Summer 2009

Teacher Training for Medical Students and Residents

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Regis University
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Final Project/Thesis

Disclaimer

TEACHER TRAINING FOR MEDICAL STUDENTS AND RESIDENTS

by

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A Research Project Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Education

REGIS UNIVERSITY

August, 2009

ABSTRACT

Teacher Training for Medical Students and Residents

The directors of many medical education accreditation bodies have called for an increased focus on teacher training for physicians and other medical professionals. As the role of specialist physicians becomes busier, many of their traditional teaching expectations have been transferred to residents and medical students. Many medical school directors have created Resident as Teacher (RAT) curricula to better prepare their students as educators. In this project, the author reviewed the literature relating to existing RAT programs. After reviewing the literature, the author created a RAT curriculum to be utilized on Medicine in the Wild, a month long, expeditionary medical school elective offered by the Wilderness Medicine Institute of NOLS and the Harvard Associated Emergency Medicine Residency.

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Chapter 1

INTRODUCTION

In response to increased demands upon attending faculty at medical schools, resident physicians have assumed a greater responsibility for the education of medical students. The officials of several regulatory agencies have suggested the creation of Resident as Trainer (RAT) programs in order to better prepare residents for their expanded role.

Statement of the Problem

Weissman, Bensinger, and Koestler (2006) reported that, at the Millennium Conference on the Clinical Education of Medical Students in 2001, conference attendees addressed the state of medical education with the goal to revise and update existing systems in order to reflect the changing needs of the medical profession. As the role of physician specialists has changed over the years, greater responsibility for the clinical education of medical students has been transferred to medical residents. As a result of this trend, members of the American Council for Graduate Medical Education (ACGME) and the Liaison Committee on Medical Education (LCME) established new requirements that mandated teacher training for medical residents. Despite these requirements, only 55% of medical specialty residencies offer formal teacher training programs (Kupersanin, 2001). Therefore, there is a need for the creation and implementation of teacher training programs in order to attain compliance with the new standards.

Purpose of the Project

The purpose of this project was to develop a curricular unit to be used as a component of the Wilderness Medicine Institute of the National Outdoor Leadership School's (WMI) Medicine in the Wild (MED) elective for third and fourth year medical school students. The Harvard Associated Emergency Medicine Residency (HAEMR) has partnered with WMI to create a month long field based elective that provides curriculum in four areas: (a) wilderness medicine, (b) outdoor skills, (c) leadership, and (d) teacher development. This author of this project created the teacher development curriculum to be employed by WMI instructors on MED courses in order to meet the ACGME and LCME requirements.

Chapter Summary

In many medical residency programs (Bensinger, Meah, & Smith, 2005; Busari, Scherpbier, van der Vluten, & Essed, 2006; Craig, 1988; Haber et al., 2006; Jafri et al., 2007; Mann, Sutton, & Frank, 2007; Morrison, Shapiro, & Harthill, 2005; Pasquale & Cukor, 2007), the RAT programs have been utilized as a means to address the issues raised at the Millennium Conference on the Clinical Education of Medical Students. The purpose of these programs is to provide formal teacher training to medical residents in an effort to increase their efficacy as primary educators for medical students. The Medicine in the Wild elective created by WMI and HAEMR seeks to incorporate the principles of RAT training in an extended wilderness expedition context to capitalize on the unique learning environment that wilderness travel creates. In the next chapter, this author reviews the literature on RAT programs in order to identify objectives, outcomes, and curricula for existing programs.

Chapter 2

REVIEW OF LITERATURE

The purpose of this project was to create a curriculum for a Resident as Trainer (RAT) component of a 1 month expeditionary medical school elective offered by the Wilderness Medicine Institute of the National Outdoor Leadership School (WMI) and the Harvard Associated Emergency Medicine Residency (HAEMR). These programs have partnered to create a curriculum that has four primary components: (a) wilderness medicine, (b) expedition travel skills, (c) leadership, and (d) teacher training. In recognition of the movement toward more deliberate teacher training in the medical community, the staff of WMI and HAEMR required a curriculum that meets the needs of the medical students and residents who will bear the responsibility for the education of their peers and patients in a clinical setting. This curriculum is based upon commonly accepted principles of adult education. The author of this project incorporates components of existing RAT programs into the proposed curriculum. The author designed the curriculum for the Medicine in the Wild elective to be given to the WMI and HAEMR instructors as part of a precourse briefing. In this chapter, the author reviews the literature related to existing RAT programs currently in use in medical school and residency education programs.

