The Journal of Education in Perioperative Medicine

Original Research

Faculty Underestimate Resident Desire for Constructive Feedback and Overestimate Retaliation

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Introduction

Constructive feedback is crucial to promoting learning and improvement.[1-6] Unfortunately, constructive feedback in medical training is rare, estimated in some studies to occur in less than 3% of feedback sessions in general.[4,7,8] Barriers to faculty giving constructive feedback have been examined in various specialties and include a fear of damaging the relationship with the trainee, lack of adequate skill in giving feedback, and lack of time.[4,9-11] The reluctance to give what may be seen as bad news—termed the *mum effect*—has been described in social psychology for decades[12] and in clinical medicine for nearly as long.[13]

Residents feel frustrated that they receive very little constructive feedback.[14] Compounding the problem is a mismatch between what residents and faculty perceive as feedback.[15] However, no formal study, to our knowledge, has examined the delivery of feedback in anesthesiology residents specifically, or gauged whether faculty *think* that trainees *want* more constructive feedback. Furthermore, the barriers that faculty experience to giving constructive feedback, specifically in anesthesiology, have not been assessed.

In this multicenter project performed in two large academic anesthesiology training programs, we explored faculty and resident impressions of feedback and barriers, in addition to differences between groups. We hypothesized that residents would want more constructive feedback than they currently receive and that faculty would believe that residents do not want constructive feedback or would retaliate against faculty who give it.

Methods

Participants and Setting

Between January and March 2019, we performed a cross-sectional survey study of anesthesiology residents (postgraduate years 2 through 4) at anesthesiology teaching faculties at two large academic medical centers. All residents and teaching faculty were eligible to participate. Participation was voluntary and no remuneration was provided. An exempt status was obtained from the institutional review boards at both participating institutions (Hopkins IRB00200157). The study was conducted according to its original design.

Design

Initial faculty and resident surveys were developed based on a review of related literature[14,16,17] according to survey development guidelines.[18] The construct of interest in this study was constructive feedback. The surveys included four examples of written constructive feedback to increase the likelihood that participants understood what *constructive feedback* meant in this study. These examples were written by the lead author (JTW) based on experience, discussions with faculty and residents, and review of feedback literature. To ensure that these examples included all pertinent characteristics of high-quality feedback (eg, detailed, specific, behavior-focused), we used a rating system developed by Mitchell et al[16] to measure feedback quality. Cognitive interviews were used to verify that the questions were clear and understandable and to increase item validity. The surveys were administered online using Qualtrics (http://www.qualtrics.com; Qualtrics, Provo, UT), and responses were anonymous.

The complete surveys are available in Supplemental Online Material, Appendix A. Resident surveys collected basic demographic information, two items regarding perceived frequency of feedback, two items regarding satisfaction with feedback, and four items regarding residents' predictions of how they would respond. Retaliation was defined as a resident lowering their evaluation of a faculty member and was not specified to be in response to one particular form of feedback. Faculty surveys collected basic demographic data, two items regarding provision of feedback, one item on willingness to provide constructive feedback, and one item on their predictions of resident responses to the same feedback examples. Additionally, one free-text response box was available to faculty for describing barriers to giving feedback. In both surveys, non-demographic data were measured on 5-point Likert-type scales with anchors from *extremely likely* [or *satisfied*] to *extremely unlikely* [or *unsatisfied*]. Exceptions to this were resident-perceived frequency of receiving written feedback during a month-long operating room (OR) rotation (measured on a 5-point scale: *0*, *1-3*, *4-6*, *7-10*, *>10*) and in-person feedback (measured on a 4-point scale: *less than*

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once a week, *about once a week*, *every two to three days*, *every day*). Additionally, faculty responses regarding provision of written and in-person feedback were measured on a 6-point scale: *never*, *almost never*, *about 25% of the time*, *about half the time*, *about 3/4ths of the time*, *100% of the time*.

Statistics

We assessed differences between institutions by using a Pearson chi-square test for dichotomous variables and an independent samples *t* test for continuous variables. Bonferroni corrections for multiple comparisons were made for a predetermined significance level of $P < .05$. When we found no differences between institutions, we combined the data and made comparisons between residents and faculty cohorts. For Likert-style responses, assumptions for parametric tests were not met, as the Shapiro-Wilk test was significant. Therefore, we compared such responses using the nonparametric Mann-Whitney *U* or Wilcoxon signed-rank tests where appropriate. The relationships between demographic data (eg, age, gender, number of years on faculty) and perceptions and attitude measures were assessed by Pearson correlations.

We used a hybrid thematic analysis approach[19] to identify the main themes within the open-ended feedback some faculty chose to provide in response to a specific question regarding barriers to giving constructive feedback to residents. This hybrid method allowed us to use the predefined barriers included in the question as an initial coding scheme; the method was also flexible enough to allow extending this initial scheme to account for other perceived barriers that may not have not been addressed in this list. (See Q11 in Constructive Feedback Survey – Faculty in Supplemental Online Material, Appendix A for the initial coding.)

