

Teaching on the Fly: A Needs Assessment for an Ambulatory Resident-as-Teacher Workshop

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Abstract

Introduction: Residents play an important role in medical education, yet often feel unprepared without formal training. Teaching in the ambulatory setting raises unique challenges such as the difficulty of educating in a limited amount of time. We designed a brief, focused intervention as an initial needs assessment for a residents-as-teachers program in an ambulatory setting to address these concerns.

Methods: A 1-day, 2.5-hour workshop was designed focusing on microskills, providing feedback, and ways to address common barriers in ambulatory teaching. Pre- and post-intervention surveys were conducted with both residents and medical students to assess the effects of the workshop on resident teaching in the clinic.

Results: Although post-intervention surveys showed increased resident confidence and self-reported teaching behaviors, medical student surveys did not clearly demonstrate an increase in teaching behaviors. Didactic teaching on feedback and microskills with follow-on role playing were seen as the most helpful parts of the intervention.

Conclusions: Self-assessment alone is an inadequate measure of effectiveness of our teaching intervention. While medical student data can help verify resident self-report, future iterations of our intervention should incorporate objective, third-party evaluation of teaching skill implementation.

Introduction

Residents serve a key role in medical student education, however the art of teaching is often left to the hidden curriculum without formal training. While residents spend up to 20% of their time teaching,^{1,2} most feel unprepared to teach, a barrier shared by clinical educators in the ambulatory setting.^{3,4} Resident-as-teacher programs across specialties increase self-reported confidence, enthusiasm, and teaching skills, as well as students' ratings of resident teaching ability.⁵⁻¹² As residency programs formalize teaching curricula, ambulatory teaching and feedback are critical topics to include as identified by consensus guidelines.¹³

While self-assessment is commonly used as an end point in evaluating interventions, it frequently has little correlation to objective measures.¹⁴⁻¹⁶ While teaching interventions often result in increased self-reported teaching behaviors, they do not directly correlate with learner outcomes.¹⁷

With no formal curriculum established at our program and most teaching occurring in outpatient clinic, we

identified an opportunity to improve ambulatory teaching with a focused workshop to improve residents' self-confidence and teaching skills, gathering data from both residents and medical students to assess workshop efficacy.

Methods

A 2.5-hour workshop was integrated into resident didactics attended by all year groups. The workshop included a rotating small group discussion (Gallery Walk) discussing attitudes toward teaching, pocket references, and lectures on utilizing microskills and giving effective feedback.¹⁸⁻²¹ Residents then practiced specific microskills and elements of feedback through role play. Finally, barriers to teaching in the ambulatory setting and potential solutions were discussed.

Surveys utilized a 5-point Likert scale to evaluate outcomes on various levels of the New World Kirkpatrick Model of evaluation.²² An immediate postintervention survey captured resident reactions to the workshop (Kirkpatrick level 1). Follow-on resident surveys evaluated confidence and implementation of teaching behavior in clinic (Kirkpatrick level 2 and self-reported level 3). Medical student surveys assessed changes in teaching behaviors from the student perspective (Kirkpatrick level 3). Resident preintervention data were collected just prior to the workshop and postintervention data were collected 3 months after. Anonymous end-of-rotation preintervention surveys were provided to students rotating through the Family Medicine Residency at Naval Hospital Camp Pendleton for 3 months prior to the workshop, while postintervention surveys were collected for 5 months following the workshop. Due to the nature of the clerkship schedule, there was no overlap between medical students in the preintervention group and those in the postintervention group. Likewise, due to away rotations at other local hospitals, some residents in the postintervention group may have been different than those in the preintervention group.

We converted Likert scale results into numerical values and compared via two-sample *t* test with unequal variance. This project was determined to be exempt from review by the Naval Hospital Camp Pendleton Clinical Investigation Program, under exemption #2. Full intervention materials are available on the STFM Resource Library.²³

Results

There were 13 preintervention and 12 postintervention resident responses, as well as four pre-intervention and eight postintervention student responses. Immediate postworkshop reactions showed residents felt the content was useful, particularly lectures and roleplay scenarios (Tables 1 and 2). Resident postintervention surveys showed significant increases in self-reported preparedness, confidence, and utilization of microskills. Self-reported use of effective feedback skills increased but was not significant (Table 3). Student responses reflected improved resident preparedness to teach and improved frequency and quality of feedback but did not reflect increases in other teaching behaviors (Table 4).