Introduction and Background

According to Weissman et al. (2006), the Millennium Conference on the Clinical Education of Medical Students was convened in 2001 to discuss the state of medical education in the United States. One of the projects of this conference was to identify the

primary providers of clinical training for medical students. The list of educators for medical students was extensive and included the obvious people (e.g., nurses, attending physicians, allied healthcare professionals) whose roles were largely formalized. Also, the list included resident physicians, a group not typically thought of as formal educators. Weissman et al. reported that changing demands on attending faculty, the traditional educators, resulted in the expansion of the roles of secondary educators, including residents. Typically, residents had typically assigned lesser importance to their teaching role, and the authors reported that, at some schools, there has been more emphasis on the new importance of this role.

Morrison and Halfer (2000) reported that, as early as 1970, Brown (1970, as cited in Morrison & Halfer) showed that residents provided at least 40% of the clinical training that medical students received. More recently, Bensinger, Meah, and Smith (2005), Busari, Scherpbier, van der Vleuten, and Essed, (2003), and Morrison and Halfer (2000) showed that residents provide 20-62% of the clinical training for medical students and that this teaching role requires as much as 25% of the resident's time. Weissman et al. (2006) reported that, in light of these numbers, both the American Council for Graduate Medical Education (ACGME) and the Liaison Committee on Medical Education (LCME) established teaching skills as a core competency area to be addressed in residency training programs.

Bing-You and Tooker (1993, as cited in Morrison & Halfer, 2000) reported that only 20% of internal medicine residency programs included teacher training as a component of their curriculum in 1993. As of 2001, those numbers had increased somewhat, but in only 55% of medical specialty residencies were formal teacher training

programs offered (Kupersanin, 2001). Bensinger et al. (2005) reported a wide range of RAT training among medical specialties: (a) 88% of medicine-pediatrics, (b) 80% of pediatrics, (c) 65% of internal medicine, (d) 62% of psychiatry, (e) 52 % of family practice, (f) 38% of obstetrics and gynecology, and (g) 31% of surgery residencies reported intentional teacher training programs. During the 1990s, many medical residency programs initiated RAT programs in order to address the perceived need for increased attention to teacher training as well as to address residents' desires to spend more time to become better teachers (Bensinger et al.). Most of these programs were designed specifically for use in individual residency programs and did not have the goal of wider application. As a result, many residencies created separate but similar approaches to RAT programming.

Preliminary Research

The first wave of studies (Busari et al., 2003; Kupersanin, 2001) after the ACGME and LCME requirements were published were focused on a determination of whether there was wider support for RAT programs than just in the programs where they were already used. Busari et al. surveyed attending physicians in Obstetrics, Gynecology and Pediatrics to determine whether they saw value in increased teacher training for residents. Although, ultimately, they felt that they were more qualified to act as primary instructors for the medical students, the physicians acknowledged that residents did play an important role in the education system and that formal training would be beneficial. Kupersanin reported the results of a survey conducted by researchers at the University of California at Irvine in 2001, which showed that 75% of residency program directors of programs accredited by the ACGME, reported that "residents would benefit from teacher

training" (p.2). For this survey, 1,346 residency directors responded. Clearly, the perception was that RAT programs seemed to be important. However, Farrell et al. (2006) and Weissman et al. (2006) found that there was a false assumption that proficient clinical skills related to the ability to teach. Each of these authors reported that many medical professionals assumed that, as a resident's clinical skills improved, there would be a correpsonding increase in teaching skills. This assumption was the reason for the lack of formal teacher training in several residency programs.

The next wave of research was focused on whether RAT programs had a positive effect on residents' teaching skills. In an interview for the University of California Newsroom, Porterfield (2001) cited Dr. Morrison, a clinical professor of family medicine at the University of California at Irvine, who stated, "What now may be needed is a concerted, national effort to determine the best teaching methods" (p.1). There was an existing body of research which demonstrated that faculty development programs improved teachers' teaching skills, and a few studies (Edwards, Kissling, Plauche, & Marier, 1986; Edwards, Kissling, Plauche, & Marier, 1988; Litzelman, Stratos, & Skeff, 1994; Spickard, Corbett, Schorling, 1996; all cited in Morrison & Halfer, 2000) were developed to determine if the same would be true for residents.

Vasich (2004) reported that the staff at the University of California at Irvine was "among the first to quantify how specialized training for resident physicians improves their teaching and mentoring skills" (p.1). In this admittedly small study, the UCI researchers provided 33 residents with 13 hours of RAT training and compared their results on a teaching examination to those of 29 residents who were not provided with the RAT training. The RAT trained group scored 28.5% higher on the teaching test.

Morrison, Shapiro, and Harthill (2005) conduted a study in which it was concluded that residents with RAT training had "greater enthusiasm for teaching, more learner-centred and empathic approaches, and a richer understanding of teaching principles and skills" (p.137). The objective of this study was to determine how RAT training affected residents' self-image as teachers. In comparison to the control group, the RAT trained residents reported that they were much more prepared and qualified to fill the educational role required in their positions.