Results

The survey was distributed to 156 residents and 260 faculty between the 2 institutions. Of those who received the surveys, 116 residents (74% response rate) and 127 faculty (49% response rate) responded. Completion rates between the 2 institutions were not significantly different for residents ($P = 0.317$) or for faculty ($P > .999$).

Participant Characteristics

There were no differences in baseline demographics between the 2 institutions (Table 1). Of participants who self-identified, 43 (45%) of resident respondents and 42 (37%) of faculty respondents were female.

Perceived Frequency of Feedback Provision and Receipt

Thirty-seven percent of faculty (44/118) reported *never* or *almost never* for providing written feedback, and 39% (46/118) reported providing written feedback half the time or more. Residents reported receiving little written feedback within evaluations, with 69% (68/98) receiving only 1 to 3 evaluations containing written feedback per month (Figure 1). Faculty ($U = 1703$, $P = 0.976$) and resident ($U = 1130.50$, $P = 0.584$) responses for written feedback did not differ between institutions.

See Supplemental Online Material, Appendix B for all descriptive statistics for resident perceived frequency, satisfaction, and likelihood of being upset with constructive feedback and faculty perceived provision and willingness to provide feedback.

Faculty at one institution reported providing more in-person feedback (median = *about 3/4ths of the time*) than did faculty at the second institution (median = *about half the time*), $U = 1060$, $P < 0.001$ (a statistically significant result after Bonferroni correction). Resident reports of receiving in-person feedback, however, did not differ between institutions, with 80% (78/98) of residents reporting that they received in-person feedback at least once weekly ($U = 955$, $P = 0.074$; Figure 1).

Satisfaction With Feedback

Resident satisfaction with in-person feedback was not significantly higher than resident satisfaction with written feedback. Fifty-one percent (50/98) reported being *somewhat satisfied* or *extremely satisfied* with in-person feedback, whereas 42% (41/98) reported being *somewhat satisfied* or *extremely satisfied* with written feedback ($Z = -1.64$, $P = .102$). See Table 2, Appendix B.

Willingness to Provide Feedback

Only 32% (38/120) of faculty were *somewhat likely* or *extremely likely* to provide written feedback as a means to tell residents what they did not do well and what work was needed to improve. Sixty-seven percent (80/120) were willing to give this feedback in person. The difference between faculty willingness to give improvement feedback in person and their willingness to give it in writing was statistically significant ($Z = -5.97$, $P < .001$; Table 2, Appendix B).

Predicted Responses to Constructive Feedback

When questioned about whether they would be upset with faculty if they received written feedback like those given in the examples, 74% (70/95) of residents responded that they would *not likely* be upset, 23% (22/95) responded *somewhat likely*, and 3% (3/95) responded *extremely likely*. If the same feedback was given in person, only 4% (4/95) of residents reported that they would be *somewhat likely* to be upset, and none responded that they would be *extremely likely* to be upset. The differences between residents' predicted responses to written and in-person feedback were statistically significantly ($Z = -5.69$, $P < .001$; Table 2, Appendix B).

Desire for Constructive Feedback

A Mann-Whitney *U* test indicated that residents were significantly more likely to want to receive constructive feedback similar to the given examples (median = 5) than the faculty members predicted (median = 4), $U = 3101$, $P < .001$. Most residents (83/95, 87%) reported that they would want to receive feedback like that in the examples provided, whereas 60% (67/112) of faculty responded that they thought residents would be *somewhat likely* or *extremely likely* to want such feedback (Figure 2).

Retaliation

Two residents (2% of the cohort) reported that they would be *somewhat likely* to retaliate (defined as lowering their evaluation of a faculty member) in response to such feedback, and none responded that they would be *extremely likely* to do so. Sixteen percent said they would be *neither likely nor unlikely*, 20% said they would be *somewhat unlikely*, and 62% said they would be *extremely unlikely* to do so.

In contrast, when asked about the barriers, 30% (34/112) of the faculty members who responded to this item indicated *fear of retaliation* as a barrier to telling residents

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what they did not do well either in person or in written form.

Qualitative Analysis

Open-ended responses from faculty regarding barriers to giving feedback are summarized in Table 3. Themes that emerged included insufficient time to provide feedback, insufficient exposure to residents, lack of confidence and skills, fear of negative resident reactions, and futility of feedback. Barriers specific to providing written feedback included fear of long-term consequences to the residents, a preference for providing in-person feedback, and inconveniences with the systems for collecting written feedback.

Additional Quantitative Analyses

Faculty characteristics and frequency and likelihood of giving feedback. We examined the relationships among faculty characteristics (age, gender, and number of years on faculty), the frequency of written or in-person feedback they provide for residents, and their likelihood of giving negative written or in-person feedback to residents by using Pearson correlations. The only significant correlations were between frequency of giving written feedback and years on faculty, $r = -0.201$, $P < .05$ (ie, more years on faculty correlated with less written feedback), and the likelihood of giving negative written feedback and years on faculty, $r = -0.210$, $P < .05$ (ie, more years on faculty correlated with lower likelihood of providing negative written feedback). The negative correlations indicate that frequency of providing written feedback and likelihood of giving written feedback are lower among those who have been on faculty longer.

