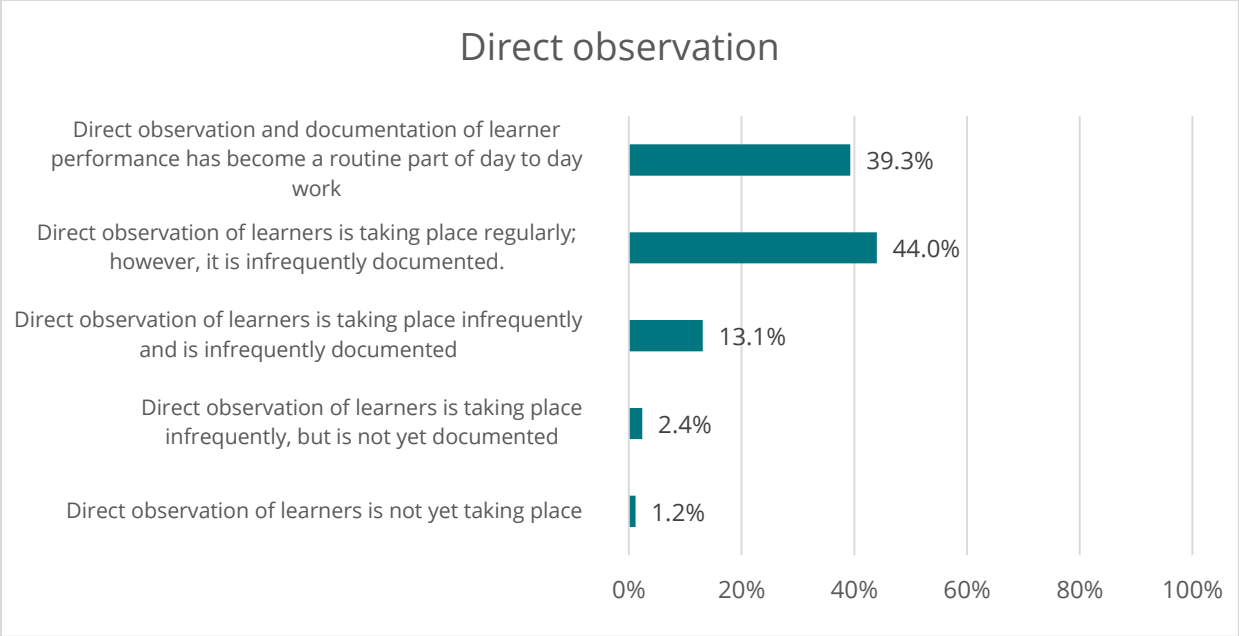


Figure 5. Direct observation responses.

The majority (84%) of programs are engaging in direct observation regularly, or as a routine part of day. However, half of these programs are infrequently documenting their direct observation, with just under 40% of programs having both direct observation **and** documentation as part of their routine, day to day work.

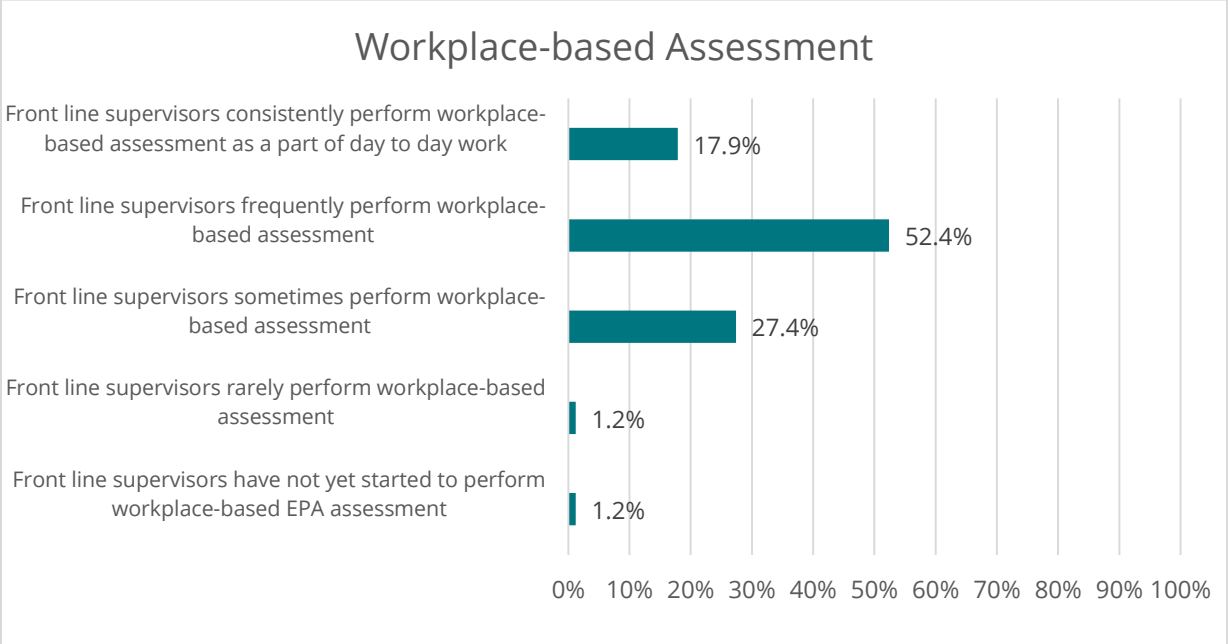


Figure 6. Workplace Based EPA Assessment responses.

Almost all respondents (98%) indicated that their faculty were at least sometimes performing workplace-based EPA assessments, with 70% frequently or consistently performing work-based place assessment. Only a minority of programs (2%) were rarely performing workplace-based EPA assessments, or had not yet started.

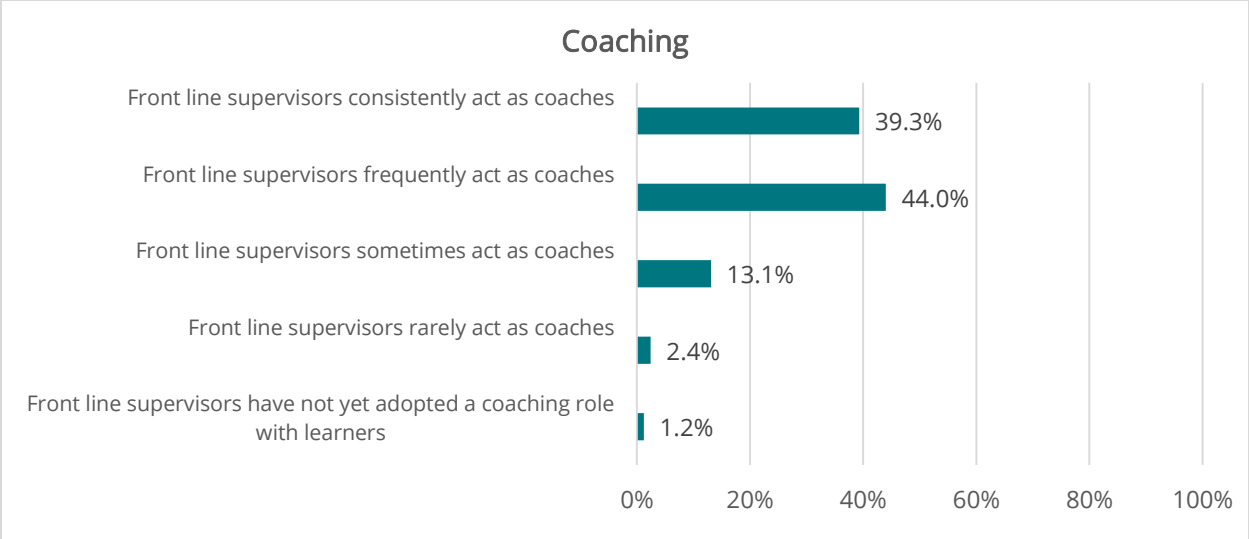


Figure 7. Coaching responses.

Most programs (83%) indicated that faculty frequently or consistently act as coaches. Very few programs (3%) had faculty who rarely acted as coaches or had not yet adopted a coaching model.

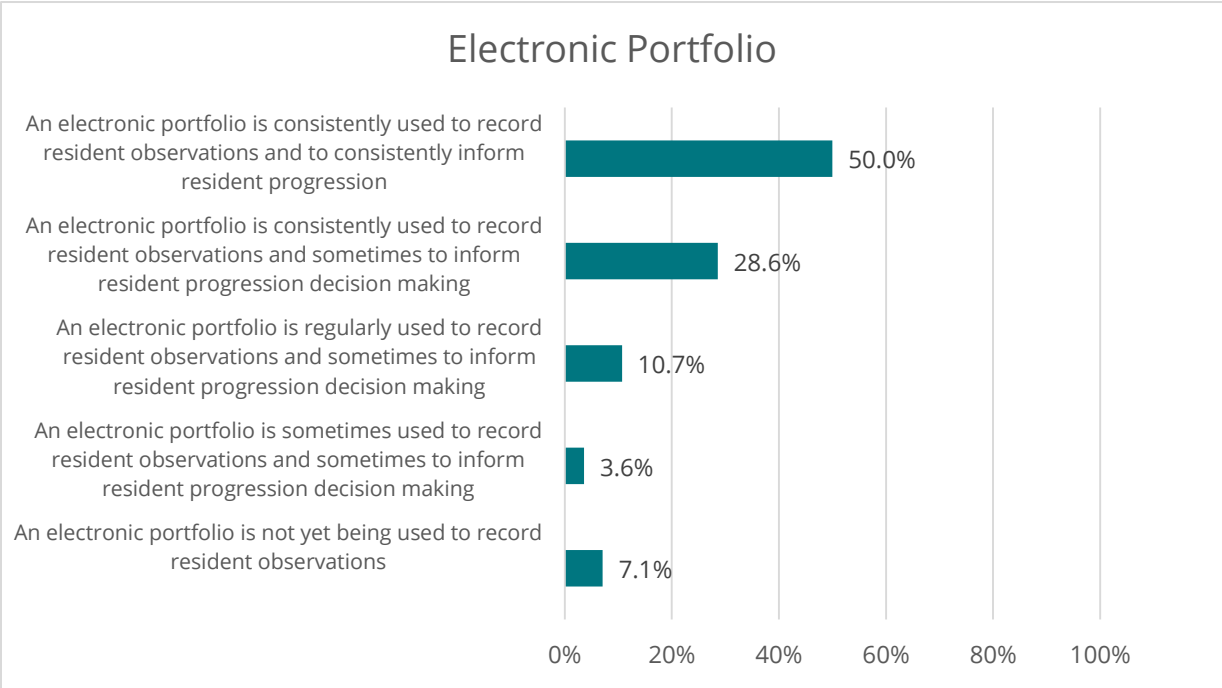


Figure 8. Electronic Platform responses.

The majority of programs (79%) are consistently using an electronic platform to record observations and are either consistently (50%) or sometimes (29%) using them to inform resident progression decision making. 14% of programs who responded to the survey were regularly or sometimes using electronic portfolios, whereas 7% of programs were not yet using electronic portfolios.

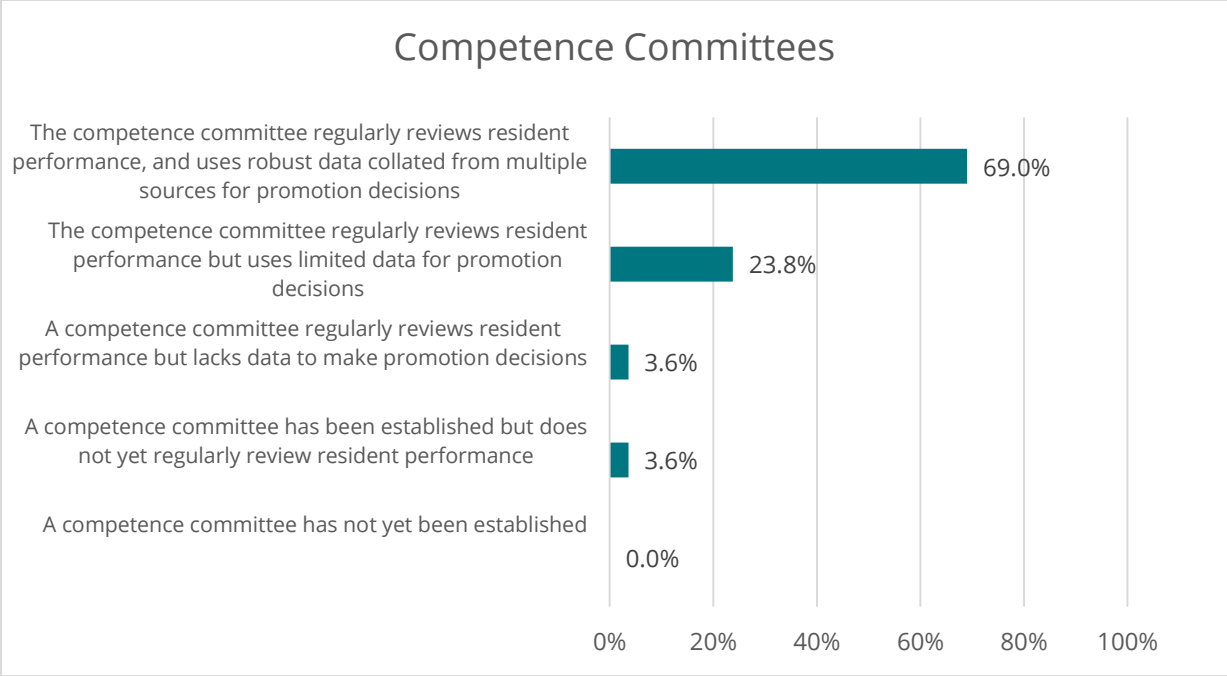


Figure 9. Competence Committee responses.

Almost all programs have a competence committee that regularly reviews resident performance (94%) and uses either robust (69%) or limited (24%) data to make promotion decisions.