Conclusions

Our intervention had positive impacts at Kirkpatrick levels 1 and 2 with good initial reaction and increased resident self-confidence but failed to translate into significantly changed behavior in student responses. Role-play scenarios during the workshop appeared to increase preparedness and confidence, suggesting this would be helpful in future iterations. Conversely, the initial small group discussion was not perceived as helpful and should be changed in future iterations.

Several insights were only made possible through triangulating resident self-report with medical student

responses, emphasizing the importance of moving beyond self-report alone in evaluating the efficacy of teaching programs. While residents self-reported increases in teaching behaviors, students did not recognize this change. Among teaching microskills, students only noted increased learning plan development. While other microskills such as pausing to allow time for response may not be recognized by students, establishing goals before clinic may have been apparent. Although residents reported an increase in giving learners the opportunity for feedback, students disagreed, again raising questions on the correlation between self-reporting and actual behavior. Possible explanations include that residents learned the importance of feedback but failed to implement it regularly, or medical students lacked recognition of feedback when given. The data collected do not allow further examination of the discrepancy, revealing a gap in a survey-only collection model.

Our findings are consistent with a growing trend in medical education literature recognizing the inadequacies of self-reporting and use of student evaluations as the only metrics for curricula efficacy, instead shifting toward more objective evaluation of teaching efficacy from multiple sources.²⁴⁻²⁶ While we attempted to mitigate the inadequacies of self-report with student surveys, there are other limitations, such as asking for aggregated assessments on resident teaching at end of rotation instead of individual teaching experiences. Use of survey data alone does not explain why there are discrepancies between resident self-report and learner responses. Future iterations should include direct observation of teaching from peers or faculty who can provide feedback on teaching technique. While this is more time-consuming, we believe it could provide a more complete assessment on intervention effectiveness.

The data from our study are limited by the small number of participants and may be underpowered to detect significant changes or reach actionable quantitative conclusions. In addition, having different students involved in the pre- and postintervention surveys makes it challenging to determine if changes were due to the intervention or from personal student factors. Overall, our use of learner data and resident input emphasizes the risks of relying on self-assessment data and demonstrates the importance of capturing data from learners and teachers simultaneously to improve the experiences of both groups. Future iterations should further work on translating knowledge into learner-focused outcomes.

Tables and Figures

Table 1: Immediate Postintervention Resident Reactions

Survey Statement	Average (Range) N=12
After this intervention, I am able to demonstrate the ability to use all five teaching microskills through roleplaying a resident-student teaching interaction.	4.17 (2-5)
After this intervention, I am able to critique by giving at least one recommendation for improvement to a mock resident-student feedback session using the framework of the "7 Step Guide for Providing Effective Feedback."	4.17 (2-5)
After this intervention, I am able to identify three potential barriers to teaching in the ambulatory setting.	4.42 (1-5)
After this intervention, I am able to propose at least one potential solution for each of the three identified barriers to ambulatory teaching.	4.00 (1-5)
The information provided today is useful to me.	4.50 (1-5)
I will use the skills I learned today in the future.	4.58 (1-5)
I felt actively engaged in the learning.	4.50 (1-5)
I enjoyed this workshop.	4.08 (1-5)
My time was well served by this workshop.	4.25 (1-5)

Likert Scale Key:

Frequency questions: 1 – Never, to 5 – Always

Agreement questions: 1 – Strongly Disagree to 5 – Strongly Agree

Table 2. Resident feedback on helpfulness of individual workshop components

Components of workshop	Which of the following portions of the workshop were particularly helpful for you to learn the content? (Number of responses, N=12)	Which of the following portions of the workshop would you eliminate or change for the future? (Number of responses, N=12)
5 Microskills lecture	9	1
5 Microskills scenarios	7	1
Feedback lecture	10	0
Feedback scenarios	8	1
Barriers and Solutions Conversation	7	3
Med Student Teaching Survival Guide printout	4	1
Gallery Walk	1	6

