ARTICLE

Facilitating Formative Feedback in Midwifery Education: A Narrative Review

Facilitation de la rétroaction formative en enseignement de la pratique sage-femme : revue narrative

Emma Seager, RM, BASc, BHSc, MSc, Beth Murray-Davis, RM, PhD and Anne Malott, RM, PhD

ABSTRACT

Background: Effective formative feedback is an important educational intervention in clinical learning. Receiving formative feedback enhances knowledge and skill acquisition and promotes reflective practice. The provision of feedback is a critical component of this education and requires a bidirectional process between learner and preceptor. Despite this critical role in health profession learning, there has been limited exploration of how preceptors provide feedback in the Ontario midwifery education setting.

Aim: To determine strategies for how formative feedback could be provided in the Ontario midwifery education setting to maximize students' clinical learning.

Methods: We conducted a narrative literature review using PubMed, Ovid MEDLINE, and CINAHL databases. Following our initial search, each title and abstract was assessed for inclusion for full text review. The final data set was reviewed and coded in order to undertake a descriptive thematic analysis.

Findings: There is little Ontario-specific midwifery feedback literature. Thematic analysis identified that understanding best practices for feedback, preparing both student and preceptor for a feedback relationship, and using a written format and a standardized assessment tool for feedback are strategies that can optimize learning in the clinical setting. The need for improved formative feedback provision has been identified in other midwifery jurisdictions, resulting in the introduction of workplace-based assessment tools to provide structured, high-quality feedback. The introduction of such a tool, specifically the midwifery mini-clinical evaluation exercise tool, may promote improved learning for students.

KEYWORDS

education, feedback, midwifery, competency-based education

This article has been peer reviewed.

RÉSUMÉ

Contexte : La rétroaction formative efficace constitue une importante intervention pédagogique dans le domaine de l'apprentissage clinique. La réception d'une rétroaction formative améliore les connaissances et l'acquisition des compétences, tout en favorisant la pratique réflexive. Le retour d'information représente un élément essentiel de cet enseignement et exige un processus bidirectionnel entre l'apprenant et le précepteur. Malgré ce rôle crucial dans l'apprentissage des professions de la santé, on a peu étudié la manière dont les préceptrices présentent leur rétroaction dans le contexte de l'enseignement de la pratique sage-femme en Ontario.

But : Déterminer des stratégies possibles de communication d'une rétroaction formative dans le cadre de cet enseignement afin de maximiser l'apprentissage clinique des étudiantes.

Méthodes : Nous avons effectué une revue de la littérature narrative à l'aide des bases de données PubMed, Ovid MEDLINE et CINAHL. Après notre interrogation initiale, nous avons évalué chaque titre et chaque résumé en vue d'une inclusion dans l'étude du texte intégral. L'ensemble de données final a été examiné et codé aux fins d'une analyse thématique descriptive.

Constatations : Il y a peu de textes publiés sur la rétroaction en pratique sage-femme qui porte spécifiquement sur l'Ontario. Selon l'analyse thématique, la compréhension des pratiques exemplaires de rétroaction, la préparation de l'étudiante et de la préceptrice à une relation de rétroaction et le recours à une présentation par écrit et à un outil d'évaluation normalisé constituent des stratégies susceptibles d'optimiser l'apprentissage dans le milieu clinique. La nécessité d'une meilleure rétroaction formative est ressortie ailleurs où s'exerce la pratique sage-femme, ce qui a mené à la mise en place d'outils d'évaluation reposant sur le lieu de travail pour la prestation d'un retour d'information structuré et de haute qualité. L'introduction de tels outils, en particulier le mini-exercice d'évaluation clinique de la pratique sage-femme,

pourrait favoriser l'amélioration de l'apprentissage pour les étudiantes.

MOTS-CLÉS
enseignement, rétroaction, pratique sage-femme, éducation axée sur la compétence

Cet article a été évalué par un comité de lecture.