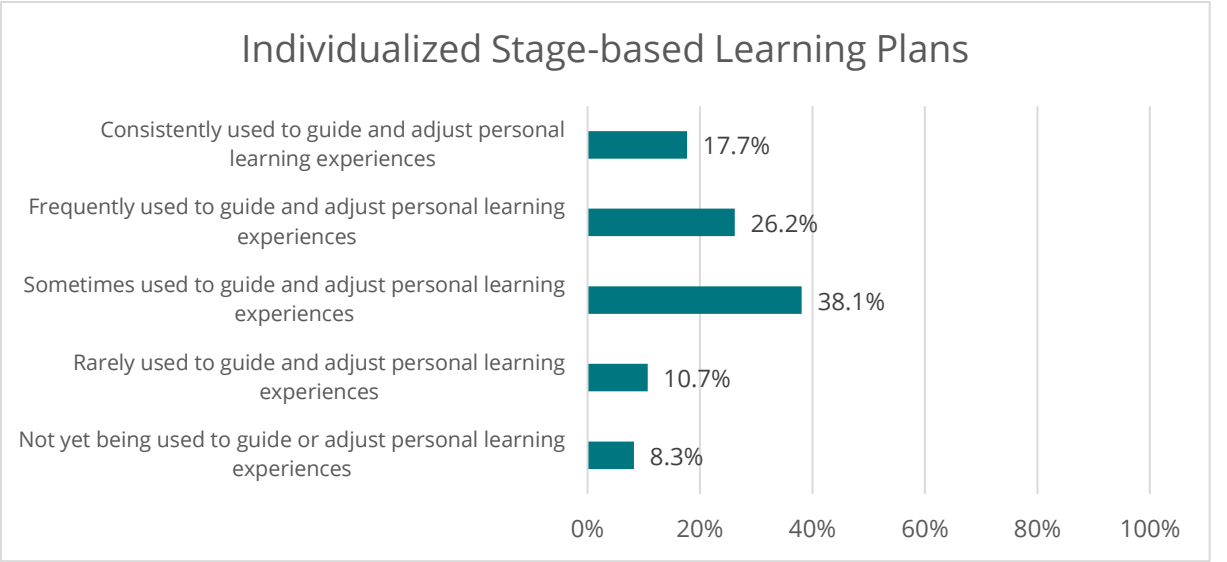


Figure 10. Individualized resident stage-based learning plans responses.

Scores on individualized resident stage-based learning plans were quite varied, with the majority of programs (82%) consistently, sometimes or frequently using learning plans to guide and adjust personal learning experiences. Just under 20% of programs were rarely or not yet using personal learning plans.

Tips and Tricks

Interview participants shared some tips on how they made their implementation go more smoothly.

- Start early!
- Add things in slowly, making subtle changes at first
- Don't expect perfection from the start

Faculty Development and Resources

Participants were asked what faculty development methods they have used in the past 12 months in both the survey and interviews. To deliver faculty development, more than half of survey respondents used email-based information and workshops. Other common methods used include grand rounds, just-in-time learning, and in the moment teaching (Figure 11). During the interviews, many respondents indicated they used presentations, often using existing templates, for orientation purposes. Faculty development workshops often touched on the “how to” of CBD. Program directors also described activities such as outreach visits to community hospitals or other sites where the residents may be doing their rotations. Residents were typically oriented through CBD specific orientation sessions, town halls, and academic half-days.

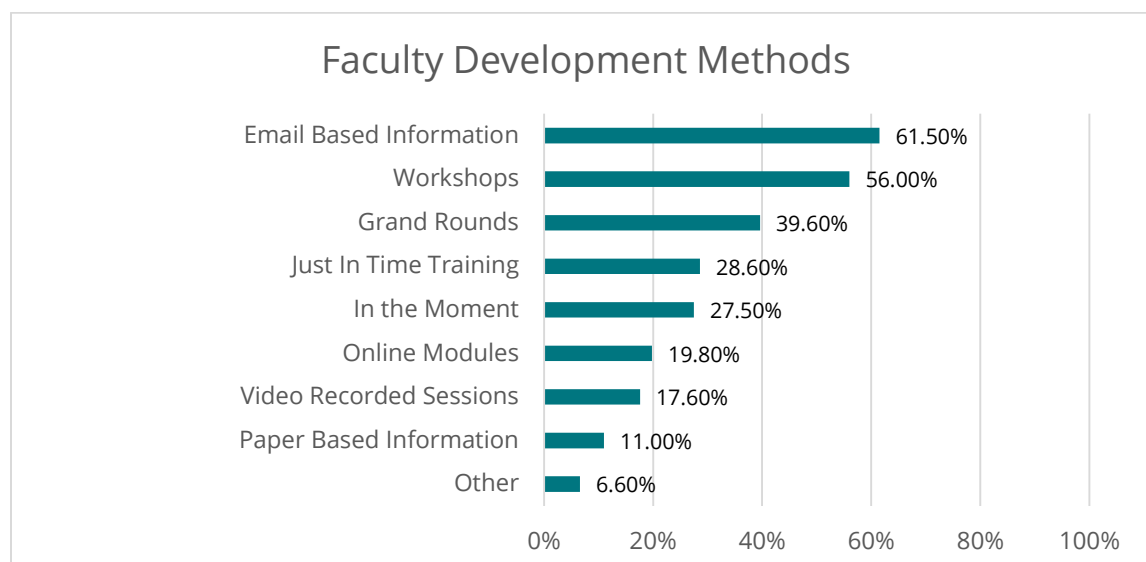


Figure 11. Usage of faculty development methods.

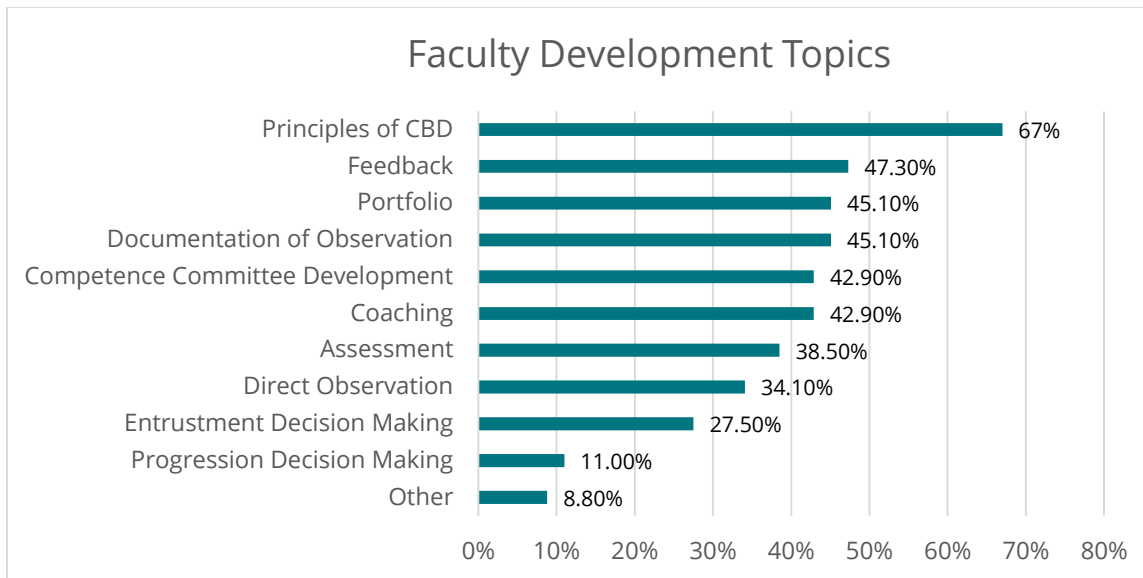


Figure 12. Usage of faculty development topics.

The faculty development topics that were often covered, as noted by interview participants, included “what is CBD”, “what are EPAs”, the role of faculty, and competence committees. Topics for workshops often included “how to” topics, such as, “how to do an EPA assessment.”

The most commonly used resources for faculty development often came from the local department/program, however resources delivered by the Faculty of Medicine and Royal College were also used. Some programs also indicated that they have benefited from faculty development delivered from other programs within their institutions that had transitioned to CBD earlier. Overall, many programs seemed generally satisfied with the support they have received from their PGME offices and local program departments.

When probed further about Royal College resources, many programs indicated that they found resources such as the orientation slide decks for residents and faculty, CBD infographics, and CBD webinars helpful. However, some program directors also mentioned that it is sometimes difficult to find the right resources for a given situation, as there are so many to choose from.

Program Directors also noted that additional resources in terms of financial support, IT support, further training on the electronic platforms, and additional administrative support would have been helpful.

Tips and Tricks

- Partake in the sharing of ideas and faculty development resources/sessions with other programs whenever possible.
- Engage residents in faculty development
- Reach out to other programs/people who may be facing similar challenges to share experiences and learn from one another when possible.

Challenges and Benefits

Key takeaways

- The most common challenges participants faced involved:
 - Assessments (getting faculty to complete assessments, confusion around the EPA ratings, attainability of EPAs)
 - Electronic Platform (issues around mobile access, challenges in collating and reporting data)
 - Culture Change (lack of faculty engagement, challenges with residents not adopting a growth mindset)
 - Resources and Time (both during and after implementation)
- The most common benefits include:
 - Evaluation and Assessment (more meaningful feedback, more informed progress decision making, identification of issues earlier on)
 - More clarity around the curriculum and required competencies
 - Personalized learning and ownership for residents
 - The role of the coach

CHALLENGES

Participants were asked about challenges in both the survey and interview. While a variety of challenges were presented, there were some common challenges that many respondents raised.

Assessments

Completion of EPAs

Many programs indicated that EPA completion by faculty was a challenge. Some faculty outright refuse, some say they will do it and don't, some delay doing it, and some only fill them out only before a Competence Committee meeting. For busy faculty, direct observation and immediate feedback is challenging and not always feasible.

The difficulty of attaining certain EPAs was also brought up as a challenge for some programs. Some of the reasons cited for this were that certain EPAs are unrealistic or rarely encountered in their clinics or workplace. In some cases, programs have had to alter their stages because certain EPAs are too difficult to attain in the stage they were intended to be achieved.

Quality of Assessments

Program directors noted that faculty sometimes have difficulty understanding certain aspects of the EPA rating scale. For instance, some faculty are not always using the full range of the scale, and are having trouble distinguishing between scores of 4 and 5. Other challenges cited include lack clarity around the use of milestones and how to use them to

guide their ratings. It was also noted that some EPAs have too many parts, making them difficult to assess.

Loss of a holistic assessment

Some programs indicated that there is a focus on EPAs, leading to a lack of a summative evaluation of the resident's performance. To mitigate this, some programs have retained their ITERs in order to capture an overall assessment of the resident.

EPAs have also been referred to as "checking boxes" and "crossing things off", due to the large number of EPAs. Some programs indicated that the Competence Committee discussions sometimes rely too heavily on EPA ratings, and may not necessarily be using the milestones and feedback to contextualize the ratings. This also detracts from a focus on the global experience.

There was some indication that certain competencies (i.e. professionalism, motivation, interaction with other professionals) are sometimes difficult to evaluate as part of an EPA assessment. It is difficult to ensure the breadth of EPAs is captured, and that contextual variables are being met.

Electronic Platform (for all platforms)

Mobile access

The lack of reliable mobile access for electronic platforms sometimes prevents faculty and coaches from recording EPA assessments "on the spot" in the workplace. For some this means completing them on paper and entering it into the system later, and for others, the assessments aren't being recorded at all.

Challenges extracting/presenting data

The platform does not adequately display/report data the way it is needed (i.e., does not always tabulate data or give the granularity needed), often resulting in time-consuming manual analysis.

Technological issues

In some programs, faculty are becoming disengaged following frequent technological issues with the electronic platform (i.e. bugs, functionality issues). Furthermore, there are often delays in responding to the issues, creating further frustration among users.

Culture Change

Faculty engagement

Many programs struggle with faculty engagement, noting that it is sometimes difficult to motivate faculty and get them involved. This can contribute to the challenge of getting EPA assessments completed.

Challenges adopting a growth mindset

Residents want high scores, and may not always understand/acknowledge when it is constructive feedback, not a negative performance review.

Some residents only ask for EPAs when they have succeeded, or ask faculty who they know will complete the feedback and give positive feedback. However, this may be because not all faculty will complete feedback, so they ask ones who will.

Faculty and Resident Buy-in

Programs are facing pushback from some faculty and residents who prefer, or don't see anything wrong with the traditional system, and frustration from those who are reluctant to try something new. However, many program directors did indicate that this is improving over time.

Resources and time commitment

Lack of resources/support

Some programs are lacking adequate resources and support; for example, they do not have enough administrative support, academic advisors, competence committee members, or faculty.

Additional work for residents and faculty

Some programs find that residents are feeling overwhelmed with the frequency of evaluations and are stressed about always having to track down faculty to complete assessments. The residents sometimes feel it is an imposition to ask faculty to complete the observations. Program Directors have also noted that it is hard to convince faculty to fill out EPAs, because it takes more of their time and is more work for them.

Heavy workload for PDs and PAs

Many programs noted that majority of the tasks associated with CBD implementation rest with the Program Directors and Program Administrators, and this additional workload does not always get recognized. Some indicated that it would be nice to receive protected time or educational credit for the time spent on implementation tasks.

BENEFITS

Participants were asked about benefits in both the survey and interview.

Evaluation and assessment

More frequent observations, and better feedback and progression decisions

Residents are receiving more frequent evaluation, direct observation, and feedback, and this feedback is richer, more targeted, and more specific. It is also in the moment, and provides

specific examples of performance. As a result of this more frequent observation and feedback, progression decisions are better. The assessment data is richer, and documentation is more robust. This allows for more confidence in the residents' competencies, and a better picture of the resident. Program directors also found that there are more concrete evaluation tools, and a clear path for promotion.

Issues are identified earlier on

A frequently noted benefit of CBD is the ability to track resident progress and to be able to identify issues earlier on. Program Directors have more confidence that a struggling resident will be caught earlier in the program, ensuring timely adjustments to their learning when necessary.

Curriculum and Competencies

Many respondents felt that CBD was providing better coverage of competencies and training topics for residents, and that CBD ensures residents have the exposure and experience to become competent. Direct observation and documentation provides proof that residents are acquiring the required competencies, and mandatory EPAs allow learning to be monitored better.

Program directors also felt that CBD provided an increased structure to the program, and clear requirements. Problem areas in the curriculum have been identified, and rotations changed to address them. Additionally, learners have new and diverse learning experiences, and in some cases, juniors are being exposed to more severe cases earlier on.

Personalized Learning

CBD provides more personalized and organized teaching and learning. Residents have flexibility in their learning, and individual learning plans are created through evidence. Additionally, learners play a more proactive role in their training, and are stewards of their own learning.

Coaching

Increased coaching

There is an increase in coaching, including more frequent coaching in specific areas. This allows residents to focus on specific areas in order to be successful. Academic Advisors add to this benefit, and provide both mentorship and coaching to residents. In addition, Academic Advisors distribute the load of mentorship and coaching to more people, rather than just with the program director.

Support from Senior Residents

Some senior residents have also provided good support and mentorship to junior residents, often evaluating EPAs and providing feedback that is sometimes more meaningful than the faculty's feedback.

RESIDENT WELLNESS

The impact of CBD on resident wellness is emerging as a common theme across multiple reports and domains, warranting further attention. In response to this emerging issue, the current study sought to look deeper into the concept of resident wellness in relation to CBD by asking program directors to indicate how their residents describe the impact of CBD on their health and wellness. While recognizing the limitation of asking program directors for their perceptions on residents' wellness, it was considered a proxy measure for the time being, and future studies will seek alternative methods for collecting and validating this important information.

