CONTROL ID: 2687176

TITLE: Aligning resident and medical student teaching programs: Assessment of a novel training approach for future physician educators

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SUBMISSION ROLE: Highlights in Medical Education

Focus of Submission: Innovation

ABSTRACT BODY:

Purpose: A core responsibility of every physician is to be an educator to peers, team members and patients, making teacher-training programs for future physicians an essential component in undergraduate and graduate medical education. A review of the medical student-as-teachers literature found that a majority of programs offer only elective curricula for senior medical students and types of experiences varied among medical schools.1 A review of the resident-as-teachers literature also found a wide variation among curricula.2 Peer-teachers have similar student outcomes when compared to faculty teachers, highlighting that near-peer teaching can both benefit the student and also help develop teaching skills for the peer-teacher.3

Since 2005, Northwestern University Feinberg School of Medicine (NUSFM) has required medical students to teach in their M4 year, and in 2010, NUFSM, in collaboration with McGaw Medical Center of Northwestern University, created a novel teacher-training program that aligned the resident and medical student teaching programs creating a program across the medical education continuum. All M4s and volunteer resident reviewers participate in a teacher-training program. M4s are then videotaped teaching junior students in clinical skills and residents review highlights of the videotapes to give written feedback to the M4s on their teaching. A core component of the program is to provide experiential clinical teaching opportunities for each group to enhance their training as future clinical educators. This alignment fosters near-peer teaching, but also professional identity formation along an educational continuum.4 Given the potential benefits of this novel alignment, the purpose of this program evaluation was to assess the quality of the narrative feedback provided by residents to M4 students.

Approach/Methods: A convergent parallel mixed methods approach was used for program evaluation. The quality of resident feedback provided to M4 students in the teaching program was analyzed by two independent raters using pre-established codes (n=445). The quality rating codes were based on a previously established operational definition of feedback in clinical education.5 Quality of feedback received a single numeric code, based on a 4-point rubric ranging from weak to strong. Specifically, feedback was coded as providing weak feedback (0), making a specific observation (1), identifying a performance gap (2) or stating an actionable item for improvement (3). Feedback was further qualitatively analyzed for the presence of themes formally taught in the teacher-training program: setting expectations, self-assessment and learner engagement. After independent coding of feedback by two raters, discrepancies were discussed with a panel of experts to come to consensus on the final code. Quantitative analysis of participant reaction to the program occurred through analysis of resident and M4 student satisfaction survey data from 2011 to 2016.

Results/Outcomes: The overall mean quality rating of resident to M4 student feedback was a 2.72 (scale 0-3). Of all 445 feedback narratives, only 1.8% provided weak feedback, 10.1% made a specific observation and 2.2% identified a performance gap. The highest feedback rating of stating an actionable item for improvement was achieved by 85.8% overall. The theme of setting expectations was present 31.7%, self assessment in 34.2% and engagement in 56.4% of feedback. In all subspecialties and years of involvement, over 81% of feedback achieved the highest quality rating (3). Overall medical student satisfaction with the teaching program ranged from 4.7 to 5.2 on a 6 point Likert scale (1=extremely dissatisfied, 6=extremely satisfied). Similarly, resident satisfaction ranged from 4.7 to 5.2.

Discussion: This study found that residents are providing high quality written feedback to medical students in the aligned teaching programs regardless of the year of participation or specialty. Both residents and medical students are demonstrating high satisfaction with the program. The higher prevalence of engagement in feedback, as compared to self-assessment and setting expectations maybe reflective of the emphasis placed on engagement during the formal teaching provided to residents and medical students prior to initiation of the teaching program. Although the study documents high quality feedback, it is limited by potential self-selection bias, as resident participation is voluntary.

Significance: Aligning undergraduate and graduate medical education teacher-training programs across the continuum provides benefits to both segments of the continuum by aligning resources, providing high-quality feedback to medical students on their teaching and offering both students and residents experiential teaching opportunities.

Level of Audience: Mid-career
Focus of Presentation: UME, GME, Continuum
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The Effect of a Resident Driven Educational Workshop on Medical Student Transition to Clinical Medicine

ABSTRACT BODY:

**Purpose:** The transition from pre-clinical years to full time clinical studies is a difficult and often anxiety-inducing experience for medical students (1-3). Prior studies have demonstrated benefits from peer teaching amongst medical students throughout medical school (4, 5), but little data exists regarding resident-medical student teaching or benefits of peer/resident teaching during transitional periods. Our aim was to develop and assess the efficacy of a resident driven two-hour workshop in preparing pre-clinical medical students to start clinical rotations.

