

Residents as Teachers: Residents' Perceptions Before and After Receiving Instruction in Clinical Teaching

Julie K. Wachtel, DO, MPH; Marna Rayl Greenberg, DO, MPH;
Amy B. Smith, PhD; Kevin R. Weaver, DO; and Bryan G. Kane, MD

From the Department of
Emergency Medicine
at Lehigh Valley Hospital
and Health Network
in Allentown, Pennsylvania.

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Address
correspondence to
Marna Rayl Greenberg, DO, MPH,
Lehigh Valley Hospital and
Health Network,
1240 S Cedar Crest Blvd,
Suite 212,
Allentown, PA 18103-6218.

E-mail: marna.
greenberg@lvh.com

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Context: Residents play an integral role in educating junior residents, medical students, and patients.

Objective: To determine how residents describe their training, proficiency, and comfort level in teaching before and after receiving instruction in clinical teaching.

Methods: Emergency medicine residents at a 980-bed suburban hospital system filled out a 12-question survey on their training as teachers and their self-perceptions of themselves as teachers. The residents then participated in a 2-hour education session on adult learning principles, methods of clinical teaching, and how to give effective feedback. After the session, participants completed a second, 11-question survey on the effectiveness of the session.

Results: Thirty-seven residents completed the presession survey and 33 completed the postsession survey. In the presession survey, 23 residents (62%) identified their proficiency as a teacher and ability to give feedback as that of a novice or beginner. Fourteen (38%) felt competent or proficient as teachers. Twenty-six (70%) reported never receiving instruction in clinical teaching during their residency, and 33 (89%) were interested in learning these skills. In the postsession survey, 28 (85%) described the teaching module as very helpful to their training, and 33 (100%) reported feeling more prepared to teach. Twenty-six (79%) stated they were very likely to teach students more often, and 33 (100%) reported a better understanding of how to give effective feedback.

Conclusion: The majority of the residents surveyed expressed an interest in learning teaching skills and felt that completing the training was helpful to their education. After instruction, this cohort of residents felt more prepared and reported they were more likely to teach.

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Residents assume many and varied responsibilities during their graduate medical education. One important resident role is teaching junior residents, medical students, and patients. Residents are traditionally expected to develop teaching skills as they progress in their medical training with little to no instruction on how to teach effectively.¹ Edwards et al² found that in various specialties residents who receive formal training in teaching techniques have better teaching skills and provide higher quality education than residents who receive no instruction.² In addition, teaching courses for residents have been shown to improve teaching confidence and are linked to improved student evaluations of residents.³ Further, these acquired teaching skills are found to decline if not reinforced periodically throughout residency.²

The American Osteopathic Association and the Accreditation Council for Graduate Medical Education recognize the integral role that residents play in the education of medical students, junior residents, and patients. Both of these entities encourage residency programs to provide teaching instruction for residents as well as evaluate resident teaching skills.^{4,5} With teaching instruction, residents can foster their teaching skills before they complete their training and provide a more meaningful learning experience for junior residents and medical students whom they precept. In the present study, we set out to determine how residents describe their training, proficiency, and comfort level in teaching before and after receiving instruction in clinical teaching. To our knowledge, these topics have not been addressed in the existing literature.

Methods

Study Design and Population

The present study underwent review and approval by the local hospital's institutional review board. Informed consent was not required. In January 2010, emergency medicine (EM) residents were anonymously surveyed as a part of their standard residency training. The EM residency program is accredited by both the American Osteopathic Association and the Accreditation Council for Graduate Medical Education and had 56 residents in a 4-year program at the time of the study. The residents included in the study were working at a 980-bed hospital system in 2 emergency departments: (1) a suburban, Level I trauma center with an annual census of approximately 75,000 visits and (2) a suburban community hospital with an annual census of approximately 54,000 visits. Also rotating between the 2 emergency departments were off-service (eg, family practice, internal medicine) residents, medical students, and physician assistant students whom the residents assisted in precepting with the attending physicians.

The lead author (J.K.W.) developed a 12-item pre-session multiple-choice questionnaire (*Appendix 1*). The instrument underwent minimal changes after a content validity check was performed by attending emergency physicians. The survey included questions on how much time residents believed they spent teaching, as well as their comfort levels and perceived proficiencies as teachers. The survey also included questions on the amount and types of training that residents received in teaching while in residency, residents' perceived barriers to teaching, and residents' interest in a program to acquire additional teaching skills. The final qualitative question allowed participants to give suggestions on how teaching could be improved by residents.