As an initial step in studying resident wellness, program directors were asked to indicate how residents describe the impact of CBD on their health and wellness using a five-point scale. Results from this question are presented in figure 13. Around half of the respondents (53.2%) indicated that residents had not described any impacts of CBD on their health and wellness. 32% of participants reported that *some* or *most* residents had described CBD as having a negative impact on their health and wellness. 14% of respondents indicated that *some* or *most* residents describe CBD as having a positive impact on their health and wellness.

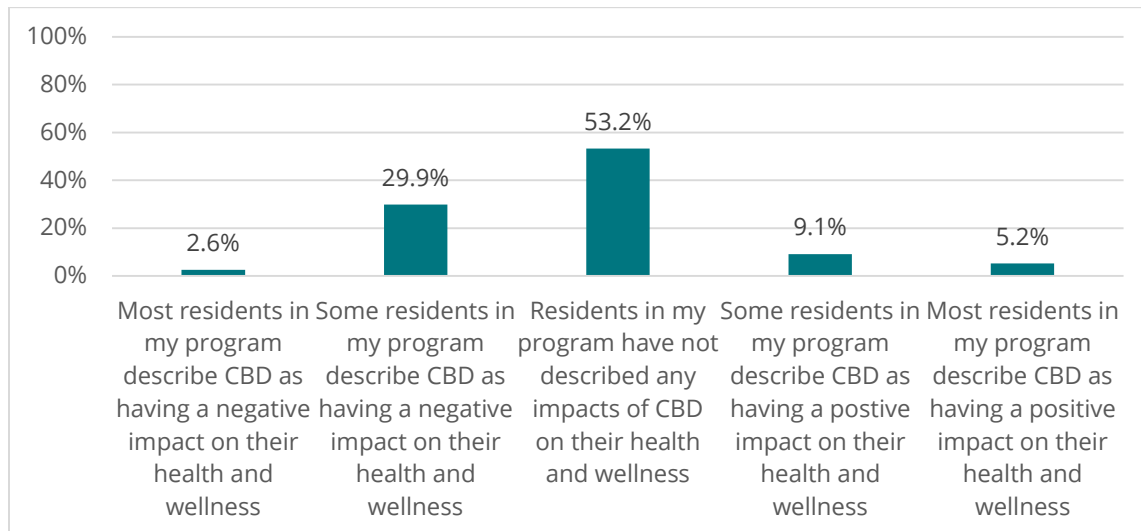


Figure 13. Resident wellness.

During the interviews, program directors were asked about the response from learners to CBD. Some program directors commented that their residents seem satisfied with the system and like having ownership of their learning, and also appreciate the on-going feedback they are receiving. However, it was also frequently noted that residents are often feeling stressed about completing their EPAs, for a number of reasons. Residents are sometimes hesitant about approaching busy, and sometimes reluctant, faculty to fill out the forms, or may have trouble obtaining EPAs because they don't recognize an opportunity, or don't get opportunities for certain EPAs frequently. Some residents are also concerned that they may be missing out on other valuable experiences, while

trying to complete their EPAs, or not having certain experiences recorded because they aren't part of an EPA.

Discussion and Recommendations

Improving over time

There is some indication that implementation is improving over time as CBD continues to rollout across the system of specialty education, with 73% of programs agreeing or strongly agreeing that CBD implementation is going well in their local program (which is an increase of 30% from the previous year). This hint of improvement was also captured during the interviews, with remarks such as “it is becoming routine”, and “it is better than before”. However, when probed further during interviews, it seems that programs continue to struggle with the adoption of some of the underlying principles of Competence by Design, despite having many of the key features in place.

Fidelity and Integrity of Implementation

Implementing a new curriculum is a journey towards both fidelity and integrity. Fidelity is the degree to which the key elements of a curriculum are in place, such as having a competence committee, performing direct observation, using an electronic portfolio, etc. Integrity is about embracing the underlying principles and understanding the reasons for change. In CBD, integrity of implementation means shifting culture and adopting a growth mindset; for example, using direct observation to provide meaningful feedback with the purpose of coaching a resident towards improving their performance, and a resident embracing that feedback so they can adjust their learning accordingly. The results from this study indicate that the majority of programs are well on their way to achieving fidelity of implementation, however, the journey towards integrity is still very much in progress for many programs. For instance, while more direct observation and more documentation is taking place, it was often expressed in the survey and during the interviews that the feedback delivered is not always meaningful, nor is it being used to adjust the resident's learning. Furthermore, some program directors suggested assessment *for* learning is not always being embraced, and that residents may not have fully grasped the concept of low-stakes assessments.

Recurring Challenges

With longitudinal data now available, it is becoming apparent which challenges tend to be recurring and will need to be addressed going forward, versus those that may be unique to the time, or situation specific. The challenge of completing EPA assessments has been an issue that has come up repeatedly over time and across programs. There are a number of reasons why EPA completion is a challenge: faculty may be reluctant to complete EPA assessments, they may not understand them or have the time to complete them, residents may be hesitant to ask, or they may only ask when they know they have done a good job. Similarly, challenges with the electronic platforms repeatedly come up in surveys and interviews. There is a broad array of challenges that are discussed, ranging from technical glitches, such as spotty mobile access, to difficulty extracting and presenting data. Another challenge that has been repeatedly brought forward is the additional time

commitment and workload experienced by program directors and program administrators as part of CBD implementation.

As these challenges have been recurring, the Royal College has intended to address some of these themes through recommendations and actions. For example, coaching modules have been developed to improve the coaching process in CBD, with a specific focus on in-the-moment feedback, providing resources and support to stakeholders, creating an online ePortfolio training module, and making improvements to the ePortfolio. (For more information on recommendations and actions, [visit the CBD "Is it Working Page?"](#) for the CBD Program Evaluation Recommendations report) (Royal College, 2019). Moving forward, it will be necessary to dig deeper into these challenges to truly understand the nature of the problem, to ensure recommendations and assistance are valuable and address the core issues. Previous actions to address these challenges should also be tracked to determine if they have made an impact.

Understanding the underlying nature of these challenges will also be important when looking at the unintended negative outcomes. Knowing the reasons behind some of the challenges, and addressing them accordingly, will likely help mitigate some of the negative effects.

Early Outcomes

Below are some of the early outcomes, stemming from the benefits and challenges discussed. It will be important to monitor the negative outcomes, and implement changes where needed to ensure CBD is achieving what was intended and not having a detrimental effect.

Positive	Negative
<ul style="list-style-type: none"> • Enhanced clarity of program requirements, competencies needed • Earlier identification of issues • More ownership of learning 	<ul style="list-style-type: none"> • Impact on resident wellness • Loss of holistic view

Limitations

Participation in this survey was voluntary, and the response rate was only 30%. We do not know if programs that did not respond have similar experiences with CBD implementation as those who did respond. Self-selection and social desirability bias are also common with survey methodology, and may impact the results.

This study monitored implementation from a Program Director or Program CBD lead point of view. It is possible that other stakeholders, such as faculty or residents, have a different perspective on CBD implementation. For example, the Fédération des médecins résidents du Québec (FMRQ) conducts yearly studies of CBD implementation from the resident perspective in Quebec. Many of the key challenges found in those reports are similar to the ones found in the Pulse Check, but there are some differing perspectives on implementation, and differing challenges.

Finally, this study was conducted in the midst of the COVID-19 pandemic in Canada. It is unclear at this time how much COVID-19 has impacted the implementation of CBD, and if the trends from this year's results will continue, or if they are due, at least in part, to the impact of the pandemic.

Advice and Recommendations

Through program evaluation, and other mechanisms such as ongoing discussions with stakeholders, we are constantly reviewing the CBD program. Based on the data presented above, other ongoing initiatives, and advice respondents gave to the Royal College, key implementation challenges were identified. Preliminary recommendations have been created to address these challenges. These recommendations will be shared and discussed with internal teams at the Royal College.

RECOMMENDATIONS

Further explore the workload and/or resource challenges with CBD implementation to determine whether there are tangible opportunities for the Royal College, PGME offices, and/or local programs to further address the issue.

Programs indicated that the implementation process generates additional workload and that tasks are largely shouldered by the program director and program administrator. Some programs noted that they do not have adequate resources and/or support for this undertaking. Once CBD has been implemented, residents and faculty also highlighted EPA assessments as having implications on time and workload.

There are many factors that contribute to workload and resource challenges. While some of the additional workload may inherently be related to the scope of change involved in CBD implementation and may diminish over time as new systems and processes are established, other aspects such as EPA assessments may continue to require additional time and effort going forward.

The Royal College will further explore whether there is a discernible role for the College, PGME offices, and local programs to play in addressing workload and/or resource challenges. The College will gather additional qualitative feedback via discussions with key stakeholder groups such as CBME Leads, program administrators, and program directors to probe the specific nature of the challenges, assess what particular efforts to-date (if any) have been helpful, and determine whether tangible opportunities exist to further shift the workload/resource challenge. Data from subsequent post-implementation studies will also be examined to determine if this trend continues over time.

Facilitate the sharing of best practices for the completion of assessments.

Many programs indicated that some faculty were not completing assessments or were completing them at a later date rather than in-the-moment. This challenge has been occurring over time and has been highlighted in several previous studies (CBD Program Evaluation Operations Team 2019, 2020; FMRQ 2018, 2019). There are various factors that contribute to low completion rates, including the time and effort it takes to finish assessments, the accessibility of electronic platforms for in-the-moment assessment, and culture change as programs shift to new CBD systems and practices.

While this challenge is expected to lessen over time as direct observation and assessment become better integrated into workflow, it is important to try and address the issue given its broader implications on resident stress and workload (FMRQ, 2020) and the additional burden it may place on faculty who do complete assessments.

There are, however, some programs and faculty that are excelling at the completion of assessments. These programs have offered creative suggestions for improving completion rates such as

reminding faculty of EPAs to be completed ahead of specific rotations (through booklets, flashcards, etc.), having EPA forms readily available (via mobile access and QR codes for EPAs), and encouraging a minimum number of EPAs to be completed by faculty and tracking this progress.

Moving forward, the Royal College will facilitate the sharing of best practices from programs or faculty that are doing well at assessment completion in order to provide creative ideas for programs that may be struggling with this challenge. This sharing can be facilitated through channels such as the CBD Innovators and sessions at the International Conference on Residency Education.

Institutions and programs are also encouraged to facilitate sharing their own best practices so as to highlight approaches that have been effective in shifting completion rates. At the program level, program directors are encouraged to gather tips and advice from faculty who are consistently completing assessments in order to support those who may be having difficulty.

Evaluate existing faculty development resources focused on assessments and the Entrustability scale to gauge stakeholder's awareness, examine their effectiveness, and determine if further resource gaps exist.

Some faculty appear to struggle with understanding and using the Entrustability scale. Respondents noted that faculty don't use the full range of the scale, they don't distinguish between a 4 and a 5, and/or they do not feel comfortable giving a score of 5. Additionally, some respondents said the feedback faculty gives is sometimes of poor quality.

The challenge with the scale was also noted in FMRQ's most recent report (2020). FMRQ suggests that training faculty on the scale can mitigate this challenge. The Royal College has created and made publically available various faculty development resources on assessment (e.g. – coaching and assessment modules and webinars). The College will gather evaluative feedback on some of these existing faculty development resources in order to ascertain whether stakeholders are aware of these materials, access them and find them effective (e.g., useful in content and format), and/or identify particular resource gaps for consideration.

Ensure stakeholders implementing CBD are aware of the process for providing feedback on EPAs and milestones.

Respondents indicated that some EPAs are difficult to attain and do not reflect actual practice. Some respondents also noted that focusing on specific EPAs means that residents miss a more global assessment of their overall progress.

Disciplines are able to revise EPAs and milestones via their Specialty Committees¹. As part of this process, Specialty Committees have mechanisms in place by which to collect feedback and input from program directors on potential revisions to consider, based on their own experiences and perspectives as well as that of their faculty and residents. The Royal College will ensure that program directors are aware of such existing feedback mechanisms so that they may, in turn, inform their stakeholders about opportunities for input.

¹ Decisions to modify EPAs are done through discussion and decision at the national level, ensuring national consensus and feasibility for all programs. The Royal College recommends that EPAs are not revised for two years post-CBD launch. This allows time for EPAs to be fully implemented and experienced, and to minimize change-fatigue within programs and PGME offices. Revisions may be done sooner, however, if EPAs are causing significant difficulties.

Programs are also encouraged to set up their own processes whereby faculty and residents can collect feedback on EPAs and milestones—including whether they are attainable and reflective of actual practice—through such avenues as surveys and meeting discussions.

Evaluate Royal College processes for identifying and resolving issues with the ePortfolio, and encourage institutions to undertake a similar review of their own platforms.

Programs stated that they are experiencing general technological difficulties with their electronic platforms, including mobile access and missing forms. Many programs also noted that the electronic platforms do not adequately display and report data the way it is needed, resulting in time-consuming manual manipulation and analysis. These issues have been identified as challenges across many different electronic platforms.

The Royal College has processes in place for ePortfolio users to contact the College if they are experiencing technical issues. The College will review this process to determine whether issues are being resolved effectively and in a timely manner, and will ensure that programs using the ePortfolio are aware of how to connect with the appropriate channel at the College when they are experiencing difficulties.

Institutions that use separate electronic platforms are also encouraged to undertake the same process of evaluation and review.

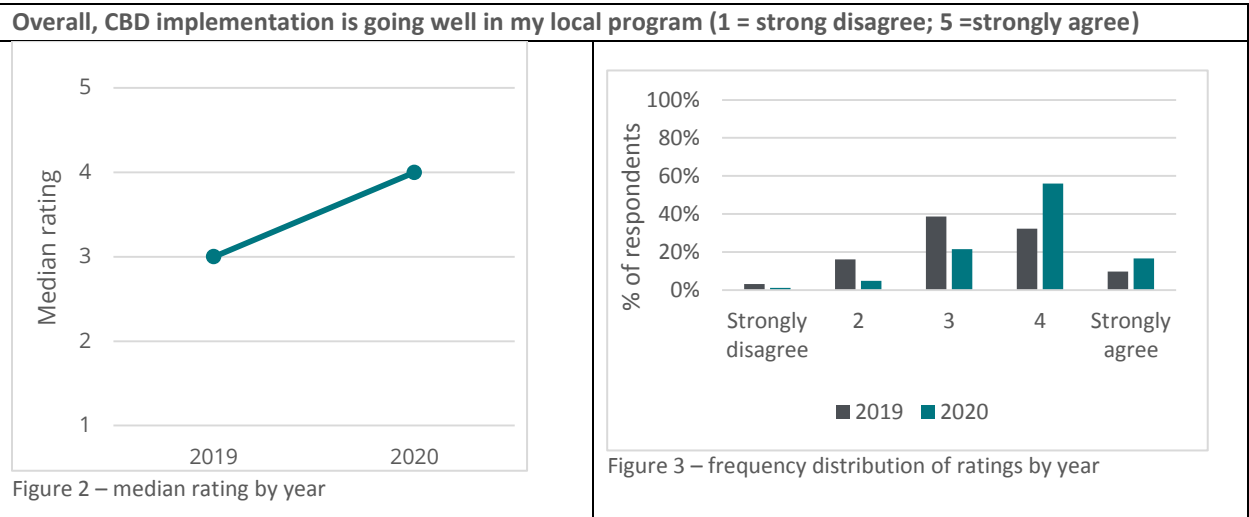
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Appendix A - Comparison between 2019 and 2020 Annual Pulse Check

Overall CBD Implementation



Year of Study	Rating				
	Strongly disagree	2	3	4	Strongly agree
2019	3.2% (1/31)	16.1% (5/31)	38.7% (12/31)	32.3% (10/31)	9.7% (3/31)
2020	1.2% (1/84)	4.8% (4/84)	21.4% (18/84)	56.0% (47/84)	16.7% (14/84)

A significantly higher proportion of respondents either agreed or strongly agreed that overall, CBD was going well in their local program in 2020 (72.7%) compared to 2019 (41.7%). An increase of 31% from 2019 to 2020.