James, Mintz, and McLaughlin (2006) examined the effect of a RAT intervention on the morning report, a specific daily activity consistently ranked as one of the most important and valuable educational tools for residents. The morning report is a case study related to a newly admitted patient, typcially presented by a senior faculty member. In this study, the participants attended a 3 hour workshop that was focused specifically on strategies to improve the morning report. During the next 4 months, the residents received feedback from course preceptors via mechanisms established during the initial workshop. The results were unusual because the majority of participants felt more comfortable teaching, but more challenged in their efforts to engage their students. This discrepancy may have been due to their misinterpretation of feedback that was designed to improve an already good product for indications that the teaching was not effective. The authors felt that the medical residents were overly sensitive to the feedback requesting more interactive sessions, and that they perceived the feedback as an indicator that the teaching sessions were not interactive at all. The authors believed that, if more time had been spent training the residents and medical students in appropriate delivery and incorporation of feedback, these issues may have been avoided.

Farrell et al. (2006) provided a summary of one of the largest reviews of RAT efficacy. They reported that, after a review of more than 3,900 student evaluations of residents' teaching, both before and after RAT training, there was marked improvement in "residents' skills in teaching analytical thinking, evaluation of knowledge, and ability to provide feedback" (p. 678). Additionally, they found that the use of teacher training intervention improved residents' self-reported: (a) knowledge, (b) teaching skills, and (c) confidence.

Busari et al. (2006) were one of the few groups of researchers who attempted to determine whether the effects of a teacher training were more than just perceptual on the part of the residents involved. They evaluated both perception and performance assessments of teaching skills. Although the self-reported perception of improvement was high, in comparison to the efficacy of the teaching of the experimental group to the teaching of the control group, little difference was found. It should be pointed out that this efficacy evaluation was based purely on subjective observations as self-reported by the medical students and not via an objective evaluation in the manner of the UC Irvine study. Additionally, there was an unusually high attrition rate as well as universally high scores. The authors attributed the high scores to a "ceiling effect" (p. 140), driven by the use of a five point scale for pre and post training evaluations. The students gave the residents high scores on the first evaluation, and there was little room to show improvement after the training. It was difficult for the authors to maintain participation from the full study group, and they expressed some concern that this attrition may have had some effect on the validity of the results.

Controversy

Despite the almost unanimous opinion that RAT programs were needed and worthwhile, there were still some areas of contention. As early as 2000, Morrison and Halfer noted that there were few data which showed a direct link between the improvement of teacher quality and student outcomes. Although it stands to reason that improvements in teaching would lead to improvements in learning, there are few data to support this belief.

Busari et al. (2006) observed that the assessments used by several researchers (Bing-You & Greenberg, 1999; Camp & Hoban, 1988; Edwards et al., 1988; Jewett et al., 1982; Lawson & Harvill, 1980; Meleca & Pearsol, 1988; all cited in Busari et al.) to evaluate improvement among RAT trained residents had inherent flaws. In regard to their own study, Busari et al. reported that the evaluation system they used presented challenges to obtaining accurate information regarding improvement. The subjectivity of Likert scale assessments and the lack of a reference point for initial evaluations led to a narrow window in which to record improvement. The authors felt that a more deliberate scoring scale, with less subjective benchmarks, could be used to minimize this challenge.

Bensinger et al. (2005) included a literature review in their summary of the Mt. Sinai program. These authors observed that the wide range of RAT formats made it difficult to compile meaningful data. Given the variance in size, length, and style of training, it was difficult to establish universal consistencies. Additionally, the large number of programs, which involved small numbers of participants, led to difficulty in the generation of sufficient data to be statistically significant. Added to the challenge of limited numbers was the challenge to obtain objective assessment results. Many of the

studies (Bensinger, et al. 2005; Busari et al., 2003; Busari et al., 2006; Haber et al., 2006; James et al., 2006; Morrison et al., 2005) relied on residents' self-evaluations, largely related to characteristics which are difficult to quantify: self-confidence, comfort and self-awareness being chief among them. Very few studies (Haber et al., 2006; Morrison et al., 2005) employed objective teacher assessment tools like the objective structured teaching exam (OSTE). Haber et al. reported that the use of such a rubric prior to and after RAT training would help validate perceptions that teaching skills were improved.

