

VIEWPOINT

Residents as Teachers: The Concept, Rationale and Challenges

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Abstract

Majority of the physicians including residents who teach had received no formal training in teaching. Consequently, they utilize skills obtained from their own experiences when they teach. Numerous reasons and benefits for providing residents with formal teaching training have been suggested. Accrediting and certifying bodies have recognized the importance of residents as teachers, conferring priority to residents teaching ability. Residents should receive formal instruction that is tailored to both their specialty and need. As teaching can be learned and refined over time, it needs to be reinforced with review sessions designed according to needs, experience and years of training. Effective resident educators will ultimately mature to competent physicians. Such physicians who can educate both their patients, their families, and improve patients' care. In this article, we reflect on the current status in conventional settings, new and emerging practices in fostering an educational role for residents and explore the various modules of such practices

and the potential for introducing these practices into newer regions.

Key Words: Residents, Teachers, Medical Education, Communication Skills, Lecturing, Tutoring.

Background

To fulfill their holistic care responsibilities, physicians need to be effective teachers as their job involves educating patients, working in teams and teaching medical students and residents. Residents in all specialties have an important role in both role modeling and teaching medical students and resident peers. Although residents are expected to teach, only a few of them would have had any formal training on how to teach effectively. As teaching can be learned, polished and developed over time, it is important to guide and facilitate this role for the residents. Accreditation bodies such as the Accreditation Council for Graduate Medical Education, (ACGME) in the USA have recognized

the important role that residents have in educating medical students, residents and patients (1). These bodies encourage residency programs to teach residents how to teach, and to supervise them aiming to provide residents with the opportunity to improve their teaching skills. Although the ACGME has set standards, and left it to the individual medical schools and residency programs to develop and set their own curricula (1). There is therefore a degree of freedom to elaborate on various aspects and accommodate the local, national and regional differences. In this article, we will initially examine the relevant literature on residents as teachers to provide a baseline understanding of the situations in conventional settings and help understand the role of residents as teachers. We will next appraise the role of educators and programs and finally review different curricula for residents as teachers to help establish the best evidence-based curricula and evaluation (Table 1).

Why Should Residents Teach?

Medical students, interns and residents are the future faculty members who will take up the roles of teaching patients and students. Residents have been shown to spend about 25% of their time during their own training, in teaching medical students and resident peers (2). One third of the medical student's knowledge has been directly attributed to teaching by the residents (3). Additionally, as healthcare systems become more complex, consultant physicians' responsibilities increase. More pressure on consultants to conduct research, increase patient volumes, use more complex electronic medical records left less time for teaching. This, naturally, lead to residents taking a bigger role in teaching to help alleviate the pressure on the faculty. It is becoming evident that residents' role in teaching is crucial and unavoidable although residents do not seem to be getting the training they require to efficiently fulfill this role. As residents are taking more responsibility in teaching, they may ask for more recognition, reward and support in

terms of time and instruction for this new role. The learning environment is a crucial component of adult learning to the extent that it must be safe, supportive and unthreatening. Therefore peers are in a better position to teach as they project a less threatening environment where students may make mistakes and be corrected in a less intimidating fashion (4). Also Morrison et al (5) found that residents are closer to students training level and therefore are able to understand how students should be taught best. Many studies have shown that teaching leads to better knowledge acquisition and retention (4). Cate and Durning described how students who teach were more motivated to prepare and learn for teaching (4), thus teaching was a motivator that helped them organize and solidify their knowledge making them better learners. Teaching, like assessment, can be considered a strong driver for learning. Consequently, teaching should be included in all resident training curricula to help motivate, accelerate and consolidate their learning. Teaching has also been shown to improve resident's communication and leadership skills (4).

A major part of the doctor-patient relationship involves teaching. Physicians need to educate their patients about their conditions, diagnostic procedure, treatment, outcomes and prevention. This is especially true in more recent times with the emphasis on patient autonomy, empowerment and joint decision-making. Communication, like leadership, is a skill that can be learned and refined overtime and with teaching, this skill can be enhanced. Therefore teaching has a direct positive impact on patient care and being an effective educator is the basis to being a competent physician. A "resident as teacher" curriculum has also been shown to improve the resident's leadership skills and self-confidence (6). As residents need leadership skills to organize, prioritize and facilitate their teaching, they learn to develop leadership skills to help them handle this role. Nowadays medical education skills seems to be undervalued in many

Table 1. Topical concepts and themes in "Resident as Teacher" scene.