Key Feature Implementation

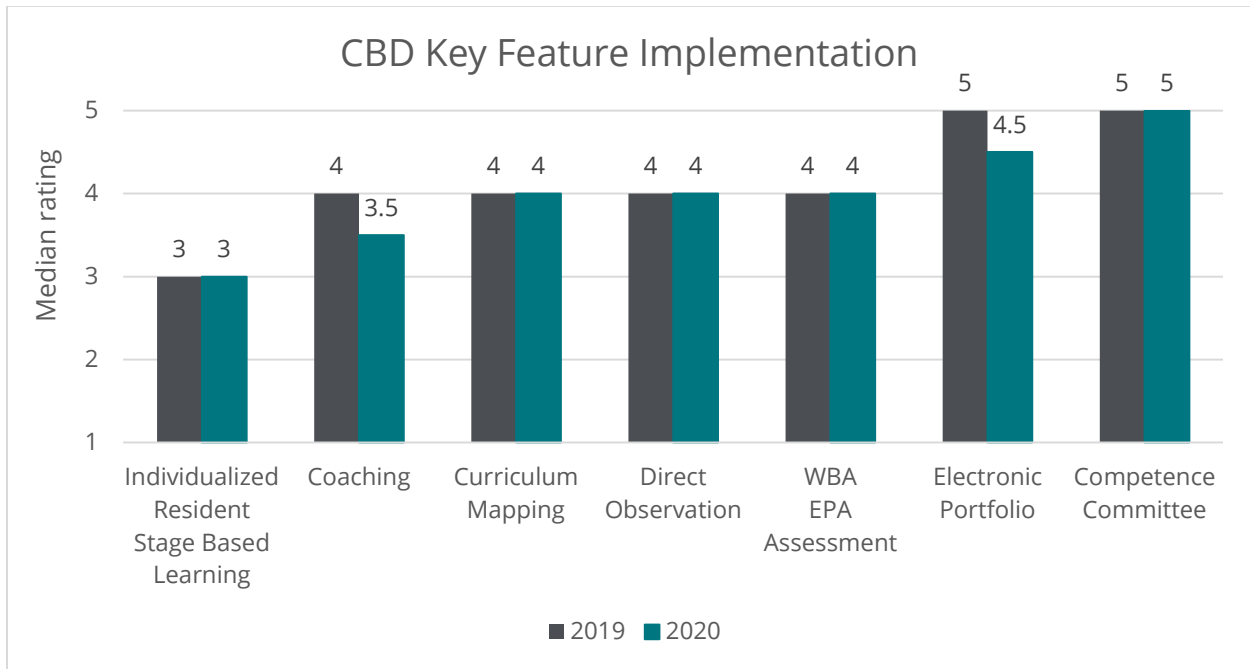


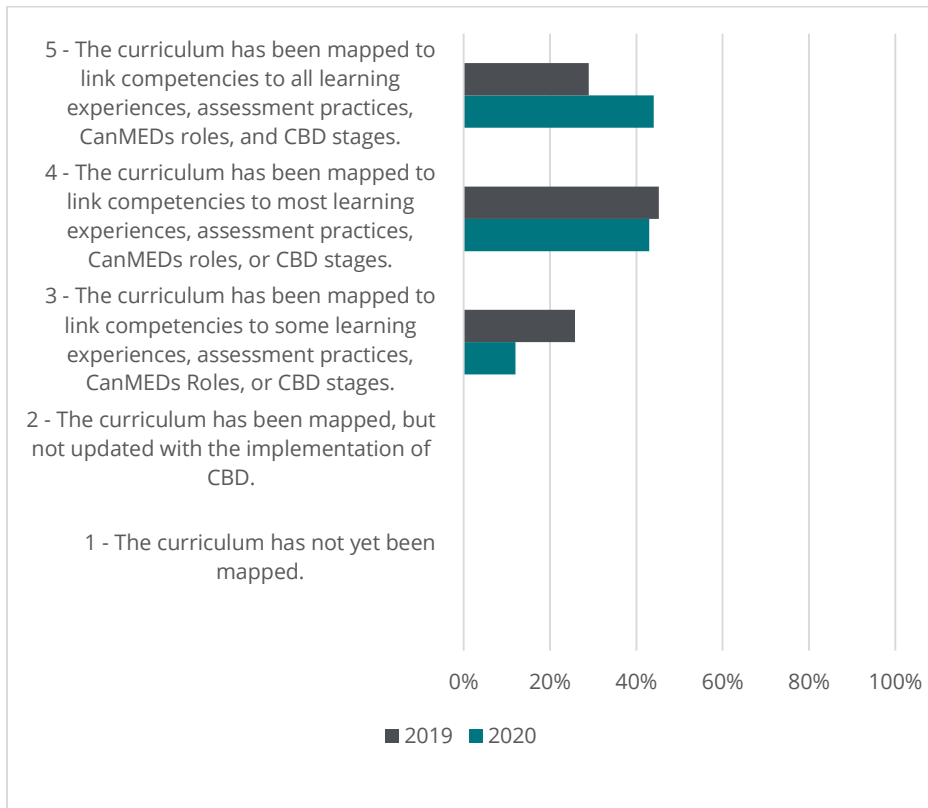
Figure 1. Average degree of implementation of key CBD features.

The average (median) degree of implementation for the key features in 2020 was consistent with the 2019, with the exception of coaching and electronic portfolios, both of which had a slight decrease. A further breakdown of the key features is presented below.

BREAKDOWN OF IMPLEMENTATION BY KEY FEATURE

The key features of CBD and their level of implementation, based on innovation configuration mapping, is broken down in the graphs below. Scores range from non-implementation to fully implemented.

Curriculum Mapping

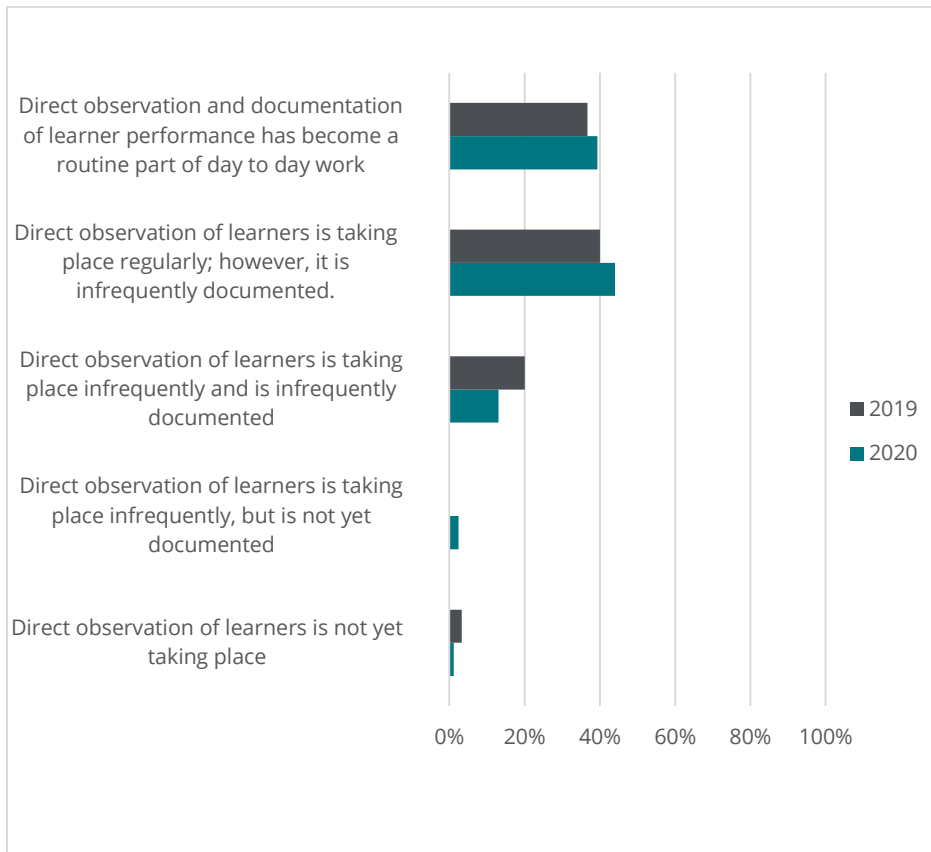


Compared to 2019, there was an increase in the number of respondents who indicated their curriculum has been mapped to link competencies to *all* learning experiences from 29% in 2019 to 43% in 2020.

Figure 2. Curriculum Mapping responses.

Year of Study	Rating				
	1	2	3	4	5
2019	0.0% 0/31	0.0% 0/31	25.8% 8/31	45.2% 14/31	29.0% 9/31
2020	0.0% 0/83	0.0% 0/83	12.0% 10/83	44.6% 37/84	43.4% 36/84

Direct Observation

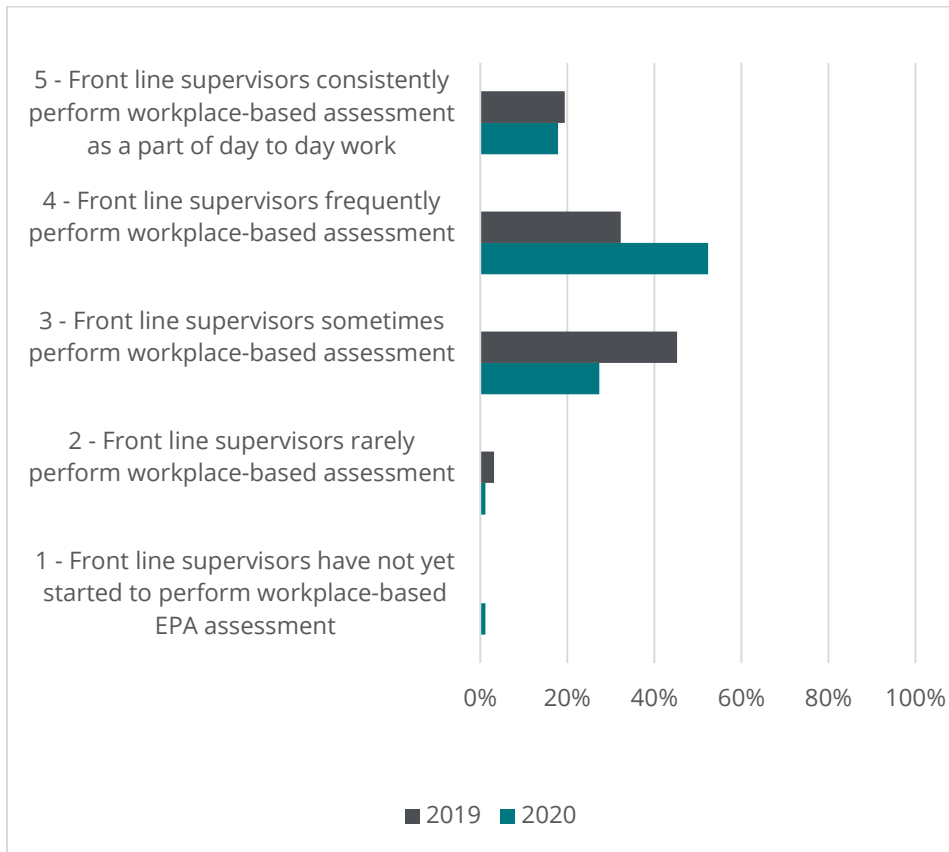


The level of implementation of direct observation was consistent from 2019 – 2020, in terms of direct observation taking place regularly for the majority of programs.

Figure 3. Direct observation responses.

Year of Study	Rating				
	1	2	3	4	5
2019	3.3% 1/30	0.0% 0/30	20.0% 6/30	40.0% 12/30	36.7% 11/30
2020	1.2% 1/84	2.4% 2/84	13.1% 11/84	44.0% 37/84	39.3% 33/84

Workplace-based EPA Assessment

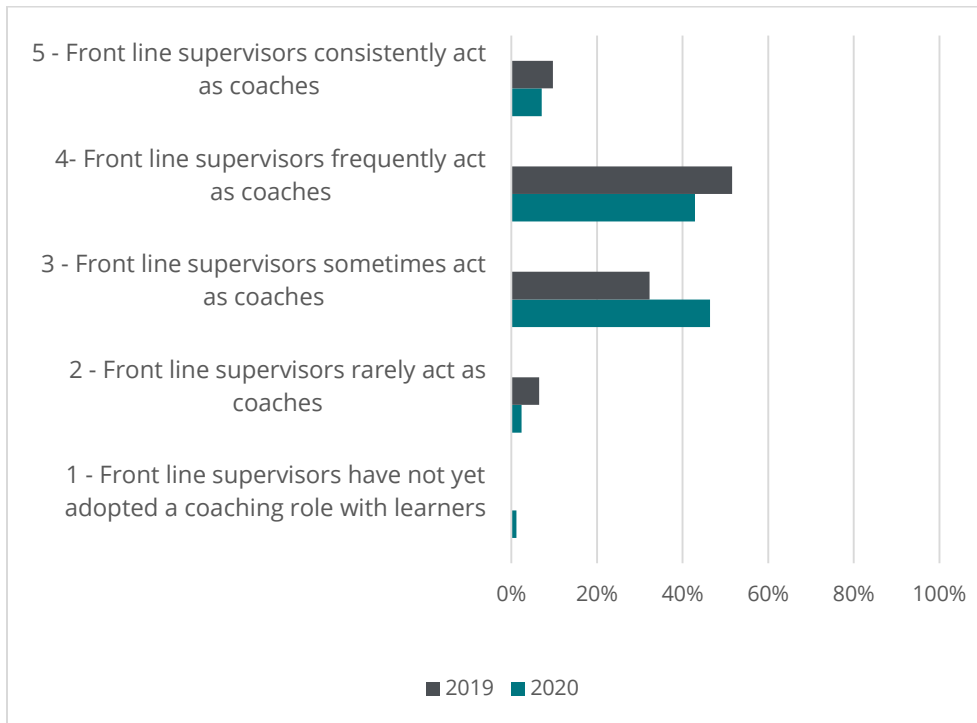


There was an increase in the % of front-line supervisors who *frequently* perform work-place based assessments from 2019 to 2020. The percentage who *consistently* perform work-place assessments is consistent across the two years.

