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Educational Strategies

Foundations of a longitudinal experience in community medicine: Precursors to an efficacious educational strategy

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ABSTRACT

Background: Development of a community medicine curriculum designed to address the healthcare needs of rural and underserved populations requires an approach that blends clinical care and population health perspectives into a seamless pedagogical experience. For this approach to be successful, it must be grounded in an academic environment that supports curricular efficacy. **Purpose:** The purpose of this article is to present 10 prerequisite considerations upon which longitudinal, community medicine experiences should be based. These concepts are grouped into three areas; educational philosophy, the developmental process, and articulated expectations. **Conclusions:** Speaking to underlying pedagogical elements such as these allowed our program to develop a well-informed curriculum which delivers skills necessary to address the needs of a diverse population.

KEY WORDS: Community medicine, longitudinal experience, educational philosophy, the development process, authentic expectations

INTRODUCTION

Community-oriented primary care has enjoyed a rich history within academic medicine since it's formalization by the Institutes of Medicine in 1982 [1]. The benefits of a physician who understands the importance of addressing community need are immeasurable and have been well documented [2]. Such an approach to primary care is viewed as part of the "Community of Solution" first introduced in the 1967 Folsom report [3]. The continuum between medicine and community is also touted in the Patient Protection and Affordable Care Act of 2010 which includes language specific to community-level health promotion and disease prevention [4]. In an effort to revisit the direction and focus of our curriculum, the Community Medicine Program at Mercer University explored the question of what student-centered educational proficiencies were necessary to promote a sense of community-responsiveness and to prepare them to address the needs of both patient and populations.

As part of this process, a set of underlying constructs were identified as prerequisites to a strong curriculum. We felt it important to address these ideals as part of our curricular revision as each serves to bolster the student experience and improve the efficacy of the academic skill-set being presented. All too often a major limitation to the successes of a curriculum is not so much the message, but the academic doctrine within which the message is grounded. The purpose of this paper is not to examine the curriculum *per se*, but to discuss 10 pillars of curriculum development we felt necessary for a successful program. After considering our "lessons learned," three foundational constructs - educational philosophy, developmental process, and articulated expectations - emerged as salient. The guiding principles that follow include both original and underappreciated ideals that informed our revisional efforts, both of which require consideration as a precursor to an efficacious instructional strategy.

The Community Medicine Curriculum

Community medicine is offered during the 1st, 2nd, and 4th years with 4 weeks of population health and evidence-based medicine didactics during the 1st and 2nd years, respectively. Students also complete community-based rotations during each component of the community medicine curriculum. Each rotation accompanies a specific narrative project including a community needs assessment during year 1 and the patient management project during year 2. An individualized 4th-year community-based project is also required and is based upon community and patient needs gleaned from preclinical rotations.

Revisions to our instructional approach began by addressing concerns, broached by students during routine evaluations, the most common of which included (1) relevance of the curriculum to the overall mission of the school, (2) unclear linkages between courses throughout matriculation, and (3)

consistency in how the educational product is offered. These recommendations directed our efforts for a longitudinal curricular approach as our best option for the advancement of the educational experience.

The longitudinal approach in medical education has gained momentum over more traditional block experiences [5] and is utilized in areas such as evidence-based training [6], as well as clerkship and residency programs. This pathway is especially relevant to our mission given that such an approach, focused on underserved populations, has been found to increase the number of students selecting primary care as a residency choice [7]. However, the novelty of a longitudinal strategy during pre-clinical years requires thoughtful consideration of foundational elements on which such a curriculum is based. For us, these foundational elements centered on three important ideals seminal to curricular advancement; educational philosophy, the developmental process and articulated expectations.

EDUCATIONAL PHILOSOPHY

The Mission-based Curriculum

A dominant force in any successful educational endeavor is maintaining a connection between an overarching mission and instructional activities, primarily through competency-based medical education. However, the salience of mission as a touchstone for academic success is often overshadowed. Adherence to a clear statement of mission can only enhance the academic experience, improving the chances that a student will select primary care as a career choice. One study examined factors related to an inclination toward practicing healthcare in underserved communities reporting mission-based values as an important predictor [8]. The propensity of medical practice within areas most in need can only be amplified by matriculating through an institution that is nurturing of these values. To this end, we began a comprehensive exploration of all content material with the intent to redefine the breadth and depth of the educational experience. This included developing a clear path connecting mission compatible, educational competencies, course-specific learning objectives, and assessment and evaluation measures. Systematic adherence to competency-based medical education serves to maintain the focus of the institutional mission, avert curricular drift, and refine the focus of community medicine.