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| Why residents should teach ? |
| Best practices and models |
| How is resident teaching being assessed ? |
| How are "resident as teacher" programs being evaluated ? |
| Implications for introduction of : "resident as teacher" programs |

institutions due to the misguided notion that teaching is not a necessary task for physicians. This makes it difficult for educators to find the support and the resources they need. By educating and teaching residents to value the teaching of others, we can instill in them the idea that teaching is an expected part of a physician's role, which could transform the academic culture in future (4). A "resident as teacher" program does not only teach knowledge and skills to students but also allows the residents to act as role models of professionalism (7). Residents also have a major influence on student's career and specialty choice. This was confirmed by Whittaker et al who showed that students that were exposed to residents who were rated as highly effective teachers were more likely to choose to do their residency training in the same specialty as their teacher (8). Two other groups have shown that residents' job satisfaction was enhanced with the additional teaching responsibilities (2,3). This is most likely owed to the improved motivation and the variety in clinical work provided by teaching.

Best Practices and Models:

Once the need, benefit, and importance of a "resident as teacher" curriculum has been argued, we will now turn to analyzing the literature on different program designs and delivery methods to establish best practice to guide intended change projects. Seventeen articles (including 4 reviews) related to residents as teachers programs were reviewed. An extensive range of programs have been developed in response to the identified need as discussed above. The percentage of programs offering residents as teachers opportunity has increased over time. 65% of internal medicine programs, 80% of pediatrics, 62% of psychiatry, 52% of family medicine and 31% of surgery programs do reportedly offer their residents formal teaching training. 35% of these programs offered multidisciplinary teaching organized by the graduate medical education office while the majority offered more specialty-specific teaching program (8). Morrison et al. specified that different medical specialties should approach and conduct "residents as teachers" differently (2). They suggested that there is no 'one size fits all' and a teaching program is best tailored in terms of content, assessment and evaluation to suit each specialty individually. This view was supported by Buchel and Edwards who showed a disagreement in what skills are needed for effective resident clinical teaching depending on the learners' level of education and programs need to tailor the content based on resident's specialty and level of training (9). On reviewing the literature, there seems to be no consensus on the content

of the curricula. Most of the curricula are modeled on successful faculty development programs rather than to the specific needs of the residents. Post et al recommends the one-minute preceptor as the best intervention to help residents become better teachers (3). On the other hand, Bensinger *et al.* based their recommendations on the adult learning theories and consequently recommended active learning opportunities for residents by including videos, role plays, brain storming, integration of residents own experiences and problem-solving activities (9). They also recommended providing residents with instruction on giving feedback, which was based on results from a needs-survey provided from residents response (9). Methods of instruction varied in formats between lectures, small-group discussions, case history teaching, role-plays and reviewing films and videotapes of teaching. The majority of workers chose to use workshops at the workplace to deliver the resident as teacher module and only a few used retreats (10). The idea of using retreats was considered as an attempt to take the residents away from their busy and distracting clinical environment so they can focus on improving their teaching skills. However, we would argue that considerable resources would be required with potential conflict with patient care and on-call duties. The duration of teaching varied from one hour teaching sessions to month-long rotations, therefore making any methodological comparison impossible. Hill *et al* found no obvious pattern of association between the effectiveness and duration or frequency of exposure (10). For instance, studies with as little as three hour-long sessions showed improvement in resident's self-assessment (2). The spreading of the instruction has also been reviewed in the literature. Bensinger *et al.* concluded that residents' self-evaluation of their teaching skills over time declined and consequently a recommendation of refresher courses for further training was made (9). This was supported by Post *et al.* who also recommend periodic reinforcement as part of the best intervention (3).

How is Resident Teaching Being Assessed?

