

Selective Proposal

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I: Selective Title

Clinical Reasoning Taught Through the Focused History and Physical Exam in the Second Year of Medical School

II: Describe what new knowledge/skill/experience you expect to gain

In developing a way to effectively teach clinical reasoning **via** the focused history and physical exam, I will be challenging myself to understand how 2nd year medical students, with a basic foundation of clinical skills and an expanding medical knowledge base, incorporate these two areas of medicine and begin to develop a framework for clinical reasoning. This will help me as a student better develop my own clinical reasoning skills. In addition, by working with the students in a small group, I will be able to obtain direct feedback relating my teaching and communication skills which will be valuable to me as I continue to work at becoming an effective teacher.

III: Discuss why it is important to undertake this project

In the **first** year of the Principles of Clinical Medicine course, students learn the essentials of history taking and the choreography of the physical exam. In the second year, time is spent in correlation with the Mechanisms of Disease course to review case scenarios involving clinical reasoning and to practice the focused physical pertinent to each organ system. These cases are intended to be used by each group to help students develop skills in the focused history and physical and to improve clinical reasoning; however, there is a **wide** variation between PCM groups in what material is actually covered during each session. Finally, Clinical Skills Assessment sessions at the end of the second year evaluate how well students perform on the focused history and physical and require students at the end of each case to provide brief answers about differential diagnosis and therapy. Overall, the second year curriculum is not fully developed to teach the focused history and the focused physical exam while emphasizing clinical problem solving.

The question now faced is, "How does a curriculum become structured such that the students can begin to become proficient in clinical reasoning?" A recent article about clinical problem solving by **Mandin** et al.¹ emphasizes that, "The implication for medical education is that a comprehensive knowledge domain must be appropriately organized for knowledge mastery, which in turn is essential for clinical problem solving." Therefore, not only must the student have a solid knowledge-base from which to draw, but this knowledge needs to be molded in such a way to be useful in clinical reasoning.

In reviewing the literature about clinical problem solving, it is clear that there are many universal flaws in the way medical students are taught, and hence, deficiencies exist in the basic foundation of clinical reasoning.

In the book "Problem Solving in Clinical Medicine: From Data to Diagnosis"², the author states:

[Collection and interpretation of data and pathophysiology of disease] are now taught intensively at most medical schools..yet few schools, and almost no books, teach the student how to process or synthesize acquired data into diagnoses or problem lists...**Sometimes** data synthesis and problem solving are half-heartedly included in Physical Diagnosis or Introduction to Clinical Medicine. More often they are left for the third-year medicine clerkship, where it is hoped the student **will** somehow acquire those skills by **himself**,,by observation or by osmosis.

This occurs in our curriculum, and should not be looked upon lightly.

How then should a change be made to best teach problem solving before the third year of medical school? In an article by Curry et al.³ which discussed active learning in clinical skills, they state, "While structured introduction to the history and physical remains essential, a narrowly focused, rote-learning approach can restrict students' understanding of the scope of the medical encounter." In addition they state, "A curriculum designed to encourage critical thinking is more consistent with the present understanding of the development of clinical expertise." Consequently, a medical school curriculum should emphasize and teach the focused history and physical exam along with emphasis on clinical reasoning to make learning a more dynamic process that **will** more likely be remembered.

IV: Describe what you will do to gain this new knowledge/skill/experience

In order to accomplish my goals, I **will** be researching the literature looking for effective teaching methods of the focused history and physical exam and methods used to teach clinical reasoning. I will also talk **with** current and past faculty of PCM to obtain information about their individual teaching styles and what they feel has been effective teaching in the past. Finally, I **will** talk with students in the 2nd. 3rd and 4th year about what they feel would be effective learning tools.

With this information, I **will** develop case scenarios that **will** have a short clinical vignette requiring a focused H&P and questions to guide the students at the end of the scenario with clinical reasoning about each case. Each student will be responsible for preparing ahead of time either the role of the patient or the examiner for each case scenario and then alternate for the next set of cases. After group discussion, an "answer key" describing what the students should have learned from the scenario will be available to better help the students evaluate their own thought processes. Finally, I **will** be a "preceptor" to one PCM core group during this process and will be able to see first hand how effectively these clinical reasoning sessions are **progressing**.

V: Describe the guidance/supervision/assistance/facilities available

In August, I will be working closely with members of the Clinical Medicine Course subject committee during regular curriculum meetings, and I will be meeting with individual faculty, including the directors of CMC, PCM and SCP for assistance and feedback as I help develop the proposed curriculum change. In addition, I will have access to present and past Clinical Medicine Course curricula to look at ways clinical reasoning has been taught previously. Finally, I will be in contact with the course directors of both Mechanisms of Disease and Correlated Medical Problem Solving to have a better understanding of other areas of the curriculum from which the students will be building their medical knowledge base.

Vi: How will you evaluate the extent to which you have met your goals?

The effectiveness of the proposed curriculum change will be evaluated by:

(1) A comparison of this 2nd year class with the previous 2 classes who have completed the new curriculum in the focused history and physical scenarios in the final Clinical Skills Assessment at the end of second year. Comparisons will be made in the ACIR scores, the number of focused history questions answered, and the appropriate physical exam skills performed.

[2] A comparison of student performance in PCM could be made based on preceptor evaluations at the end of the 2nd year for the class of 2000 and 2001. (I will not have access to any identifying data.)

(3) A survey of the faculty will be done to assess the utilization of the cases developed as well as suggestions for Improvement.

(4) A survey will be taken of the class at the beginning and the end of the 2nd semester to assess the students' comfort with the focused history and physical and clinical reasoning. Questions will also address the effectiveness of having a 4th year student as teacher of 2nd year students in the clinical medicine course.

(5) Future comparisons could also be made by comparing the results of the Clinical Skills sessions during the MAX portion the 3rd year.

References

1. Mandin, H., Jones, A., Woloschuk, W., Harasym, P. Helping *Students Learn to Think Like Experts* When Solving Clinical Problems. *Academic Medicine* 1997; 72: 173-179.

2. *Problem Solving in Clinical Medicine: From Data to Diagnosis*, Cutler, P. 3rd Edition, Baltimore: Williams & Wilkins, 1998, Preface.

3. Curry, R.H., Makoul, G. An Active-learning Approach to Basic Clinical Skills. *Academic Medicine* 1996; 71: 41-44.