BACKGROUND

Clinical education gives students in health care fields direct patient experience to facilitate experiential learning.[1] Throughout clinical placements, students develop their clinical skills while improving critical thinking and problem solving and while developing reflection and self-assessment abilities.[2–4]

Clinical education takes place under the guidance of a clinical preceptor. In order to assess a student's clinical learning, the preceptor must directly observe the student in practice.[2,3] To translate this assessment into learning, the preceptor must provide the student with feedback based on the observed assessment.[2,3]

Feedback can be either formative or summative. Formative feedback has the purpose of improving a student's skills, knowledge, or behaviour and should occur on a regular and ongoing basis throughout a clinical placement.[2] In contrast, summative feedback is given at the end of a clinical placement. It provides an evaluation of a student's competence and is used to make decisions about a student's progress and eventual transition to independent practice.[2,3] Formative feedback can be used to guide and substantiate summative feedback.[3,5]

Effective feedback is important in clinical learning.[5–7] Receiving adequate formative feedback throughout a clinical placement enhances the rate of knowledge and skill acquisition and reinforces intrinsic motivation for learning.[8,9] Furthermore, it can help students develop reflection and self-assessment skills.[3,4] Despite the identified importance of formative feedback, feedback provision is an area of concern in clinical education.[8,10,11] Students in health profession fields report dissatisfaction with the formative feedback received during clinical placements, citing inadequate feedback that is generic or inconsistent when received at all.[11,12] Feedback literature has largely been conducted within medical education. Within midwifery education, feedback has been explored in international literature. However, there has been limited exploration of feedback in the field of midwifery education in Canada and (specifically) in Ontario.

The Ontario Midwifery Education Program

The Ontario Midwifery Education Program (OMEP) is an undergraduate midwifery education program established in 1993 prior to the regulation of Ontario midwifery in 1994.[13] The OMEP is a consortium among Laurentian, McMaster, and Ryerson Universities and offers a 4-year competency-based program of didactic courses and clinical learning.

Students undertaking their clinical placements are assigned to a midwifery practice, where they provide care throughout a client's pregnancy, birth, and first 6 weeks postpartum. Preceptors in that practice are responsible for clinical teaching, supervision, and evaluation.[1] All midwives involved in clinical education complete a training workshop prior to serving as clinical preceptors and can choose to attend additional continuing education workshops.[14]

Formal evaluation of clinical learning is done with online midterm and final evaluation forms completed by the preceptor and the student and reviewed by a course tutor. Benchmarks for assessing competency (introductory, intermediate, and entry-to-practice levels) are made available to preceptors and students to guide learning and evaluation.[15] One designated preceptor is required to complete a student's summative evaluation. However, the student may attend births or provide prenatal and postpartum care under the supervision of other midwives at the practice. The provision of formative feedback from the preceptors takes place informally.

Students at all three OMEP sites are encouraged

> Workplace-based assessment tools are concrete interventions that can be used to enhance the quality of clinical feedback.

to request formative feedback through various forms of clinical encounter cards in order to substantiate the summative evaluation. Clinical encounter cards (CECs) generally consist of comments related to an encounter and may include a Likert scale rating of clinical competence.[16] There is, however, no formal requirement for CECs. Information about CECs is provided by individual tutors as a strategy for documenting feedback but is not included in preceptor training materials or program documents. It is unknown how many students and preceptors use CECs and what impact they have on a student's learning and the quality of summative evaluations.