Figure 4. Workplace Based EPA Assessment responses.

Year of Study	Rating				
	1	2	3	4	5
2019	0.0% 0/31	3.2% 1/31	45.2% 14/31	32.3% 10/31	19.4% 6/31
2020	1.2% 1/84	1.2% 1/84	27.4% 23/84	52.4% 44/84	17.9% 15/84

Coaching

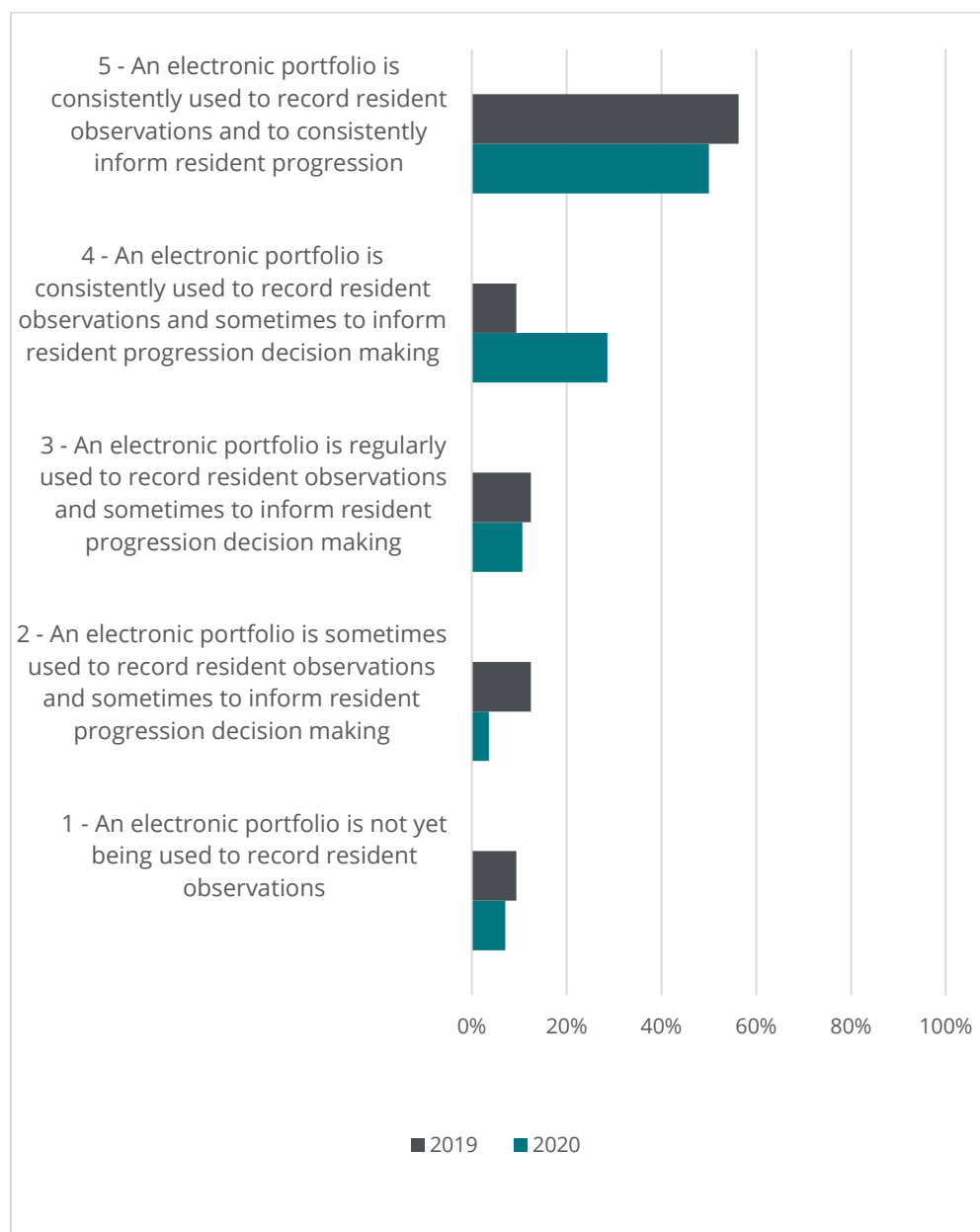


There was a slight decrease in the % of front-line supervisors who frequently and consistently act as coaches from 2019 to 2020. With a median score in 2019 of 4.0 and a median score in 2020 of 3.5.

Figure 5. Coaching responses.

Year of Study	Rating				
	1	2	3	4	5
2019	0.0% (0/31)	6.5% (2/31)	32.3% (10/31)	51.6% (16/31)	9.7% (3/31)
2020	1.2% (1/84)	2.4% (2/84)	46.4% (39/84)	42.9% (36/84)	7.1% (6/84)

Electronic Portfolio

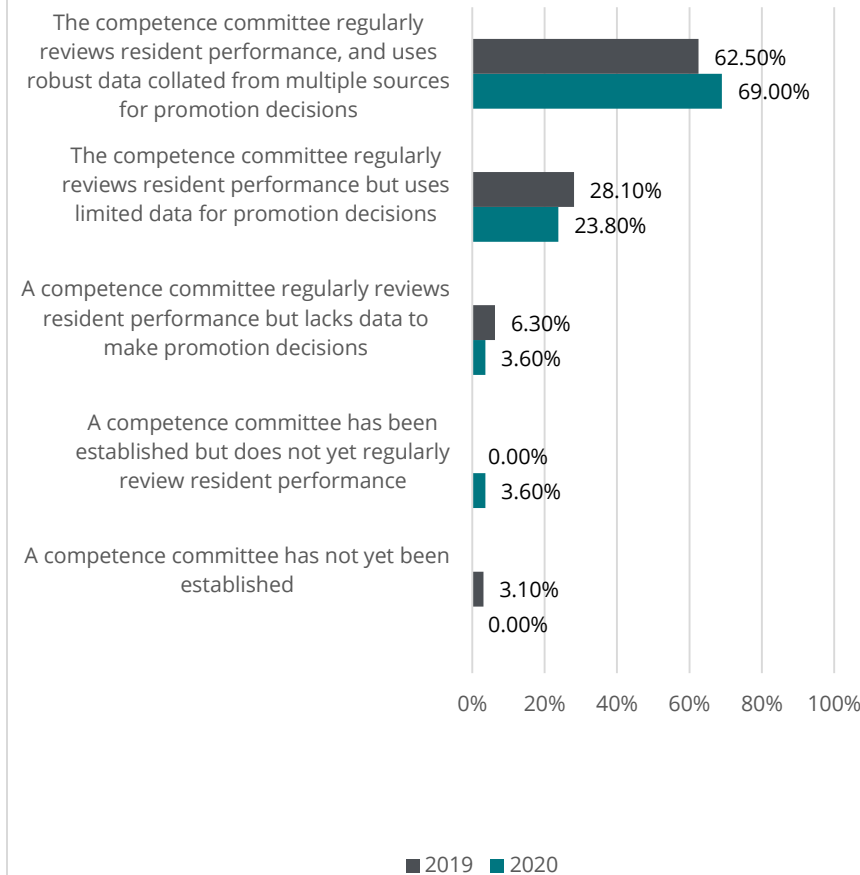


The majority of programs surveyed in both 2019 (65%) and 2020 (79%) consistently use an electronic portfolio to record observations and either sometimes or consistently use them to inform resident progression.

Figure 6. Electronic Platform responses.

Year of Study	Rating				
	1	2	3	4	5
2019	9.4% 3/32	12.5% 4/32	12.5% 4/32	9.4% 3/32	56.3% 18/32
2020	7.1% 6/84	3.6% 3/84	10.7% 9/84	28.6% 24/84	50.0% 42/84

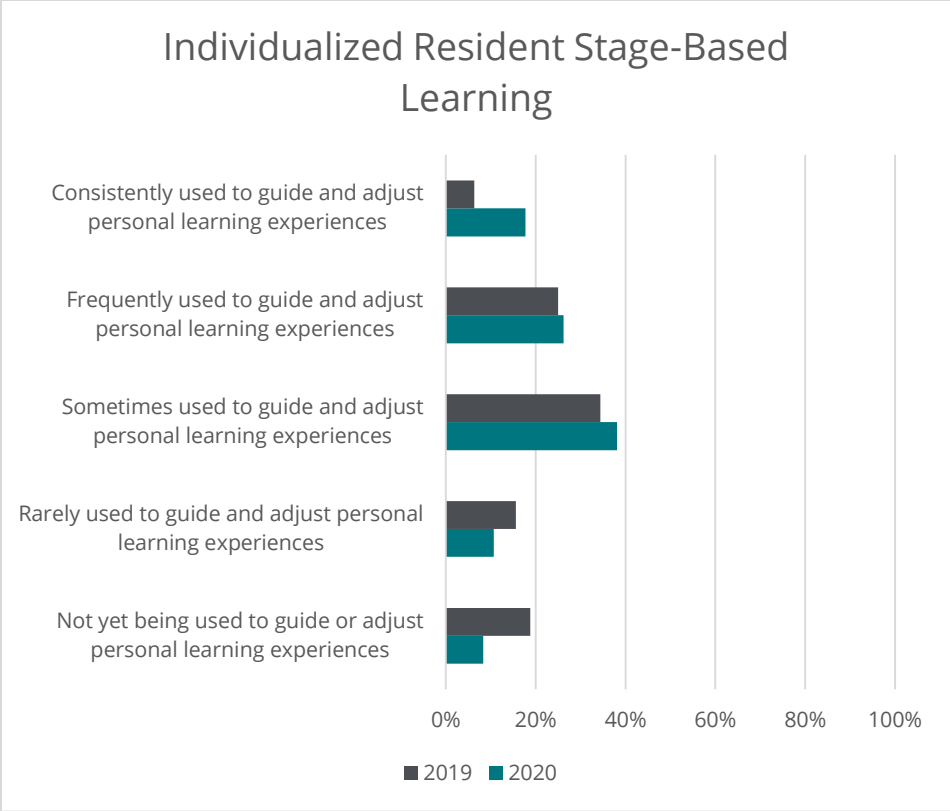
Competence Committees



The implementation of competence committees was consistent across 2019 and 2020. In both years, the majority of programs who responded have a competence committee that regularly reviews resident performance, using either robust or limited data.

Figure 7. Competence Committee responses.

Year of Study	Rating				
	1	2	3	4	5
2019	3.1% 1/32	0.0% 0/32	6.3% 2/32	28.1% 9/32	62.5% 20/32
2020	0.0% 0/84	3.6% 3/84	3.6% 3/84	23.8% 20/84	69.0% 58/84

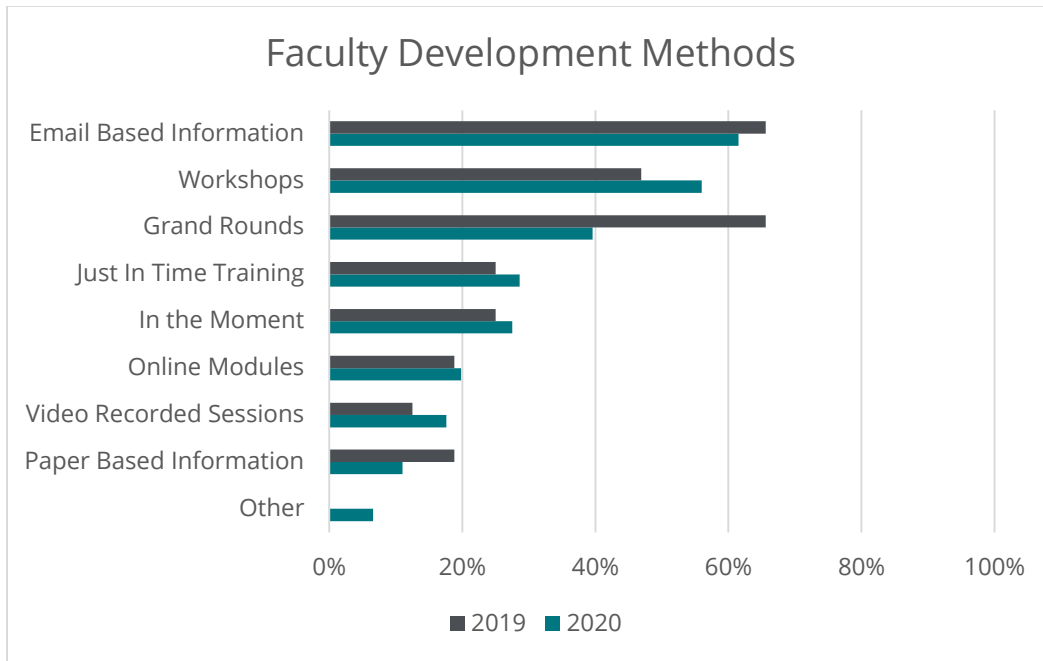


There was slight increase in the % of programs who sometimes, frequently, and consistently use individualized resident stage-based learning plans to guide and adjust personal learning experiences from 2019 to 2020.

Figure 8. Individualized resident stage-based learning plans responses.

