



Resident-As-Teacher in Family Medicine: A CERA Survey

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BACKGROUND AND OBJECTIVES: Teaching has been increasingly recognized as a primary responsibility of residents. Residents enjoy teaching, and the majority report interest in the continuation of teaching activities after graduation. Resident-as-teacher programs have emerged nationally as a means of enhancing teaching skills. This study examined the current use of residents-as-teachers programs in family medicine residencies through a national survey of family medicine residency program directors.

METHODS: This survey project was part of the Council of Academic Family Medicine Educational Research Alliance (CERA) 2014 survey of family medicine program directors that was conducted between February 2014 and May 2014.

RESULTS: The response rate of the survey was 49.6% (224/451). The majority (85.8%) of residency programs offer residents formal instruction in teaching skills. The vast majority (95.6%) of programs mandate the training. The average total hours of teaching instruction residents receive while in residency training was 7.72. The residents are asked to formally evaluate the teaching instruction in 68.1% of the programs. Less than a quarter (22.6%) of residency programs offer the teaching instruction in collaboration with other programs. "Retreat, workshop, and seminars" were identified as the main form of instruction by 33.7% of programs. In 83.3% of programs not offering instruction, lack of resources was identified as the primary barrier.

CONCLUSIONS: The majority of family medicine residency programs provide resident-as-teacher instructions, which reflects increasing recognition of the importance of the teaching role of residents. Further research is needed to assess the effectiveness of such instruction on residents' teaching skills and their attitudes toward teaching.

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better clerkship experiences when taught by residents, they also had better views of the specialty.¹⁻⁴

Residents enjoy teaching, and the majority report interest in the continuation of teaching activities after graduation.⁵⁻⁷ When they are engaged in teaching activities, residents also noted improvement in their clinical knowledge.⁶ Fulfilling educational responsibilities as teacher, evaluator, and role model not only improves education for the learner but also enhances resident development as professionals.⁶⁻⁸

Despite the prevalence of residents' teaching and their interest in working with learners, studies have found that most residencies do not provide the needed support or the adequate preparation.^{5,9-11} Traditionally, residents were expected to build teaching skills as they advance in their training with little or no instruction.¹⁰ Research, however, has shown that residents who undergo formal training in clinical teaching develop better teaching skills, are more satisfied with their teaching duties, and ultimately provide better-quality education.^{1,3,7,9-16} Formal instruction improves confidence in teaching skills and is associated with better student evaluations.^{2,3,9-16}

Teaching has been increasingly recognized as a primary responsibility of residents, who have been reported to spend up to 25% of their time teaching.¹⁻⁴ Across all specialties, residents are

important clinical teachers: they coach peers, medical students, and patients.¹⁻³ Medical students, for instance, attribute to residents' teaching one third of their knowledge.⁴ Not only did the students report

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Resident-as-teacher programs have emerged nationally as a means of enhancing teaching skills.^{8,12-14} Such programs improve residents' attitudes and perceptions toward teaching, enhance their knowledge of teaching theories, and improve teaching skills and behavior as observed by learners and faculty.^{2,8-10,12-16} Residents themselves report that, in addition to becoming better teachers as a result of their resident-as-teacher training, their experiences also make them better physicians.^{1,9,12-16}

In 2001, a survey of US residency programs revealed that only 55% of residency programs in general and 52% of family medicine residency programs offered resident-as-teacher training.¹ While it is anticipated that further implementation of resident-as-teacher training programs has occurred in US residencies since that time, no recent national studies have been undertaken to measure

the extent and types of training in family medicine. This study examined the use of residents-as-teachers programs in family medicine residencies through a national survey of family medicine residency program directors and assessed the trends in using such programs since the 2001 survey.

Methods

This study presents the analysis of a survey conducted as part of the Council of Academic Family Medicine Education Research Alliance (CERA) survey to family medicine program directors. CERA is a collaborative initiative of four US national family medicine organizations: the Association of Departments of Family Medicine, the Association of Family Medicine Residency Directors, the North American Primary Care Research Group, and the Society of Teachers of Family Medicine.^{17,18} The CERA survey is an omnibus

survey incorporating different sub-projects on different topics. The demographics of the survey sample are presented in Table 1. Questions pertaining to residents as teachers were included in the annual survey. The survey questions were based on previous surveys and were refined for the CERA survey instrument.^{1,9} Counts, proportions, and chi-square tests were calculated for categorical responses and averages, standard deviation, and *t* test for continuous variables. The survey was conducted electronically between February 2014 and May 2014. An initial email invitation to participate was followed by email reminders at 2 and 4 weeks. The survey protocol was approved by the American Academy of Family Physicians Institutional Review Board.