**Approach/Methods:** Based on multidisciplinary collaboration, a transitions workshop was designed to provide medical students a hands-on opportunity to pre-round on and present a hospitalized patient in a small group under the tutelage of a resident prior to starting clinical rotations. Participating medical students were matched in groups with residents in the specialty of their first rotation, which not only allowed the students to identify rotation specific data from the electronic medical record and present a patient similar to one they might see on their first rotation, but also provided for resident-student interaction outside of the hospital. The workshop also included time for small and large group discussions, allowing students to ask questions about specific rotations as well as clinical rotations in general. Lastly, students received a short "ward guide" compiled by residents, including pearls and rotation specific for the rotations that make up the third year curriculum at our institution.

To measure efficacy of the course, a prospective survey measuring comfort (1=least to 5=most comfortable) and anxiety (1=least to 5=most anxious) levels was administered to a convenience sample of pre-clinical medical students prior to transitioning to clinical rotations. The same survey was administered to students following their voluntary participation in a resident driven transitions workshop. Pre-workshop and post-workshop scores were averaged and compared using simple T-test.

**Results/Outcomes:** The response rate for the pre-course survey was 93% (65/70) for all students and 95% (42/44) for the post-course test, administered only to students who participated. There were no differences in age, gender, or race between the two groups of surveyed students. Students reported a significant increase in overall comfort with daily hospital tasks after participation in the resident workshop (3.7±0.89) when compared to all students prior to the workshop (3.25±1.10 (p<0.0001), with statistically significant improvement in 13/19 sections (p<0.0001 for all) and improvement nearing significance in 3 additional section (p<0.07) (See Figure 1). Students also reported decreased overall anxiety after workshop participation (3.09±1.15 vs. 2.82±1.05, p=0.0001), with significant decrease in anxiety in 2/10 sections included in the survey (p=0.02, 0.008) and nearing significance in one additional section (p=0.061).

**Discussion:** This workshop was very well received amongst participating medical students and provided a wonderful teaching opportunity for the involved residents. Students who participated reported increased comfort and decreased anxiety after participation in a resident driven pre-clinical workshop. These data suggest that hands-on experience with pre-rounding exercises as well as interaction with residents prior to starting clinical rotations can provide a potential benefit to medical students, while offering a structured opportunity for resident teaching in a low stress setting.

This abstract/data has been accepted for oral presentation at the 12th Annual Academic Surgical Congress and will be presented in February 2017.

**Significance:** Our data suggests that the development and implementation of a pre-clinical resident driven workshop providing hands-on experience for medical students not only increases comfort with clinical responsibilities, but also decreases rotation associated anxiety. Additionally, this workshop provides an opportunity for student-resident interaction as well as resident teaching in a low stress, non-clinical environment. Due to the simplicity of the curriculum, this workshop would be easily reproducible in most teaching institutions across the nation.


**Level of Audience:** Early-career

**Focus of Presentation:** UME

**PRESENTER:** Rebecca Brown

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Purpose: Resident physicians spend a significant proportion of their time training and educating medical students\(^1\), despite a lack of exposure to formal medical education theory in the traditional undergraduate medical curriculum. To meet the rising demand for physicians who are trained in medical education\(^2\), the Brody School of Medicine at East Carolina University has designed and implemented the Medical Education and Teaching (MET) Distinction Track for medical students. The purpose of this three-year longitudinal experience is to prepare medical students to be effective medical educators in both academic and clinical settings.

Approach/Methods: Medical students who are interested in careers as clinician-educators may apply to the MET Distinction Track in the spring of the M1 year. Students accepted in the Medical Education and Teaching Distinction Track participate in a Summer Immersion Teaching Experience between their first and second year of medical school. During this unique experience they work as Teaching Assistants in graduate level basic science courses under faculty guidance. Across the remaining years of medical school, Scholars regularly attend workshops focused on topics including adult learning theory, the history of medical education, curriculum development, medical education research design and teaching methodology and strategy. Additionally, Scholars are invited to faculty development workshops that focus on current topics in medical education such as the hidden curriculum and NBME question writing. MET Scholars work closely with a chosen faculty mentor to design and implement a required medical education research project (MERP) with the goal of publication in a peer-reviewed journal. Faculty mentors meet regularly with Scholars to discuss career planning and educational opportunities, and guide them in developing a comprehensive teaching portfolio. Scholars who complete the requirements of the MET Distinction Track receive recognition of their accomplishment on their transcript, MSPE letter, and during graduation.