METHODS

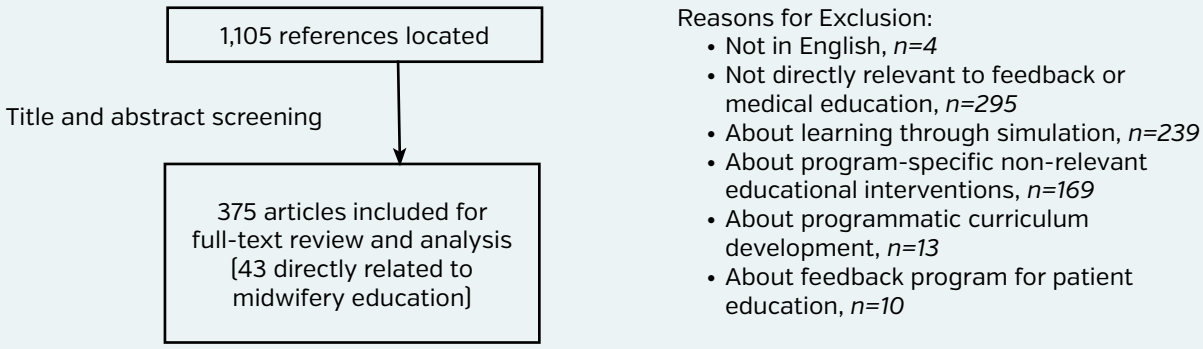
This narrative literature review was undertaken[17] to answer the following research question: For midwifery students in Ontario, how should formative feedback be provided to maximize students' clinical learning? PubMed, Ovid MEDLINE, and CINAHL databases were searched by using combinations of the following search terms: midwifery education, midwifery students, clinical education, formative feedback, assessment tool, assessment strategy, medical education, medical training, clinical education, feedback, and assessment. The search was limited to material published in English after 2010. The titles and abstracts of the articles were then reviewed for relevance by the lead author. Data extraction and analysis was conducted by the lead author and followed the principles of thematic data analysis.[18]

FINDINGS

The initial search of the three databases resulted in 1,105 articles. (Duplicates were removed manually.) An article was excluded if (1) it was not directly relevant to feedback or medical education, (2) it was about learning through simulation rather than through direct clinical encounters, (3) it was about program-specific nonrelevant educational interventions or programmatic curriculum development, or (4) it was about a feedback program assessing patient education. After this first stage of screening, there were 375 articles for full-text review, 43 of which were directly related to midwifery education (Figure 1). The 375 articles were critically appraised, and data pertaining to the research question were coded and then categorized into themes in order to summarize the key findings. In Ontario-specific midwifery literature, there is a small body of work on assessment and feedback practices. One study that analyzed the relatively high student attrition rate within the OMEP reported that some students found their preceptors "unable to provide constructive criticism."[19] A study that surveyed graduates of the OMEP in 2003 found that students reported direct observation to be a highly effective means of evaluation. Students were not asked, however, about the feedback received following observation.[20]

The findings from the literature described two key considerations for providing feedback for midwifery students: (1) supporting feedback and (2) tools for feedback. Supporting feedback includes best practices for feedback in the clinical setting, the preparation of both students and preceptors to optimize the bidirectional nature of feedback, and the format of the feedback. Tools for feedback involves the use of workplace-based assessment tools or instruments for assessment and feedback, including the midwifery mini-clinical evaluation exercise.

Figure 1. Study Selection Process



Supporting Feedback

Understanding the best practices for feedback is essential for operationalizing the provision of feedback in the clinical setting. The literature reveals that feedback provides the greatest benefit to students in a clinical environment when it is individualized, specific, and actionable.[3,7] This feedback must be based on direct observation and should include a follow-up plan in order for the student's integration of feedback to be observed. Feedback should be given frequently and come from multiple sources in order to mitigate potential bias in observation.[21,22] The clear structure of a competency-based curriculum should be used to measure a student's performance against standards of competence.[7] If global rating scales are used when providing feedback, specific clinical examples should be used to justify the preceptor's selection, along with specific suggestions for improvement.[23]

Preceptors and students alike must be trained to optimize the bidirectional flow of the feedback process. In regard to preceptor preparation, studies show that clinical preceptors should receive training in giving effective feedback prior to serving as clinical educators.[3,24] According to Lefroy et al., one-time exposure is insufficient, and opportunities for continuing education enhance competence in providing feedback.[25] Students also require training in order to maximize the provision of formative feedback. Preceptors and students alike should be encouraged to seek feedback as an invitation for self-improvement rather than a validation of competency.[26,27] Seeking feedback benefits individuals by aiding adaptation, learning, and performance and is correlated with higher goal attainment and learning.[28] Adamson et al. and Myers and Chou suggest that to maximize educational impact, feedback should be framed as a collaborative and bidirectional conversation wherein both students and preceptors are responsible for providing and receiving feedback.[11,28] Encouraging a strong trainer-trainee relationship through bidirectional conversations helps students feel comfortable confronting weaknesses and results in a higher willingness to seek corrective feedback.[27,28]

