See one, do one...teach one? Learning to be doctors, teachers, or both?

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**Abstract**

Most residents have a desire to teach, but no unified curriculum exists to help residents be the best teachers they can be. Further investigation reveals this to be a global problem and a pedagogic curriculum should be a well-defined expectation. While there are multiple requirements during residency, a well-implemented Resident-As-Teachers (RAT) curriculum should be incorporated into every program.

**Keywords:** Resident; Teacher; Pedagogy; Education.

**Perspective**

“Excuse me, doctor, I need you to speak to the patient's parents in room 500 and explain how to use a spacer and albuterol,” the nurse states as she comes into the workroom. Immediately, the intern looks at me and asks, “How do I order this blood test, and can you help me with a venipuncture?” As I gather the supplies to obtain blood, the attending reminds me about my lecture on the basic management of anaphylaxis to the 3rd year medical students at the end of the week. It is the first day of my final year of residency, and I can't believe that these teaching expectations have all accumulated within 10 minutes of each other.

The Latin root of doctor, *docere*, means “to teach” and one of the core reasons that residents pursue a career in medicine is to educate others. It is known that effective patient education can improve healthcare outcomes, and we as residents are at the forefront of this endeavor. Residents spend up to one quarter of their time teaching during residency and report that they enjoy it, consider it important, and believe that it improves clinical knowledge (Busari, 2002). Clearly, the role of the resident educator is extremely important but often underrecognized.

We must understand complex disease processes, teach it to junior peers, and educate patients who often do not have a medical background. The most apparent barrier is finding time to teach amidst substantial clinical responsibilities. A second barrier is educating others when we are still learning the intricacies of the disease processes that we are meant to be teaching. However, most significant is that residents are generally expected to become teachers with no
formal education in the art of teaching. If residents do not receive any formal education in teaching, how can we be expected to succeed?

Some have recognized that there is a need to train residents in pedagogy before expecting them to educate effectively. A literature review from 2004 found the need for improved supervision and curriculum in pedagogy specific to residents (Busari, Scherbier, 2004). However, effective action to incorporate this specific curriculum during medical training remains a rarity. 87% of pediatric residency program directors in the United States reported having a resident-as-teachers (RAT) curriculum, but only 17% considered the program to be very or extremely effective (Fromme, 2011). In family medicine, one study concluded that 85% of residencies offered a RAT program in 2014, though effectiveness was not measured (Al Achkar, 2017). Clearly, attempts have been made to implement RAT curriculums, at least in some residencies, but as a profession, we should consider making serious improvements.

This issue not only affects residents in the United States but is both a multi-disciplinary and global education problem. For instance, in Canada, residents from 17 family medicine programs were surveyed regarding teaching opportunities and mentorship in teaching. While 79% of residents indicated they had opportunities to teach, only 33% had been observed during these teaching encounters (Ng, 2013). In another example, a systematic review of RAT programs in New Zealand from 1971 to 2008 found that the use of more objective outcome measures are needed to determine the true effectiveness of these RAT programs. Additionally, in a European study of pediatric surgery residents (Zundel, 2017), most residents (93%) had no RAT training program. The majority of teaching was peer to peer and the study concluded that RAT programs needed to be developed. In all instances above, it seems that opportunities for pedagogical improvement remain.

While we have touched on the systemic nature of this issue, we would like to highlight some efforts to improve resident teaching abilities. In one example, after recognizing the deficit abroad, emergency medicine residents in Iran completed an 8-hour RAT workshop and resident attitudes towards their teaching ability was significantly improved (Nejad, 2017). In addition, Children's National Health System developed an intensive one-day RAT curriculum which included four 1-hour workshops focusing on adult learning principles using a flipped classroom approach (Chokshi, 2017). Their results showed statistically significant improvements in three core skills: giving feedback, orienting a learner, and teaching a skill. Another study examined programs that implemented a RAT video-based toolkit. This intervention was associated with improvements in teaching skills for residents in obstetrics and gynecology, emergency medicine, anesthesia, surgery, internal medicine, pediatrics, and dermatology. Furthermore, Baylor College of Medicine created the first Academy of Resident Educators (ARE) program, with the goal of developing educational expertise in clinician-educators and scholars (Moza, 2015). The academy provides opportunities for educational leadership, including six professional development sessions each year.

RAT programs have increased in number from the early 2000s to today, but can we do more? Implementing an effective RAT curriculum (or similar curriculum) in all residency programs could provide us with the training and confidence to become great teachers. As noted above, there are different types of RAT programs, and the following example focuses on a novel, dual approach wherein participants learn to teach and also learn medical content about mock codes. In a 2011 study from Duke Children's Hospital, the resident educator's (senior resident) objectives included teaching proficiency, leadership, debriefing and feedback, while objectives for resident participants (any resident level) focused on resuscitation and crisis management. In addition to improving knowledge in resuscitation skills for all participants, teaching proficiency of the resident educators was strengthened. We find the success of this program encouraging.

Furthermore, a teacher training program could be introduced as early as medical school, allowing opportunity for residents to further build upon basic pedagogic skills during their residency. In one teacher training program, medical students demonstrated improved content knowledge and had more positive attitudes towards different
teaching styles as well as teaching confidence. Furthermore, they continued to use these skills 2-years post intervention as residents. Implementing these concepts and skills in medical school in addition to reinforcing and further developing these skills during residency training could make all the difference.

Here, the ACGME's Common Program Requirements for all residency programs state that “residents are expected to develop skills and habits to be able to meet the following goals … participate in the education of patients, families, students, residents and other health professionals.” Thus, an implied RAT training goal is clear, but methods to help programs, help residents, become better teachers are not defined. We believe opportunities for RAT interventions are abundant and the data supports the benefits of a well-implemented RAT curriculum in all residency programs. Are we now at a place where a pedagogic curriculum should be a well-defined expectation and not an exception? We believe the answer is yes.

One proverb states, “if you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people.” Residents are excited to be lifelong physician-learners, but also aim to be the best teachers possible. Many residents aspire to effectively educate their patients and families, in addition to mentor and teach other trainees and colleagues. In the end, it is only when we unify as a profession and implement a system-wide curricular change, can we become the most successful of teachers across all forums, reaching students, colleagues, future physicians—and most importantly—our patients.

**Take Home Messages**

- The role of the resident educator is extremely important but often underrecognized.
- One barrier that residents face is that they are generally expected to become teachers with no formal education in the art of teaching.
- Attempts have been made to implement resident-as-teachers (RAR) curriculums, but as a profession, we should consider making serious improvements.
- Opportunities for RAT interventions are abundant and there is data to support the benefits of a well-implemented RAT curriculum.
- Implementing these concepts and skills in medical school in addition to reinforcing and further developing these skills during residency training may be a good approach.

**Notes On Contributors**

- Nikita Habermehl is a fellow in Pediatric Emergency Medicine at Rainbow Babies & Children's Hospital.
- Gabriel Habermehl is a fourth-year resident in Pathology & Laboratory Medicine at Cleveland Clinic Foundation.
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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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