Resident characteristics and perceptions and attitudes toward constructive feedback. Residents' likelihood of being satisfied with or getting upset about constructive feedback (written or in person) and whether they wanted constructive feedback did not depend on their age, gender, or post-graduate year.

Discussion

The major findings of this study are as follows: (1) More than one-third of faculty never or almost never provide feedback; (2) faculty are reluctant to give constructive feedback to residents, especially in writing; (3) residents want more constructive feedback than faculty think they do; and (4) residents are very unlikely to lower a faculty evaluation in response to being given constructive feedback. These findings support our hypothesis that residents want more constructive feedback than they get and that faculty do not think this is true.

Our findings are consistent with prior evidence that feedback across specialties—especially constructive feedback—is lacking.[4,7,8] For example, Bing-You and colleagues[20] conducted a review of the literature showing that feedback tends to be nonspecific and rarely constructive. Jensen and colleagues[15] showed that for surgical residents, there was a discrepancy between faculty perception (faculty thought they were giving sufficient feedback) and resident perception (residents disagreed). Our findings support this conclusion in anesthesiology as well.

Additionally, we found that residents want more constructive feedback than they currently receive and that faculty underestimate resident desire for such feedback. Barriers to delivering feedback were common but may be more perceived that actual. For example, some faculty were concerned that residents might retaliate if given this kind of feedback, but the vast majority of residents said they would not lower a faculty evaluation in response. This finding is consistent with prior data. In a robust quantitative analysis, Baker and colleagues[21] found that anesthesiology residents had an extremely low likelihood of lowering evaluations of attendings who gave them low scores and that this effect may be driven by contextual factors rather than retaliation. Approximately one-fourth of residents in our study, however, did express that written constructive feedback would upset them. The possibility of upsetting a resident therefore must be balanced against the importance of providing our residents with feedback for formative growth.

Interestingly, residents predicted that they would be less likely to become angry if the comments were delivered in person rather than in writing. We did not explore why this difference existed, though it may be due to concern about written comments affecting their permanent record. Indeed, our results show that some faculty were reluctant to give constructive comments for this reason. One wrote, "I don't want the resident's file to contain negative feedback which will adversely affect them in the future" (see Table 3). Consequently, addressing this misperception may increase the likelihood of faculty to provide written feedback. Additionally, results of our qualitative analysis suggest that faculty would be more willing to provide feedback if programs can find ways to make the process of giving written feedback easier and if faculty trust that likelihood of retaliation would be low. Because stated barriers do not always reflect actual barriers, prospective studies would be needed to examine whether these efforts increase provision of feedback.

Several limitations of this study should be considered. First, it was conducted in only two centers, both of which are large academic centers. Responses were statistically similar on almost all measures, suggesting that the issues uncovered are unlikely specific to one department. However, it is still possible that surveys of other institutions would produce differing results. Second, we did not account for social desirability bias (ie, the tendency of individuals to respond in a way they think will please investigators). The fact that collected information was completely anonymous, however, should help reduce this impact. Additionally, residents responded differently to questions about written and in-person feedback, which would suggest social desirability bias was less likely to be present. Third, residents may be inaccurate in their predictions of how they would react to constructive feedback. We provided specific, realistic examples of feedback in the survey instead of simply asking how they would react to constructive feedback in general to help mitigate this issue. Fourth, the response rates leave room for the possibility that those who responded may have differed in some ways from those who did not, and we did not conduct focus group interviews to gain further insight into the responses.

Finally, while we attempted to mirror the resident and faculty surveys to allow for comparisons, the faculty survey did not have the same response options for the items about the frequency of feedback due

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to differences in work schedules and did not have the same number of items regarding reaction to feedback.

Conclusion

Constructive feedback is an essential part of the learning process, but current provision of feedback appears to be suboptimal. A variety of barriers prevent residents from receiving high-quality constructive feedback. Our findings, as well as prior studies, suggest that residents want more constructive feedback than they receive and that they are unlikely to retaliate against faculty who give it. In future studies, researchers should evaluate the effectiveness of interventions that address barriers to feedback and measure changes in provision and quality of feedback, resident satisfaction with feedback, and downstream effects such as behavior.

Acknowledgments: None

Funding: None

Disclosure Statement: The authors have no conflicts of interest.

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Financial Support: None

Conflicts of interest: None

Abstract

Background: Constructive feedback from faculty to trainees is essential to promoting trainees' learning yet is rarely provided. Resident physicians want more feedback than they receive but it is unclear whether faculty know this. We explored faculty and resident impressions of constructive feedback and the barriers to giving more. We hypothesized that residents want more constructive feedback; however, faculty believe that residents do not want constructive feedback and would retaliate against faculty who give it.

Methods: Between January and March 2019, we performed a cross-sectional survey study of anesthesiology residents and teaching faculty at two large academic centers. All residents and faculty were eligible to participate. The survey assessed satisfaction with written and in-person feedback and predicted responses to specific examples, in addition to perceived barriers.

Results: The survey was distributed to 156 residents and 260 faculty across the two institutions: 116 residents (74% response rate) and 127 faculty (49% response rate) responded. Eighty-eight percent of residents would want to receive feedback similar to the examples, whereas only 60% of faculty responded that they thought residents would want feedback. Ninety-eight percent of residents said they would not retaliate. Barriers to providing feedback included time constraints, insufficient confidence/training, fear of retaliation, and feelings of futility.