Results

The response rate of the survey was 49.6% (224/451). The majority (85.8%) of residency programs offer residents formal instruction in teaching skills (see Table 2 for results summary). University and university-affiliated programs were more likely to offer such instruction compared to community programs ($P=.008$). There was no difference between university and university-affiliated programs ($P=.26$). The vast majority (95.6%) of programs mandated the training for all of their residents at some point in their training.

The average total hours of teaching instruction residents receive while in residency training was 7.72. The residents are asked to formally evaluate the teaching instruction in 68.1% of the programs. Less than a quarter (22.6%) of residency programs offer the teaching instruction in collaboration with other programs. Almost half (48.6%) of the residency programs offered teaching instruction in the second year of residency. Three quarters (72.3%) of the directors stated that residents would benefit from more teaching.

Table 1: Demographic Characteristics of Family Medicine Residency Programs and Their Program Directors From the CERA Data

Residency Characteristics	Number of Programs
Program affiliation (n=221)	
University based	36
Community based, university affiliated	148
Community based, non-affiliated	29
Military	8
Others*	2
Percent of residents who are international medical graduates (IMGs) (n=222)	
0%–24%	114
Age of program in years (mean and SD) (n=219)	32.03±12.94
Program director characteristics	
Length of time as program director (n=222) (mean and SD)	6.14± 5.80
0–6 years	144
7+ years	78
Gender (n=221)	
Male	142
Female	79

Others: One community-based university administered; one has two tracks: university based and community-based university affiliated.

Table 2: Summary of Survey Results

Item	n (%) or Mean (SD)
Offered formal instruction (n=224)	212 (85.8%)
Mandatory training (n=182)	174 (95.6%)
Hours of instruction (n=173)	7.7 hours (7.05)
Year of training where most instruction is given (n=177)	
First year	59 (33.3)
Second year	84 (48.6%)
Third year	32 (18.1%)
Teaching instruction in collaboration with other residency programs (n=177)	40 (22.6%)
Residents evaluate instruction (n=179)	122 (68.1%)
Sufficiency of training (n=177)	
Just about right	48 (27.1%)
More than is needed	1 (0.5%)
Residents would benefit from more	128 (72.3%)
Program does not offer teaching because: (n=36)	
Residents skills are already adequate	6 (16.6%)
Residency does not have the resources	30 (83.3%)
Barriers or challenges (n=176)	
Faculty comfort	7 (3.9%)
Faculty interest	1 (0.6%)
Residents' interest	26 (14.8%)
Residents' time to learn	81 (46.0%)

“Retreat, workshop, and seminars” were identified as the main form of instruction by 33.7% of programs. When combining the primary and the second most commonly used form of instruction, “lectures” were used by over 55% of the programs (Figure 1). More attention was placed on teaching residents to lead “small-group discussion” than on “bedside teaching” or “classroom lectures” (Figure 2). Additionally, “giving feedback” was a highlight of teaching skills for over 90% of the programs (Figure 3).

The residents’ time to learn was listed as the main barrier (46.0%), followed by the residents’ interest (14.8%). In 83.3% of those not offering instruction, lack of resources was identified as the primary barrier.