Table 3. Resident Pre- vs Postintervention Responses

Survey statement	Preintervention n=13 Average (range)	Postintervention n=12 Average (range)	P value
I feel well-prepared to teach.	3.38 (2-4)	4.08 (3-5)	.02*
I have confidence in my teaching ability.	3.15 (2-4)	4.00 (3-5)	.02*
I have sufficient time to teach	2.00 (1-4)	2.67 (1-4)	.08
Please rate how your clinic runs with a student compared to without a student.	2.31 (2-3)	2.25 (1-5)	.82
I am comfortable giving learners face-to-face feedback.	3.85 (2-4)	4.25 (4-5)	.06
I provide effective feedback.	3.38 (3-4)	3.83 (3-5)	.05
I provide daily feedback.	2.77 (1-4)	3.50 (1-5)	.12
I provide specific feedback.	3.31 (2-4)	4.00 (2-5)	.05
I give feedback on learners' good work.	4.38 (3-5)	4.25 (2-5)	.69
I provide constructive feedback on areas in which learners need to improve.	3 (1-5)	3.75 (2-5)	.07
I give learners an opportunity to give me feedback.	3.15 (1-5)	3.50 (2-5)	.48
I have a structured way of teaching learners.	2.62 (1-4)	3.08 (2-5)	.24
I review my learners' personal learning objectives at the start of clinic.	1.54 (1-3)	3.25 (2-5)	<.01*
I devise a plan with the learners to meet their personal learning objectives.	1.77 (1-3)	3.08 (1-4)	<.01*
I wait at least 3 seconds for a response when asking my learners questions.	3.31 (2-5)	3.83 (2-5)	.21
I encourage my learners to make a commitment to a plan.	3.15 (2-4)	3.83 (2-5)	.05
I teach my learner at least one clinical pearl per half day of clinic.	3.54 (2-5)	4.33 (3-5)	.03*

Likert Scale Key:
 Frequency questions: 1 – Never, to 5 – Always
 Agreement questions: 1 – Strongly Disagree to 5 – Strongly Agree

Table 4. Medical Student Pre- vs Postintervention Responses

Survey statement	Preintervention n=4 Average (range)	Postintervention n=8 Average (range)	P value
Residents are well prepared to teach.	3.75 (3-4)	4.3 (4-5)	.11
Residents appear confident in their teaching ability.	4.25 (4-5)	4.2 (4-5)	.87
I feel that there is enough time for residents to teach me.	3.25 (2-5)	2.8 (2-4)	.61
Residents are comfortable giving learners face to face feedback.	4.5 (4-5)	4 (2-5)	.31
Residents give me effective feedback.	4 (4)	4.3 (4-5)	.19
Residents give me daily feedback.	3 (2-4)	3.7 (2-4)	.32
Residents give me specific feedback.	3.75 (2-5)	3.8 (2-5)	.95
Residents give me feedback on my good work.	4.5 (4-5)	4.4 (4-5)	.78
Residents give me constructive feedback on areas I need to improve.	3 (2-4)	3.6 (1-5)	.44
I have an opportunity to give residents feedback.	4 (2-5)	3 (2-4)	.26
Residents appear to have a structured way of teaching students.	2.75 (2-4)	3.1 (2-4)	.55
Residents discuss my own personal learning objectives at the start of clinic.	2.75 (2-5)	2.5 (1-4)	.78
Residents work with me to develop a plan to meet my learning objectives.	2.25 (1-4)	3.2 (1-5)	.26
Residents give me at least 3 seconds to respond when asking me a question.	4.75 (4-5)	4.4 (2-5)	.39
Residents encourage me to make a commitment to a plan for my patient.	4.25 (4-5)	4.2 (4-5)	.87
Residents teach me at least one clinical pearl per half day of clinic.	4.25 (4-5)	4.1 (4-5)	.61

Likert Scale Key:
 Frequency questions: 1 – Never, to 5 – Always
 Agreement questions: 1 – Strongly Disagree to 5 – Strongly Agree

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