Results/Outcomes: Through the MET Distinction Track, the first cohort of Scholars (n=5) has participated in over 1900 hours of peer-peer tutoring, developed clinical educational materials and presented on both the local and regional levels, all while maintaining excellent academic status. Involvement in the MET Distinction Track has enabled Scholars to develop their own teaching style and philosophy, challenged them to find work-life balance, and improved their time management and general coping skills.

Discussion: Training programs focused on medical education have been put into practice for resident physicians and attending physicians in various institutions\(^2,3,4\). These programs focus on topics and themes like those stated above, however are usually not available to medical students. Due to the significant time resident physicians spend teaching\(^1\), we believe early exposure to topics in medical education, as well as experience in a teaching role, are extremely beneficial to medical students who wish to become clinician-educators.

Significance: Educational training programs focusing on topics like those covered in the MET Distinction Track have been successful in improving the quality of attending physician teaching on student evaluations\(^4\). The implementation of similar opportunities at other undergraduate medical institutions would provide a larger resident physician population trained in medical education, and would likely improve the quality of undergraduate medical education in the clinical setting.


Developing medical educators - a mixed method evaluation of a teaching education program. Medical Education Online.

**Level of Audience:** Mid-career  
**Focus of Presentation:** UME  
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Purpose: Case Based Learning (CBL) is an effective method of medical education associated with high levels of satisfaction. CBL is an inquiry based approach that highlights the clinical relevance of classroom material and encourages application of theory to practice. Because of its success, CBL is an important aspect of the curricula at most medical schools. However, because CBL is traditionally conducted in small groups, its feasibility may be limited by availability, skill, and funding of faculty. We developed a novel team-based CBL (TB-CBL) teaching format that closely resembles traditional CBL (and is distinct from TBL), but is designed to be implemented in the lecture hall with a single facilitator.

Approach/Methods: TB-CBL requires students to work in assigned groups of three in the large group setting to answer open-ended guided inquiry questions as case elements are sequentially revealed. Groups are called upon randomly to provide answers to the class and other groups are invited to agree, disagree, or expand on answers provided. Teaching and learning occurs in a peer-to-peer fashion both within groups and together as a class. Facilitators ensure that each question is discussed thoroughly, but are discouraged from didactic teaching. In September 2015, all Period 2 students at HWCOM (n=121) were randomized to either traditional CBL or TB-CBL for two case sessions during the Endocrine block and to the other modality for two case sessions during the Renal block. Groups were stratified based on gender and cumulative GPA. All students were exposed to both methods. Case content was identical and sessions were run concurrently. The study was designed as a cross-over, non-inferiority study with the hypothesis that no difference in knowledge acquisition, clinical reasoning, or student satisfaction would be detected.

Results/Outcomes: Performance on case relevant exam questions revealed no difference in knowledge acquisition between groups for either block (p=0.62 Endocrine, p=0.38 Renal). There was also no difference in overall final exam performance between groups (p=0.56 Endocrine, p=0.26 Renal). To assess effects on clinical reasoning, case relevant script concordance tests were developed in-house and administered to students. When scored against weighted faculty responses, no difference in clinical reasoning was detected between groups (p=0.87 Endocrine, p=0.1684 Renal). Satisfaction was found to be higher for TB-CBL (p=0.0047). A cost analysis revealed that at HWCOM (class size 120), while each CBL session requires 36 hours of paid faculty time and costs approximately $3,200, each TB-CBL session requires 3 hours of paid faculty time and costs approximately $265.

Discussion: We developed a novel case-based teaching format designed to be implemented in the lecture hall with a single facilitator. We compared outcomes from this format to outcomes from traditional CBL and found no difference in knowledge acquisition or clinical reasoning skills. Surprisingly, students reported increased satisfaction with the TB-CBL method. Student comments suggest that the minimization of inter-group facilitator variability may have contributed to student’s increased satisfaction. In addition to significant cost savings, the TB-CBL method eliminates the need to secure multiple facilitators and rooms needed for traditional CBL sessions.

Significance: The TB-CBL method is a novel case-based teaching method that appears to produce similar learner outcomes and higher student satisfaction when compared with traditional small group CBL. Based on these findings, TB-CBL could be used to supplement case-based curricula while also minimizing resource allocation.