

Finessing Feedback: Recommendations for Effective Feedback in the Emergency Department

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BACKGROUND

Feedback is important in all professional fields,¹⁻³ but can be challenging to adequately provide and receive. Because residency is a time focused on education, feedback is an essential component, providing a means for development through learning from mistakes and successes.^{2,4-7} Feedback has been recognized as one of the key factors in enabling effective learning in health professionals and is considered a critical component of learner development.^{8,9} In fact, the Accreditation Council for Graduate Medical Education has declared feedback to be an “essential and required” part of resident training.¹⁰ Unfortunately, this necessary step is often minimized or relegated to nonspecific positive comments, resulting in ineffective feedback.¹¹⁻¹³

Effective feedback can be particularly challenging to establish within the emergency department (ED) setting.¹⁴ Time constraints, high patient acuity, regular interruptions, learners at a variety of stages of training, and the lack of institutional recognition or reward of quality education can all contribute to feedback challenges in this complex learning environment.^{15,16} Moreover, shift-based scheduling can result in single, high-volume encounters with different providers, as opposed to the longer-term shared experiences found in other medical and surgical fields. This can make it more challenging to establish the foundational relationships needed for effective feedback and can limit the ability to provide direct feedback based on previous performances. Additionally, there can be significant variability in the quantity and quality of the actual feedback received. One multicenter study of 17 emergency medicine programs found that there was significant disagreement between resident and attending physician views of the quality of feedback and that feedback that was poorly perceived by the learner was less likely to be applied.¹⁷ To be effective, feedback should be timely, specific, well informed, and actionable, as well as given in a

respectful, positive learning environment.^{2,14,18} Literature has shown that, for the feedback to translate into learning, residents must perceive both the feedback and the supervisor to be credible and must acknowledge triggers within themselves that influence their ability to effectively receive the feedback.^{3,19}

Therefore, it is important to address the best practices for providing and receiving feedback in light of the complexities of the ED environment. This article will discuss effective feedback strategies, with an emphasis on application in the ED setting.

DELIVERING FEEDBACK

This section will discuss 4 core components of providing effective feedback in the ED.

Establish Expectations

Before the session, it is important to identify goals. Individual goals should be formally discussed with each learner at the start and reassessed throughout the shift.^{14,18,20} This affords an opportunity for continued self-reflection on the learner's strength and weaknesses.²¹ The easiest approach is to set aside dedicated time immediately before or after receiving sign-out to identify learning goals for the shift. Alternatively, the educator can have the learner e-mail his or her goals in advance of the shift. This will allow both parties to reflect on the goals and plan strategies for addressing them before the shift. The use of feedback cards can also help facilitate feedback by creating the expectation that feedback will occur and formalizing the process. Two large studies have demonstrated improved feedback with this model.^{22,23}

It is important to ensure that feedback goals align with the learner's own specific goals for feedback to be well received.^{14,18} However, the educator's goals may not always align with the learner's goals. When this occurs, it is preferable to engage in discussion and negotiate the goals and expectations to ensure that both parties reach

agreement on practical and valuable goals.^{8,18,24-26} At times, learners may need assistance with selecting goals. In these cases, it can be helpful to provide a list of potential goals to help guide the learner.²⁷ It is also important to ensure that learners consider all of the potential components to emergency medicine and not only those that are the most exciting. For example, one study found that residents overvalued feedback on domains that were high risk and challenging (eg, high-acuity procedures) and undervalued more common skills, such as communicating with patients.²⁸ Therefore, the educator should also help guide the learner on appropriate goals and objectives.

Limiting feedback to a few, select goals can help create a more tailored action plan for the learner.¹⁴ By focusing on a more limited set of goals, it will be easier for the educator to monitor and evaluate the learner's progression. This will also help with retention by giving the learner a select number of tangible areas for improvement.²⁹ Additionally, it is important to ensure that the goals are specific and able to be assessed in a given shift. For example, successfully performing a pericardiocentesis may not be feasible during most shifts, whereas managing a critically ill patient may be more appropriate. On the other hand, goals that are too broad will be difficult to assess. If a learner wants to focus on communication, it may be valuable to identify which components are most important for that shift (eg, communication with patients and family members, consultants, staff). Given the competing commitments for ED providers, having a specific goal can allow the educator to focus the period of observation on one specific component, shortening the time requirement and making direct observation more feasible. One approach may be to focus on direct observation and assessment of patient interactions during one shift and discussions with consultants on another shift. This model can increase the breadth of cumulative feedback during a learner's career, allowing greater growth and development.¹

