

1 Integrating Self-Assessment into Feedback for Emergency Medicine Residents

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14 **ABSTRACT**

15 **Background:** In 2013 the Accreditation Council for Graduate Medical Education (ACGME)
16 introduced "Milestones" designed to nationally standardize the assessment of resident
17 physicians. Previous studies compare resident self-assessment on milestones to faculty
18 assessment, with varying degrees of agreement, but integration of self-assessment into the
19 formative feedback process has not yet been directly studied. This study uses a conceptual
20 framework of self-determination theory, integrated with concepts from adult learning theory, to
21 compare the perception of the feedback quality given in semiannual reviews before and after the
22 incorporation of resident self-assessment into the feedback process.

23 **Methods:** This was an interventional study conducted in a single Emergency Medicine residency
24 program at a major academic hospital over one calendar year. Residents first engaged in a
25 semiannual review without self-assessment. At subsequent semiannual reviews, residents
26 completed a Milestone-based self-assessment which was provided to the faculty member
27 assigned to conduct their semiannual review. Residents and faculty completed surveys rating
28 perception of feedback quality. Two-sided Wilcoxon signed-rank tests were used in comparison
29 analysis.

30 **Results:** One resident did not self-assess prior to the semiannual review and was excluded
31 leaving 25 paired surveys for analysis. Residents found feedback after the self-assessment more
32 actionable ($p = .013$), insightful ($p = .010$), and better overall ($p = .025$). Similarly, faculty felt
33 the feedback they provided was more actionable ($p < .001$), more insightful ($p < .001$), better
34 communicated ($p < .001$), led to improved resident understanding of milestones ($p < .001$), and
35 were overall more satisfied ($p < .001$). Freertext comments explore pre- and post-intervention
36 perceptions of feedback.

37 **Conclusions:** Integration of self-assessment into semiannual reviews improves perception of
38 feedback given to residents as perceived by both residents and faculty. Although limited by
39 sample size, the results are promising for a simple, evidence-based intervention to improve
40 feedback during an existing mandated feedback opportunity.

41

42 INTRODUCTION

43 Background

44 In order to appropriately delegate responsibility for the standardized evaluation of the
45 approximately 145,000 residents and fellows in the United States to the approximately 12,000
46 training programs involved in their training,¹ the Accreditation Council for Graduate Medical
47 Education (ACGME) instituted the Milestones project to standardize trainee assessment in 2013.
48 “Milestones” specific to each specialty are descriptions of clinical competencies which trainees
49 are expected to develop, broken down into five “levels” which describe progressively more
50 advanced and consistent desirable behaviors. Assessment of each resident using Milestones
51 entails assignment of a “level” for each Milestone based on the resident’s observed behaviors.
52 Iterative assessments are used to display trainee progression towards readiness for graduation
53 and independent (unsupervised) medical practice.^{2,3} The ACGME requires a formal semi-annual
54 assessment of each resident by a Clinical Competency Committee (CCC), after which the
55 committee’s milestone assessment must be shared with the resident by the program director or
56 their designee in order to provide formative and summative feedback to the resident based on the
57 review.⁴

58 Importance

59 Giving trainees high-quality feedback is fraught with barriers. We know that residents
60 want more feedback than they receive,⁵ or perhaps more than they recognize that they receive;⁶
61 however, simply increasing the number of individual written assessments by faculty does not
62 correlate with higher rates of feedback satisfaction among residents although it does increase
63 faculty assessor workload.⁷ What residents and faculty members expect and desire out of
64 feedback may be incongruent and contribute to frustration with feedback that is provided.⁸ Fear
65 of being judged, and the perception of feedback as a potentially negative event, can make the
66 prospect of receiving feedback stressful;^{6,9} faculty members may dread giving negative feedback
67 due to fear of retaliation even with anonymous mechanisms.^{10,11}

68 In his landmark paper on feedback in clinical education, Ende advises that teacher and
69 trainee should be working as allies, with common goals; that feedback should be well-timed and
70 expected; and that feedback should deal with decisions and actions rather than assumed