Four different tools were found to be in use for the assessment of "residents as teachers" programs. These are residents' self-assessments, learner assessment of the teaching resident, direct observation using objective structured teaching examination (OSTE) and indirect observation using video taping of teaching. Majority of the studies employed a combination of assessment methods and only 4 studies used just one method (10). The OSTE methods have been used in the more recent reports, as they

tend to be more objective, reliable and valid in measuring residents' competence as teachers. The OSTE is based on the objective structured clinical exam first described at the University of Dundee. It is comprised of multiple stations that use standardized students posing as student learners. The residents are then assessed on specific teaching skills. Despite of this, results of "resident as teacher" programs using the OSTE have been shown to be variable. Morrison et al described their delivery of a thirteen-hour teaching session, in which they used the OSTE to determine its effectiveness (12). The results showed that the curriculum improved the overall teaching by 28% compared to the control group. In contrast, only minimal changes were detected using the OSTE in the surgical residents teaching behavior after the teaching intervention (13). Despite this, Post et al. concluded that the OSTE is still a reliable and valid method of determining the teaching competencies and recommended that it should be used as the gold standard for evaluating residents teaching in future. However the OSTE does have drawbacks in that it does not test real life context and only a number of stations can be set therefore limiting the teaching skills it can assess. The OSTE similar to OSCE has other disadvantages such as being labor-intensive, costly, time-consuming in preparation and delivery (3). Despite all these limitations and drawbacks, Post et al indeed further recommend the OSTE as the preferred assessment tool with video-taping as their second recommendation if the OSTE is not feasible (3). Videotaping method of assessment using indirect observation was used in a couple of studies (13,14). Residents were assessed using videotape before and after the intervention and both studies showed improvement in resident's skill on video after the intervention (13,14). In real life, the learner questionnaire of residents teaching effectiveness is the most commonly used method (3). The learners complete questionnaires at the end of the rotations evaluating residents teaching. The major drawback of this method is that it is usually difficult to get the same learner to evaluate the residents before and after the teaching interventions. One study that employed this method showed higher scores where residents were given an intervention and subsequently compared to three control groups in other institutions. Numerous studies have used the resident self-assessment as a way of assessing resident improvement and program effectiveness. In most of the studies that used this method, a positive effect on resident self-rating on their teaching skills was evident (6). Being a subjective method, it cannot be used alone to measure the effectiveness of a residents as teachers intervention. Though measuring the residents confidence, satisfaction and to establish residents

views on any missing details, self-assessment methods can be a valuable tool for measuring these. The goal of most "resident as teacher" programs is to ultimately enhance the knowledge acquisition of students to improve patient care by improving the teaching skills of residents. This is obviously difficult to measure; we therefore have to resort to the available methods of measurements discussed above.

How Are Residents as Teachers Programs Being Evaluated?

Most of the studies seem to focus on assessment rather than evaluation of "resident as teacher" programs. This may be due to poor recognition of the differences between assessment and evaluation or the obvious overlap between the two. Rossi et al "proposed that "program evaluation should also include activities which evaluate: 1) the need for the program, 2) program design, 3) program implementation, 4) impact or outcomes and 5) cost/benefit and efficiency of the program (17). Therefore in focusing solely on assessment studies have seemingly neglected the above crucial aspect of program evaluation. Perhaps, the study of Ostapchuk et al. was one of a few studies where proper evaluation was performed in a "residents as teachers" program (18). In this study, the Kirkpatrick's model was used which included feedback from faculty on the programs' strengths and areas that needed improvement.

Implications for Introduction of Residents as Teachers Programs

There seems to be no agreement as to the best practice in the development, delivery or evaluation of resident as teacher programs. The current practice suggests some trends, although more research is needed. In the argument presented above, we summarized the evidence-base for the resident as teacher program that can form the basis to justify any intended such programs. However, as there is no gold standard for a resident as teacher program, with no standardized length, delivery method, content or evaluation method. Similar to faculty development courses, it seems reasonable to utilize the adult learning principles, the five micro skills and giving effective feedback. Additionally, the "residents a teacher" module can be designed to the needs of specific resident subgroups taking into account their needs as has been elaborated previously. We have just completed a family medicine resident's project at Sheikh Khalifa Medical City in Abu Dhabi, UAE and we have submitted our experience for publication.

Final Remarks

It is well established, that the majority of the physicians including residents who teach has had no formal training in teaching. They seem to utilize skills they obtained from their own experiences when they teach. There is an abundant volume of literature furnishing numerous reasons and benefits for providing residents with formal teacher training. Accreditation and certifying bodies have also recognized the important role that residents play in teaching and stipulated that residents teaching ability needs to be viewed a priority. It is reasonably argued that residents should receive formal instruction that is tailored to both their specialty and need. As teaching be learned and refined over time, it needs to be reinforced with review sessions, which should be designed according to needs, experience and years of training. Undoubtedly, effective educators will ultimately lead to competent physicians who can educate both their patients and their families about their illnesses and improve patient care.

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