Educational Continuity

Often students are given blocked or detached academic requirements with limited between-course linkages. To improve its pragmatic qualities, the community medicine curriculum should be designed using a constructivist ideology with deliberate connections among various experiences - a strategy toward construction of meaning which is novel within higher education and deserving of greater attention within the literature, especially as it relates to preclinical years. In comparing three academic programs, Hirsh *et al*. discussed the benefits of educational continuity as a product of the longitudinal integrated clerkship - a growing trend in both undergraduate and residency training [9]. However, this approach is largely absent as part of preclinical medical education. To address this, our revision included express relationships among each of the three narrative projects required during community-based rotations. For example, the 2nd-year project, which addresses patient management, begins where the 1st-year project concludes, using selected, community-wide needs to better understand the dynamics of the patient-community interface. Based upon an understanding of community-patient symbiosis, the 2nd year closes with a 4th year proposal for a targeted intervention designed to study a realistic population health concern. We believe that, as part of a longitudinal methodology, educational continuity serves to enhance the compatibility of the clinical and population health perspectives, affording greater levels of "buy in" to the message being presented.

Student Creativity and Freedom

According to Koh, "the fundamental ingredient necessary for the future of science and medicine is creativity" [10]. However, for us, one source of distress regarding curricular requirements has been the students' feeling of "excessive micromanagement" which offered little room for creativity and self-expression. One-way we chose to address this was to simply alter the instructional language; "two-page minimum" because "through and adequate" supported by a structured grading rubric. A broader allowance toward creativity was given by replacing the 4th year project, which for years dealt with practice management and feasibility, with one that is student-generated and informed by 1st and 2nd year experiences. Students now have the opportunity to work directly with a faculty advisor to plan, implement, and evaluate a community-based project founded upon identified need and informed by patient perspective. The crux here is the infusion of student-centered autonomy into the learning process, fostering an environment of self-initiated originality. By taking this view, we believe students become agile learners, able to utilize a given skill set across various situations to address and solve unique problems. Latitudes of creativity and freedom open cognitive pathways establishing a greater level of appreciation for the content being explored. Unfortunately, learning agility is an area of discussion from which academia has been largely absent [11].

THE DEVELOPMENTAL PROCESS

Student Motivation through Curricular Transparency

Student motivation is crucial to the success of programs with a population health perspective and is central to the longitudinal approach where the instructional journey takes place over time. Motivation is dependent upon a number of factors including transparent direction, measurable objectives, and authentic measures of assessment [12] and is enhanced by offering a clear picture of the curricular pathway. A panoramic map of the curricular experience allows for more efficient allocation of time as well as an opportunity for students to think globally regarding their educational needs. To aid students in gaining

this perspective, the program developed its own pedagogical methodology, known as C-SORT (community/characteristics, standard, options, response, transformation), which graphically depicts the curriculum over time [13]. C-SORT offers a clear presentation of how each course is connected and is layered with information regarding student assessment modalities. The methodology is presented to students during orientation and is reiterated throughout matriculation allowing them to orchestrate their own experiences in terms of relevance and direction [Figure 1].

The Physician Network

Medical training geared toward primary care within rural settings is a strong predictor of whether or not a student will enter primary care after residency [14]. This is especially true when high-quality preceptors are utilized in an environment of experiential continuity [15]. Each year, the community preceptor network (CPN - A branch of the Community Medicine Program) successfully places over 300 students with physicians working in rural and underserved areas. Positive student experiences are dependent upon active cultivation and growth of our preceptor network and require year-round recruitment with an emphasis in broadening our specialty base, replacing retirees, and removing those who fail to meet quality standards. Preceptors also offer "real-world" experiences to our students by participating in both campus-based courses within which they share what it means to be a practicing physician, responsive to the concerns of their community. Given the value of their contribution and experiences, cultivation of our preceptor network is paramount to the success of our students and to the mission of the institution.