The questionnaire was distributed without a cover letter on January 7, 2010, to all EM residents (postgraduate years 1 through 4) who were present prior to a mandatory grand rounds educational session. After completing the survey, the residents received 2 hours of instruction in

clinical teaching. The first portion of the session focused on adult learning principles and attributes of great teachers and incorporated videos of various teaching styles for the residents to evaluate as a group. The second portion of the session introduced methods of clinical teaching, including the “One Minute Preceptor” and “SNAPPS” methods,^{6,7} and allowed the residents to break into groups of 3 to 4 people to practice both teaching models. The final portion introduced the concept of giving effective feedback.⁸ We developed the curriculum according to validated methods of teaching.⁶⁻⁸

After the 2-hour educational session, residents were given a second survey that was developed, validated, and administered in the same manner as the first survey. The second survey consisted of 9 multiple-choice and 2 open-ended questions designed to evaluate the effectiveness of the educational session (*Appendix 2*). It included questions to assess if residents felt more prepared to teach in the emergency department and if they were more likely to teach students after receiving training. The open-ended questions allowed residents to give additional feedback related to the session and explored what other topics they would like to see included as part of the educational curriculum.

Completion of the pre- and postsession surveys was voluntary and anonymous. The pre- and postsession surveys were not matched.

Data Analysis

The presession survey allowed residents to write comments if the listed choices were not sufficient, and results were entered into a spreadsheet by using Microsoft Excel 2007 software (Microsoft Corporation, Redmond, Washington). For the postsession survey, residents provided their answers by filling out an AccuScan Optical Mark Read form (Apperson, Renton, Washington); residents could submit additional written comments on the back of the paper. Postsession survey responses were tabulated using Advantage 1200 scanning software (2003; Apperson, Renton, Washington). Simple frequencies

were used as the primary quantitative analytical method. A summarized qualitative assessment was performed for open-ended survey responses.

Results

Of the 47 EM residents who participated in the educational program, 37 (78%) participated in the presession survey. The postgraduate years of training for respondents are listed in *Table 1*. Thirteen of 37 residents (35%) reported working with medical students 1 to 2 shifts per month, and 24 (37%) reported working with medical students 2 to 5 shifts per month. The majority of residents (26 [70%]) estimated that they spend 10 to 30 minutes or 31 to 60 minutes teaching a student or junior resident during a clinical shift. Twenty-six residents (70%) reported that they had never received training in how to teach during residency (*Figure 1*). When asked how they had been trained to teach, 6 residents (16%) reported only being trained by lecture; 1 (3%) only by workshop; 1 (3%) only by handout; 1 (3%) by a nonspecified other method; 1 (3%) by lecture and workshop; and 1 (3%) by lecture, handout, and video. Twenty-six residents (70%) reported that they had never received training in how to teach and that they were not familiar with clinical teaching models such as the “One-Minute Preceptor” and “SNAPPS.”^{5,6}

Table 1.
Postgraduate Year of Emergency Medicine Residents Surveyed Before and After an Educational Session on Clinical Training

Postgraduate Year	No. (%)	
	Before Session (n=37)	After Session (n=33)
1	12 (32)	11 (33)
2	11 (30)	6 (18)
3	7 (19)	9 (27)
4	7 (19)	7 (21)

Four residents (11%) reported not feeling comfortable teaching, 22 (59%) reported feeling somewhat comfortable teaching, and 11 (30%) reported feeling very comfortable teaching. When asked to identify their proficiencies as teachers, the majority of residents (23 [62%]) selected “novice” or “beginner,” 10 (27%) selected “competent,” and 4 (11%) selected “proficient” (Figure 2). Interestingly, responses regarding comfort level and perceived proficiency in teaching did not vary according to residents’ reported number of years in postgraduate training.