71 intentions or interpretations.¹² Self-assessment should help to bridge the gap between
72 assumptions and reality; historically, however, the self-assessment of medical trainees and
73 physicians of various specialties and levels of practice has been shown to correlate poorly with
74 objective or third-party assessment.¹³⁻¹⁶ When used as a learning tool in feedback rather than an
75 assessment or evaluation measure, self-assessment is an effective and essential component of
76 learning.¹⁷⁻¹⁹

77 The advent of semiannual Milestone assessment provides a structured, scheduled
78 opportunity for both summative and formative feedback to residents. The seminal work by
79 Knowles on andragogy and adult learning theory suggests that trainees would benefit from
80 involving themselves actively in their own educational process, understanding the “why and
81 how” of their training and assessments, and engaging in their own direction and planning.²⁰ In a
82 study based on self-determination theory, residents engaged in monthly, structured self-
83 assessment followed by feedback from a faculty member; these residents particularly valued the
84 ability to compare and contrast perspectives of their own performance with the faculty
85 perspective.²¹ Both systems highlight the adult learner’s need for autonomy and engagement in
86 their own education.

87 **Goals**

88 Using a conceptual framework integrating self-determination theory with andragogy, we
89 hypothesized that the addition of self-assessment to the feedback process would result in better
90 feedback as perceived both by recipients (in this case, residents of an emergency medicine
91 program) and feedback providers (faculty members in residency program leadership). Self-
92 determination theory would posit that the development and augmentation of intrinsic motivation
93 of a learner is associated with three basic needs: for autonomy, for competence, and for
94 relatedness to others.^{22,23} The use of self-assessment has already been shown to facilitate both
95 formation and retention of personal learning goals, separate from and in addition to feedback
96 from faculty,²⁴ suggesting augmentation of autonomy. Providing self-assessments to a feedback
97 giver facilitates comparisons between self-perception and third-party assessment by others,
98 allowing for more insightful discussion and increasing a sense of relatedness to the feedback
99 giver. Finally, the shared use of standardized, validated Milestone standards for assessment
100 between learner and assessor makes explicit the criteria by which the learner is judged, and what

101 both the current and next levels of competency look like. This shared understanding allows for
102 the learner to determine their own next steps, with faculty guidance and support, in pursuit of
103 parallel goals for competency development.

104 With this in mind, we identified aspects of feedback that residents and faculty highlighted
105 as important in our own residency and examined feedback literature in medical education in
106 general. Discussion amongst authors identified the most valued characteristics of feedback as
107 actionability (generation of specific actions to take to target improvement), insightfulness
108 (feedback which was targeted to the specific individual or situation discussed), quality of
109 communication, and a shared understanding of the assessment criteria (in this case, the ACGME
110 Milestones).^{11,12} In addition to these specific aspects of feedback quality, we also felt it was
111 important to examine an overall perception of feedback quality. Our hypothesis was that by
112 having residents perform self-assessment on the same criteria that they were assessed on by the
113 CCC, perception of semiannual review feedback quality would increase overall and in one or
114 more of the specifically-valued characteristics of feedback: actionability, insightfulness, quality
115 of communication, and shared understanding of the Milestone assessment criteria.

116 **METHODS**

117 This was an experimental study conducted in a single Emergency Medicine residency
118 within a large tertiary care academic hospital in the Midwest over one calendar year. Using the
119 institution's IRB wizard, this study was determined to be exempt from IRB review as it did not
120 entail human subjects research. Prior to the initial CCC meeting during the study period,
121 residents were not required to complete a formal self-assessment exercise, and program
122 leadership faculty were assigned and conducted semiannual reviews for each individual resident
123 per standard practice. After this (pre-intervention) semiannual review feedback session, each
124 resident and faculty member filled out a survey rating their perception of feedback quality on
125 five areas previously determined to be important to residents and faculty members (Appendix A).
126 As no validated instrument could be found which addressed these desired aspects of feedback,
127 the survey tool was developed specifically for the purposes of this study. It was piloted during
128 the semiannual review session just prior to the study period (summer 2019) and wording was
129 adjusted for clarity in response to resident feedback. Using Google Forms, the survey collected

130 the participant's email, date of the feedback session, date of survey completion, and the resident
131 or faculty member that the participant had their session with. The content of the survey consisted
132 of a series of statements, framed in the positive, pertaining to the quality of the various
133 characteristics of feedback (e.g. "The feedback I received/gave was actionable"). Participants
134 selected their level of agreement with the statement from the options of "Strongly Disagree"
135 (assigned a score of 1), "Disagree" (score of 2), "Agree" (score of 3), or "Strongly Agree" (score
136 of 4). At the end, there was a freetext box with the prompt "What would improve the value of
137 your next feedback session?". Responses to this prompt, which appeared on both resident and
138 faculty versions of the form, were anonymized and themes identified by author consensus for
139 discussion.