The lack of a standard RAT format has allowed the staff of residency programs to create curricula that meet their particular needs. While this is helpful from the standpoint of an individual program, the wide range of program lengths and content makes it difficult to extrapolate the results from one program to a wider audience (Bensinger et al., 2005). Program lengths in the studies discussed in this literature review were: (a) 1 lecture, (b) 6 hours, (c) 1 day, (d) 13 hours, (e) 2 days, (f) 3 days, (g) 1 week, and (h) 4 weeks (Bensinger et al.; Busari et al., 2006; Craig, 1988; Haber et al., 2006; Jafri et al., 2007; Mann, Sutton, & Frank, 2007; Morrison et al., 2006; Pasquale & Cukor, 2007). Although each of these programs reported success with their RAT training, the programs were sufficiently different that a residency director, who seeks to create a RAT for a new program, would not be able to discern the key components that contributed to the successes of existant programming. The lack of universally standard RAT formatting limits the transferability of the baseline data, and this means that residency program directors must generate programming by a mix and match of ideas from existing programs.

Lastly, the majority of the RAT programs (Bensinger et al., 2005; Busari et al., 2006; Craig, 1988; Haber et al., 2006; Jafri et al., 2007; Mann, Sutton, & Frank, 2007; Morrison et al., 2006; Pasquale & Cukor, 2007) were electives and not mandatory components of the residency programs. As such, these programs attracted residents who wanted to develop as educators. Their predisposition to take such a training creates the likelihood of selection bias in the results. Bulte, Betts, Garner, and Durning (2007) reported a similar conclusion. These authors concluded that a shift to mandatory programs could help minimize this criticism in the future. Additionally, the inclusion of RAT training as a mandatory component of either medical school or residency training programs would provide a notable body of data that could lead to more rapid advances in program efficacy.

Recent Research

Recent researchers (Busari et al., 2006; Farrell, et al., 2006; Haber et al., 2006; James et al., 2006; Pasquale & Cukor, 2007) have shifted away from exploration of whether RAT programs work and toward evaluation of specific curricula. In most of the programs reviewed, their underlying curricula were based on established principles of adult learning with further specificity toward the medical field.

Farrell et al. (2006) reported that members of the Society for Academic Emergency Medicine's (SAEM) Undergraduate Education Committee proposed a baseline curriculum for RAT programs in 2006. This curriculum consisted of 6 modules: (a) Principles of Clinical Teaching, (b) Bedside Teaching, (c) Giving Effective Feedback, (d) Teaching Procedures, (e) Teaching with High-Fidelity Simulation, and (f) Effective Discussion Leading and Lecturing. They recognized that these modules covered only a

portion of the skills that could be included in a RAT program, but they felt that they formed the basis for the establishment of a core curriculum that could be further tailored to meet the needs of an individual program. The authors acknowledged that the selection of these topics was based on current literature related to adult education and learning and tailored toward an emergency medicine focus. They had not yet designed assessment methods and anticipated that assessment would need to be ongoing in order to accurately determine efficacy.

James et al. (2006) selected six components for their 3 hour workshop: (a) Choosing Learning Objectives, (b) Selecting Content, (c) Identifying Key Teaching Points, (d) Delivering Content Effectively, (e) Engaging the Audience, and (f) Continuing Learning. After the initial workshop, the preceptors continued to work with and provide feedback to the residents as they worked on their morning reports. They concluded that the use of this curriculum increased the confidence and skill with which the residents presented their morning reports. They acknowledged that they did not assess the individual components of their curriculum for relative merit because they felt that the curriculum components should not stand alone.

Busari et al. (2006) designed a program with yet another six components: (a) Effective Teaching, (b) Self-Knowledge and Teaching Ability, (c) Feedback Skills, (d) Assessing Prior Knowledge, (e) Trouble Shooting, and (f) Time Management. Although these authors utilized a balanced aproach between the design of a learner centered curriculum and a curriculum that met the needs of the residency program, the program had been in use for 2 years prior to this study and the "effectiveness of the programme as an educational intervention was not investigated" (p.135). In this study, the authors

relied on a subjective evaluation of the effectiveness of the curriculum that was completed by the RAT program participants.

Pasquale and Cukor (2007) reported that the University of Massachusetts Medical School developed a 1 week elective for fourth year medical students to serve as a foundation for increased performace as residents. This program was part of an ongoing educational process designed to increase collaboration across junior and senior medical students and residents. Since the fourth year of medical school represents the last guarantee of a block of uninterrupted time, the program designers created an intensive teacher training to prepare these students for their upcoming educational role as residents. The curriculuar emphasis in this program was Angelo's Dozen (Angelo, 1993, as cited in Pasquale & Cukor, 2007), a list of research based principles for the improvement of higher learning. Pasquale and Cukor (2007) chose to emphasize "the effectiveness of active learning, meaningfully connecting information to prior knowledge, organizing information in personally meaningful ways, the practice needed to transfer and apply knowledge to new contexts, and the power of interaction in learning" (p.573). In this program, former students were utilized as preceptors, and first and second year medical students were sample audiences. The use of senior and junior students in the training allowed for the participants to experience the roles of audience and preceptor during their educational careers.