Residents’ perceptions of their proficiency at giving feedback to medical students were similar to their perceptions of their proficiency as a teacher: 23 (62%) reported their proficiency at giving feedback as “novice” or “beginner,” while 12 (32%) reported their proficiency as “competent,” and 2 (5%) reported their proficiency as “proficient.” When asked what they thought were the main barriers to resident teaching, 25 residents (67%) responded that there was not enough time to teach and 13 residents (35%) responded that residents may not be comfortable or proficient at teaching (residents could choose multiple answers for this question). Thirty-three

residents (89%) reported interest in participating in a program in which they could learn skills to become better teachers.

The final pre-session survey question asked for suggestions on how teaching could be improved by residents. There were 8 qualitative responses with similar suggestions including formal training in teaching, less focus on number of patients seen per hour and more focus on resident teaching, and time management skills training to allow for more teaching.

The post-session survey was completed by 33 of 47 residents who attended the educational session (Appendix 2). All 33 residents (100%) indicated that the educational session met the goals and objectives outlined, and 28 residents (85%) indicated the teaching module was “very helpful” to their training. All 33 residents (100%) reported feeling more prepared to teach than they were prior to the session. Twenty-six residents (79%) indicated it was “very true” that they were more likely to teach students after the training session (Figure 3), and 33 (100%) indicated that they understood better how to give effective feedback (25 [76%], “very true”; 8 [24%], “somewhat true”). All 33 participants (100%) felt it was “somewhat

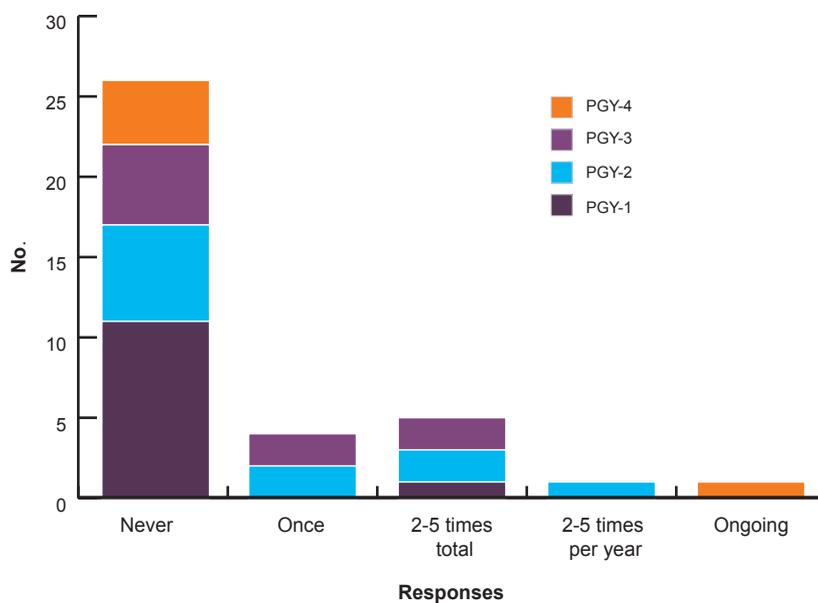


Figure 1. First- through fourth-year emergency medicine resident responses to the survey question, “How much training have you received in how to teach during residency?” (N=37). Abbreviation: PGY, postgraduate year.

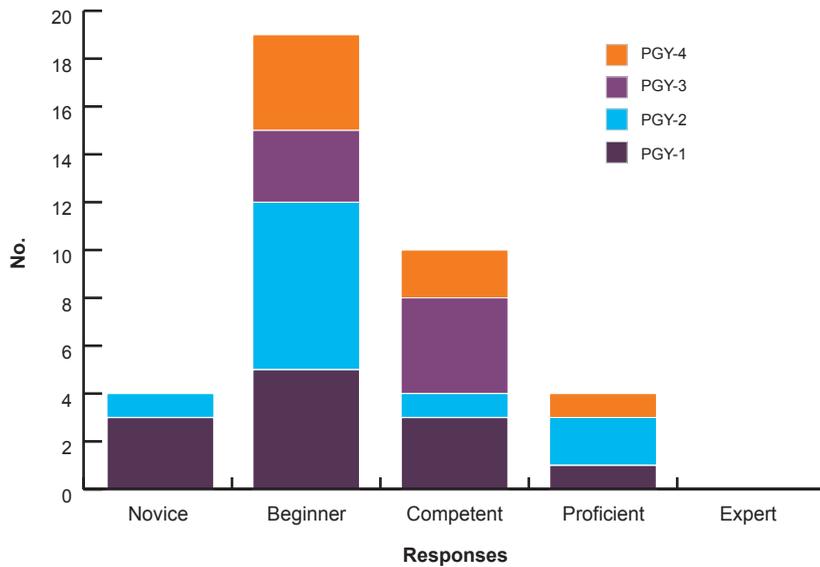


Figure 2. First- through fourth-year emergency medicine resident responses to the survey question, “How proficient are you as a teacher?” (N=37). *Abbreviation:* PGY, postgraduate year.