Conclusions: Residents were significantly more likely to want to receive constructive feedback than the faculty members had predicted. Further, residents are unlikely to retaliate against faculty who provide feedback. Addressing barriers may help increase the amount of constructive feedback that faculty provide and resident satisfaction with feedback received.

Keywords: Feedback, residency education, medical education, barriers to feedback

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Figures

Table 1. *Demographics*

Characteristic	Hospital 1	Hospital 2	*P*
Residents			
Gender, n (%)			.36[a]
Female	25 (40)	18 (33)	
Male	29 (47)	23 (43)	
Unknown	8 (13)	13 (24)	
Age, mean (SD), y	31.2 (2.32)	30.3 (2.35)	.08[b]
Postgraduate year (PGY[c]), n (%)			.92[a]
PGY2	21 (34)	17 (31)	
PGY3	17 (27)	16 (30)	
PGY4	18 (29)	14 (26)	
Unknown	6 (10)	7 (13)	
Faculty			
Gender, n (%)			.198
Female	28 (38)	14 (26)	
Male	37 (51)	36 (67)	
Unknown	8 (11)	4 (7)	
Age, n (%), y			.909
30-39	27 (40)	18 (38)	
40- 49	19 (28)	11 (23.5)	
50-59	14 (20)	11 (23.5)	
> 60	8 (12)	7 (15)	
Number of years on faculty, n (%)			.326
<2	16 (22)	16 (30)	
2-5	17 (24)	5 (9)	
6-10	14 (20)	10 (19)	
11-15	10 (14)	7 (13)	
1620	5 (7)	5 (9)	
>20	9 (13)	11 (20)	

[a] *P* value based on the Pearson chi-square test or Fisher exact test where appropriate.

[b] *P* value based on independent samples *t* test comparing two programs.

[c] PGY = Postgraduate year; PGY2 is used in place of clinical anesthesiology year 1 (CA1), PGY3 = CA2; PGY4 = CA3.

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Table 2. *Resident Satisfaction and Likelihood of Being Upset With Constructive Feedback and Faculty Willingness to Provide Feedback*

Parameter	Responses					*P* value
Resident satisfaction with feedback	Extremely dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Extremely satisfied	
In-person	5 (5)	26 (27)	17 (17)	39 (40)	11 (11)	.102
Written	8 (8)	29 (30)	20 (20%)	32 (33)	9 (9%)	
Resident likelihood of being upset with feedback	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely	
In-person	58 (61)	22 (23)	11 (12)	4 (4)	0 (0)	<.001
Written	31 (33)	22 (23)	17 (18)	22 (23)	3 (3)	
Faculty willingness to provide feedback	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely	
In-person	13 (11)	11 (9)	16 (13)	47 (40)	32 (27)	<.001
Written	36 (30)	27 (23)	18 (15)	30 (25)	8 (7)	

Note. All response distributions are presented as frequency (%).

P values are based on Wilcoxon signed-rank test.

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Table 3. *Themes from Open-Ended Descriptions of Faculty Barriers to Providing Feedback*

Theme	Description	Illustrative Comments from Faculty
Barriers to feedback in general		
Insufficient time	• Faculty do not always have enough time to provide feedback.	• "I feel that both of us might need time to process and not speak out of fatigue/emotions, esp after a long day. Sometimes, we just need some time to think."
Insufficient exposure	• Relationships, which are not always present, are necessary to provide impactful feedback.	• "Establishing a strong working rapport (meaning working together multiple times) prior to giving substantive positive OR negative feedback seems reasonable, if not necessary, in order for someone to accept performance feedback."
Confidence and skills	• Faculty fear making incorrect assumptions. • Faculty struggle to form useful feedback.	• "I am willing to doubt myself before feeling confident enough [to give constructive feedback]." • "Sometimes it just feels like I don't know where to begin, or it's hard to be constructive with significantly below-average performance."
Fear of negative reactions / retaliation	• Faculty fear negative consequences (reactions, retaliation) from residents.	• "Retaliation would be reasons 1-10." • "Fear of violating numerous rules regarding well-being and resident satisfaction make it difficult to provide any critical feedback."
Futility	• Faculty feel that feedback will not result in positive behavior change.	• "It's hard for me as a faculty member to justify taking the time to provide feedback if I perceive that the residents are lazy, don't want to work, and don't seem to care about improving." • "Giving feedback feels repetitive and [at] times meaningless when doing routine cases when learning and/or teaching opportunities are limited."
Barriers to written feedback		
Consequences of written feedback	• Faculty perceive that written feedback can harm a resident's career.	• "…damage the career/ego/psychology of a trainee with a permanent written record of some fault." • "I don't want the resident's file to contain negative feedback which will adversely affect them in the future."
In-person is better	• Faculty believe that in-person feedback is better for growth.	• "I greatly prefer an in-person conversation when I can explore their thinking and adjust my conversational goals."
Inconveniences with systems	• Faculty forget to complete forms. • Faculty find the forms/system cumbersome. • Because of the delay between encounter and evaluation, faculty don't always remember important feedback.	• "Forget to provide written feedback via [the feedback system] until the resident sends me a link." • "[System] is not well designed to facilitate effective resident evaluation. I perceive it as a royal pain to evaluate a resident, and that contributes to my reluctance to do so." • "There is often a delay between when you receive the [system] request and when you actually worked with the resident, so you are less likely to remember helpful details."