Set the Stage

One should set aside a dedicated time and place for providing feedback. This can be one of the most difficult aspects of providing feedback in the ED. Feedback can be provided on a case-by-case basis or in a more cumulative fashion at designated points in the shift. Regardless of the specific intervals, feedback should be prioritized, with adequate time allotted for discussion. One should avoid waiting until the end of a busy shift because both the learner and supervisor are tired and may have other competing priorities. Moreover, if feedback is provided only at the end of a shift, it can be more difficult to change

behavior and follow up on the effectiveness of the intervention.³⁰⁻³³ Therefore, educators should establish the expectation of providing frequent feedback throughout the shift.^{18,30-35} This can include establishing routine debriefing sessions after procedures or treatment of critical patients, as well as feedback check-ins, similar to how one would "run the patient list" during a shift.

Studies have found that feedback is most effective when provided in a timely fashion, ideally as close to the encounter as possible.^{14,20,28,36-38} However, this is not always possible in the ED setting because patient care and other responsibilities may compete with the available time for feedback.³⁶ Additionally, the frequency of interruptions may preclude completion of feedback in a single instance. In these latter cases, it is essential that educators resume the feedback discussion after the issue has been addressed.

One strategy to ensure that timely feedback occurs in the ED setting is to incorporate feedback into each patient presentation or when the learner reviews the patient list with the educator. Online applications have also been suggested as a mechanism to remind educators and learners to ensure that feedback occurs regularly.³⁹ Learners and educators do not always agree on when or how often feedback should be given.^{14,20} One way to address this is to formally label the feedback, such that both parties are aware that it is occurring. This may facilitate acceptance and retention by telling the learner that feedback is being provided at that time.^{14,20}

Feedback should be provided in a safe and comfortable environment to create a climate of trust.⁴⁰ This will allow the learner to feel more psychologically safe and increase his or her receptivity to the feedback.⁴⁰ Although more minor feedback and teaching points can be provided in an open area, more sensitive discussions should be reserved for a quiet, private area (eg, bereavement room, unoccupied patient room, medication room).^{14,20}

Provide Feedback That Is Specific and Based on Direct Observation

Feedback should be specific to help the learner understand areas of strength and weakness.^{18,41-43} Comments such as "great job," although positive, often do not allow the learner to understand where he or she excels or recognize areas that are deficient. A preferable strategy would be to provide the learner with a specific instance in which he or she excelled or needs to improve.¹⁸ This should include a tangible area for improvement, followed by a specific, actionable plan.^{8,18,24-26,44,45} The plan should be agreed on by both the learner and educator.^{8,24-26} As an example, if the learner did not consider pneumothorax in

the differential diagnosis of chest pain, he or she could plan to read a book chapter or online resource on pneumothorax, as well as review strategies for identifying pneumothorax with ultrasonography.

It is also important that feedback be based on directly observed instances.^{14,20} It should be focused on the event, rather than the person.²⁰ It is important to avoid conflating the specific instance with characteristics of the person.²⁰ Feedback after direct observation is associated with increased learner acceptance and allows more targeted and specific feedback opportunities.^{46,47} One systematic review found that feedback based on direct observation was associated with significant improvements in learner knowledge, skills, and attitudes.⁴⁸ Although it may not be feasible to observe every patient encounter during an ED shift, the educator could select one patient encounter or specific components of several consecutive encounters (eg, updating patients and family members, obtaining consent) to observe.⁴⁹

Establish Respect and Trust

Feedback requires good communication skills, mutual respect, and trust. The learner's previous experiences, baseline confidence level, fear of appearing incompetent, and biases in cognitive reasoning can all affect his or her responsiveness to feedback.^{28,50} Therefore, educators must be cognizant of this and tailor the feedback to the learner's readiness to receive it.^{18,41} At times, this may require intentionally delaying feedback. As an example, when more emotionally charged situations occur, it may be helpful to incorporate a brief delay in the feedback process to allow the learner time to reflect and address his or her initial emotions, so that he or she is ready and more receptive to subsequent feedback.