The format of the feedback provided also shapes clinical learning. Clinical preceptors should be encouraged to provide students with written feedback that is discussed together. Students report an increased motivation to improve their performance and an increased satisfaction with the feedback received when it is in a written format.[29,30] The act of preparing written feedback is associated with educationally enhanced feedback discussions.[25] Written feedback allows students to recognize feedback they may miss when it is presented only orally, provides an easy means for students to monitor improvement throughout the duration of the placement, and can be used by the trainer to provide evidence for the student's summative evaluation.[30,31] This written feedback should be provided via paper rather than an app-based system. Despite the possible efficiency of app-based systems, the quantity of feedback decreases when the transition is made away from

paper.[32] Also, the use of a screen can disrupt the social interaction fundamental to trainer-trainee conversations.[32]

Tools for Feedback

Workplace-based assessment tools are concrete interventions that can be used to enhance the quality of clinical feedback. Assessment and feedback have been widely identified as challenges in clinical education.[33] To improve the provision of formative feedback and the transparency of summative assessments, many health profession educational programs have implemented specific workplace-based assessment tools.[34] Using such assessment tools involves a period of observation in a clinical environment, followed by a period of debriefing and feedback provision. The tools must be psychometrically tested prior to use to ensure they provide both a valid and reliable assessment of students.[35] As the process of determining the validity of an assessment tool is arduous, researchers support the use of existing tools.[36] Acceptable instruments include clearly defined standards and employ systematic and credible methods.[37] Valid and reliable assessment tools effectively facilitate the transformation of observation into feedback, thus benefiting both student and preceptor by normalizing the provision of daily formative feedback, enhancing learning, and increasing the quality of summative evaluations.[23,38]

The need for improved formative feedback and assessment during midwifery clinical placements has been identified in other midwifery jurisdictions.[31,39–41] The midwifery mini-clinical evaluation exercise (miniCEX) was developed, implemented, and evaluated in Australia after midwifery students and educators identified a need for greater formative feedback (see Appendix).[42] The miniCEX assessment tool is used widely in medical education and has been shown to be both valid and reliable, depending on the number of assessments, the assessors conducting the evaluation, and the variation of clinical encounters.[43] Students have reported that using the miniCEX allowed them to better identify their strengths and weaknesses, increased their motivation for learning, and helped improve their clinical skills.[42] The miniCEX is designed to facilitate a bidirectional feedback conversation between student and preceptor whereby they formulate an agreed-upon action plan based on what was done well and what could be improved. To ensure success, preceptors and students should be trained to use the tool and educated in its utility.[44]

Preceptors in Australia found the midwifery miniCEX to be an effective and time-efficient tool that allowed them to confidently provide fair assessments and enhance the quality of feedback given to students.[41] The midwifery students, who reported that the previous approach to assessment and feedback had resulted in their receiving generic comments that did not contribute to further learning, found the miniCEX tool to be rewarding and a helpful tool with which to seek out feedback.[41] They reported that the written feedback they received was tangible, meaningful, and individualized.[41] Implementing the midwifery miniCEX enhanced the feedback given to midwifery students in their clinical placements.[41]

DISCUSSION

The OMEP has a number of features that make it well suited to the provision of effective feedback. Midwifery preceptors and students work together in a one-on-one relationship, thus normalizing frequent observation. Students often follow several preceptors, thereby receiving feedback from multiple sources. The competency-based curriculum clearly articulates standards against which the preceptor may compare the student's performance, thus providing a clear structure for feedback. All preceptors involved in clinical teaching undergo training; the OMEP fosters an institutional culture that recognizes and rewards teaching excellence and scholarship. To facilitate effective feedback conversations, the curriculum and preceptor training workshops could incorporate information about the benefits of feedback-seeking behaviour.

The ability of the designated main preceptor to provide an accurate assessment of the student's competence, however, lies in the collection of reliable documentation of multiple feedback encounters conducted by multiple observers. There is currently no transparent system of collecting this

documentation. The OMEP does not currently use any formal workplace-based assessment tools to provide students with formative feedback, despite the demonstrated effectiveness of such tools in other health care education settings. The current practice of gathering feedback within the OMEP is the optional use of clinical encounter cards. However, the predictive ability of clinical encounter cards to assess overall clinical performance has not been proven.[16] The inconsistent execution of feedback provision in the OMEP makes a strong argument for the introduction of a standardized system such as the midwifery miniCEX.

