

Multi-source feedback in undergraduate medical education: a pilot study

Retour d'information multi-sources dans l'enseignement médical de premier cycle : une étude pilote

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Abstract

Background: Multisource feedback (MSF) and 360-degree assessment collate feedback from multiple perspectives for a particular person. Since MSF aligns with programmatic assessment, undergraduate programs could theoretically incorporate this practice. This paper details the creation of an undergraduate medical education (UGME) MSF and its initial pilot.

Methods: The Medical Council of Canada (MCC) collaborated with researchers from four Canadian UGME programs to adapt an existing tool, MCC 360. They adjusted MSF components for clerkship and piloted the revised version at one Canadian medical school. Student participants completed a post-evaluation survey. Researchers chose the Norcini et al. framework to inform the tool adaptation and evaluation.

Results: The new MCC 360 UGME incorporated MSF from three rater groups (patients, self, and a mixed group of supervisors, residents, hospital staff and/or peers) and compiled it into an individualized report. An independent facilitator reviewed and discussed the report with the student. Students indicated that the MCC 360 UGME had a major to moderate impact on their learning. They appreciated receiving patient feedback and working with facilitators to identify areas of improvement. Although students found completing the MSF requirements to be burdensome, they found it to be acceptable to provide educational benefits.

Conclusion: Implementing MSF in Canadian UGME would allow clerkship students to access feedback from patients and others in the workplace. It would also socialize students to MSF early in their careers.

Résumé

Contexte : La rétroaction multisource (MSF) et l'évaluation à 360 degrés recueillent des commentaires provenant de plusieurs perspectives à l'intention d'une même personne. Étant donné que la MSF s'aligne avec l'évaluation programmatique, les programmes de formation médicale de premier cycle pourraient en principe intégrer cette pratique. Cet article décrit le développement d'un outil de MSF adapté à la formation médicale de premier cycle (FMPU) ainsi que sa mise à l'essai initiale.

Méthodes : Le Conseil médical du Canada (CMC) a collaboré avec des chercheurs de quatre programmes canadiens de FMPU pour adapter un outil existant, le CMC 360. Les composantes de la MSF ont été ajustées pour le stage clinique, puis la version révisée a été mise à l'essai dans une école de médecine canadienne. Les étudiants ayant participé ont rempli un sondage après l'évaluation. Les chercheurs ont retenu le cadre conceptuel proposé par Norcini et ses collaborateurs pour guider l'adaptation et l'évaluation de l'outil.

Résultats : La nouvelle version du CMC 360 pour la FMPU a intégré la rétroaction de trois groupes d'évaluateurs (patients, soi-même, et un groupe mixte de superviseurs, résidents, membres du personnel hospitalier et/ou pairs), rassemblée dans un rapport personnalisé. Un facilitateur indépendant a examiné le rapport avec l'étudiant et en a discuté avec lui. Les étudiants ont indiqué que le CMC 360 avait eu un impact allant de majeur à modéré sur leur apprentissage. Ils ont apprécié recevoir des commentaires de patients et travailler avec un facilitateur pour cerner les domaines à améliorer. Bien qu'ils aient trouvé que répondre aux exigences de la MSF était exigeant, ils ont jugé l'expérience acceptable compte tenu de ses retombées pédagogiques.

Conclusion : La mise en œuvre de la MSF dans la FMPU canadienne permettrait aux étudiants en stage clinique d'accéder à des rétroactions provenant de patients et d'autres intervenants en milieu de travail. Elle contribuerait également à les familiariser avec la MSF dès le début de leur carrière.

