Faculty Assessment of an Innovative Approach to Medical Education

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Abstract
Background: The Clinical Presentation (CP) Model and inductive reasoning process is an innovative approach to undergraduate medical education delivery used at A.T. Still University School of Osteopathic Medicine in Arizona (ATSU-SOMA). Embedding cohorts of students into community campus settings during the second, third and fourth year is equally as innovative and a unique model for training future physicians that fosters contextual learning. Methods: We investigated faculty impressions of the CP Curriculum (CPC), inductive reasoning process and the early contextual learning experience. Electronic surveys were sent to 36 Mesa campus faculty and 23 Regional Directors of Medical Education (RDME) at each of the 11 National Association of Community Health Centers (NACHC) affiliated Community Health Campuses (CHC’s) in nine states. A total of 40 respondents (68%) completed the survey. Results: Seventy percent of faculty respondents indicated that they “Completely Understand or “Understand Very Well” the CP Model as a teaching tool. Ninety-five percent of respondents stated they understand the application of “inductive vs. deductive” processes as they apply to medicine, and 88% expressed that they understood at least “Somewhat” how to use the CP Model to arrive at a diagnosis in “real life”. More than half (53%) indicated that placing the medical student in the contextual learning campus beginning in year 2 is the “right idea that is implemented at the right time”. Conclusions: Since about half of faculty surveyed indicated that they understand the inductive reasoning aspect of the CP Model very well or well, additional faculty development training is warranted. In the classroom, 70% reported including clinical presentation schemes 80-100% of the time during instruction. Clinical faculty were statistically significantly more likely to indicate that placing the medical students in the community health clinic settings at the beginning of their second year is the right idea at the right time.

Introduction
Quality health care rests on the ability of highly trained physicians to expertly gather evidence and make accurate clinical diagnoses. While medical educators continue to debate the most effective strategy for teaching clinical reasoning to undergraduates, they agree that students need ample practice analyzing and solving patient cases in multiple contexts. In a 2010 study, the Association of American Medical Colleges (AAMC) listed CPC, curricular integration, and early clinical experiences as curriculum approaches representative of “important change and progress” in medical education. Medical education literature provides few case studies describing the experiences of medical schools adopting the CP training model. In 2007, SOMA implemented an integrated CPC with early contextual learning experiences beginning in MS2. To gauge the degree of its acceptance within the institution, upon the commencement of its first class of graduates, the school surveyed its medical education faculty to obtain their views on the efficacy of the CPC and inductive reasoning with regard to both instruction and clinical diagnosis in active practice. In the first phase of this research, we investigated MS3 and MS4 student attitudes regarding the CPC and the early embedding of students (MS2) into a community campus for contextual learning. This second phase of our research builds on that student data to further assess this innovative approach to medical education. The following research questions informed the construction of the study: What are faculty impressions of the CP Model, the inductive
reasoning process, early contextual learning experiences, and do the faculty consider these methods to be an effective instructional approach?

**Curricular Shift toward the CPC and Integrated, Contextual Learning**

According to the AAMC, several medical schools have now organized their curricula around clinical presentations. The CPC is used internationally and is now being adopted into a variety of health professions. The CP Model represents an evolution from “backward reasoning or disease-centered medical education.” Proponents of the CPC argue that hierarchical “schemes” (see Figure 1), when used together with inductive reasoning, are a very powerful tool for diagnosis and organization of medical knowledge. Schemes reduce cognitive load by helping students sort, scaffold, and memorize concepts. Studies in medical cognition suggest that expert physicians employ forward, inductive or abductive reasoning (from evidence to hypothesis then back), while novices employ backward, hypothetico-deductive reasoning, using evidence to rule out ‘best-guess’ hypotheses.

![Figure 1: A sample clinical presentation scheme.](image)

*Note: Clinical presentation schemes allow students to categorize and store knowledge more efficiently. Instruction focuses on teaching students to diagnose a medical issue using a special type of diagnostic flow chart, called a “clinical presentation scheme.” At the top of the scheme is a patient complaint: the way a patient presents to the practitioner.*

**Faculty Attitudes toward the CPC Didactic Model**

SOMA implemented the CPC based on its successful track record at other institutions such as the University of Calgary, as well as its solid pedagogical foundation in cognitive learning theory. In a tandem 2011 survey, the majority of SOMA MS3-4 students indicated acceptance of the CPC and inductive approach. However, this didactic model required changes in philosophy and instructional strategies, thereby creating a significant culture shift and steep learning curve for faculty, necessitating the evaluation of faculty attitudes toward the CPC didactic model.

**Faculty Attitudes toward Early (MS2) Clinical Experiences**

At the end of year one, SOMA students leave the Mesa campus and are distributed to 11 contextual community campuses at or affiliated with national health centers. Supported by the NACHC, the campus clinics provide quality service education experiences with medically-underserved patient populations. Students are required to participate in patient care eight hours per week. At least four of the eight hours are with primary care physicians.