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Advancing Evidence Informed Practice Through Faculty Development: The Northwestern Health Sciences University Model

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As complementary and alternative medicine (CAM) utilization in the United States continues to grow there have been increasing demands for CAM practitioners to embrace an evidence-based or evidence-informed approach.¹⁻³ Northwestern Health Sciences University (NWHHSU) is one of the largest accredited CAM educational institutions in the Midwestern United States, with educational programs in chiropractic, massage, and acupuncture and Oriental medicine. In collaboration with the University of Minnesota (U of M), Northwestern is conducting an education project (R-25AT003582) funded by the National Center of Complementary and Medicine (NCCAM).

The overall objective of our educational program is to facilitate evidence informed practice (EIP) among CAM practitioners. Through the practice of EIP, we aim to educate research-literate healthcare providers who are open and able to respond to a changing knowledge base. A key strategy to accomplishing our objective is to actively engage Northwestern

Content on integrative healthcare and complementary and alternative medicine is being taught in hundreds of educational programs across the country. Nursing, medical, osteopathic, chiropractic, acupuncture, naturopathic, and other programs are finding creative and innovative ways to include these approaches in new models of education and practice. This column spotlights such innovations in integrative healthcare and CAM education and presents readers with specific educational interventions they can adapt into new or ongoing educational efforts at their institution or programs. We invite readers to submit brief descriptions of efforts in their institutions that reflect the creativity, diversity, and interdisciplinary nature of the field. Please submit to Dr. Sierpina at vssierpi@utmb.edu or Dr. Kreitzer at kreit003@umn.edu. Submissions should be no more than 500-1500 words. Please include any Website or other resource that is relevant as well as contact information.

faculty through a comprehensive and multimethods EIP-focused faculty development program.

The faculty development aspect of the R25 educational project has been implemented in three main phases over four years. It is lead and managed by the R25 project's faculty development team, comprised of representative faculty from all of Northwestern's academic programs and an instructional designer from the U of M. Administrative support, data management, and research content expertise and resources are provided to the team, as needed through the R25 grant. The primary role of the faculty development team is to conceptualize and coordinate EIP faculty development initiatives that will meet faculty needs and are congruent with the R25 project and Northwestern's strategic goals.

PHASE I: CONCEPT INTRODUCTION, ENGAGEMENT, AND ASSESSMENT

In the first and second years, focus was placed on introducing the concepts of evidence-informed practice and involving faculty in EIP competency development. Half and full-day workshops were held on institution-wide faculty development days at the beginning of each trimester and continuing education credits were granted to encourage participation. Topics included the overall purpose of the R25 project, exploration of EIP principles and basic skill development including efficiently finding and appraising the most relevant, and high quality research to meet faculty needs.

As the integration of research and EIP represented a departure from the existing institutional culture, an important part of the first phase included assessments of faculty self-reported EIP skill levels and potential barriers to change. Posing questions based on Rogers' Diffusion of Innovation Theory⁴ we learned our faculty felt it advantageous for CAM practitioners to develop EIP skills. They reported that the integration of research and EIP was compatible with their beliefs and how they teach and practice. Importantly, however, they felt their own EIP skills were lacking and reported research to be moderately complex. Faculty readiness for change was also assessed based on Davis' AVICTORY Model.⁵⁻⁷ The results indicated faculty viewed the implementation of EIP to be consistent with NWHSU's current values; further, they felt the institution had an obligation to implement the program to meet both faculty and student needs. They also viewed the initiative to be a benefit to the institution and the timing for implementation appropriate. Although faculty expressed concerns regarding the ability to carry out the project related to adequacy of resources, resistance was generally low.

These assessments provided important information regarding how faculty felt regarding the implementation of research and EIP at NWHSU and played an important role in the design and the development of the next phases of the faculty development program. Further, the process of assessment allowed faculty to engage in the program development process, and perhaps more importantly, shape the ultimate product.

PHASE II: BUILDING AN EIP FOUNDATION

In the third year, we launched the Faculty Foundations of EIP Online Training Program, which involved the completion of 6 to 22 online learning modules. Based on nine broad EIP competencies (see Table 1) they are designed to serve as a foundation for faculty training and stimulate interest in pursuing future faculty development. The completion of six modules (short track) was felt to cover the minimum number of EIP competencies faculty should be required to know. The completion of all 22 modules (long track) was considered optimal. The module content was created by Northwestern and U of M collaborators, emphasizing interactive practice exercises and repetition to enhance effectiveness. Importantly, the modules incorporate clinical examples and scenarios relevant for those

practicing and/or teaching about CAM. The modules expose faculty to the same EIP learning objectives concurrently being addressed in the student curricula. The choice to use online learning for this phase of training was primarily based on its flexibility, allowing faculty to access the information anytime from anywhere. Also, although design and development required a substantial initial investment, only modest resources are required to update and maintain the modules over the long term.

A key strategy for implementation included the adoption of faculty goals for completion of the online training as part of NWHSU's strategic plan. Completion of the modules is routinely tracked and summary reports forwarded regularly to the Faculty Development Team, department heads, and NWHSU's upper administration. Progress in meeting the strategic goal targets are then published in summary form campus-wide via an electronic EIP newsletter three times per year.