The midwifery miniCEX captures best practices for feedback provision by encouraging specific and frequent feedback linked to a follow-up plan to observe feedback integration. Using the tool encourages feedback seeking of a bidirectional nature. It also captures written feedback that the students can use to track their progress and that the preceptors can use to provide evidence for a summative evaluation. To ensure validity and reliability when introducing the midwifery miniCEX in the OMEP setting, preceptors must be trained in its use and conduct numerous assessments in a variety of clinical settings.

LIMITATIONS

Whereas two reviewers conducted the search process, only the lead author was responsible for appraising and coding the included studies. This may have increased possible errors in categorizing the data. The scholarship surrounding assessment and feedback in the midwifery education setting is limited, particularly in Ontario. Midwifery students, educators, and clients would benefit from further research.

CONCLUSION

The Ontario Midwifery Education Program (OMEP) would benefit from the continued examination of current practices of feedback provision, as medical and midwifery education literature indicates that feedback in clinical education could be improved. Formal tools (such as the midwifery miniCEX) help preceptors transform clinical observation into effective formative feedback and to improve students' educational experience. Facilitating the provision of effective feedback and transparent assessment promotes an equitable learning experience for all OMEP students and contributes to the strength of the midwifery profession. Introducing the midwifery miniCEX into the OMEP could benefit students and preceptors alike, and research should be conducted to examine the utility of a miniCEX in Ontario midwifery.

ACKNOWLEDGEMENTS

The authors would like to thank Melanie MacKay for her contributions.

APPENDIX 1

Search Strategy in CINAHL, Completed June 29, 2020

Date: / / .

Mini Clinical Evaluation Exercise (MiniCEX)

Student name _____ Student ID ☐☐☐☐☐☐☐

Midwifery Presentation: _____

Midwifery Context	Clinical Setting	Task Focus	Case Complexity
☐ Antenatal	☐ Clinic/rooms	☐ History	☐ Low
☐ Labour and birth	☐ Emergency	☐ Examination	☐ Average
☐ Postnatal	☐ Ward	☐ Decision Making	☐ High
☐ Newborn Care	☐ Theatre	☐ Management	
	☐ Woman's home	☐ Education	
	☐ Other	☐ Other	

Please grade the following areas using the 0-5 rating scale. Standard = expected at end of Bachelor program.

	0	1	2	3	4	5	N/A
History Taking	☐	☐	☐	☐	☐	☐	☐
Examination Skills	☐	☐	☐	☐	☐	☐	☐
Communication Skills	☐	☐	☐	☐	☐	☐	☐
Clinical Management	☐	☐	☐	☐	☐	☐	☐
Professionalism	☐	☐	☐	☐	☐	☐	☐
Organisation/Efficiency	☐	☐	☐	☐	☐	☐	☐
Overall Competence	☐	☐	☐	☐	☐	☐	☐

0-5 Rating Scale
0-1 Below expectations
2 Borderline performance
3 Meets expectations
4-5 Above Expectations
N/A Not applicable – not observed

Feedback	
What was done well?	
What could be improved?	
Agreed plan of action?	

Assessor's Position ☐ Midwife ☐ GP ☐ Registrar ☐ Specialist ☐ Other

Time taken to do MiniCEX	
Observation (in minutes)	
Feedback (in minutes)	

Assessor's Signature	_____
Assessor's Name (Print)	_____
Student's Signature	_____

Fig. 2. Midwifery miniCEX developed for project.