true” or “very true” that the format of the module was appropriate for the content presented. Nineteen residents (55%) felt it was “very true” that the small group practice sessions enhanced their understanding of what was being taught, while 12 (36%) felt this statement was “somewhat true” and 1 (3%) felt this statement was “not true.” One resident did not answer this question. Overall, 26 residents (79%) rated the session as “excellent,” 6 (18%) rated the session as “good,” and 1 (3%) did not answer.

There were 15 qualitative responses to the question on the effectiveness of the session. Ten responses offered positive feedback, including 3 responses that indicated the videos were helpful and 6 responses that indicated the small group practice sessions were helpful. One resident indicated he or she would have liked more time to practice the teaching models and give effective feedback. There were 7 qualitative responses to the question on what other topics residents would like covered as part of the educational curriculum. Three of them were focused on time management and teaching. Other responses included learning more teaching models, learning how to do case presentations, and discussing high-yield topics to teach students.

Comment

Residents have always played a critical role in the education of junior residents, medical students, and patients. Recently, however, there has been an increased interest in the training and evaluation of residents as teachers.^{4,5} The majority of the residents in the present study reported that they had not received prior instruction in clinical teaching while in residency, and most indicated that they were not familiar with common clinical teaching models. The majority of residents reported lack of proficiency and low to moderate comfort levels when teaching prior to the session. Interestingly, residents in their fourth year of training, with more clinical experience, reported comfort and proficiency levels similar to those of residents in their first year of training. These findings are important because they strongly suggest that educational programs such as the one in the present study would allow residents to become more familiar with common clinical teaching models and develop more confidence and proficiency in their teaching skills. The majority of residents also expressed an interest in learning teaching skills. This finding is important for osteopathic medical education and medical education in general.

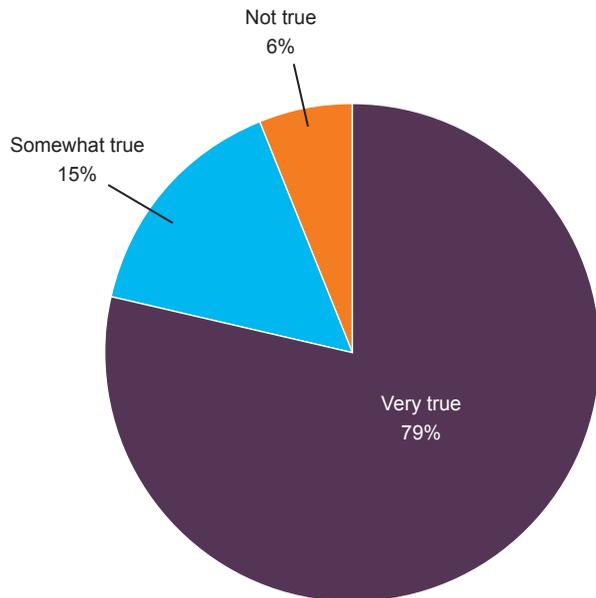


Figure 3. First- through fourth-year emergency medicine resident responses to the statement “I am more likely to teach students in the emergency department after this training.” The survey question was asked after the residents completed a 2-hour educational session on clinical teaching (N=37). *Abbreviation:* PGY, postgraduate year.

Conceptually, this reported interest in learning how to teach suggests that both osteopathic and allopathic educational training programs would be well received by residents who are motivated learners, thus enhancing the opportunity for the programs to successfully meet their objectives.

Providing residents with the skills necessary to teach effectively is an important component of residency education. The present study demonstrates that after a 2-hour clinical teaching module, residents reported feeling more prepared and more likely to teach. Residents also reported an increased understanding of how to give effective feedback and indicated that this type of training session was valuable to their residency education. These findings suggest that a standardized training program for residents as educators would be well received if developed.