PHASE III: APPLYING AND PRACTICING SKILLS

In the fourth year, we focused our efforts on providing faculty opportunities to apply and practice their EIP skills. Based on faculty interest, we designed and developed a Research Scholars Series to provide faculty the opportunity and resources to apply and practice their EIP and research-related skills. The program is currently comprised of two trimester-long courses offered on a rotating basis throughout the academic year. Each course consists of weekly two-hour seminars, and one- to two-hours of self-study over 12 weeks and is led by the R25 project directors. Key features of the program include:

- Emphasis on experiential, self-directed learning approaches centered around a project of interest and importance to the individual faculty scholar.⁸⁻¹¹
- Allocation of three hours of release time to participating faculty for each course.
- Assignment of an experienced EIP mentor who serves as a resource to the faculty scholar, and provides guidance and feedback regarding a capstone project.

The Research Scholars I course focuses on enhancing faculty skills in efficiently finding, appraising, and using research relevant to the individual faculty members' responsibilities at the institution. Emphasis is placed on the practical application of principles introduced in the Faculty Foundations of EIP Online Training, which is required prior to participation in Scholars I.

Research Scholars II focuses on enhancing skills in disseminating original scholarly work through peer-reviewed venues. This includes oral and poster presentations, and manuscripts for publication. The learning objectives for each course are outlined in Table 2.

Program Evaluation

Participation in the faculty development initiatives has been high. Approximately 75% of ranked faculty participated in the introductory first phase of the program nearly 70% have completed the "short track" online training; almost 40% have completed the "long track" (22 modules). Interest in the Research Scholars Series has exceeded expectations with 25% of faculty participating in the first year of its offering, and the number of applicants exceeding capacity (8-10 enrollees per course). This has led to additional course offerings to meet demand. Faculty capstone projects for each of the Research Scholars courses have been diverse and consistent with institutional and R25 project goals. Examples of projects include:

- Identification of outcome measures that can be used to monitor massage therapy in a hospice and other specialty care settings

- Creation of case studies on low back pain and headache, illustrating EIP principles to use in student chiropractic, and AOM curricula.
- Design of an evidence informed guide for to enhance patients' participation healthcare decision making
- Refinement of a poster assignment to better assess students' skills in finding and using the best available research
- Updating a chiropractic course with recent and relevant research literature
- Development of evidence informed rehabilitation competencies to be integrated into Northwestern's integrated clinic systems
- Development and implementation of an evidence informed internship for AOM students in assisted living facilities

In summary, Northwestern's faculty have increasingly embraced EIP, with many of them facilitating a transformative change in the institutional culture by adopting and integrating EIP into their institutional roles in ways that are meaningful to them. We feel our success is attributable to several factors including the use of a multifaceted approach that is responsive and flexible to faculty needs. We have also garnered tremendous institutional support at all levels as indicated by the adoption of EIP into Northwestern's guiding principles, and several EIP initiatives prominently featured in the institution's strategic plan. Finally, the collaboration with the University of Minnesota, through the R25 grant has provided resources to Northwestern that would have been otherwise unavailable, and has increased the breadth and quality of our efforts.

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Table 1**Broad Evidence Informed Practice Competencies**

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- # 1: Define evidence-informed practice (EIP) and discuss its importance in health delivery
 - # 2: Describe fundamental principles of research
 - # 3: Describe nonresearch forms of healthcare evidence and information
 - # 4: Critically appraise different forms of evidence
 - # 5: Discuss the importance of research in one's discipline, and its current status
 - # 6: Efficiently find evidence-informed answers to specific questions
 - # 7: Effectively apply relevant research evidence in practice in conjunction with patient preferences and clinical expertise
 - # 8: Effectively use EIP to communicate with patients, other healthcare providers, third-party payers and others.
 - # 9: Effectively participate in research in one's field
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Table 2**Research Scholars Program Learning Objectives**

Research Scholars I	Research Scholars II
Explain and discuss the challenges, limitations, and strengths of using research evidence in healthcare practice	Discuss the importance of scholarly activity including dissemination of professional ideas, clinical and educational practices and original educational and clinical research.
Select the appropriate types of research given the nature of a question or situation	Discuss different types of scholarly presentations and publications including editorials, case reports, descriptions of educational programs, original educational research, original clinical research, etc.
Build and/or update research knowledge base in area of interest	Define peer-review as it relates to presentations and publications of manuscripts.
Develop and apply efficient strategies for locating relevant and valid research to:	Participate in peer review of presentations and manuscript publications.
<ul style="list-style-type: none"> • Keep up to date with the most useful research • Answer questions as they arise 	
Describe and discuss basic principles of high-quality research	Discuss the issues to consider when choosing a conference or journal for submission.
Efficiently assess the relevance and quality of different types of research studies including case reports, observational studies, qualitative research, randomized clinical trials, and systematic reviews	Describe the key characteristics of a scholarly presentation or article (abstract, introduction, purpose, methods, results, conclusion)
Discuss and evaluate the strengths and weaknesses of individual research studies	Describe the key characteristics of a scholarly presentation or article (abstract, introduction, purpose, methods, results, conclusion)
Apply research to relevant clinical and classroom questions and decisions	Participate in one or more of the following: <ul style="list-style-type: none"> • Preparation of abstract for submission to a peer-reviewed conference. • Preparation of a poster or power point presentation. • Preparation of a publishable manuscript. • Peer review of a manuscript.
Identify ways to incorporate research information into teaching, clinical, and other activities	Discuss and apply responsible practices related to authorship including: <ul style="list-style-type: none"> • Determining authors, order of authorship, author responsibilities • Recognizing and avoiding plagiarism, appropriately citing others work • Distinguishing between research and nonresearch work • Ensuring best practices and ethical obligations have been fulfilled related to the responsible conduct of research (if applicable)