140 Upon subsequent CCC meetings, residents completed a structured self-assessment
141 exercise based on the ACGME Emergency Medicine Milestones, and survey responses were
142 provided to the program leadership faculty member assigned to conduct each resident's
143 semiannual review. After this (post-intervention) semiannual review feedback session, residents
144 and faculty members again filled out the same survey to assess perception of feedback quality.
145 Feedback surveys are summarized by the average across all responses for each item and divided
146 into responses by residents and responses by faculty, respectively. Responses are divided into
147 those received before the initiation of Milestone-based self-assessment and those after the self-
148 assessment. Pre- and post-assessment responses of the respective groups are compared using
149 two-sided Wilcoxon signed-rank tests. Statistical significance was considered at p values of
150 ≤ 0.05 .

151 Freetext responses on the feedback forms by residents and faculty were de-identified and
152 read by the authors, with relevant themes and comments identified by consensus for inclusion in
153 a descriptive capacity.

154 **RESULTS**

155 A total of 26 residents completed the resident feedback surveys after meeting with
156 program leadership faculty. One resident did not complete the ACGME milestone self-
157 assessment before the second feedback session and is excluded from analysis. This leaves 25
158 participants in the study cohort. Table 1 and Figure 1 show feedback scores before and after

159 completing the milestone self-assessments. Residents felt that the feedback provided after the
160 self-assessment was more actionable ($p = .013$), more insightful ($p = .010$), and better overall (p
161 $= .025$). There was no perceived change in faculty ability to communicate feedback ($p = .58$) or
162 understanding of the ACGME milestones ($p = .16$).

163 Figure 1: Resident Perceived Feedback Quality Improves After Self-Assessment

164 A total of 26 surveys were completed by 3 program leadership faculty (the program
165 director and two assistant program directors) who conducted all semiannual reviews. Faculty
166 surveys for the resident who did not complete the ACGME milestone self-assessment before the
167 second feedback session are excluded. This leaves 25 surveys used in the feedback survey
168 analysis. Faculty felt their feedback was more actionable, more insightful, better communicated,
169 led to improved resident understanding of the ACGME milestones, and were overall more
170 satisfied with their feedback ($p < .001$, all metrics). Figure 2 provides a summary of faculty
171 surveys before and after the resident self-assessment implementation.

172 Figure 2: Faculty Perceived Feedback Quality Improves After Self-Assessment

173 Faculty members indicated feeling a greater improvement in feedback than did residents,
174 shown in Table 1. Faculty reported a larger improvement in the actionability of feedback
175 compared to residents ($p = .008$), larger improvement in the insightfulness of feedback ($p =$
176 $.031$), more improved communication ($p = .003$), greater increase in the resident's understanding
177 of ACGME milestones ($p = .003$), and better overall improvement in feedback ($p = .001$).
178 Faculty rated their feedback generally lower in the pre-assessment survey for these items than
179 did residents; there was no difference in post-assessment surveys between faculty and residents
180 (actionability: $p = .687$; insight: $p = .887$; communication: $p = .332$; understanding: $p = .425$;
181 overall: $p = .792$).

182 Table 1: Resident and Faculty Semiannual Review Feedback Scores

183 **Qualitative Results**

184 Survey freetext responses were reviewed and discussed for inclusion by the authors on a
185 consensus basis. In resident pre-intervention surveys there were two comments indicating an
186 expectation that pre-meeting self-reflection would “be a guided exercise to help identify specific

187 and actionable areas for growth rather than just general feelings of how things are going” and
188 that “having the self-reflection prior to this session ... will be beneficial for providing context
189 and applicability to the meeting.” The words “action” or “actionable” appeared in 7 of 26
190 comments while describing desirable feedback; another common suggestion was to make “a
191 summary list of things to work on specifically” or “actually writing out a list of goals/things to
192 focus on” with “specific” or “supporting” examples mentioned in five comments. One comment
193 suggested “further discussion on my next steps would be great,” which authors felt was in
194 keeping with the above themes. “I would like my feedback session to have several action items
195 to focus on over the next 6 months that are jointly agreed upon and which can be followed up at
196 the next progress meeting,” one resident summarized, with another suggesting a “summary list of
197 things to work on specifically to be reevaluated at the next session”. Two comments indicated a
198 desire to “have [the semiannual review] closer to the CCC date” or noted concern that
199 evaluations or data presented were out of date.