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Figures *continued*

Figure 1. *Perceived frequency of feedback. (a) Resident responses to how frequently they receive in-person (measured on a 4-point scale: less than once a week, about once a week, every two to three days, every day) and written feedback (measured on a 5-point scale as a number of written evaluations with feedback during a month-long OR rotation: 0, 1-3, 4-6, 7-10, >10), and (b) Faculty responses for how frequently they provide in-person and written feedback (measured on a 6-point scale: never, almost never, about 25% of the time, about half the time, about 3/4ths of the time, 100% of the time). Both groups, and especially faculty (Z = –5.97, P < .001), perceived more in-person feedback.*

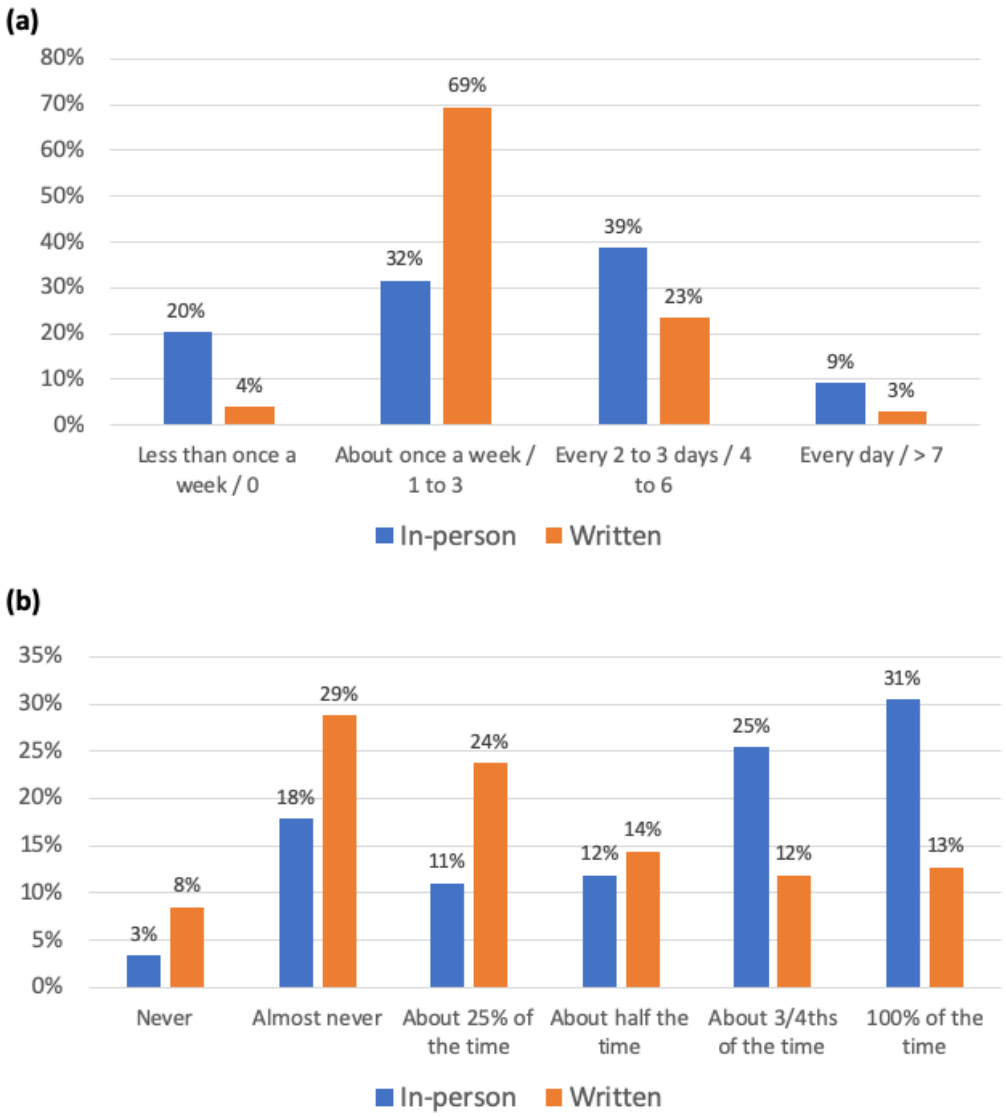

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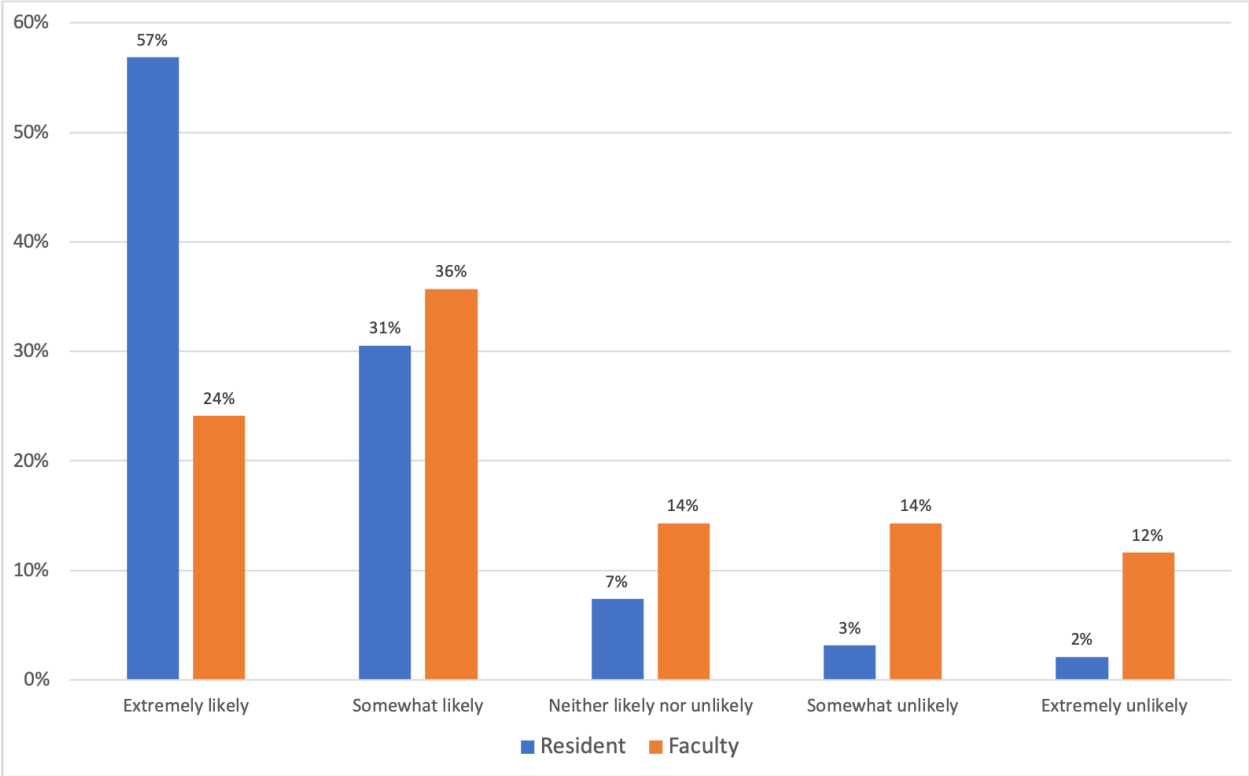
Figure 2. *Comparison of resident desire for constructive feedback and faculty predictions of resident desire for constructive feedback. Residents were asked how likely they would want constructive feedback, and faculty were asked how likely residents would be to want constructive feedback after reading four specific examples.*



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Appendix A

Supplemental Online Material

Appendix A – Surveys

Constructive Feedback Survey – Faculty

Intro

Q1 Dear Participant,

You are invited to participate in this survey to help us identify barriers to faculty providing constructive criticism to residents. Our goal is to overcome those barriers to increase the quantity and quality of constructive feedback that residents receive.