REFERENCES

1. Butler M, Hutton E, McNiven P. Midwifery education in Canada. Midwifery. 2016;33:28-30.
2. Lockyer J, Carraccio C, Chan M, Hart D, Smee S, Touchie C, et al. Core principles of assessment in competency-based medical education. Med Teach. 2017;39(6):609-16.
3. Burgess A, Mellis C. Feedback and assessment for clinical placements: achieving the right balance. Avd Med Educ Pract. 2015;6:373-81.
4. Geranmayeh M, Khakbazan Z, Azizi F, Mehran A. Effects of feedback on midwifery students' self-assessed performance and their self-assessment ability: a quasi-experimental study. Int Q Community Health Educ. 2019;40(4):299-305.
5. Holmboe ES, Yamazaki K, Edgar L, Conforti L, Yaghmour N, Miller R, et al. Reflections on the first 2 years of milestone implementation. J Grad Med Educ. 2015;7(3):506-11.
6. Hattie J, Timperley H. The power of feedback. Rev Educ Res. 2007;77(1):81-112.
7. van de Ridder JM, McGaghie W, Stokking K, ten Cate O. Variables that affect the process and outcome of feedback, relevant for medical training: a meta-review. Med Educ. 2015;49(7):658-73.
8. McQueen S, Petrisor B, Bhandari M, Fahim C, McKinnon V, Sonnadara R. Examining the barriers to meaningful assessment and feedback in medical training. Am J Surg. 2016;211(2):464-75.
9. Epstein R. Assessment in medical education. N Engl J Med. 2007;356:387-96.
10. Kornegay J, Kraut A, Manthey D, Omron R, Caretta-Weyer H, Kuhn G, et al. Feedback in medical education: a critical appraisal. AEM Educ Train. 2017;1(2):98-109.
11. Adamson E, King L, Foy L, McLeod M, Traynor J, Watson W, et al. Feedback in clinical practice: enhancing the students' experience through action research. Nurse Educ Pract. 2018;31:48-53.
12. Miller A, Archer J. Impact of workplace based assessment on doctors' education and performance: a systematic review. BMJ. 2010;341:1-6.
13. Kaufman, K. A history of Ontario midwifery. Womens Health. 1998;20(10):976-81.
14. McNiven P. New preceptor handbook. Hamilton, ON: McMaster Midwifery Education Program; 2017.
15. Soderstrom B, Tyson H, Van Wagner V. Guide to teaching, learning and assessment for midwifery preceptors and student midwives. Ontario Midwifery Education Program; 2013.
16. Richards M, Paukert J, Downing S, Bordage G. Reliability and usefulness of clinical encounter cards for a third-year surgical clerkship. J Surg Res. 2007;140(1):139-48.
17. Green B, Johnson C, Adams A. Writing narrative literature reviews for peer-reviewed journals: secrets of the trade. J Sports Chiropr Rehabil. 2001;15:5-19.
18. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77-101.
19. Neiterman E, Lobb D. Women-Centered but not women-friendly: understanding student attrition in the Ontario Midwifery Education Programme. Gend Work Organ. 2014;21(3):244-59.
20. Kaufman K, Schmuck M, McNiven P, Sharpe M, Soderstrom R. Graduates' views of the Ontario Midwifery Education Program. Can J Midwifery Res Pract. 2007;6(1):7-12.
21. Driessen E, Scheele F. What is wrong with assessment in postgraduate training? Lessons from clinical practice and educational research. Med Teach. 2013;35:569-74.
22. Holmboe E, Sherbino J, Long D, Swing S, Frank J. The role of assessment in competency-based medical education. Med Teach. 2010;32:676-82.
23. Chan T, Sherbino J. The McMaster Modular Assessment Program (McMAP): a theoretically grounded work-based assessment system for an emergency medicine residency program. Acad Med. 2015;90(7):900-5.
24. Lazarus J. Precepting 101: teaching strategies and tips for success for preceptors. J Midwifery Womens Health. 2016;61(S1):11-21.
25. Lefroy J, Hawarden A, Gay S, McKinley R. Does formal workplace based assessment add value to informal feedback? MedEdPublish. 2017;1:1-15.
26. Crommelinck M, Anseel F. Understanding and encouraging feedback-seeking behaviour: a literature review. Med Educ. 2013;47(3):232-41.
27. Gaunt G, Markham D, Pawlikowska T. Exploring the role of self-motives in postgraduate trainees' feedback-seeking behaviour in the clinical workplace: a multicenter study of workplace-based assessments from the United Kingdom. Acad Med. 2018;93(10):1576-83.
28. Myers K, Chou C. Collaborative and bidirectional feedback between students and clinical preceptors: promoting effective communication skills on health care teams. J Midwifery Womens Health. 2016;61(S1):22-7.
29. Nugraheny E, Claramita M, Rahayu G, Kumara A. Feedback in the nonshifting context of the midwifery clinical education in Indonesia: a mixed methods study. Iran J Nurs Midwifery Res. 2016;21(6):628-34.
30. Duers L, Brown N. An exploration of student nurses' experience of formative assessment. Nurse Educ Today. 2009;29(6):654-59.
31. Embo C, Driessen E, Valcke M, Van der Vleuten C. Assessment and feedback to facilitate self-directed learning in clinical practice of midwifery students. Med Teach. 2010;32(7):e263-9.
32. Lefroy J, Roberts N, Molyneux A, Bartlett M, Gay S, McKinley R. Utility of an app-based system to improve feedback following workplace-based assessment. Int J Med Educ. 2017;31(8):207-16.
33. Bing-You R, Hayes V, Varaklis K, Trowbridge R, Kemp H, McKelvy D. Feedback for learners in medical education: what is known? A scoping review. Acad Med. 2017;92(9):1346-54.
34. Norcini J, Burch V. Workplace-based assessment as an educational tool: AMEE Guide No. 31. Med Teach. 2007;29:9-10.
35. Sweet L, Fleet J, Bull A, Downer T, Fox D, Bowman R, et al. Development and validation of the Australian Midwifery Standards Assessment Tool (AMSAT) to the Australian Midwife Standards for Practice 2018. Women Birth. 2020;33(2):135-44.
36. Hauer K, Holmboe E, Kogan J. Twelve tips for implementing tools for direct observation of medical trainees' clinical