200 Post-intervention resident survey freetext responses included only one call for feedback
201 that was “actionable” or included “action items” (down from seven at pre-intervention). One
202 resident noted that “the faculty member that I had my review with asked me to specific identify
203 goals that I had prior to my next semi-annual review”, but that “It would have been more helpful
204 [for] the faculty member to also contribute to these goals by giving a specific, actionable goal to
205 work on between now and then. A goal that could be broken down into incremental steps to help
206 give me specific areas to focus my attention as I continue to progress during the final year of
207 residency”. Two residents suggested setting goals or specific action items to be reviewed at the
208 next session. One response noted “we met in August for a feedback period that ended in May and
209 so I felt like the feedback was a little late and quite a bit had happened/changed in the interim”
210 and another indicated desire for “updated input from faculty ... the review portion was very
211 similar if not the same as the summary I received with my first feedback session.” Two residents
212 specifically identified the self-assessment in their feedback as being helpful, indicating that it
213 “led to improved and focused discussion” and that they enjoyed filling out the self-evaluation
214 form prior to the session. One resident did not find the self-assessment helpful and preferred to
215 spend their time discussing the CCC assessment only instead; one resident indicated that an “in
216 person informational session prior to self-evaluation” would have been useful as they did not
217 understand the self-assessment prior to their semiannual review, when the faculty explained.

218 Pre-intervention, faculty freetext responses suggested that giving feedback to two groups
219 of residents was particularly difficult. Faculty noted “Very few actionable items to share with the
220 intern based on limited data” and suggested that “self reflection early in the training would be
221 very helpful to guide the discussion.” Five out of a total of nine surveys regarding intern
222 interactions identified challenges with giving feedback to this group and specifically suggested
223 self-assessment as a potentially helpful adjunct. The other group in which faculty commonly
224 encountered challenges was in giving feedback to “high performing” or “excelling” residents
225 (eight), with comments including “... often very few actionable areas for opportunity provided
226 by the CCC... [i]t is therefore incredibly valuable to know how the resident sees themselves and
227 where they feel their areas for growth exist ... would have really benefitted from an opportunity
228 to do this in advance as there seemed to be little insight during the actual feedback session” and
229 “Very little in the session that was truly ‘next steps’ for growth since he is performing so well
230 already”. Further comments noted “... another example of having to try and manufacture
231 actionable opportunities for improvement for a very high functioning resident” and for one
232 resident identified as particularly strong, “... having him self reflect ahead of time for where he
233 sees his areas for improvement would have really helped in providing actionable information
234 during the session.” Three other comments indicated desire for having improved understanding
235 of the resident’s perception of their own strengths and opportunities, or better understanding of a
236 resident’s “mindset”. One comment mentioned desire for “More discrete written feedback
237 regarding strengths and weaknesses”.

238 Post-intervention, the vast majority of faculty freetext comments centered on the addition
239 of the self-evaluation to the feedback process (self-evaluation mentioned in 13 of 17 freetext
240 responses), with notes that the addition was positive and led to better discussion or richer
241 learning opportunities in eight surveys. In the case of the resident who did not self-assess prior to
242 the feedback session, the faculty comment noted “... since this was at the end of training,
243 rescheduling was not an option. The lack of the self reflection limited my ability to provide some
244 of the meaningful feedback regarding performance and next steps that would have been available
245 had the exercise been completed. There still was plenty to talk about, but it could have been
246 better.” There were four feedback sessions in which self-assessment was not noted to be helpful;
247 in three, the faculty member noted that the self-assessment contained only sparse comments or
248 seemed to reflect little effort put in by the resident, and in the fourth, the resident was noted to

249 already be proficient and engaged in self-reflection on a regular basis: “This resident is a highly
250 functioning trainee and ... the value of the self-evaluation was in familiarizing them with the
251 milestone criteria – especially in the higher areas.” The comment went on to describe the
252 potential for benefit of the self-assessment to provide “... valuable information to the residency
253 on how to best help the highly functioning resident to continue to grow and develop.”