Background

In the era of competency-based assessments, gathering and interpreting feedback on professionalism, communication, and collaboration is critical. Socializing trainees to receiving feedback from multiple sources will assist in developing a habit of seeking feedback later in practice. It is crucial to create a secure environment for gathering and reflecting on formalized feedback and to provide a facilitator with appropriate training.^{1,2} Ensuring that trainees feel comfortable and safe when receiving feedback is vital to encourage open and honest communication, which is essential for improving performance and enhancing patient care. Multisource feedback (MSF) is linked to several advantages in the context of programmatic assessment.¹ MSF is a helpful tool for gathering data on core competencies for physicians, such as collaboration, communication, and professionalism, which are expected of physicians regardless of their specialization.² Moreover, these competencies predict critical patient outcomes such as satisfaction and complaints³ as well as disciplinary actions and lawsuits for physicians.^{4,5} In other words, MSF is a valuable tool that can detect potential competency gaps and facilitate future remediation efforts.

Medical trainees' communication and professionalism gaps have been linked to problems in residency and practice.^{6,7} Early identification of these gaps and proper remediation could decrease the risk of future deficiencies in these essential skills.^{8,9} We propose that incorporating MSF into undergraduate medical education (UGME) could contribute to identifying gaps in competencies earlier in training. MSF could also provide structured feedback on communication, collaboration, and professionalism, and help students develop feedback acceptance and good reflective habits.¹⁰

The Medical Council of Canada (MCC) rolled out an MSF initiative that has demonstrated positive results. While the MCC 360 program was initially implemented for use with practising physicians, the expanded vision includes implementation throughout the assessment continuum, including with undergraduate students. While MSF has been used quite commonly in postgraduate settings and workplace learning environments, prior to the onset of this study, it has rarely been implemented in UGME. Those UGME programs that have used MSF did not include the patient perspective, narrative feedback, or facilitated review.¹¹ In this paper, we describe how we adapted the MCC 360 program's features for UGME use and piloted the

changes with a small number of students to evaluate the tool's acceptability and impact.

MCC 360 for physicians in practice

Various Canadian organizations collaborated to develop the MCC 360 for physicians in practice, an MSF program to evaluate physicians' workplace performance in their CanMEDS roles of communicator, collaborator, and professional. The program gathers survey data from four sources: patients, colleagues, co-workers, and self-assessments. A subject matter expert (SME) panel of physicians representing a variety of specialties and perspectives developed the surveys. This work was supplemented with focus group input from non-physician co-workers and patients. The MCC 360 surveys include 25-38 five-point Likert agreement items (strongly agree, agree, neutral, disagree, and strongly disagree with an additional option of 'unable to assess') and two open-ended items. (The surveys and the scales were revised in 2024/2025).

The MSF program amalgamates the data collected into an individualized MCC 360 report, which provides a 360-degree perspective on a physician's interpersonal skills by a rater group. The program includes several features designed to enhance feedback acceptance and use. These include narrative comments that provide context to numerical ratings by describing specific examples and contextual factors related to a behaviour.¹² The program also offers an optional one-hour feedback discussion with a trained facilitator to support physicians in interpreting and reflecting on their feedback data, identifying areas for improvement, and developing action plans to address them.

Building on positive results from the MCC 360 national MSF program, the MCC initiated a collaboration with four UGME programs to adapt the MCC 360 and pilot it at the UGME level.

Methods

Four UGME programs in Canada were selected to participate in this initiative, and each program appointed two representatives, including a medical educator at the clerkship level and a PhD education researcher, to contribute to the development of the MCC 360 UGME program. Two researchers from the MCC led the project.

The MCC 360 UGME working group reviewed the components of the MCC 360 program that required adjustment for use with UGME students at Canadian universities. They revised the program's MSF surveys to ensure the content was appropriate for medical students

in their clerkship year (third year of four-year programs) and that data collection was feasible.

The working group accomplished this task through a three-day in-person meeting, followed by virtual meetings over the course of three years, to modify the existing tool and design a pilot study. The collaborators identified the necessary changes to adapt the program for UGME use.