In response to the data obtained from this study, we have enhanced resident training in teaching skills by adding a dedicated teaching shift for senior residents. This training has provided residents with time to develop and reinforce teaching skills and the opportunity to receive feedback on their teaching style and effectiveness.

Limitations

The results of this study may not be generalizable, as the data are limited to 1 large EM residency program. Likewise, our study took place at a community-based institution; it is unclear if the findings would be the same in large academic medical centers. However, the data are consistent with results from prior studies of residents in other specialties.^{3,9,10} The present study was a retrospective analysis of data collected as part of a teaching module and might differ from data collected from a prospective randomized or observational study. The goal of this study was to assess resident attitudes and confidence before and after teaching instruction and did not evaluate whether quality or quantity of teaching by EM residents actually improved.

The pre- and postsession surveys were not matched in this study. There was a difference between the pre- and postsession surveys in the number of residents who completed the survey and the distribution of reported postgraduate year. Some residents may have arrived late to the educational session and were not given the survey and others left before the postsession survey was distributed. It is unclear what effect this may have had on the outcomes reported. The small number of allopathic residents in the program did not allow for statistical assessment of the differences between osteopathic and allopathic residents in pre- and posttest results. The present study may offer a starting point for future studies that use more objective measures to evaluate teaching performance, frequency and quality of teaching encounters, or medical students’ evaluation of resident teachers’ behaviors before and after an educational session.

Conclusion

The majority of residents surveyed reported having a novice- or beginner-level teaching proficiency and no prior training in teaching during residency. In addition, most residents expressed interest in programs that provide them with skills to be better teachers. After completing an educational session, the residents in this cohort reported feeling more prepared and more likely to teach. Continued training of this type throughout residency could encourage and promote higher quality teaching by residents. Future studies are needed to investigate changes in resident teaching behavior after they participate in training on how to teach.

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(Appendices on following pages)

Appendix 1. Residents as Teachers Pre-session Survey

Survey distributed to emergency medicine residents before a 2-hour educational session on clinical teaching.
Abbreviations: ED, emergency department; PGY, postgraduate year.

1. Please indicate the level of training you are currently in:

- PGY-1
- PGY-2
- PGY-3
- PGY-4
- Other (please specify) _____

2. Approximately how many shifts each month in the ED do you have a medical student working with you?

- 1-2
- 3-5
- 6-10
- >10

3. How much time would you estimate you spend teaching a student or junior resident on a clinical shift in the ED?

- <10 min
- 10-30 min
- 31-60 min
- >60 min

4. How comfortable do you feel teaching/precepting medical students working with you?

- Very comfortable
- Somewhat comfortable
- Not comfortable

5. How proficient are you as a teacher?

- Novice
- Beginner
- Competent
- Proficient
- Expert

6. How much training have you received in how to teach during residency?

- Once
- 2-5 times total
- 2-5 times per year
- Ongoing
- Never
- Other (please specify) _____

7. How have you been trained to teach?

- Lecture
- Workshop
- Handouts
- Videos
- I have never received any formal training on how to teach
- Other (please specify) _____

Appendix 2. Residents as Teachers Postsession Survey

Survey distributed to emergency medicine residents after a 2-hour educational session on clinical teaching.

Abbreviations: ED, emergency department; PGY, postgraduate year.

1. Please indicate the level of training you are currently in:

- PGY-1
- PGY-2
- PGY-3
- PGY-4
- Other (please specify) _____

2. Did this educational session meet the goals and objectives outlined?

- Objectives were met.
- Objectives were not met.
- I'm not sure.

3. Please rate how helpful this module was to your emergency medicine training:

- Very helpful
- Somewhat helpful
- Not particularly helpful

4. How much more prepared to teach in the ED are you than you were prior to this session?

- Much more prepared
- Slightly more prepared
- No change
- Less prepared

5. I am more likely to teach students in the ED after this training.

- Very true
- Somewhat true
- Not true

6. I thought the format of this module was appropriate for the content presented.

- Very true
- Somewhat true
- Not true

7. The small group practice sessions enhanced my understanding of what was being taught.

- Very true
- Somewhat true
- Not true

8. I understand better how to give effective feedback after this session.

- Very true
- Somewhat true
- Not true