Haber et al. (2006) used a shorter training with four components: (a) Teaching Methods, (b) Evaluating Students and Providing Feedback, (c) Teaching as an Intern, and (d) Teaching in A Small Group Setting. These authors evaluated each component of the curriculum via Likert scale assessments administered after the final session. In addition,

the authors conducted follow up evaluations 1 year after graduation when the students were in their residency programs, where they utilized the skills addressed in the RAT. Alhough the perception of increased teaching skills was reported by nearly all of the students, Haber et al. observed that they did not use an objective assessment to determine whether teaching skills actually improved.

Although the curricula were designed independently, each team of authors (Busari et al., 2006; Farrell, et al., 2006; Haber et al., 2006; James et al., 2006; Pasquale & Cukor, 2007) devoted time to basic teaching skills in a variety of formats which included: (a) lecture, (b) small group and (c) informal settings. They emphasized the use of strategies to provide feedback and methods to evaluate students. All of the authors observed that they based their curricular choices on common adult education theories and then added or changed emphases in order to address issues common to their specialties. Nearly all these authors acknowledged that the primary shortcoming for their studies was the lack of objective data to document an improvement in teaching skills.

Suggestions For Future Research

In light of the widespread acceptance of the need for structured teacher training for medical professionals, there are many opportunities for further research into RAT programs. As this author reported earlier in this review, little research has been conducted that utilized objective outcome assessments. Researchers at schools with existing RAT programs could evaluate the program efficacy with the OSTE or similar assessment tools. Once a notable amount of data have been collected to validate the efficacy of RAT programs, more residency directors will choose to offer such training to their residents.

As noted in earlier sections of this review, there is a need to establish the minimum curriculum necessary to provide a meaningful teacher training program. Researchers can chose from among the plethora of established theories of adult education to select the core components of a teacher training program. Given the similarities among existing RAT programs, a common curriculum could serve as a core module to be supplemented by medical specialty specific components. After this standard has been established, research could be conducted to determine which stylistic approaches have greater success than others.

After efficacy and stylistic approaches have been validated, studies could be conducted to determine the most appropriate timing for RAT programs. Currently, the majority of the RAT programs in use (Busari et al., 2006; Farrell, et al., 2006; Haber et al., 2006; James et al., 2006; Pasquale & Cukor, 2007) are conducted during residency programs. According to Pasquale and Cukor, the staff of the University of Massachusetts Medical School initiated RAT programs in medical school rather than waiting for residency to begin in order to incorporate teacher training earlier into medical students' educational programs. Their elective program has great promise for the establishment of effective teaching skills as the normal expectation of residents and not as a reactionary step. Similarly, research could be conducted on the success of mandatory RAT programs to determine whether the elective model leads to a selection bias that provides a false sense of efficacy.

Conclusion

According to Craig (1988), the directors of residency programs have come to accept that teacher training will become a more important part of their curricula. Residents have been shown to be an integral part of the medical student's training team, and a deliberate approach to training them has slowly become the norm. In effective programs, resident as teacher trainings will be utilized to increase the overall success of the programs. There has been an increased awareness of the need for such programs since the early 2000s, and the officials of several continuing education agencies have called for a dramatic shift in course design to include a greater emphasis on teacher training. Although there is widespread support for their use, there is still little uniformity about how RAT programs are used. Some specialties have embraced RAT programs widely and some have been reluctant to incorporate such training.

Given the push for evidence based medical practices, and by extension, for evidence based medical education practices, it may be that some of the hesitancy stems from the dearth of available data that support the use of RAT programs as effective ways to increase teaching performance skills. At some level, this argument becomes a vicious circle. Until there are more programs in which RAT training is used, there will not be enough data to convince other programs to join.

Another challenge to the widespread use of RAT programs is the lack of familiarity with teacher training programs on the part of medical school educators and residency program directors. As evidenced by the plethora of training curricula and program lengths, each educational team has designed its own program based on principles of adult education, which were then focused on a specific subset of medical

specialties. As more data are collected related to RAT curricula efficacy, it is likely that a few core components will show themselves to be applicable across most if not all specialties, and there will be more consistency among RAT programs.

As RAT programs become more common, there may be a shift in the medical community at large toward a more educative approach to schooling, treatment, and patient interactions. Such a shift will serve the ultimate goal of the medical professional: to provide complete and beneficial patient care.

Chapter Summary

In this chapter, the author provided a brief history of recent efforts to evaluate the extent and efficacy of RAT training programs. Also, the author identified the limitations of current research and provided suggestions for future research.

In the next chapter, the author describes the method used to develop a RAT curriculum to be incorporated into a month long, field based elective course for medical students offered by the Wilderness Medicine Institute of the National Outdoor Leadership School (WMI) and the Harvard Associated Emergency Medicine Residency (HAEMR). This curriculum provides an educational foundation built upon the principles of adult education, and it is further refined to be applicable to the medical field without focusing on a specific medical specialty.