254 **DISCUSSION**

255 Autonomy is a mainstay not only of self-determination theory, but also Knowles’ core
256 principles of andragogy. Andragogy places most emphasis on the adult learner’s need to know
257 the “what, why, and how” of what they are to learn, and emphasizes the orientation of the learner
258 to the material at hand. In basic terms, adult learners must have an understanding of how the
259 learning activity and material to be learned integrate with their own current needs, goals, and
260 values, and with their prior experiences.²⁰ Despite being regularly assessed on their specialty-
261 specific Milestones, residents may not be familiar with them. A self-directed, autonomous person
262 benefits little if at all from feedback based on assessment criteria which demonstrate no
263 alignment with that person’s own self-concept, prior experiences, values and goals. By self-
264 assessing, residents are required to familiarize themselves with official assessment criteria and
265 place in context their own perceived level of competency in relation to the expected progression
266 of development in each area. This allows for autonomy in planning next steps in determining
267 which areas to target for growth, within the predesigned curricula required by the ACGME. This
268 leaves, from self-determination theory, only the need for relatedness to others.

269 By having access to a resident’s self-assessment, the faculty member giving feedback can
270 identify ahead of time areas of congruence and discrepancy between third-party assessment in an
271 area and a resident’s own assessment. The ability to identify potentially difficult conversations
272 and plan for how to address them effectively ahead of time has a variety of potential benefits.
273 Identification and discussion of the areas of discrepancy allows the dyad to acknowledge and
274 examine the learner’s past experience and self-perception in relation to the observations of the
275 CCC – and, given comments from both residents and faculty after instituting self-assessment,
276 this did occur and led to feedback that was perceived as more insightful and actionable by both
277 parties. Potential biases on both sides can be identified and the assessment discussed,

278 maintaining and even building trust between feedback giver and receiver. Creating this shared
279 understanding is expected to decrease avoidance or rejection of feedback that does not align with
280 self-perception.²⁵⁻²⁷ Interestingly, while residents did not feel that their understanding of the
281 Milestones or communication within the session improved after self-assessment, faculty
282 members did feel that both resident Milestone understanding and communication within the
283 session had improved, commenting specifically on ways that real-time review of the self-
284 assessment and Milestone criteria led to richer discussion.

285 From freetext response patterns pre- and post-intervention, we can infer some of the
286 mechanisms by which self-evaluation resulted in feedback quality improvement. Firstly, resident
287 suggestions to include “actionable” feedback or “action items” dropped dramatically, in keeping
288 with the quantitative improvement in actionable feedback. Self-assessment was implemented in
289 an attempt to increase learner autonomy and self-direction; with the addition of self-assessment,
290 both residents and faculty indicated discussion of resident-identified goals and “next steps”
291 rather than unilateral resident requests for the faculty to provide these goals. Developing a shared
292 understanding of opportunities for improvement was identified by faculty as one of the most
293 helpful aspects of the self-assessment, and they indicated that this was, and would be, most
294 helpful for high-performing residents in whose CCC evaluations no specific deficiencies or
295 advice was included. Secondly, as the “insightfulness” of feedback improved significantly,
296 several responses alluded to input during the feedback session from both faculty and residents,
297 with both indicated as being involved in setting goals or having “improved and focused
298 discussion”. Resident comments indicating desire for increased “specific” feedback or concrete
299 examples/observations decreased significantly in the post-intervention freetext responses; many
300 faculty comments from the same feedback sessions indicated that self-assessment was a
301 prominent feature of the feedback sessions, which likely prompted discussion of residents’ prior
302 experiences and validation of their input into the process, both of which probably led to the
303 perception of feedback or suggestions given as more insightful as it was directly centered around
304 their specific experiences and perceptions rather than reports or assumptions of the same from
305 others (the CCC).