The collaborators also drafted all student-facing correspondence regarding the program, recorded a YouTube video about the MCC 360 UGME, designed a consent form for participants (students and facilitators), and designed a post-evaluation survey. They prepared all material in both of Canada's official languages, English and French. Once the rework was completed, the researchers piloted the MCC 360 UGME at one of the medical schools.

The researchers administered a post-evaluation survey upon completion of the pilot. The team used the data from the post-evaluation survey to inform the adaptation and evaluation of the tool using the Norcini et al. framework for good assessment.¹³

Results

The rework of the MCC 360 for physicians resulted in three key areas for change, which are detailed in the following sections:

- The rater groups and the number of forms required from each group
- The feedback loop
- The content of the questions and rating scales

Rater groups

The working group decided to reduce the four different rater groups and minimum number of forms used in the MCC 360 program for practising physicians (one self-assessment, 18 patients, six colleagues, and six co-workers) to three rater groups for medical students during clerkship (one self-assessment, 10 patients, and a mix of 10 peers, supervisors, and hospital staff). Similarly to the MCC 360, the participants (students) chose their raters and asked them to fill out the survey.

Feedback loop

The working group recognized the potential risks of providing unfiltered, open-ended feedback to medical students during their early patient care experiences. The group made changes to ensure the feedback was specific, constructive, and appropriate for UGME. This included reviewing all narrative comments to remove any deemed derogatory or offensive before presenting the reports to

clerks. Finally, we set facilitated feedback sessions to a minimum of 30 minutes, and selected facilitators who were faculty members with no influence over the clerk's promotion to foster a safe and supportive learning environment.

The facilitators were trained in the relationship, reaction, content, and coaching (R2C2) model.¹² The R2C2 feedback and coaching model aimed to promote the recipient's critical reflection on their performance report and, through that, identify opportunities for improvement and develop a plan for addressing them.

Survey questions

We redesigned the questions to better fit the clerkship experience and the new respondent groups. This resulted in surveys of varying lengths for each rater group: self-assessment survey (33 questions), patients survey (17 questions), and a mix of peers, supervisors, and hospital staff survey (35 questions). The survey language was adjusted to better suit the medical student context, for example, the expected competency of the clerk interaction with a patient or hospital staff. The MCC 360 UGME working group also modified the survey content and scales. We changed the initial five-point agreement scale, with the added 'unable to assess' option used in the MCC 360, to a five-point frequency scale to reflect individual behaviour in the survey group, comprised of a mix of peers, supervisors, hospital staff, and self-assessments. The patient survey included a mix of frequency rating scales and yes/no questions to reflect that patients often rated the clerk based on one encounter only.

Evaluation of the tool

To evaluate the MCC 360 UGME program, we used the Norcini et al. framework for a good assessment.¹³ There are seven elements:

- Validity or coherence: The assessment results should be appropriate for their intended purpose.
- Reproducibility or consistency: The assessment should yield the same results if repeated under similar conditions.
- Equivalence: Different versions or forms of the assessment should produce comparable results.
- Feasibility: The assessment should be practical and realistic in terms of time, resources, and effort required.
- Educational effect: The assessment should positively influence learning and teaching.

- **Catalytic effect:** The assessment should provide feedback that enhances and supports further education.
- **Acceptability:** The assessment should be acceptable to all stakeholders, including students, educators, and regulatory bodies.

The data we gathered allowed us to gauge learners' perceptions of the program against three of the seven elements: catalytic effect, acceptability, and feasibility. We also asked participants about their satisfaction with MCC's services. To accomplish these goals, we conducted a post-evaluation survey consisting of 26 items that included rating scales and open-ended questions.

The pilot study was conducted in 2021, which coincided with the COVID pandemic, limiting student participation. Participants chose to take part in the pilot voluntarily. Although four UGME programs participated in adapting the MCC 360 to the MCC 360 UGME program, and each UGME program aimed to recruit 25 students, we only managed to pilot at one school in the end. Eleven students participated, with seven completing the post-evaluation survey.