Finally, educators should reflect on their own biases and how this may influence feedback. One study found that female emergency medicine residents received less consistent feedback from attending physicians than male residents, particularly in regard to personality traits valued in emergency medicine.⁵¹ As an example, the same resident would be praised as "autonomous" by one attending physician while being referred to as "argumentative" by another.⁵¹ A recent large, multicenter trial of emergency medicine residents found that the rate of milestone achievement was significantly higher among male residents than female ones.⁵² Although removal of all bias may not be possible, the facilitator should work to maintain self-awareness and make conscious efforts to create an approachable and inclusive environment to facilitate a nonjudgmental learning experience.⁵³

To further develop respect, one should establish a positive learning environment and working relationship with the learner. Creating this positive relationship will establish credibility in the eyes of the learner and assist him or her in receiving the feedback.⁵⁴ For example, educators should use questions to understand the learner's internal decision process, and then narrate the educator's own cognitive process, which is a method modeled after the debriefing with good judgment technique. It is helpful to consider that their process is not the single possible truth for each scenario and allows each party to gain insights about the other's rationales, thereby strengthening the educational relationship.⁵⁵

RECEIVING FEEDBACK

Despite optimization of the delivery of feedback, much of the application thereafter depends on the feedback recipient.^{3,56,57} Moreover, poor reception of feedback by emergency medicine residents has also been considered a significant barrier to feedback delivery.¹⁷ To address this, Stone and Heen³ proposed that there are 3 main triggers that influence the reception of feedback: truth, relationship, and identity. Awareness of these triggers is useful for increasing one's ability to incorporate feedback effectively.

The "truth trigger" refers to inability of the receiver to believe that the feedback information is correct.³ For instance, on hearing from their attending physician that they need to work on communicating more clearly with ancillary staff, residents may reject this feedback, believing that they communicated well during the shift. To avoid this trigger, learners should focus on asking questions to better understand the specific observed instances that prompted the feedback.^{3,57} It is also important to realize that learners may have some blind spots in regard to their strengths and weaknesses. Blind spots refer to the outside world's perceptions of a person that that person is unable to perceive in himself or herself.^{3,56,58} By acknowledging that one may be blind to some of one's own traits and behaviors, it can become easier to accept feedback that may not align with one's self-view.^{56,58-61}

The "relationship trigger" suggests that feedback receptivity by the learner is influenced by his or her perception of feedback givers and their credibility.^{3,57,19,62} Developing a strong relationship between the feedback provider and recipient may be more difficult in the ED setting, in which physician-learner pairings may change from shift to shift. To overcome this, it is important to establish a positive working relationship between the learner and educator.⁵⁴ One approach to create a positive relationship is for the learner to focus on demonstrating

openness to feedback. This may help the attending physician feel more comfortable giving specific feedback even if he or she has not had a longitudinal relationship with the learner.⁶³ Another strategy is to inquire at the beginning of the shift to understand the feedback provider's goals and discuss them in the context of the learner's goals to help align the focus and expectations for the shift.^{3,59} It is also important to try to separate the person from the content when receiving feedback with which one disagrees.^{3,57,61} Learners should also keep track of feedback across multiple shifts with different attending physicians to look for themes because seeing a consistent trend in feedback from multiple people may make the feedback appear more credible despite its source.³

The "identity trigger" is a defense mechanism when one's personal identity is under perceived attack.³ When this occurs, it is important for the learner to identify the emotional reaction and to decipher how that reaction may be affecting his or her reception of feedback.^{3,56,61} Learners need to accept that they will make mistakes, and that the feedback is a statement on these events, rather than on them as a person.^{3,56} Nurturing a growth mind-set, defined as a belief that intelligence or success can be developed, would help enhance the ability to learn from the mistakes and feedback.⁶⁴ After assessment of possible triggers, it remains up to the learner to implement feedback into his or her future practice.^{3,56,62}

DEVELOPING A CULTURE OF FEEDBACK

Watling et al⁶⁵ noted that "learning and the exchange of feedback do not occur in a vacuum of individualism." Although feedback delivery can be improved through many of the strategies described above, educators play only one part in this. Cultural scaffolding is equally important to support and strengthen the provision of effective feedback.^{45,65,66}