Your participation in this survey is voluntary. You may choose not to participate. If you decide to participate in this survey, you may withdraw at any time. If you decide not to participate in this study, or if you withdraw from participating at any time, you will not be penalized.

Below is a link (blue arrow) to the online survey. This survey is completely anonymous. Responses will be reported in an aggregated format. The survey is brief and you should be able to complete it within 5 minutes. We really appreciate your willingness to participate and value your feedback.

Your completion of this survey will serve as your consent to be in this research study.

Thank you,

Q2 Your faculty rank is:

- ○ Clinical associate
- ○ Instructor
- ○ Assistant professor
- ○ Associate professor
- ○ Professor

Q3 Your number of years on faculty is:

▼ 1 ... >25

Q4 Your gender is:

- ○ Male
- ○ Female
- ○ Prefer to self-describe _____

_____

- ○ Prefer not to say

Q5 Your age is:

▼ <30 ... >60

Q6 Your division is:

▼ Adult Anesthesia ... >Regional & Acute Pain Management

Q7 When you work with a resident in the OR for a day, how often do you give WRITTEN feedback?

- ○ Never
- ○ Almost never
- ○ About 25% of the time
- ○ About half the time
- ○ About 3/4ths of the time
- ○ 100% of the time

Q8 When you work with a resident in the OR for a day, how often do you give IN PERSON feedback?

- ○ Never
- ○ Almost never
- ○ About 25% of the time
- ○ About half the time
- ○ About 3/4ths of the time
- ○ 100% of the time

Q9 How likely are you to give WRITTEN feedback telling a resident what they did not do well and what they need to work to improve?

- ○ Extremely unlikely
- ○ Somewhat unlikely
- ○ Neither likely nor unlikely
- ○ Somewhat likely
- ○ Extremely likely

Q10 How likely are you to give IN PERSON feedback telling a resident what they did not do well and what they need to work to improve?