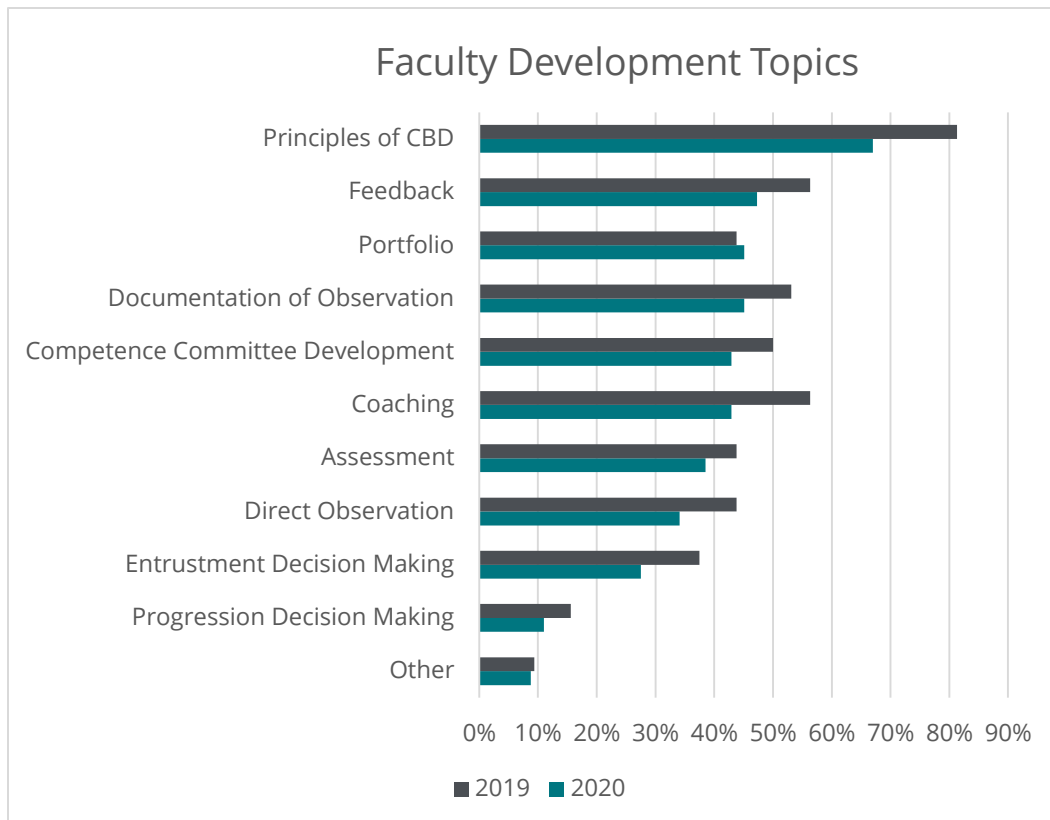
Year of Study	Rating				
	1	2	3	4	5
2019	18.8% 6/32	15.6% 5/32	34.4% 11/32	25.0% 8/32	6.3% 2/32
2020	8.3% 7/84	10.7% 9/84	38.1% 32/84	26.2% 22/84	16.7% 14/84

Faculty Development and Resources



The three most frequently used faculty development methods were the same in both 2019 and 2020: Email Based Information, Workshops, and Grand Rounds.

Figure 9. Usage of faculty development methods.



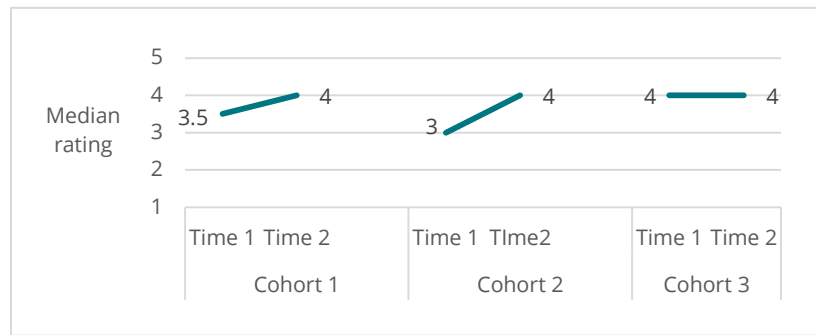
The use of faculty development topics was similar across years, with Principles of CBD being the most frequently used topic, and progression decision making the least frequently used. In general, there was a slightly downward trend in the frequency of use in each topic from 2019-2020, with the exception of "Portfolio", where there was very slight increase from 2019-2020.

Appendix B - Comparison across Cohorts and Time

Cohort	Time 1		Time 2	
	Time of Study	# of years post launch	Time of Study	# of years post launch
Cohort 1 Launched in 2017	Summer 2019	2 years	Summer 2020	3 years
Cohort 2 Launched in 2018	Summer 2019	1 year	Summer 2020	2 years
Cohort 3 Launched in 2019	January 2020	6 months	Summer 2020	1 year

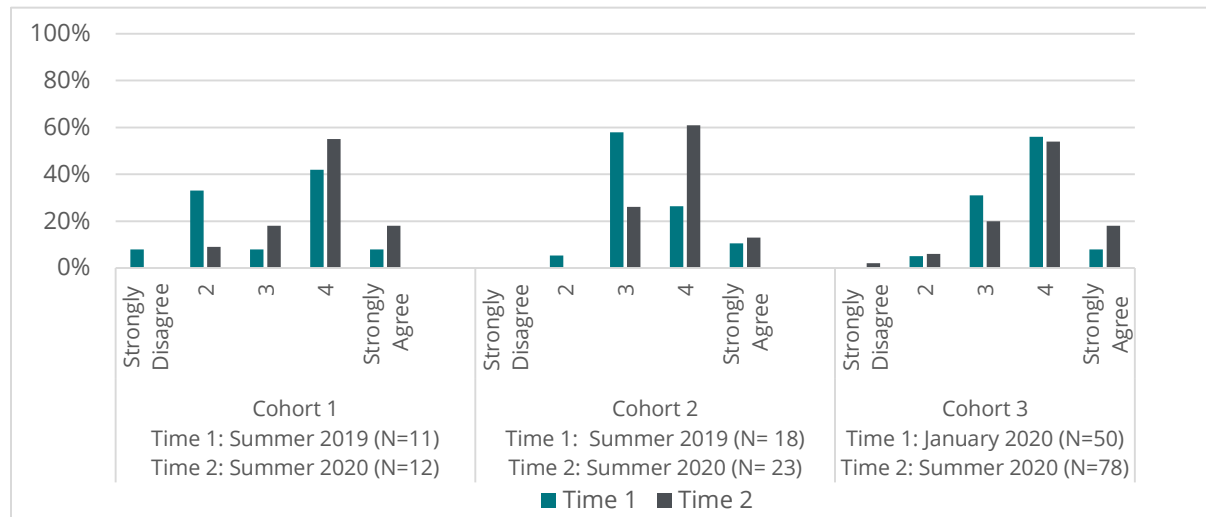
Overall CBD Implementation

Overall, CBD Implementation is going well in my local program



There was an upward trend in ratings from time 1 to time 2 for all cohorts. In summer 2020, all cohorts had a median rating of 4, despite having launched at different times and being at different stages of implementation

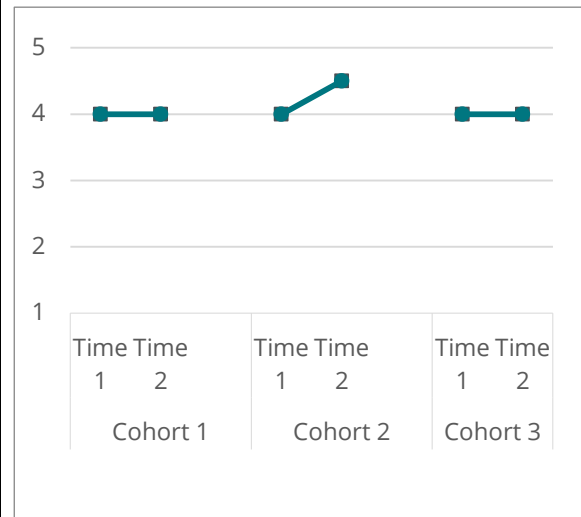
Median rating (1= strongly disagree, 5 = strongly agree)



Frequency distribution of responses across cohorts and over time points

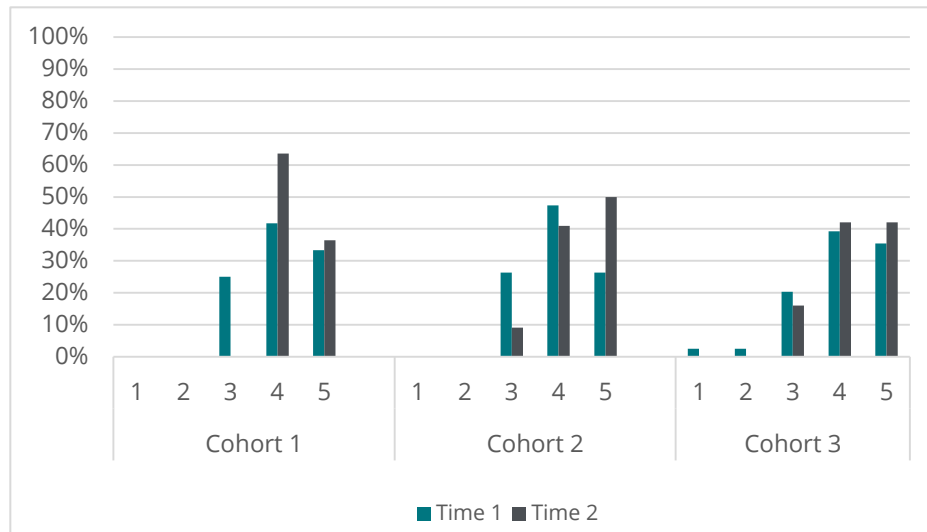
Curriculum Mapping

5	The curriculum has been mapped to link competencies to all learning experiences, assessment practices, CanMEDs roles and CBD stages
4	The curriculum has been mapped to link competencies to most learning experiences, assessment practices, CanMEDs roles, or CBD stages
3	The curriculum has been mapped to link competencies to some learning experiences, assessment practice, CanMEDs Roles, or CBD stages
2	The curriculum has been mapped, but not updated with the implementation of CBD
1	The Curriculum has not yet been mapped



Median ratings over time by cohort

Curriculum mapping anchors



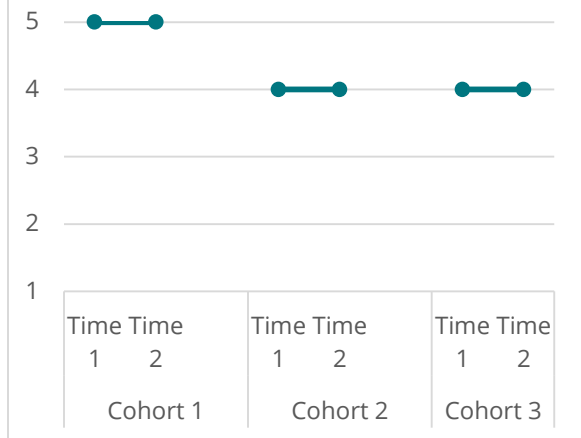
All three cohorts are well into curriculum mapping-- having most, if not all of their competencies linked to learning experiences

Curriculum Mapping - rating distribution across cohorts and time

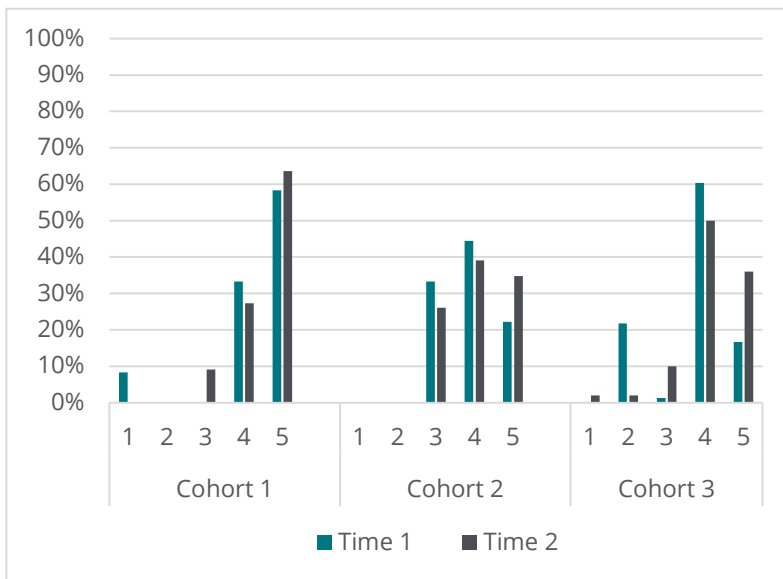
Direct Observation

5	Direct observation and documentation of learner performance has become a routine part of day-to-day work
4	Direct observation of learners is taking place regularly ; however, it is infrequently document
3	Direct observation of learners is taking place infrequently and is infrequently document
2	Direct observation of learners is taking place infrequently , but is not yet document
1	Direct observation is not yet taking place

Direct Observation rating anchors



Median ratings over time by cohort

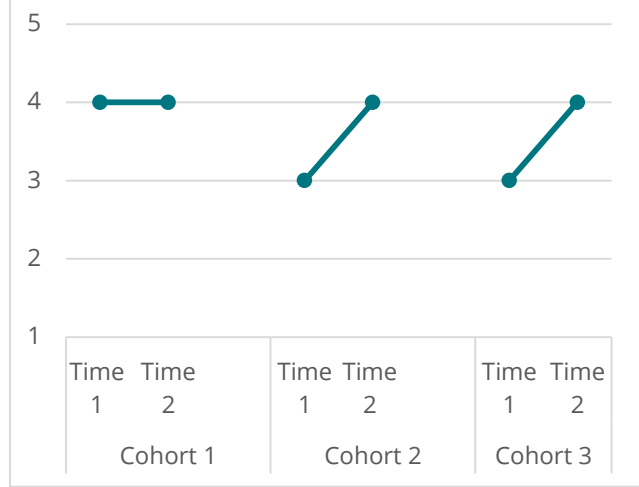


Direct Observation - rating distribution across cohorts and time

Direct observation is taking place regularly for most programs across all cohorts. Direct observation *and* documentation a routine part of day for over 60% of programs in Cohort 1.

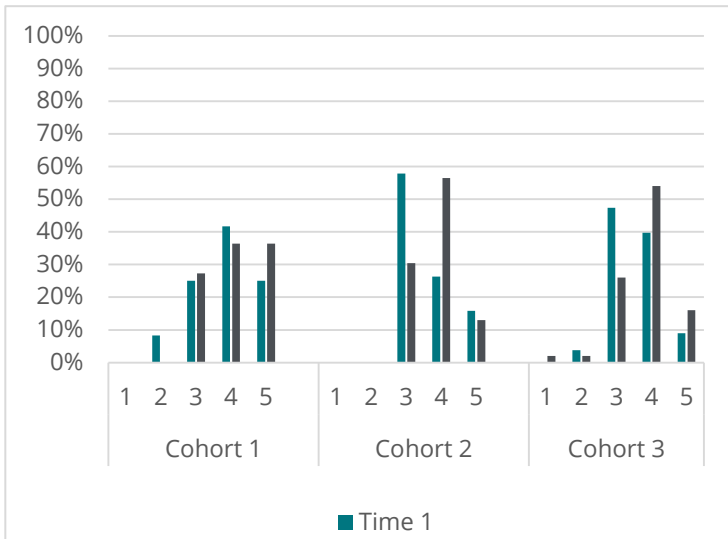
Workplace-based EPA Assessment

5	Front line supervisors consistently perform workplace-based assessments as a part of day to day work
4	Front line supervisors frequently perform workplace-based EPA assessment
3	Front line supervisors sometimes perform workplace-based EPA assessment
2	Front line supervisors rarely perform work-place-based EPA assessment
1	Front line supervisors have not yet started to perform workplace-based EPA assessments



WPB EPA Assessment rating anchor

Median ratings over time by cohort



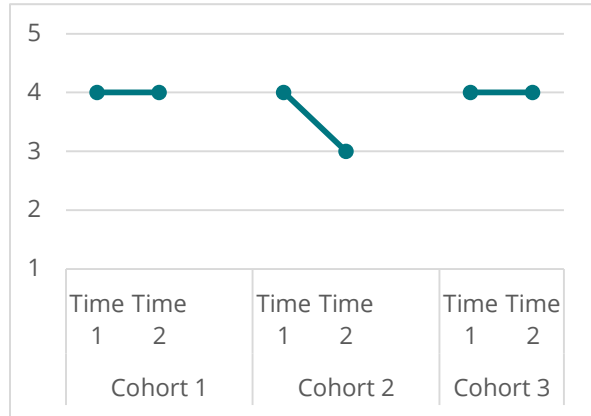
In summer 2020, the majority of programs surveyed across all three cohorts frequently, and in some cases, consistently, perform workplace-based EPA.