Each UGME program's research ethics board (REB) approved the pilot, and each hospital gave permission for feedback to be collected. Some clinical sites had too few students and supervisors to allow for sufficient anonymity, and the team could not include these sites in recruitment. Three of the four programs advertised the study to their students, and data were collected at one program.

Catalytic effect

Participants completed the post-evaluation survey anonymously. Students reported the MCC 360 UGME program had a positive, while moderate, educational impact (Table 1). They stated the discussion with a facilitator allowed them to 'identify their strengths and points for improvement' (PA, PB) and 'to set learning objectives' (PC, PD, PE, PG). Students also reported the work with a facilitator was most beneficial for 'a better understanding of the reports and the results' (PD, PF). Students appreciated working with a facilitator on their

weaknesses, with one participant stating that it 'help[ed] me reflect on situations that may correspond to my weaknesses, to find out how the event unfolded, what could have been done better' (PG). Notwithstanding the general positive appreciation of meeting with a facilitator, one student stated the 'report was clear enough on its own' (PB).

Acceptability

Students' perceived acceptability of the MCC 360 UGME program is reported in Table 2. They described receiving information in the report that was not available to them elsewhere and in an acceptable format. They were unanimous in stating the facilitated session was very acceptable. Participants rated the data collection process as acceptable with the criticisms that it is 'very difficult to get supervisors/team members to fill out all the questionnaires in the context that they are already overloaded with work and that it is already difficult at times to receive feedback on our performance due to lack of time'. In addition, participants noted that the paper format does not lend itself well to the reality of supervisors (PE)

Feasibility

We further explored the time required to collect feedback data through student comments on the perceived feasibility of the MCC 360 UGME program, as presented in Table 3. Students reported moderate feasibility in terms of the amount of time needed to complete the surveys and find raters. Overall, they reported the self-assessment was not burdensome but requesting feedback from others was onerous, especially asking supervisors for feedback. While one student appreciated having feedback from other health professionals 'because usually we just get feedback from our supervisors' (PD), another student stated being disappointed in the feedback because it 'did not bring me information that was completely new' (PC). We detected similar patterns regarding stress levels. Respondents indicated that asking their supervisors to be raters was the most stressful while asking hospital staff or peers seemed to be less stressful.

Table 1. Student perceived catalytic effect (i.e., educational impact)

	Major Impact	Moderate Impact	Neutral	Minor Impact	No Impact
What level of impact did the self-assessment exercise have on your learning?	1	3	2	-	1
What level of impact did the report have on your learning?	1	6	-	-	-
What level of impact did the facilitated session have on your learning?	2	5	-	-	-
What level of impact did working with the facilitator have on your ability to design an improvement plan?	3	3	1	-	-
	Yes		No		
Was the facilitated session a critical component of the MCC 360?	6		1		
Did working with the facilitator help you to better interpret the report than doing it yourself?	6		1		
Working with the facilitator helped me to better understand my weaknesses.	7		-		

Table 2. Student perceived acceptability

	Very Acceptable	Moderately Acceptable	Neutral	Somewhat Acceptable	Unacceptable
Formatting and results presentation of the report	3	3	-	1	-
Data collection process	2	2	2	1	-
Format of the facilitated session	7	-	-	-	-
Time spent with the facilitator in using feedback to make improvements	7	-	-	-	-
Alignment between the content of the report and perception of performance	5	1	1	-	-
	Yes		No		
Report provided information that was not available elsewhere	7		-		
Information in the report is of value	7		-		

Table 3. Student perceived feasibility (i.e., cost-effectiveness)