- ○ Extremely unlikely
- ○ Somewhat unlikely
- ○ Neither likely nor unlikely
- ○ Somewhat likely
- ○ Extremely likely

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Appendix A *continued*

Q11 Which of the following are barriers to you in telling residents what they did not do well either in person or in written form? Please select all that apply.

- ○ Fear of retaliation
- ○ Fear of hurting the resident's feelings
- ○ I do not think residents want to hear it
- ○ No time to do it
- ○ I do not feel skilled at giving constructive feedback
- ○ I do not understand the evaluation system [New Innovations, Milestones, etc.]
- ○ Other (please specify) _____

Q12 Please read the four examples below and indicate how likely you think residents are to want to receive this kind of constructive feedback.

– John, I noticed that your OR was a bit disorganized, and this led to some confusion about which IVs were being used for drips. I am concerned that this could increase the risk of an inadvertent medication error. In the future, try coming a bit earlier so you have time to fully set up and organize your lines and drips. I think you'll find it will make the rest of the case smoother.

– Susan, I know it must have been frustrating to not be able to get the A-line and peripheral IV in today. I noticed that you were approaching them at a steep angle and I think you may be through and through before you notice the flash. I would suggest lowering your angle to about 30 degrees and advancing a bit more slowly. I think you'll find you'll have greater success with this approach.

– John, I noticed that you didn't see the patient in preop until around 7:15 this morning and didn't completely fill out the preop assessment before the case started. I know things can get busy and there is lots to do to prepare for the case. However, as you know, the hospital really wants us to see the patient by 7 am to facilitate cases starting on time. I would suggest that you try to arrive earlier so that you can make sure to set up and still be able to get to your patient on time. This will also give you time to fill out the preop form.

– Susan, I noticed, when I walked into the OR to give you a morning break that the patient's blood pressure was fairly low, with a MAP in the 50s. I know it is easy to get distracted by all the charting that has to happen at the beginning of a case, but don't let that draw you away from your monitoring of the patient. Time spent with a MAP that low can be harmful, so I encourage you to treat early and, if you find yourself re-treating frequently, let me know so that we can think about what might be going on.

- ○ Extremely likely
- ○ Somewhat likely
- ○ Neither likely nor unlikely
- ○ Somewhat unlikely
- ○ Extremely unlikely

Constructive Feedback Survey – Resident

Intro

Q1 Dear Participant,

You are invited to participate in this survey to help us identify barriers to faculty providing constructive criticism to residents. Our goal is to overcome those barriers to increase the quantity and quality of constructive feedback that residents receive.

Your participation in this survey is voluntary. You may choose not to participate. If you decide to participate in this survey, you may withdraw at any time. If you decide not to participate in this study, or if you withdraw from participating at any time, you will not be penalized.

Below is a link (blue arrow) to the online survey. This survey is completely anonymous. Responses will be reported in an aggregated format. The survey is brief and you should be able to complete it within 5 minutes. We really appreciate your willingness to participate and value your feedback.

Your completion of this survey will serve as your consent to be in this research study.

Thank you,

Q2 Your year in training is:

- ○ CA1
- ○ CA2
- ○ CA3

Q3 Your planned specialty is:

- ○ Cardiac
- ○ Chronic pain
- ○ ICU
- ○ Liver
- ○ Neuro
- ○ OB
- ○ Pediatrics
- ○ Private Practice
- ○ Regional
- ○ Other _____

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Appendix A *continued*

Q4 Your gender is:

- ○ Male
- ○ Female
- ○ Prefer to self-describe _____
- ○ Prefer not to say

Q5 Your age is:

▼ 21 ... >45

Q6 How satisfied are you with the WRITTEN feedback you receive from faculty with whom you work?

- ○ Extremely dissatisfied
- ○ Somewhat dissatisfied
- ○ Neither satisfied nor dissatisfied
- ○ Somewhat satisfied
- ○ Extremely satisfied

Q7 How satisfied are you with the IN PERSON feedback you receive from the faculty with whom you work?

- ○ Extremely dissatisfied
- ○ Somewhat dissatisfied
- ○ Neither satisfied nor dissatisfied
- ○ Somewhat satisfied
- ○ Extremely satisfied

Q8 On average, during a month-long OR rotation, how many WRITTEN evaluations with feedback do you receive?

- o 0
- ○ 1 to 3
- ○ 4 to 6
- ○ 7 to 10
- ○ >10

Q9 On average, during a month-long OR rotation, how frequently do you receive IN PERSON feedback?

- ○ Less than once a week
- ○ About once a week
- ○ Every 2 to 3 days
- ○ Every day

Q10 Please consider the following set of constructive feedback examples as you answer next four questions:

– John, I noticed that your OR was a bit disorganized and this led to some confusion about which IVs were being used for drips. I am concerned that this could increase the risk of an inadvertent medication error. In the future, try coming a bit earlier so you have time to fully set up and organize your lines and drips. I think you'll find it will make the rest of the case smoother.