Discussion

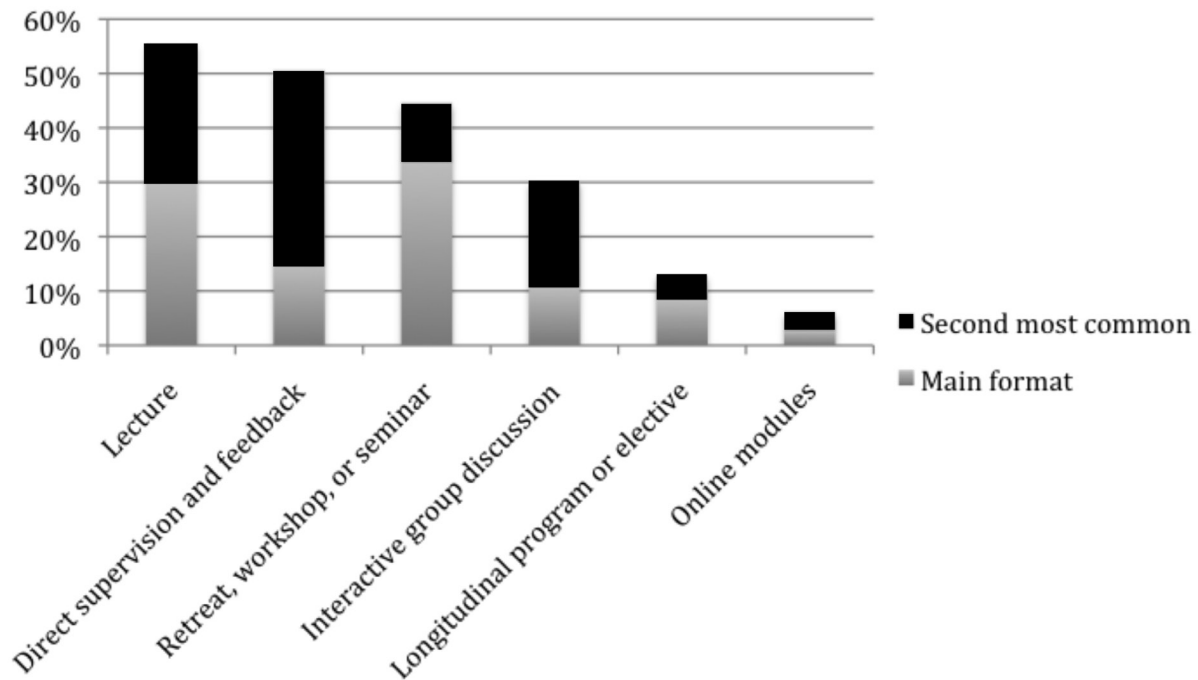
Based on a number of recent studies identifying the benefits of resident-as-teacher training^{3-6,9-11,13-15} and the increased attention it has received in the past few years, we anticipated that our results would reveal a moderate increase in the number of programs offering this training as compared to the 2001 survey results. In our study, we found that over 85% of family medicine residency program directors report offering some kind of formal teaching-skills instruction to their residents. This marked a significant increase from the previous survey, which found that only about half (55%) of family medicine programs offered the training in 2001. Family medicine residencies with resident-as-teacher training programs also now make the training mandatory more

frequently than was reported in 2001 (96% compared to 86% in 2001).

University-based and university-affiliated residencies have the highest percentages of programs offering teaching skills training at 87% and 94%, respectively. While there is variation between programs that are based or affiliated with universities and those based in the community, community-based programs offer resident-as-teacher training in seven out of 10 programs versus nine out of 10 in university and university-affiliated programs.

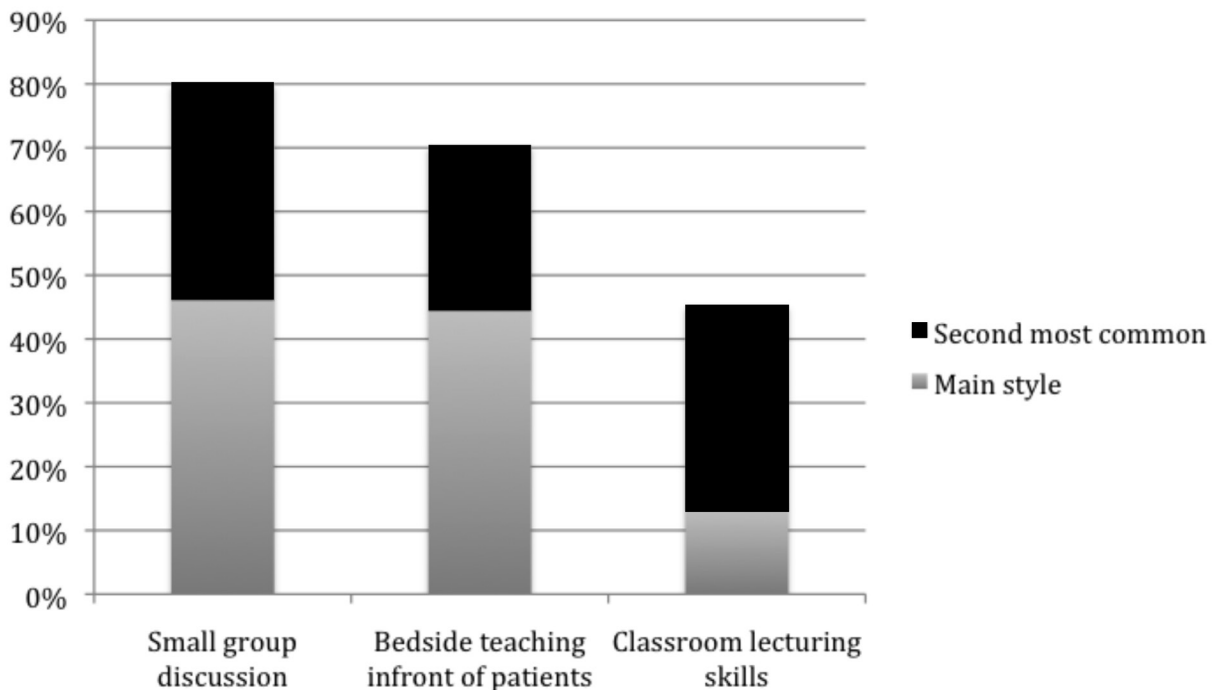
A variety of factors likely contributed to this increase. The benefits of resident-as-teacher training have been regularly discussed in the literature.^{3-6,8-10,12-16} Residents report enjoying working with medical learners and are asking for development in this area.^{7,10,11} And for university-based or university-affiliated