306 Faculty responses in this study indicate two groups of learners for whom generating
307 semiannual review feedback may be challenging: interns and high-performing residents. Early on

308 in training, and particularly when gathering data for a first six-month summative review, “data
309 points” of faculty evaluations, test scores, off-service rotation feedback, and other evaluations
310 may be sparse. Faculty and residents at this level both expressed dissatisfaction with the ability
311 to generate meaningful feedback from this sparse information; self-assessment not only acts as
312 an additional “data point” for summative feedback but also can direct formative feedback more
313 effectively by aligning resident and faculty goals and setting specific next steps. High-
314 performing residents, by contrast, usually have many “data points” indicating that they are
315 meeting and exceeding expectations, with little if any evidence for deficiencies. Faculty may
316 assume that any advice for improvement will be perceived as negative feedback and avoid it,
317 may be unaware that these residents desire continued improvement despite excellent
318 performance, or may simply be at a loss for how to give useful feedback to these learners. Self-
319 identification of areas for desired feedback is particularly useful in this subset: firstly, it reassures
320 faculty that learners desire constructive feedback, and secondly, because the feedback was
321 requested and expected by the recipient, it is more likely to be received positively rather than
322 perceived as an indication of a negative judgement by the faculty or CCC.

323 Ende’s discussion of feedback vs evaluation (or assessment) was crucial in the
324 conceptualization of feedback and how to design and deliver it most effectively, and he made a
325 point to define the two distinctly; we acknowledge here the intimate relationship between the two
326 separate entities and recognize the concept of different moments for feedback.¹² By using an
327 existing moment for feedback, already scheduled and expected by all involved parties, we were
328 able to avoid many of the usual pitfalls associated with efforts to improve feedback (e.g.
329 increasing administrative burden for faculty in filling out more written feedback forms, requiring
330 more observed clinical activities, scheduling additional meetings causing learner stress in
331 anticipation of the unknown). While much current and prior work examines how to gather,
332 format, and deliver timely feedback, particularly in the context of the shift-based nature of
333 emergency medicine, we focus in this study on an opportunity for feedback from the 10,000 foot
334 view. The semiannual review provides a chance to reorient learners to the overarching goals of
335 residency training rather than the more limited goals of individual shifts or rotations, and the
336 improvement in perceived feedback quality – combined with residents’ comments on their desire
337 to formulate and follow-up on action items across subsequent semiannual reviews – suggests that
338 self-assessment is an effective and beneficial addition to the feedback process. Ongoing

339 comments in this study about feedback that was outdated, however, may make us reconsider just
340 how often “semiannual” reviews should take place.

341 **LIMITATIONS**

342 This study was a single-center, single-residency study which ultimately only included 25
343 respondents over one calendar year. Additionally, a total of only three faculty members were
344 responsible for conducting semiannual review feedback sessions, two of whom are authors on
345 this manuscript and could not be blinded. This limited sample may not be generalizable to other
346 learner groups. Learner maturation over the course of residency cannot be ignored, and some of
347 the improvement in perception of feedback may be attributed simply to this natural progression.
348 This study was designed as a pilot, and further studies with larger sample sizes could use a
349 randomized or pseudorandomized design to control for this potential effect.

350 No gold-standard tool for measuring feedback quality was identified during the literature
351 search for this study. Therefore, outcomes were determined in keeping with what was most
352 important to the stakeholders (residents and faculty) at our own institution and in line with
353 general medical literature on feedback in residency. Our survey was designed accordingly, and
354 was not meant to represent a validated tool to be used in the evaluation of feedback quality in a
355 wider context. The development of such a tool would be of great value, and its lack represents a
356 significant challenge in the shared understanding of feedback evaluation in medical education.

357 Finally, it is entirely possible that the full benefit of self-assessment was not represented in
358 this study. We measured only four specific characteristics of feedback (actionability,
359 insightfulness, communication, understanding of Milestones) and the overall perception of
360 feedback quality. A more thorough qualitative approach may have elucidated potential benefits
361 outside of these criteria, or may have given us a more nuanced understanding of the benefits of
362 the addition of self-assessment to the feedback process.