To attain this, it is essential that learners, educators, and institutions work together to create a successful feedback culture. Developing a culture of feedback does not simply mean mandating that feedback forms be completed every shift. Although this may increase total feedback, the quality of feedback can degenerate over time.^{32,33,65} This, in turn, may actually diminish the value that learners place on feedback overall.^{32,33,65} Therefore, although feedback forms have been shown to normalize feedback, these should be paired with training on effective feedback strategies and cultural change.⁶⁷ Verbal feedback should be used in conjunction with feedback cards because residents have found it to be more substantive, demonstrative, and timely compared with written systems.⁶⁸

Assessing learners and providing feedback takes time, which may conflict with other clinical responsibilities.^{31,34,35,45,65,66} Providers should have dedicated time for direct observation of learners, a method modeled after teacher training.^{31,35,59,65,69,70} This could be in the form of dedicated teaching shifts or designation of a specific portion of the shift to direct observation of the learner.

Additionally, studies have demonstrated that longer-term relationships are more beneficial for feedback receptivity because of greater opportunities for evaluation and enhanced perception of feedback credibility by the learner.^{18,33,45,59,65,66,69-71} Because of the shift-based schedule of emergency medicine, residents may work with a different attending physician each shift, making it more challenging for learners to receive consistent feedback and follow up on their improvement. Therefore, if feasible, programs may consider scheduling students and residents with the same attending physicians for consecutive shifts to strengthen the educational alliance and allow better follow-up of feedback interventions.

Emphasis should be placed on developing an institution-wide culture of feedback safety because this can help learners view critical feedback as supportive and increase the likelihood that they will integrate it into their practice.^{18,33,35,59,70,71} Developing a culture of safety does not mean that all feedback needs to be positive. This is often observed in "niceness cultures," wherein potentially negative comments are avoided in favor of more vague terms, such as "nice job on the intubation" or "good shift."^{30,70,72,73} However, these vague comments often provide little objective feedback and can be misinterpreted by learners.^{35,70,72} Consequently, the learner does not receive the opportunity to improve, whereas the negative feedback is often withheld for summative evaluations or closed-door discussions with program leadership.³⁴ Therefore, programs should ensure that these conversations are consistently had with the learner and feedback is given early enough so that changes can be made.^{30,70}

Another challenge is awareness of the "culture of assumed excellence," wherein the prestige of a program or institution leads to assumptions that everyone is outstanding, and that "negative" feedback statements are not permitted.⁷⁰ This can also be observed among individual residents and is often referred to as the "halo effect," wherein certain learners are seen as being exceptional and errors may be overlooked.⁷⁴ Although feedback is often easier to identify in the context of the struggling learner, it must be applied to all learners.^{34,70} Even high-performing learners benefit from coaching and feedback, although they may receive it less frequently than some of their peers who are having more difficulty.^{34,70}

Therefore, an institution should ensure that faculty remain conscious of these biases and that feedback is equally provided to all learners.

There should be a core message emphasizing the importance of feedback among all members of the health care team.^{18,30,45,70} Simply reminding faculty to provide feedback regularly may not be sufficient.³⁰ Therefore, institutions should consider having robust training for educators and learners on providing, soliciting, and receiving feedback.^{18,30,32,59,70} This could also include regular refresher courses and evaluations of skills in feedback provision.¹⁸ Moreover, program leadership should work with all providers who have a role in the program's educational system to clarify expectations and what learners' educational objectives should be.^{18,75} Additionally, learners should receive training on receiving feedback and self-regulating the ego effects associated with negative feedback.^{31-33,35,59,71} One approach would be to set the expectation for frequent feedback encounters and actively encourage feedback-seeking behavior.^{31,35,59,69} Residents should be empowered to act as drivers of change in their local feedback cultures.^{31,76}

Finally, it is important to recognize that feedback should not be unidirectional. The institutional culture should emphasize a "culture of growth" with reciprocal feedback between residents and attending physicians.^{18,30,31,35,59,70} This can be facilitated by normalizing that everyone has strengths and weaknesses, with an emphasis on being lifelong learners.^{18,31,35,59,66,70,76} Both teachers and learners need to accept their limitations and allow themselves to be vulnerable.^{18,35,59,70} This can be assisted by providing training to learners in giving feedback upward, as well as faculty in receiving feedback.^{70,76} Furthermore, feedback should not just be limited to the resident and attending providers.⁵⁹ Involvement of other team members (eg, nurses, case managers, patient care technicians) can enhance the quantity and quality of feedback by adding additional perspectives.⁵⁹ Implementing new systems, changing schedules, and creating an institution-wide culture for feedback takes time and resources.⁶⁸ Therefore, it is important to obtain departmental or institutional support.