Chapter 3

METHOD

The purpose of this project was to develop a teacher training curriculum to be used as one component of an expeditionary medical school elective for the Medicine in the Wild (MED) course offered by the Wilderness Medicine Institute of the National Outdoor Leadership School (WMI) and the Harvard Associated Emergency Medicine Residency (HAEMR). The MED course was first offered in 2005 as an alternative 1 month elective for third and fourth year medical students. The curriculum has four modules: (a) wilderness medicine, (b) outdoor skills, (c) leadership, and (d) teacher training. The first three components are very well defined and drawn from existing curricula utilized by WMI. Traditionally, the teacher training curriculum at WMI has been applied solely to the Instructor Training Course of the school and was focused specifically on training new WMI instructors. As the MED program grew, there was an increased demand from the medical students for a more developed teacher training component. This researcher became aware of the movement within the medical education community toward more formalized Resident as Teacher (RAT) programming and recognized the opportunity to incorporate components of existing RAT curricula with the teacher training curriculum already in use at WMI. As he was a member of the WMI/HAEMR curricular development team, the author decided to create the teacher training curriculum to be presented to the instructors who will teach upcoming MED courses.

Target Audience

This project is designed for use by the WMI instructors who will work upcoming MED courses. These instructors are senior faculty for WMI, and many of the principles of the curriculum are applicable when they teach Instructor Training Courses, as well. Also, this curriculum will have applicability to other public train the trainer programming that WMI may develop in the future.

Organization of the Project

A curriculum objectives document was developed for use by WMI instructors. This document matches the format and structure of other WMI curricula. WMI curricula documents are a combination of curricular objectives and helpful hints for presenting the material. These documents are structured with curricular objectives in one column with helpful hints for teaching the material in a parallel column. The modules in the document reflect current adult learning theory, which is then further focused for the medical education realm. The curriculum incorporates principles of experiential education consistent with the teaching methods utilized by WMI. The curriculum draws from topics identified in the literature review as common among existing RAT programs.

Peer Assessment Plan

The curriculum was presented to the members of the curriculum development team at WMI: (a) the Curriculum Director, (b) the Assistant Director, and (d) the Special Programs Manager. Additionally, the project was sent to: (a) the Director of Wilderness Medicine at Massachusetts General Hospital, (b) the Chief Resident in Emergency Medicine at Massachusetts General Hospital, and (c) the lead instructors for the previous two MED courses. The author asked each of these evaluators to provide feedback on the

following: (a) addition or omission of information, (b) practicality of the presentation of the material in an expeditionary setting, (c) adjustments to allotted time, and (d) suggestions for further refinement. Their feedback is discussed in Chapter 5.

Chapter Summary

The least developed component of the MED program curriculum is the teacher training module. This author used the information on existing RAT programs gathered through a literature review, in conjunction with the existing WMI teacher training curriculum, to develop a RAT curriculum for the MED program. This curriculum is designed for the MED course, but will have wider applicability to other WMI programs. In Chapter 4, the author presents the teacher training curriculum document to be provided to the WMI instructors who will teach upcoming MED courses.

Chapter 4

RESULTS

Introduction

The purpose of this project was to create a Resident as Teacher (RAT) program that built upon a combination of: (a) the curricula discussed in the literature review, (b) established principles of adult education, and (c) the existing teacher training curriculum of the Wilderness Medicine Institute of NOLS (WMI). This curriculum was designed specifically for the month long expeditionary Medicine in the Wild Elective (MED) conducted, in partnership, by WMI and the Harvard Associated Emergency Medicine Residency (HAEMR). This elective is offered to third and fourth year medical school students as an alternative to traditional clinical based electives. The unique design of this program allows for a wider range of topics to be covered than in a typical rotation. The MED course has four primary components: (a) wilderness medicine, (b) outdoor skills, (c) leadership, and (d) teacher training. This RAT curriculum provides guidance for the teacher training module of the MED, and it can also serve as the foundation for other teacher training programs that WMI may offer to different student groups in the future.

The level of detail contained within this curriculum is commensurate with the level of detail provided for the other three modules of the MED course. Although the curricula for the modules are structured differently, two modules share National Outdoor Leadership School (NOLS) field curricula structure, and two modules share WMI curricula structure. The WMI curricula are purposely designed to provide outcome

objectives without dictating the style of presentation. As such, the curriculum for this project provides the content for the RAT program without providing the style for presentation. Specific exercises listed in the curriculum are available to WMI instructors on Rendezvous, the NOLS intranet resource website. No additional readings or textbooks are required of the students, as the teaching curriculum can be blended into the other three modules that have their own lists of required readings.