skills during patient encounters. Med Teach. 2011;33(1):27-33.
37. Norcini J, Anderson B, Bollela V, Burch V, João Costa M, Duvivier R, et al. Criteria for good assessment: consensus statement and recommendations from the Ottawa 2010 conference. Med Teach. 2011;33(3):206-14.
38. Saedon H, Salleh S, Balakrishnan A, Imray C, Saedon M. The role of feedback in improving the effectiveness of workplace based assessments: a systematic review. BMC MedI Educ. 2012;12(25).
39. Hoseini B, Mazloum S, Jafarnejad F, Foroughipour M. Comparison of midwifery students' satisfaction with direct observation of procedural skills and current methods in evaluation of procedural skills in Mashhad Nursing and Midwifery School. Iran J Nurs Midwifery Res. 2013;18(2):94-100.
40. Embo M, Driessen E, Valcke M, van der Vleuten C. A framework to facilitate self-directed learning, assessment and supervision in midwifery practice: a qualitative study of supervisors' perceptions. Nurse Educ Pract. 2014;14(4):441-6.
41. Sweet L, Bazargan M, McKellar L, Gray J, Henderson A. Validation of the Australian Midwifery Standards Assessment Tool (AMSAT): a tool to assess midwifery competence. Women Birth. 2018;31(1):59-68.
42. Sweet L, Glover P, McPhee T. The midwifery miniCEX–a valuable clinical assessment tool for midwifery education. Nurse Educ Pract. 2012;13(2):147-53.
43. Hejri S, Jalili M, Shirazi M, Masoomi R, Nedjat S, Norcini J. The utility of mini-clinical evaluation exercise (mini-CEX) in undergraduate and postgraduate medical education : protocol for a systematic review. Syst Rev. 2017;6(146):1-8.
44. Rae A, Cochrane D. Listening to students. Active Learn. 2008;9:217-30.

AUTHOR BIOGRAPHIES

Emma Seager is a registered midwife and an Assistant Clinical Professor (Adjunct) in the Department of Family Medicine, McMaster University. She is a research fellow in the McMaster Midwifery Research Centre.

Anne Malott is an Associate Professor in the Midwifery Education Program and Department of Family Medicine, McMaster University. She is an adjunct scientist in the McMaster Midwifery Research Centre.

Beth Murray-Davis is an Associate Professor in the Midwifery Education Program and Department of Obstetrics & Gynecology, McMaster University. She is the Scientific Director of the McMaster Midwifery Research Centre.