CONCLUSIONS AND FUTURE DIRECTIONS

Feedback is essential to the growth and development of both learners and educators. This article highlights strategies for providing effective feedback, approaches for successfully receiving feedback, and recommendations for developing a culture of feedback, with an emphasis on application to the ED setting. Future research should

determine which feedback strategies are most effective in the ED environment and which components are the most vital for developing a culture of effective feedback.

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REFERENCES

1. Galford R. How to keep your cool during a performance review. *Harvard Business Review*. Available at: <https://hbr.org/2012/01/how-to-receive-feedback>. Accessed June 10, 2019.
2. Hattie J, Timperley H. The power of feedback. *Rev Educ Res*. 2007;77:81-112.
3. Stone D, Heen S. *Thanks for the Feedback: The Science and Art of Receiving Feedback Well*. New York, NY: Penguin Books; 2014.
4. Boud D, Molloy E. *Feedback in Higher and Professional Education: Understanding It and Doing It Well*. London, UK: Routledge; 2013.
5. Boud D. Feedback: ensuring that it leads to enhanced learning. *Clin Teach*. 2015;12:3-7.
6. Cantillon P, Sargeant J. Giving feedback in clinical settings. *BMJ*. 2008;337:a1961.
7. Evans C. Making sense of assessment feedback in higher education. *Rev Educ Res*. 2013;83:70-120.
8. Telio S, Ajjawi R, Regehr G. The "educational alliance" as a framework for reconceptualizing feedback in medical education. *Acad Med*. 2015;90:609-614.
9. Kornegay JG, Kraut A, Manthey D, et al. Feedback in medical education: a critical appraisal. *AEM Educ Train*. 2017;1:98-109.
10. Holmboe E, Edgar L, Hamstra S. The Milestones Guidebook, ACGME. Available at: <https://www.acgme.org/Portals/0/MilestonesGuidebook.pdf>. Accessed June 10, 2019.
11. Anderson P. Giving feedback on clinical skills: are we starving our young? *J Grad Med Educ*. 2012;4:154-158.
12. Bing-You RG, Trowbridge RL. Why medical educators may be failing at feedback. *JAMA*. 2009;302:1330-1331.
13. Branch W, Paranjape A. Feedback and reflection: teaching methods for clinical settings. *Acad Med*. 2002;77(12 pt 1):1185-1188.
14. Richardson BK. Feedback. *Acad Emerg Med*. 2004;11:e1-e5.