Figure 1: Format of Delivery



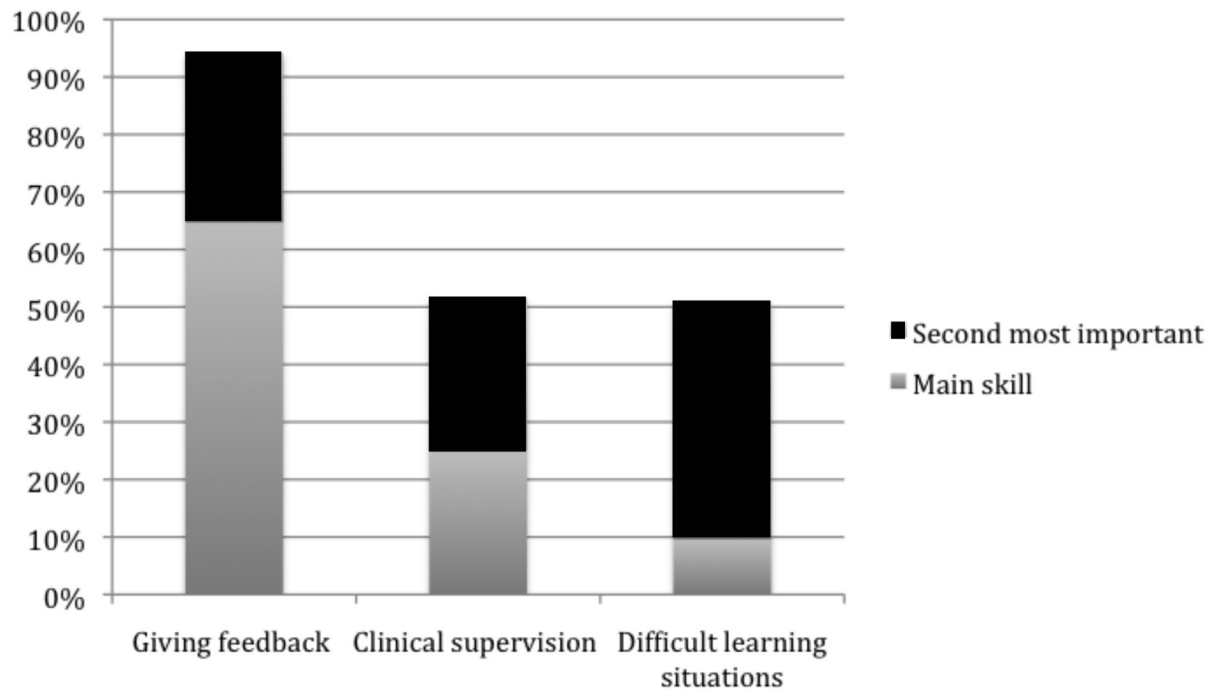
This stacked bar chart illustrates the use of different formats of deliveries by residency programs. The lower part of the bar represents the percentage of programs that uses the indicated instruction format as a primary method, and the upper part represents the percentage of programs that uses the same instruction method as a second most important method.

Figure 2: Style of Teaching Emphasized



This stacked bar chart illustrates the emphasis on different styles of teaching by resident-as-teacher programs. The lower part of the bar represents the percentage of residencies that emphasizes the indicated style as a primary one, and the upper part represents the percentage of residencies that emphasizes the same style method as a second most important one.