The total time allotted for delivery of this curriculum is just over 10 hours. Again, this is equal to the time allotted for the other three components of the curriculum. The field section of the MED program is 19 days long, and significant time is spent each day with the demands of living in and travelling through a wilderness environment. Much of the curriculum for this course is presented in an experiential manner and blended into daily activities as teachable moments arise. Typically, a few hours are set aside each day for formal classes, and much of the RAT curriculum is presented in this fashion.

Resident as Trainer Curriculum

The following curriculum represents required objectives for MED students during the course. Helpful hints are not a script for the course. They are style suggestions from the experience of many WMI staff that help make these courses effective and consistent.

These curriculum objectives should be incorporated throughout the field section of the course. The instructor team will determine exact scheduling, but this flow should be followed. Total times do not necessarily need to be in uninterrupted blocks.

Curriculum Objectives	Helpful Hints
Learning Theory the WMI Way Total time: 90 minutes 1) Understand the characteristics of adult learners. 2) Understand basic principles of adult learning theory. 3) Learn how to create safe learning environments. 4) Understand characteristics of professional educators. 5) Identify and address multiple learning styles in self and others.	• Adult learners: experienced, skeptical, need relevance/practical application. • Illeris' process of learning: Cognitive (skills, knowledge, understanding); Emotive (affect, emotion, mental state); Societal (participate, communicate, cooperate). • Professional educators: respectful, adaptive, inclusive, able to say "I don't know." • Conduct Verbal, Audio, Reading, Kinesthetic activity.
Tools of the Trade Total time: 30 minutes 1) Understand basic principles of classroom/teaching environment set up and management. 2) Understand and demonstrate effective use of visual aids (whiteboard, powerpoint, flipchart). 3) Understand the importance and successful use of teaching props.	• Classroom set up: Make the classroom your own! Rearrange, change orientation, seek open or quiet spaces, anticipate demonstration needs. • Boards: Your board presents a snapshot of your class. Your students should be able to look at your board 6 months after their course and still put together the class. Demo bad and good boards. • Toyboxes: Show & tell instructor

	toys & resources. MAKE THIS INTERACTIVE. • Create links to toys MDs may have available during residency.
Didactic Teaching & Feedback Total time: 90 minutes 1) Create and utilize a lesson plan for presenting classes of varying lengths. 2) Demonstrate the ability to focus a presentation on key points. 3) Incorporate varying teaching styles to address multiple learning styles. 4) Understand and practice principles of providing effective feedback. 5) Understand the importance of self-assessment and incorporating feedback.	• Bad Class – Common & Simple (10 minutes). • Have students debrief class using evaluation form (10 minutes). • Debrief key points o Professionalism o Teaching effectiveness o Safe Classroom o I don't know o Using notes o Board Skills o AV Stuff o War Stories o Prep demos and patients well • Good Class – Common & Simple – fixed version of above (10 minutes) • Say Less, Mean More (30 minutes) o Three sentence teaching: Heat, Anaphylaxis, Altitude o Break into groups of 3-4, come up with a 3 sentence class on each of those topics (5 min planning per topic). o Hear each class from each group, debrief with Say Less, Mean More. • Do self-assessment activity.
Demonstrating Skills Total time: 30 minutes 1) Discuss the importance of deliberate language selection when coaching skills. 2) Discuss 3 ways to incorporate a skill session into a presentation. 3) Discuss essential preparation for a successful demonstration. 4) Perform an effective skills	• PB&J demo • Minimize the talk-optimal is the silent demo but this is unrealistic. • Pure demo/pure practice. • Set yourself up for success-don't improvise, let your students improvise (prep your patients, make them visually accessible, prep your props, practice your demos). • Evaluate student performance with

demonstration.	immediate feedback.
Supervising Practice Sessions Total time: 30 minutes 1) Discuss effective incorporation of practice sessions into a presentation. 2) Demonstrate effective preparation of a practice session with predetermined outcome goals. 3) Discuss different approaches for providing feedback to students during and after a presentation.	• Guided practice (good early on, hard to go back to later): Directed by Instructor • Practice Sessions (later on in the progression): Set clear parameters with specific outcomes and time limits.
Debriefing Activities Total time: 60 minutes 1) Understand the importance of having a structured debriefing session. 2) Discuss the ways to incorporate spontaneous message points into a debriefing without losing focus. 3) Understand the importance of brevity in a debriefing. 4) Discuss how debriefing goals influence the design of the activity.	• Run a WEMT level scenario (medical – clavicle, diabetes, MOI) • Debrief the scenario-model the 3point debrief – do not blend your scenario debrief with the class. • Emphasize designing your debrief points and then building your scenario around them. Your preceptor will quiz you on your 3 points. Don't lose control of your debrief. • If your debrief takes longer than your scenario then it was too complicated or you missed your mark for goals (Model this!)
Student Presentations Total time: 5 hours 1) Present one short lecture-based presentation. 2) Present one short skills demonstration. 3) Supervise one skills practice session. 4) Present one long multi-component presentation.	• You may assign some topics and students may choose some. • Make sure to cover each of the topic types. • Assign a few "on-the-fly" presentations toward the end of the course. • Provide feedback from one instructor and one student. • Allow for self-assessment.