Workplace-based EPA assessment - frequency distribution in ratings across cohorts and time points

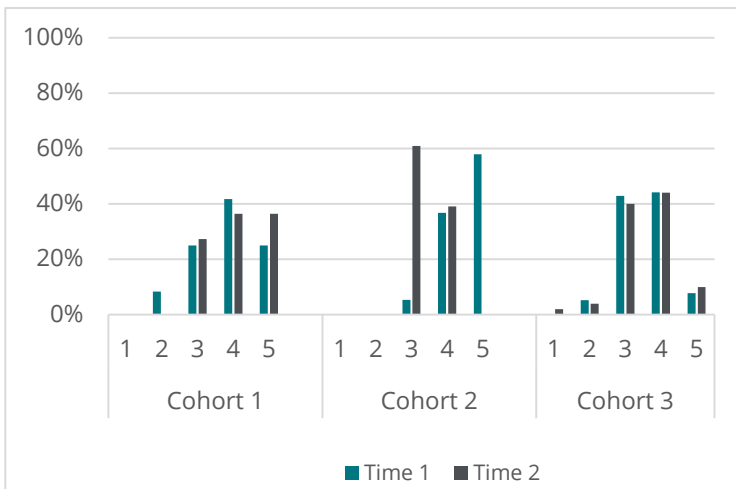
Coaching

5	Front line supervisors consistently act as coaches
4	Front line supervisors frequently act as coaches
3	Front line supervisors sometimes act as coaches
2	Front line supervisors rarely act as coaches
1	Front line supervisors have not yet adopted a coaching role with learners

Coaching rating anchors



Median ratings over time by cohort



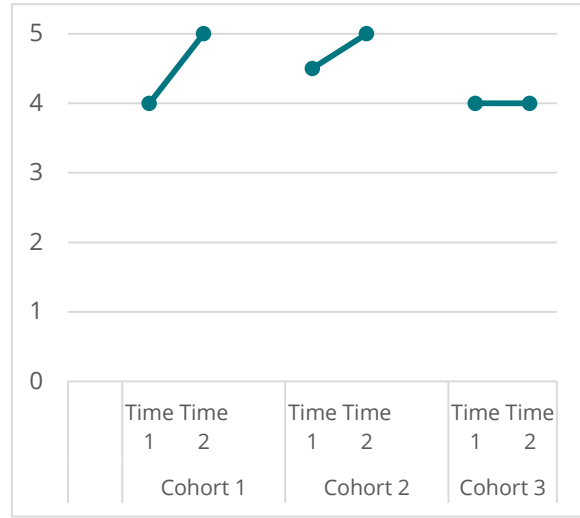
Coaching - frequency distribution in ratings across cohorts and time points

Overall, the ratings for coaching remained fairly consistent over time, for cohorts 1 and 3 in particular. Cohort 2 had a decrease in median rating from time 1 to time 2.

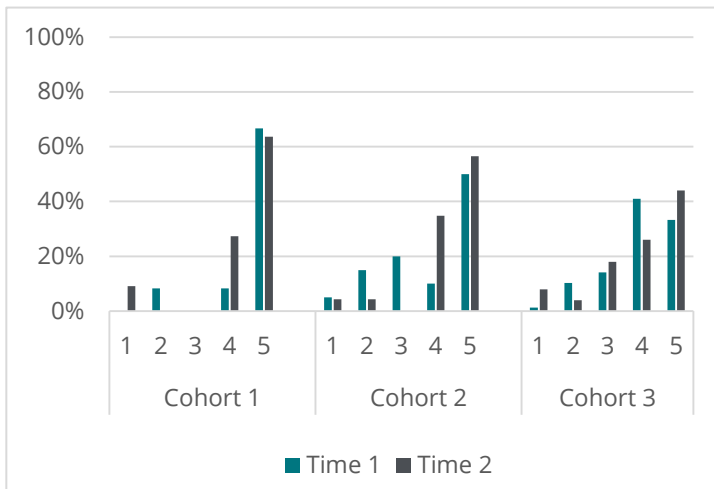
Electronic Portfolio

5	consistently used to record resident observations and to consistently inform resident progression decision making.
4	consistently used to record resident observations, and sometimes to inform resident progression decision making.
3	regularly used to record resident observations and sometimes to inform resident progression decision making.
2	used to record resident observations and sometimes to inform resident progression decision making.
1	not yet being used to record resident observations.

Electronic Portfolio rating anchors



Median ratings over time by cohort

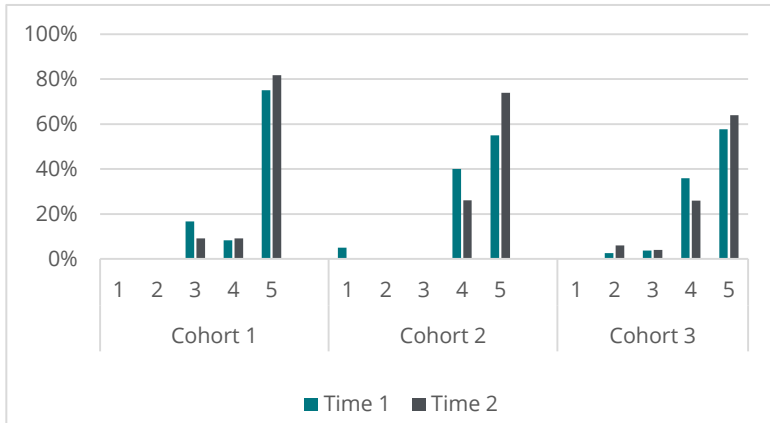
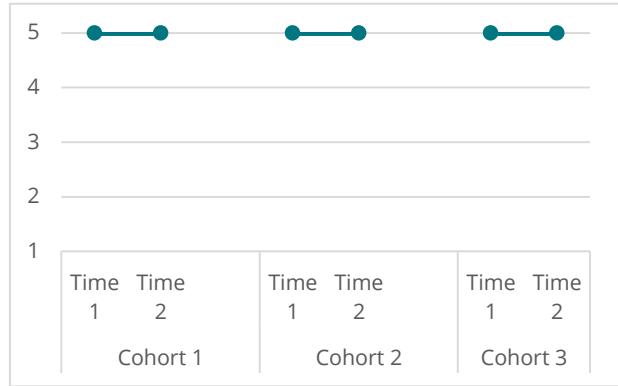


Electronic Portfolio - frequency distribution in ratings across cohorts and time points

An electronic portfolio is being used consistently by the majority of programs across all 3 cohorts to record resident observations and are sometimes/consistently being used to inform resident progression decision making.

Competence Committees

5	The competence committee regularly reviews resident performance, and uses robust data collated from multiple sources for promotion decisions.
4	The competence committee regularly reviews resident performance, but uses limited data for promotion decisions.
3	A competence committee regularly reviews resident performance but lacks data to make promotion decisions.
2	A competence committee has been established but does not yet regularly review resident performance.
1	A competence committee has not yet been established.

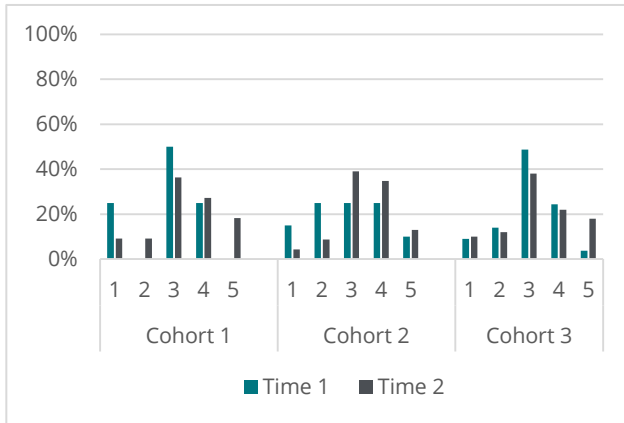
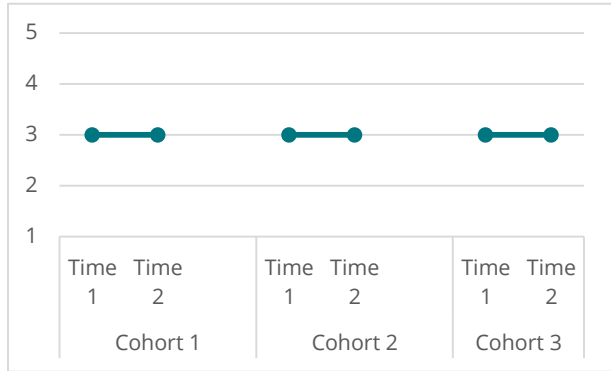


Programs from all three cohorts have competence committees that regularly review resident performance. 82% of programs surveyed from Cohort 1, 74% from Cohort 2, and 64% from Cohort 3 use robust data collected from multiple sources for promotion decisions.

Competence Committees – frequency distribution in ratings across cohorts and time points

Individualized Stage-based Resident Learning Plans

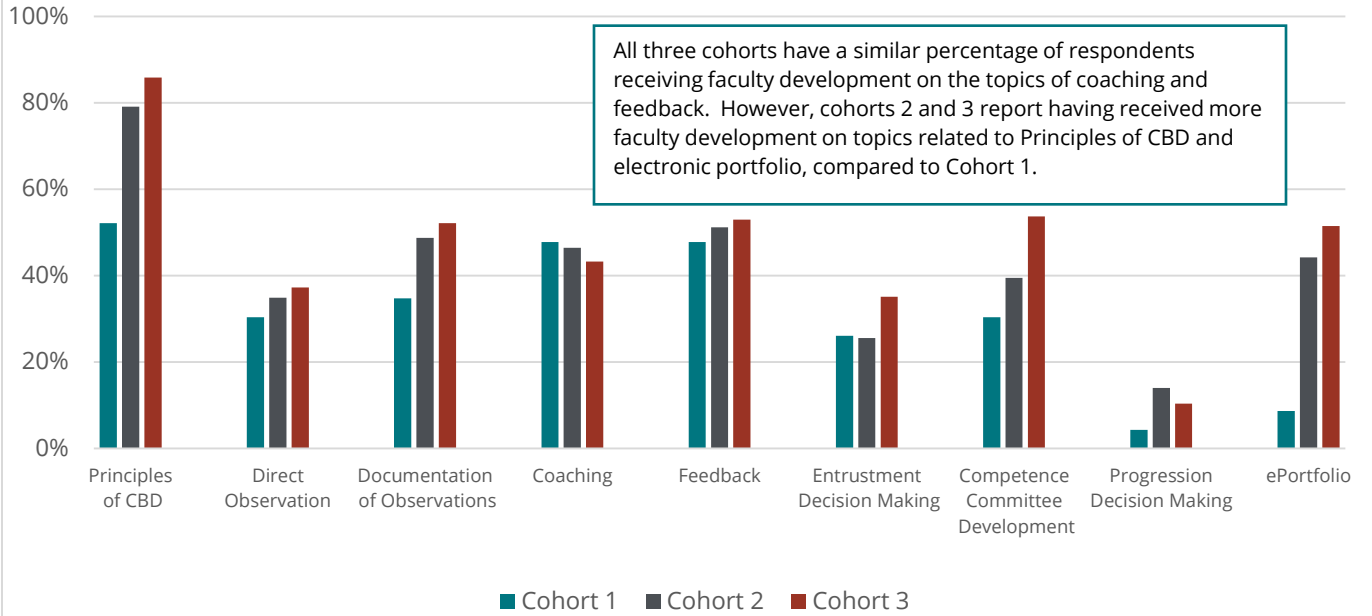
5	Individual resident learning plans are consistently used to guide and adjust personal learning experiences.
4	Individual resident learning plans are frequently used to guide and adjust personal learning experiences.
3	Individual resident learning plans are sometimes used to guide and adjust personal learning experiences.
2	Individual resident learning plans are rarely used to guide and adjust personal learning experiences.
1	Individual resident learning plans are not yet being used to guide or adjust personal learning experiences.



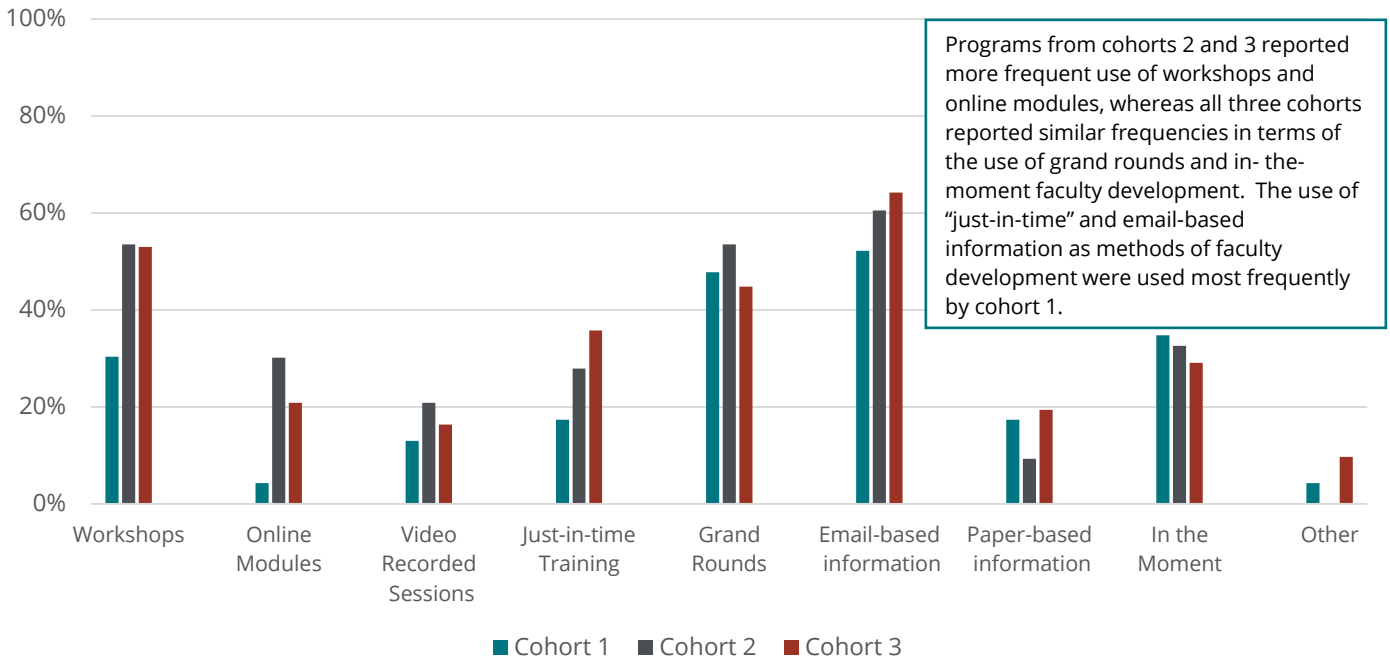
The use of individualized stage-based resident learning plans is fairly distributed across programs in all three cohorts, with some programs not using them at all, while others are using them rarely, sometimes, frequently, or consistently to guide and adjust personal learning experiences. Overall, there was a slight trend towards using them more often.