	Very Burdensome	Moderately Burdensome	Neutral	Not Really Burdensome	Not at All Burdensome
Amount of time raters needed to complete the surveys	-	3	4	-	-
Effort required to find raters	2	5	-	-	-
Time required to complete the self-assessment	-	1	2	2	2
Overall MCC 360 process	-	3	3	1	-
	Very Stressful	Somewhat Stressful	Neutral	Not Really Stressful	Not at All Stressful
Asking peers to be raters	-	3	2	-	2
Asking hospital staff to be raters	-	2	2	1	2
Asking supervisors to be raters	1	4	1	-	1
	Yes		No		
Usefulness of feedback generated by MCC 360 offset its time commitment required	6		1		

Discussion

The MCC 360 UGME program aimed to provide learners with additional feedback than they would have normally received, with the long-term goal of supporting students in developing into competent physicians. In alignment with the principles of assessment for learning, we collected feedback from multiple stakeholders.¹⁴ We collated the feedback into a comprehensive report, which was compared with their self-assessment, and discussed with a trained facilitator during a one-on-one session. The trained facilitator also helped learners form a learning plan based on the feedback data. Although limited, we received positive feedback from the pilot participants. We noted that all participants found the facilitated feedback sessions helpful, and they appreciated the patient feedback.

Around the same time as this project began, Björklund et al (2022)¹⁵ developed and evaluated an MSF tool with UGME learners that possesses similar qualities to MCC 360 UGME, including provision of patient feedback, narrative comments, and facilitated review. In a larger study they found MSF to be an effective learning activity for medical students in primary healthcare settings. Specifically, students appreciated feedback from the patient perspective. According to their study, MSF facilitated the development of clinical and communication skills and

enhanced the feedback process for both students and clinical supervisors.

Lessons learned

Buy-in for an elective activity of this magnitude. Stakeholder buy-in, particularly learner buy-in, plays a crucial role in the successful implementation of an innovation.¹⁶ While the COVID pandemic complicated the operationalization of this pilot, the fact that only one of the four participating UGME programs collected data speaks to the feasibility of implementing this initiative as an elective. We may need to embed MSF as a mandatory component within a program of assessment to fully evaluate its educational impact.

Communication is key. Students described the recruitment of raters as burdensome. UGME programs may find it helpful to actively promote MSF to a broader audience, including faculty members and hospital staff so they could support the rater recruitment process.

Favouring electronic surveys. Due to logistical reasons, we were compelled to use paper surveys in this pilot study.¹⁷ Adopting electronic surveys would enhance the accuracy and efficiency of the assessment process while reducing the burden on raters and facilitating data management. Our pilot data supports investing resources into the design of electronic surveys for UGME MSF.

Training academic advisors to provide feedback.

Receptivity to feedback is an essential and timely subject. Trainees may encounter difficulty reconciling what they perceive as criticisms towards themselves or their performance.¹⁸ Therefore, it is crucial to create a safe environment for feedback reception, including providing a facilitator with appropriate training.¹² Ensuring trainees feel comfortable and safe when receiving feedback is vital to encourage open and honest communication, which is essential for improving performance and enhancing patient care. In our pilot, we trained the facilitators, and the student participants indicated that the facilitated session was acceptable. Therefore, we learned that training academic advisors pays off.

Limitations

The limited data collection for our pilot restricts the generalizability of the findings. Moreover, those who chose to participate may have had a stronger desire to receive additional feedback as compared to the average medical trainee. For this study, we did not collect feedback on the MSF process from those who provided MSF ratings. Including this perspective in the future could provide helpful information for improving feasibility.

Conclusions

Although it is widely recognized that students are 'surveyed to death', students appreciated receiving feedback from patients. Incorporating MSF in medical school would enable the patient to be part of the educational experience. One of the participants commented, "We have very little access to patient evaluations in general. It is very relevant and appreciated to be able to receive them in a more formal manner." Introducing MSF in clerkship not only aligns well with competency-based assessments but also socializes future medical practitioners in receiving feedback about their practice.

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Disclaimer: The MCC 360 and MCC 360 UGME surveys are the intellectual property of the Medical Council of Canada and, as such, cannot be shared.

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