15. Chinai SA, Guth T, Lovell E, et al. Taking advantage of the teachable moment: a review of learner-centered clinical teaching models. *West J Emerg Med.* 2018;19:28-34.
16. Ruhotina M, Burrell D. A melting pot of medical education: challenges, solutions, and opportunities for improving trainee feedback and education in the ED. *R I Med J (2013).* 2018;101:37-40.
17. Yarris L, Linden J, Hern G, et al. Emergency Medicine Education Research Group (EMERGE). Attending and resident satisfaction with feedback in the emergency department. *Acad Emerg Med.* 2009;16(suppl 2):S76-S81.
18. Lefroy J, Watling C, Teunissen PW, et al. Guidelines: the do's, don'ts and don't knows of feedback for clinical education. *Perspect Med Educ.* 2015;4:284-299.
19. Dijksterhuis M, Schuwirth L, Braat D, et al. A qualitative study on trainees' and supervisors' perceptions of assessment for learning in postgraduate medical education. *Med Teach.* 2013;35:e1396-e1402.
20. Kritek PA. Strategies for effective feedback. *Ann Am Thorac Soc.* 2015;12:557-560.
21. Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. *Adv Health Sci Educ Theory Pract.* 2009;14:595-621.
22. Peccoralo L, Karani R, Coplit L, et al. Pocket card and dedicated feedback session to improve feedback to ward residents: a randomized trial. *J Hosp Med.* 2012;7:35-40.
23. Yarris LM, Rongwei F, LaMantia J, et al; Emergency Medicine Education Research Group (EMERGE). Effect of an education intervention on faculty and resident satisfaction with real-time feedback in the emergency department. *Acad Emerg Med.* 2011;18:504-512.
24. Wearne S. Effective feedback and the educational alliance. *Med Educ.* 2016;50:891-892.
25. Telio S, Regehr G, Ajjawi R. Feedback and the educational alliance: examining credibility judgements and their consequences. *Med Educ.* 2016;50:933-942.
26. Bowen L, Marshall M, Murdoch-Eaton D. Medical student perceptions of feedback and feedback behaviors within the context of the "educational alliance.". *Acad Med.* 2017;92:1303-1312.
27. Coates W. An educator's guide to teaching emergency medicine to medical students. *Acad Emerg Med.* 2004;11:300-306.
28. Bentley S, Hu K, Messman A, et al. Are all competencies equal in the eyes of residents? a multicenter study of emergency medicine residents' interest in feedback. *West J Emerg Med.* 2017;18:76-81.
29. Sweller J. Cognitive load during problem solving: effects on learning. *Cogn Sci.* 1988;12:257-285.
30. Ramani S, Post SE, Könings K, et al. "It's just not the culture": a qualitative study exploring residents' perceptions of the impact of institutional culture on feedback. *Teach Learn Med.* 2017;29:153-161.
31. Kraut A, Yarris LM, Sargeant J. Feedback: cultivating a positive culture. *J Grad Med Educ.* 2015;7:262-264.
32. de la Cruz MS, Kopec MT, Wimsatt LA. Resident perceptions of giving and receiving peer-to-peer feedback. *J Grad Med Educ.* 2015;7:208-213.
33. Reddy ST, Zegarek MH, Fromme HB, et al. Barriers and facilitators to effective feedback: a qualitative analysis of data from multispecialty resident focus groups. *J Grad Med Educ.* 2015;7:214-219.
34. Duan K, Sheu L. Behind closed doors. *Med Teach.* 2017;39:558-559.
35. Ramani S, Könings KD, Ginsburg S, et al. Twelve tips to promote a feedback culture with a growth mind-set: swinging the feedback pendulum from recipes to relationships. *Med Teach.* 2018; <https://doi.org/10.1080/0142159X.2018.1432850>.
36. Chaou C-H, Monrouxe LV, Chang L-C, et al. Challenges of feedback provision in the workplace: a qualitative study of emergency medicine residents and teachers. *Med Teach.* 2017;39:1145-1153.
37. Rosenzweig S. Teaching the art of emergency medicine. *Ann Emerg Med.* 1991;20:71-76.
38. Aldeen AZ, Gisondi MA. Bedside teaching in the emergency department. *Acad Emerg Med.* 2006;13:860-866.
39. Toohey S, Wray A, Wiechmann W, et al. Ten tips for engaging the millennial learner and moving an emergency medicine residency curriculum into the 21st century. *West J Emerg Med.* 2016;17:337-343.
40. Milan FB, Parish SJ, Reichgott MJ. A model for educational feedback based on clinical communication skills strategies: beyond the "feedback sandwich.". *Teach Learn Med.* 2006;18:42-47.
41. Kluger AN, DeNisi A. The effects of feedback interventions on performance: a historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychol Bull.* 1996;119:254-284.
42. Shute VJ. Focus on formative feedback. *Rev Educ Res.* 2008;78:153-189.
43. Weston PS, Smith CA. The use of mini-CEX in UK foundation training six years following its introduction: lessons still to be learned and the benefit of formal teaching regarding its utility. *Med Teach.* 2014;36:155-163.
44. Sadler DR. Beyond feedback: developing student capability in complex appraisal. *Assess Eval High Edu.* 2010;35:535-550.
45. Watling C, Driessen E, van der Vleuten CP, et al. Learning culture and feedback: an international study of medical athletes and musicians. *Med Educ.* 2014;48:713-723.
46. Fromme HB, Karani R, Downing SM. Direct observation in medical education: a review of the literature and evidence for validity. *Mt Sinai J Med.* 2009;76:365-371.
47. McGhee J, Crowe C, Kraut A, et al. Do emergency medicine residents prefer resident-initiated or attending-initiated feedback? *AEM Educ Train.* 2017;1:15-20.
48. Craig S. Direct observation of clinical practice in emergency medicine education. *Acad Emerg Med.* 2011;18:60-67.
49. Penciner R. Clinical teaching in a busy emergency department: strategies for success. *CJEM.* 2002;4:286-288.
50. Eva KW, Armson H, Holmboe E, et al. Factors influencing responsiveness to feedback: on the interplay between fear, confidence, and reasoning processes. *Adv Health Sci Educ Theory Pract.* 2012;17:15-26.
51. Mueller AS, Jenkins TM, Osborne M, et al. Gender differences in attending physicians' feedback to residents: a qualitative analysis. *J Grad Med Educ.* 2017;9:577-585.
52. Dayal A, O'Connor DM, Qadri U, et al. Comparison of male vs female resident milestone evaluations by faculty during emergency medicine residency training. *JAMA Intern Med.* 2017;177:651-657.
53. Sukhera J, Watling C. A framework for integrating implicit bias recognition into health professions education. *Acad Med.* 2018;93:35-40.
54. Hewson MG, Little ML. Giving feedback in medical education: verification of recommended techniques. *J Gen Intern Med.* 1998;13:111-116.
55. Rudolph J, Simon R, Dufresne R, et al. There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgement. *Simul Healthc.* 2006;1:49-55.
56. Algiraigri A. Ten tips for receiving feedback effectively in clinical practice. *Med Educ Online.* 2014;19:25141.
57. Rider E. Feedback in clinical medical education: guidelines for learners on receiving feedback. *JAMA.* 1995;274:9381.
58. Luft J, Ingham H. The Johari Window: a graphic model of awareness in interpersonal relations. *Human Relations Training News.* 1961;5:6-7.
59. Ramani S, Könings K, Mann K, et al. Uncovering the unknown: a grounded theory study exploring the impact of self-awareness on the culture of feedback in residency education. *Med Teach.* 2017;39:1065-1073.
60. Sargeant J, Mann K, Sinclair D, et al. Understanding the influence of emotions and reflection upon multi-source feedback acceptance and use. *Adv Health Sci Educ.* 2008;13:275-288.
61. Sargeant J, Mann K, van der Vleuten C, et al. Reflection: a link between receiving and using assessment feedback. 2009;14:299-410.