Summary

Though WMI and HAEMR have conducted the MED course for 5 years, the least developed component of the curriculum has been the teacher training module. The author combined several existing curricula into a standard format employed by WMI. The module will be incorporated into the 21 day program along with the other three components of the MED progression: (a) wilderness medicine, (b) outdoor skills, and (c) leadership. The RAT curricula was submitted to: (a) the curriculum development team at WMI, (b) the Director of Wilderness Medicine at Massachusetts General Hospital, (c) the Chief Resident in Emergency Medicine at Massachusetts General Hospital, and (d) the lead instructors for the previous two MED courses. Their feedback is discussed in the next chapter.

Chapter 5

DISCUSSION

Contribution of the Project

The author's purpose was to formalize a Resident as Trainer curriculum for the teacher training component of the Medicine in the Wild elective conducted by WMI and HAEMR for third and fourth year medical school students. Given the recent push by members of the medical community to increase the deliberateness with which residents are trained to be teachers, and given WMI's history of training medical educators, the author chose to provide greater structure for the educator component of the MED curriculum. The author combined WMI's exisiting teacher training practices with curricula discussed in the review literature to create a RAT curriculum for furture MED courses. The author was successful at creating this curriculum.

Limitations

The nature of this project was such that very few limitations were expected. The author is a member of the WMI Curriculum Development Team, and he has been involved with the development of the Medicine in the Wild course since its inception. The only limiting factor to the project was the challenge of exchanging ideas and information with the lead instructors for the most recent MED courses. The timing of the project overlapped with field time for several of the instructional staff, so communications were delayed.

Peer Assessment Results

This project was submitted to: (a) the curriculum development team at WMI, (b) the Director of Wilderness Medicine at Massachusetts General Hospital, (c) the Chief Resident in Emergency Medicine at Massachusetts General Hospital, and (d) the lead instructors for the previous two MED courses. Two of the evaluators have not yet responded due to being in the wilderness and out of contact. The other evaluators all commented on the following topics: (a) addition or omission of information, (b) practicality of the presentation of the material in an expeditionary setting, (c) adjustments to allotted time, and (d) suggestions for further refinement.

All the respondents believed that the curriculum was complete and did not need further additions. One respondent suggested that a more detailed version of the helpful hints should be included to provide more information for future instructors should an experienced course briefer not be available. All of the respondents felt that the material could be adequately presented in an expeditionary setting. One of the respondents stated that the curriculum accurately reflected the material covered in one of the 2008 MED courses, and that the instructor team from that course would have benefitted from having this curriculum available. One respondent wondered whether there was too much time allotted for student presentations during the field course, given the need to cover the curricula for the other four components of the course. One respondent who was a former student observed that more teacher training would be valuable on all course types offered by WMI. The only suggestion for further refinement was the suggestion to include a more detailed explanation of the helpful hints section to aid new instructors who may be unfamiliar with some of the lessons.

Recommendation for Further Development

As suggested by one of the peer evaluators, the next step for developing this curriculum will be to create a more detailed version of the helpful hints document. Though this is not the norm for WMI curricula, the unique nature of this course warrants the supplemental materials. The lead instructors for this course have always been senior WMI instructors who have also been instructors on WMI's Instructor Training Courses. As such, these instructors have been more familiar with the teacher training curriculum employed by WMI. Newer instructors will not have this familiarity, and more detailed documents will be helpful for providing guidance to them.

This curriculum should be reevaluated after the 2010 MED courses. As is true for all WMI curricula, reviews should be conducted regularly. If the curriculum is successful, it should be refined into a stand alone curriculum for teacher training courses WMI may offer independent of the MED program. This curriculum could also be refocused as a CME opportunity for practicing physicians.

Project Summary

Recent trends in medical education have been toward viewing a wider range of people as educators. Peer education and education by residents has been recognized as a critical component of successful medical education programs. Many program directors have recognized that it is important to provide teacher training to residents and medical school students in order to adequately prepare them for this newfound role. Instructors of the MED course offered by WMI and HAEMR are in an excellent position to provide this training. Though teacher training has been a component of the MED course from the start, it has not been fully developed to reflect the trends discussed in the review of

literature. The author of this project analyzed the trends being followed by medical school directors and combined them with the existing WMI teacher training curriculum to create a document to support future MED instructors as they train their students to be educators.

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