Figure 3: Teaching Skills Emphasized



This stacked bar chart illustrates the emphasis on different teaching skills by resident-as-teacher programs. The lower part of the bar represents the percentage of residencies that emphasizes the indicated skill as a primary one, and the upper part represents the percentage of residencies that emphasizes the same skill as a second most important one.

programs, accrediting bodies are regularly citing medical schools for lack of resident teacher training.¹⁹

Almost one quarter of program directors whose residents receive teaching-skills training report that the training is offered in collaboration with other residency programs. The majority of these joint programs are found at university-based (39%) or university-affiliated (21%) residencies, suggesting that Graduate Medical Education offices or other interdepartmental relationships may assist these residencies in offering teaching skills training. Since a university-based environment generally provides more immediate opportunities for academic collaboration, the results demonstrating increased rates of teaching-skills training and collaboration in that training seems logical. Residencies with a solo training program, particularly those in community-based settings, may benefit from increased collaboration networks to foster an environment of

support for resident teaching activities.

Characteristics of Resident-As-Teacher Training in Family Medicine

Survey results reveal that almost half of the family medicine residency programs surveyed concentrate resident-as-teacher training during the second year. An additional one third of programs focus their training on their intern classes. These results correspond with the teaching loads at most residencies, where upper-level residents (postgraduate years 2 and 3) are generally responsible for teaching interns in clinical settings, as well as for supervising medical students or other health professions students assigned to the program.

Program directors report that their residents spend anywhere between 1 and 40 total hours in resident-as-teacher training. Over 50% of the trainings offered take 1–5 total hours to complete, with another 28%

taking 6–10 hours. While we do not yet know the efficacy of programs of various length or type, our results indicate that almost three quarters of program directors (72%) believe that their residents could benefit from even more teaching-skills training. These findings suggest that program directors find potential value in investing more time training their residents to become better teachers.

The format for delivering resident-as-teacher training continues to vary greatly from retreats to rotations to web-based modules. Program directors identified lecture, direct supervision of teaching with feedback, and retreat/workshop/seminar as the most commonly used formats in their programs. While lecture and workshop formats have maintained their popularity over the past decade, the rise of real-time practice and assessment of teaching skills (direct supervision with feedback) in our findings suggests that more authentic, active-learning strategies

are being recognized and implemented in many programs. When asked about the content of resident-as-teacher training, program directors identified giving feedback, clinical/bedside teaching skills, clinical supervision, and small-group discussion facilitation as the four most important areas to address.

Barriers to Providing Resident-As-Teacher Training

When asked about the greatest barriers to delivering resident-as-teacher training, program directors who currently offer the training identified time as the most challenging factor. Forty-eight percent of directors cited resident availability and another 32% cited faculty availability as the biggest barriers to providing the training.

Directors of residency programs that do not currently offer resident-as-teacher training were asked to identify the reasons why that was the case. More than 75% of program directors acknowledged that their residents would benefit from a teaching skills program but that they did not currently have the resources to offer one given other training needs. This is similar to previous survey findings⁹ and suggests that resource restrictions continue to be an impediment to curriculum development and implementation. The identification of resources as a primary barrier offers an opportunity for the development of a standardized foundation with faculty development around a resident-teaching curriculum, an “out of the box” foundation that allows for customized growth and a platform for collaboration that may help penetrate programs with resource concerns.

The Society of Teachers of Family Medicine (STFM), an association of approximately 5,000 family medicine educators,²⁰ is in a position to lead resource development and engagement efforts related to resident teacher training, ideally in collaboration with similar organizations in other specialties. Resources could be

made available to programs through STFM's Resource Library and faculty development offered at specialty annual meetings as well as the AC-GME Annual Education Conference.

Interestingly, 16% of program directors reported that their residents do not need teaching skills training because their skills are already adequate. While this number is also similar to previous survey results, it conflicts with findings from a number of studies that identified benefits of resident-as-teacher training to residents from a broad range of teaching ability or experience.^{3,4,8-10,12-16}

Limitations

With a slightly less than 50% response rate to survey questions, it is unknown if these results are representative of the entirety of family medicine residency programs in the United States. This response rate, however, is similar to previous CERA program director surveys. Survey studies are limited by selection bias and may have selected program directors with more innovative programs. Finally, this survey of program directors does not include responses from residents and core faculty, which could provide important data for analysis of penetration and success of resident-teaching curricula.

Implications for Future Research

Further research should include investigation of content and format efficacy, training delivery timing, and skills assessment and retention. Delving deeper into the resident experience with teacher training, both in the training itself and in subsequent work with learners, could provide insight into engaging residents with the content. Utilizing students' evaluations of resident teaching should also be further investigated to assess the quality of the teaching and the success of the curricula. Finally, a study comparing the data from this survey and prior resident-as-teacher surveys could shed light

on program trends and areas for future curricular development.

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