62. Watling C. Unfulfilled promise, untapped potential: feedback at the crossroads. *Med Teach*. 2014;36:692-697.
63. Hardavella G, Aamli-Gaagnat A, Saad N, et al. How to give and receive feedback effectively. *Breath*. 2017;13:327-333.
64. Dweck CS. Mind sets and equitable education. *Principal Leadership*. 2010;10:26-29.
65. Watling C, Driessen E, van der Vleuten CP, et al. Beyond individualism: professional culture and its influence on feedback. *Med Educ*. 2013;47:585-594.
66. Watling C, Driessen E, van der Vleuten CP, et al. Music lessons: revealing medicine's learning culture through a comparison with that of music. *Med Educ*. 2013;47:842-850.
67. 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;90:900-905.
68. Li SA, Sherbino J, Chan TM. McMaster Modular Assessment Program (McMAP) through the years: residents' experience with an evolving feedback culture over a 3-year period. *AEM Educ Train*. 2017;1:5-14.
69. Archer JC. State of the science in health professional education: effective feedback. *Med Educ*. 2010;44:101-108.
70. Ramani S, Könings KD, Mann KV, et al. About politeness, face, and feedback: exploring resident and faculty perceptions of how institutional feedback culture influences feedback practices. *Acad Med*. 2018;93:1348-1358.
71. Bates J, Konkin J, Suddards C, et al. Student perceptions of assessment and feedback in longitudinal integrated clerkships. *Med Educ*. 2013;47:362-374.
72. Ginsburg S, Regehr G, Lingard L, et al. Reading between the lines: faculty interpretations of narrative evaluation comments. *Med Educ*. 2015;49:296-306.
73. Ginsburg S, van der Vleuten C, Eva KW, et al. Hedging to save face: a linguistic analysis of written comments on in-training evaluation reports. *Adv Health Sci Educ Theory Pract*. 2016;21:175-188.
74. Sherbino J, Norman G. On rating angels: the halo effect and straight line scoring. *J Grad Med Educ*. 2017;9:721-723.
75. Boor K, Teunissen PW, Scherpbier AJ, et al. Residents' perceptions of the ideal clinical teacher—a qualitative study. *Eur J Obstet Gynecol Reprod Biol*. 2008;140:152-157.
76. Fluit CV, Bolhuis S, Klaassen T, et al. Residents provide feedback to their clinical teachers: reflection through dialogue. *Med Teach*. 2013;35:e1485-e1492.