– Susan, I know it must have been frustrating to not be able to get the A-line and peripheral IV in today. I noticed that you were approaching them at a steep angle and I think you may be through and through before you notice the flash. I would suggest lowering your angle to about 30 degrees and advancing a bit more slowly. I think you'll find you'll have greater success with this approach.

– John, I noticed that you didn't see the patient in preop until around 7:15 this morning and didn't completely fill out the preop assessment before the case started. I know things can get busy and there is lots to do to prepare for the case. However, as you know, the hospital really wants us to see the patient by 7 am to facilitate cases starting on time. I would suggest that you try to arrive earlier so that you can make sure to set up and still be able to get to your patient on time. This will also give you time to fill out the preop form.

– Susan, I noticed, when I walked into the OR to give you a morning break, that the patient's blood pressure was fairly low, with a MAP in the 50s. I know it is easy to get distracted by all the charting that has to happen at the beginning of a case, but don't let that draw you away from your monitoring of the patient. Time spent with a MAP that low can be harmful, so I encourage you to treat early and, if you find yourself re-treating frequently, let me know so that we can think about what might be going on.

Q11 How likely are you to be upset with a faculty member who gives you constructive feedback (like the examples above) on a WRITTEN evaluation?

- ○ **Extremely likely**
- ○ **Somewhat likely**
- ○ **Neither likely nor unlikely**
- ○ **Somewhat unlikely**
- ○ **Extremely unlikely**

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Appendix A *continued*

Q12 How likely are you to be upset with a faculty member who gives you constructive feedback (like the examples above) IN PERSON feedback?

- ○ Extremely likely
- ○ Somewhat likely
- ○ Neither likely nor unlikely
- ○ Somewhat unlikely
- ○ Extremely unlikely

Q13 How likely are you to lower your evaluation of a faculty member due to them giving you constructive feedback (like the examples above)?

- ○ Extremely likely
- ○ Somewhat likely
- ○ Neither likely nor unlikely
- ○ Somewhat unlikely
- ○ Extremely unlikely

Q14 How likely are you to want to receive constructive feedback like the given examples?

- ○ Extremely likely
- ○ Somewhat likely
- ○ Neither likely nor unlikely
- ○ Somewhat unlikely
- ○ Extremely unlikely

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Appendix B

Appendix B – Descriptive Statistics Table

Descriptive statistics for resident perceived frequency, satisfaction, and likelihood of being upset with constructive feedback and faculty perceived provision and willingness to provide feedback.

Item	Mean (SD)	95% CI		Median	Min	Max	Interquartile Range
		Lower	Upper				
How satisfied are you with the WRITTEN feedback you receive from faculty with whom you work?[a]	3.01 (1.14)	2.78	3.24	3	1	5	2
How satisfied are you with the IN PERSON feedback you receive from the faculty with whom you work?[a]	3.23 (1.13)	3	3.46	3	1	5	2
On average, during a month-long OR rotation, how many WRITTEN evaluations with feedback do you receive?[b]	2.24 (0.61)	2.12	2.37	2	1	5	0
On average, during a month-long OR rotation, how frequently do you receive IN PERSON feedback?[c]	2.37 (0.92)	2.18	2.56	2	1	4	1
How likely are you to be upset with a faculty member who gives you constructive feedback (like the examples above) on a WRITTEN evaluation?[a]	3.59 (1.25)	3.33	3.84	4	1	5	3
How likely are you to be upset with a faculty member who gives you constructive feedback (like the examples above) IN PERSON feedback?[a]	4.41 (0.86)	4.24	4.59	5	2	5	1
How likely are you to lower your evaluation of a faculty member due to them giving you constructive feedback (like the examples above)?[a]	4.42 (0.83)	4.25	4.59	5	2	5	1
How likely are you to want to receive constructive feedback like the given examples?[a]	4.37 (0.91)	4.18	4.55	5	1	5	1
FACULTY							
When you work with a resident in the OR or ICU for a day, how often do you give WRITTEN feedback?[d]	3.31 (1.52)	3.03	3.58	3	1	6	2
When you work with a resident in the OR or ICU for a day, how often do you give IN PERSON feedback?[d]	4.64 (1.22)	4.41	4.86	5	1	6	2
How likely are you to give WRITTEN feedback telling a resident what they did not do well and what they need to work to improve?[a]	2.55 (1.33)	2.31	2.8	2	1	5	3
How likely are you to give IN PERSON feedback telling a resident what they did not do well and what they need to work to improve?[a]	3.62 (1.28)	3.39	3.85	4	1	5	2

[a] 5-point Likert-type scales with anchors from *extremely likely* [or *satisfied*] to *extremely unlikely* [or *unsatisfied*].

[b] Resident responses to how frequently they receive written feedback were measured on a 5-point scale as a number of written evaluations with feedback during a month-long OR rotation: *0*, *1-3*, *4-6*, *7-10*, *>10*).

[c] Resident responses to how frequently they receive in-person feedback were measured on a 4-point scale: *less than once a week*, *about once a week*, *every two to three days*, *every day*.

[d] Faculty responses for how frequently they provide in-person and written feedback were measured on a 6-point scale: *never*, *almost never*, *about 25% of the time*, *about half the time*, *about 3/4ths of the time*, *100% of the time*.