Individualized Stage-Based Learning Plans
frequency distribution in ratings across cohorts and time points

Faculty Development Topics



Faculty Development Methods



Appendix C

CBME Core Component	CBD-RE Program Model – Main Features
<p>COMPETENCY FRAMEWORK</p> <p>Competencies required for practice are clearly articulated</p>	<ul style="list-style-type: none"> Competencies and outcomes are aligned with societal needs and are socially accountable CanMEDS 2015 and discipline-specific competencies form the framework for aligning specialty training with competencies required for practice
<p>SEQUENCED PROGRESSION</p> <p>Competencies and their developmental markers are sequenced progressively</p>	<ul style="list-style-type: none"> Discipline specific Entrustable Professional Activities (EPAs) and associated milestones provide discrete markers of competence Discipline specific EPAs are organized into the CBD Competence Continuum to reflect how distinct, yet integrated stages of training are employed to support increasing progression towards readiness for practice
<p>TAILORED EXPERIENCES</p> <p>Learning experiences facilitate the developmental acquisition of competencies</p>	<ul style="list-style-type: none"> Learning experiences are based in authentic, work-based environments that match the settings of future practice Learning experiences are organized to acquire competencies and demonstrate EPAs A hybrid model is used to organize learning experiences where time is still used as an organizing framework but there is flexibility in learner progression and acquisition of competencies Learners are motivated to use competencies to guide and enhance their learning experience
<p>COMPETENCY-FOCUSED INSTRUCTION</p> <p>Teaching practices facilitate the developmental acquisition of competencies</p>	<ul style="list-style-type: none"> Learning is guided by real-time, high quality feedback from multiple observations EPAs are used to structure learning and focus instruction Teachers act as coaches for the purpose of improvement, with repeated focused observation and feedback
<p>PROGRAMMATIC ASSESSMENT</p> <p>Assessment practices support and document facilitate the developmental acquisition of competencies</p>	<ul style="list-style-type: none"> Assessment is used for learning through competency-based assessment focused on observations of EPAs in the workplace Assessment is used for progression by linking promotion decisions and certification with successful completion of EPAs and progression through stages of training A Competence Committee is responsible for regular review of learner progress using highly integrative data from multiple EPA and milestone observations and feedback in clinical practice Changes to the certification examination to ensure entry to the Royal College examinations is aligned with promotion decisions entrusted to the Competence Committees Examinations will be maintained, but the timing and emphasis of such examinations will shift to occur earlier in training to promote a smoother transition to practice An electronic portfolio is used to demonstrate and record developments in competence and independence

Appendix D

Competence by Design (CBD) Pulse Check

Part 1 - Demographics

Please select your specialty/subspecialty:

- Anatomical Pathology
- Anesthesiology
- Cardiac Surgery
- Critical Care Medicine (Adult)
- Critical Care Medicine (Pediatric)
- Emergency Medicine
- Gastroenterology (Adult)
- Gastroenterology (Pediatric)
- General Internal Medicine
- General Pathology
- Geriatric Medicine
- Internal Medicine
- Medical Oncology
- Nephrology (Adult)
- Nephrology (Pediatric)
- Neurosurgery
- Obstetrics and Gynecology
- Otolaryngology
- Radiation Oncology
- Rheumatology (Adult)
- Rheumatology (Pediatric)
- Surgical Foundations
- Urology

Please select your institution

- University of British Columbia
- University of Alberta
- University of Calgary
- University of Manitoba
- University of Saskatchewan
- Western University
- McMaster University
- University of Toronto

- Queen’s University
- University of Ottawa
- Northern Ontario School of Medicine
- McGill University
- Université de Sherbrooke
- Université de Montréal
- Université Laval
- Dalhousie University
- Memorial University of Newfoundland

How long has it been since your program **locally** launched CBD?

- <6 months
- 6 months to 1 year
- 1 to 2 years
- 2 to 3 years
- 3 to 4 years

Your role (Please note that only a single respondent for each program is asked to complete this survey)

- Program Director
- Associate Program Director
- Program CBD Lead
- Other (please specify):

Part 2 – CBD Implementation

Using the scale below, please indicate the position that best reflects your agreement with the following statement:

Overall, CBD implementation in my local program is going well.				
Strongly disagree				Strongly agree

Part 3 – CBD Features of Implementation

Please choose your response based on the degree to which this activity is currently taking place in your program.

Curriculum Mapping – A curriculum map is a tool that indicates how the components of a curriculum are related to one another. In the case of CBD, it links competencies to learning experiences, assessment tools, and CanMEDS roles throughout the stages of training (Ladhani & Writer, 2014).

Curriculum mapping				
1	2	3	4	5
The curriculum has not yet been mapped.	The curriculum has been mapped, but not updated with the implementation of CBD.	The curriculum has been mapped to link competencies to some learning experiences, assessment practices, CanMEDs Roles, or CBD stages.	The curriculum has been mapped to link competencies to most learning experiences, assessment practices, CanMEDs roles, or CBD stages.	The curriculum has been mapped to link competencies to all learning experiences, assessment practices, CanMEDs roles, and CBD stages.

Direct Observation – Direct observation takes place when supervisors purposefully observe residents while they perform patient care or clinical activities that are meaningful, realistic and authentic (Kogan, Hatala, Hauer & Holmboe, 2017).

Direct observation				
1	2	3	4	5
Direct observation of learners is not yet taking place.	Direct observation of learners is taking place infrequently , but is not yet documented.	Direct observation of learners is taking place infrequently and is infrequently documented.	Direct observation of learners is taking place regularly ; however, it is infrequently documented .	Direct observation and documentation of learner performance has become a routine part of day to day work.

Workplace-Based Entrustable Professional Activity (EPA) Assessment – Workplace-based assessment involves the documentation of an assessment of competence and the feedback generated by supervisors from authentic clinical observations for the purpose of trainee development and EPA achievement decisions. EPAs reflect the authentic work of physicians and provide explicit teaching, learning and assessment goals for residents (Gofton, Dudek, Barton & Bhanji, 2017).

Workplace-Based EPA Assessment				
1	2	3	4	5
Frontline supervisors have not yet started to perform workplace-based EPA assessment.	Front line supervisors rarely perform workplace-based EPA assessment.	Front line supervisors sometimes perform workplace-based EPA assessment.	Front line supervisors frequently perform workplace-based EPA assessment.	Front line supervisors consistently perform workplace-based EPA assessment as a part of day to day work.

Coaching – In CBD, supervisors are encouraged to act as coaches. In this role, clinicians should provide residents with actionable feedback based on observation that is meant to guide them through a growth process resulting in performance enhancement. Coaching can occur in the moment as part of daily work, and over time (Royal College of Physicians and Surgeons of Canada, 2018).

Coaching				
1	2	3	4	5
Front line supervisors have not yet adopted a coaching role with learners.	Front line supervisors rarely act as coaches.	Front line supervisors sometimes act as coaches.	Front line supervisors frequently act as coaches.	Front line supervisors consistently act as coaches.

Electronic Portfolio – An electronic portfolio is a learning tool in CBD that allows for the electronic capture of observations, archiving of resident learning data, production of analytics and reports, and assessment of resident progression by competence committees (RCPSC, 2019b).

Electronic portfolio				
1	2	3	4	5
An electronic portfolio is not yet being used to record resident observations.	An electronic portfolio is sometimes used to record resident observations and sometimes to inform resident progression decision making.	An electronic portfolio is regularly used to record resident observations and sometimes to inform resident progression decision making.	An electronic portfolio is consistently used to record resident observations, and sometimes to inform resident progression decision making.	An electronic portfolio is consistently used to record resident observations and to consistently inform resident progression decision making.

What electronic platform do you use? Please provide any comments you may have on it.

Competence Committee - A competence committee makes formal resident promotion recommendations using data from multiple EPA and milestone observations, documented feedback from clinical practice and assessment sources such as examinations. A competence committee allows for an informed group decision-making process where patterns of performance can be collated to reveal a broad picture of a resident's progression toward competence (RCPSC, 2019a).

Competence committee				
1	2	3	4	5
A competence committee has not yet been established.	A competence committee has been established but does not yet regularly review resident performance.	A competence committee regularly reviews resident performance but lacks data to make promotion decisions.	The competence committee regularly reviews resident performance, but uses limited data for promotion decisions.	The competence committee regularly reviews resident performance, and uses robust data collated from multiple sources for promotion decisions.

Individualized Resident Stage-based Learning – A developmental approach that recognizes that **all** residents can benefit from a documented individualized learning plan and stage-specific supports. These may include special mentors, readings or modified rotations to maximize growth and learning (RCPSC, 2019a)

Individualized resident stage-based learning plans				
1	2	3	4	5
Individual resident learning plans are not yet being used to guide or adjust personal learning experiences.	Individual resident learning plans are rarely used to guide and adjust personal learning experiences.	Individual resident learning plans are sometimes used to guide and adjust personal learning experiences.	Individual resident learning plans are frequently used to guide and adjust personal learning experiences.	Individual resident learning plans are consistently used to guide and adjust personal learning experiences.

Part 4: CBD Faculty Development

1. In the **last 12 months**, what faculty development topics have your **front line faculty** received? (check all that apply)
 - a. Principles of CBD
 - b. Direct observation
 - c. Documentation of observation
 - d. Assessment
 - e. Coaching
 - f. Feedback
 - g. Entrustment decision making
 - h. Competence committee development
 - i. Progression decision making
 - j. ePortfolio access and use
 - k. Other (please specify)

2. In **the last 12 months**, what **methods** have been used to deliver this faculty development? (check all that apply)
 - a. Workshops
 - b. Online modules
 - c. Video recorded sessions

- d. Just-in-time training (workplace-based)
 - e. Grand rounds
 - f. Email based information
 - g. Paper-based information
 - h. In the moment faculty development
 - i. Other (please specify)
3. In **the last 12 months**, of the following sources of faculty development resources, please rank the **sources** in terms of **most frequently used**.
- a. Royal college
 - b. Local faculty of medicine
 - c. Your own local program/department
 - d. Other

Part 5: Benefits and challenges

Question 5a - Briefly describe the **challenges** you have encountered to date with CBD implementation:

Question 5b – Briefly describe what you have done to **overcome the challenges** you have encountered?

Question 6 - Briefly describe the **benefits** you have encountered with CBD implementation so far in your program:

Question 7 Resident Wellness – Residency training can be a particularly challenging time during a physician’s career and has the potential to affect resident wellness. Resident wellness relates to the complex nature of resident physical, mental, and emotional health and well-being. (Wallace, Lemaire, & Ghali, 2009).

Resident Wellness				
1	2	3	4	5
Most residents in my program describe CBD as having a negative impact on their health and wellness.	Some residents in my program describe CBD as having a negative impact on their health and wellness.	Residents in my program have not described any impacts of CBD on their health and wellness.	Some residents in my program describe CBD as having a positive impact on their health and wellness.	Most residents in my program describe CBD as having a positive impact on their health and wellness.

Question 8 - What, if anything, could the Royal College do better to support you?

Question 9 - Please share any other comments you might have:

Thank you for taking the time to fill out your survey! Pending your availability, we may follow-up with you via a brief telephone interview to delve more deeply into your experiences with CBD implementation thus far.

Appendix E

Pulse Check Interview Guide

Introduction

This interview is a follow-up to the Pulse Survey recently conducted. The Royal College is interested in further understanding your experience with implementing CBD to date, what is working well, any challenges that you are encountering and any suggestions you have for improvement. In analyzing the data we will be focusing on the identifying themes; it will not be possible to identify individual program responses. This interview should take no longer than 30-45 minutes. Do you have any questions before we begin?

Have you (or your predecessors) had experience with making a big change in your residency program in the past?

- What were some barriers to this change?
- What helped you succeed?

Questions:

We are interested in details of your implementation. More specifically,

1. In implementing CBD, what program changes have you made to date?
 - Is there anything you did during implementation that you think helped implementation go more smoothly? Could be an adaptation, etc.
2. In your opinion, how fully has your program implemented CBD?
 - How do you personally measure implementation?
 - What does fully implemented mean?
 - What is your expectation for full implementation?
3. Did you do anything specific to prepare your teachers and learners for the implementation of CBD? If yes, what did you do and who was involved?
 - Was this preparation effective? Why or why not?

Now we would like to turn to understanding your experience to date.

4. What is working well?
5. What challenges have you encountered?
 - Have you experienced residents “gaming the system”?
6. Have you experienced any surprises or unanticipated consequences as a result of CBD implementation? (i.e., Things you didn’t expect to see but are experiencing either positive or negative in nature)

7. What has the response been from your:

- Teachers?
- Learners?

8. Do you think your teachers and learners have been adequately informed and convinced of the need to change?

- Why or why not?

9. What resources and/or supports did you have in place to help with implementation?

- Were these adequate?
- If not, what resources or supports would have helped increase your readiness? (Probe for RC supports, PG office or program supports)
 - Do you find the Royal College supports helpful?

Finally, we would like your advice on moving forward.

10. Is there anything that the RC should be doing to assist specifically with your specialty program implementation moving forward?

11. Based on your experience to date what would you recommend to another Program Director to prepare for implementation?

- Do you have any tips or tricks to offer?

12. What advice would you give to the Royal College for future cohort preparation?

Is there anything else that we have not covered that is important to know at this point?

Appendix F

CBD Program Evaluation Operations Team

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