363 **Future directions**

364 Despite these limitations, the theoretical generalizability of this study is sound. All
365 ACGME-approved residency programs now have their own sets of Milestones on which their
366 specialty is evaluated, and both self-determination theory and Knowles’ adult learning theory

367 should apply equally to residents of all specialties. This approach would be relatively easily
368 scaled up to include other residency programs, across other specialties as well as other
369 institutions. As mentioned in the “limitations” section, benefits of adding self-assessment to
370 feedback may not have been fully realized, and further qualitative studies may help to elucidate
371 the ways in which self-assessment adds value to the feedback process. Additionally, in the course
372 of performing this study, we gathered Milestone data from residents’ self-assessments which can
373 be directly compared to CCC assessments of residents, which will allow for analysis of who
374 benefited most from self-assessment in terms of feedback and allow examination of the
375 correlation between resident and faculty perceptions of competency for specific milestones. We
376 plan to explore these avenues in future research.

377 **CONCLUSION**

378 Introducing resident self-assessment into the feedback process at the semiannual review
379 appears to significantly improve perception of the quality of feedback at these semiannual review
380 sessions as reported by both faculty and residents. This is a simple intervention to implement, is
381 designed in keeping with commonly accepted adult learning theory and poses few if any
382 identified barriers to implementation in terms of time demands or financial constraints.

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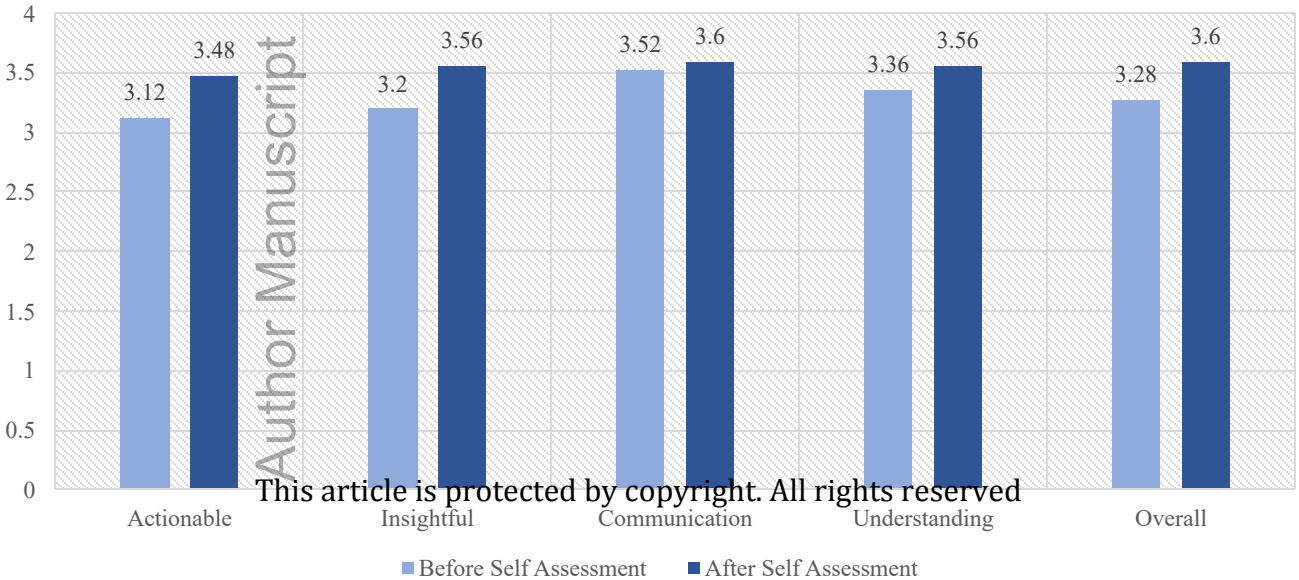
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Question	Resident			Faculty			Difference Pre/Post	
	Pre	Post	p-value	Pre	Post	p-value	Resident	Faculty
Actionable	3.12	3.48	.013	2.60	3.56	<.001	0.36	0.96
Insightful	3.20	3.56	.010	2.72	3.56	<.001	0.36	0.84
Communication	3.52	3.60	.580	2.72	3.48	<.001	0.08	0.76
Understanding	3.36	3.56	.160	2.72	3.44	<.001	0.20	0.72
Overall	3.28	3.60	.025	2.48	3.60	<.001	0.32	1.12

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Resident Perceived Feedback Quality

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■ Before Self Assessment ■ After Self Assessment

Faculty Perceived Feedback Quality

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