Starting with Evaluations

Identifying a starting point for any curricular revision is often difficult, especially in light of competing academic and administrative loyalties. For us, provenance of a longitudinal experience resided in mining available assessment data and student commentary supplemented by a review of the literature specific to learning styles, theory, and educational flow and processing. West and colleagues have discussed the

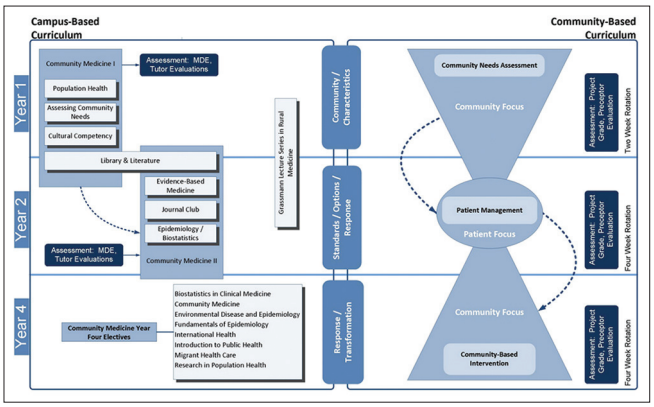

Figure 1: Community/Characteristics, Standard, Options, Response, Transformation Methodology

importance of objectively assessing educational programming, specific to evidence-based medicine, using validated instrumentation [6]. Feeling that this level of detachment may hamper the inclusiveness of student feedback, we chose to utilize more qualitative measures including data from students, faculty, and community-based preceptors. Analysis yielded three common themes informing our direction relative to curricular change. First, students indicated the need for greater overt relevance of the curriculum to the overall mission of the school. Second, it was clear that linkages among course requirements (from year to year as well as between campus- and community-based experiences) needed to be clarified. A final theme centered on improved consistency in how various educational components are presented. These themes led us to embrace a longitudinal methodology as the primary means of presenting instructional components. The point here is that any curricular redirection should be founded upon meaningful reflection from many sources rather than individual preferences, institutional zeitgeist, or mere trend.

Mid-stream Shifts in Direction

Evaluative data are indispensable in providing guidance for curricular change, often occurring at the conclusion of the academic experience with a discounting of mid-stream alterations. Holmboe *et al*. outline the importance of competency-based medical education being supported by an uninterrupted and recurrent stream of assessment throughout the academic experience [16]. Goldfarb and Morrison echo the benefits of being able to make incremental adjustments through the use of formative, ongoing input from both student and faculty [17]. These recommendations have informed our curriculum allowing us to make formative "tweaks" (such as topical flow, resourcing, and clarification of expectations) during our courses in addition to summative alterations at their conclusion. Informal meetings between students and faculty have proven a rich source of input useful for mid-course adjustments, as have group discussions among faculty during each course. Consistent input from class presidents is also quite useful as are mid-rotation reviews with preceptors during community-placements. Taking the time to solicit informal input aids in avoiding missed opportunities to improve the student experience, regardless of timing.

Technological Resources

One benefit of social and educational technology is the speed with which academic materials may be accessed. One study indicated that 85% of medical student and faculty participants utilized some form of mobile computing devise [18]. Our blended learning approach takes advantage of this and serves as a viable resource in how we communicate, distribute learning, and measure success. Presenting materials via Blackbord.com allowed us to provide course documentation more consistently across the curriculum. Similarly, evaluative data are collected online via One45.com, our examinations are completed using Examsoft.com, and all of our large-group meetings are digitally recorded for later streaming. Requiring students to perform

at a certain level without also considering timely resource availability presents itself an "unfunded mandate." Presenting an environment of open-access allows the student to more efficiently gauge their academic progress through ongoing review of formative and summative assessment measures.

ARTICULATED EXPECTATIONS

Open Communication

Open communication among students, faculty, and preceptors serves to guide the student in relation to overall expectations allowing thoughts of competency, professionalism, and career to remain within the proscenium of the educational stage. In addition, deeper learning takes place when the role of educator is an active one, engaging students with rich discourse and meaningful assessment [19]. Compared with surface learning, this approach supports a more long-term and meaningful academic experience, one which augments the utility of the message being presented. Bidirectional communication with the students also fosters clear and prompt feedback on progress, without which there would be limited advances in learning. Our curriculum achieves this through tutor-led, problem-based experiences as well as guidance provided by faculty advisors during community rotations. Faculty also serve to actively monitor each of the three rotation-specific projects students are responsible for during the 1st, 2nd, and 4th-year visits. Our curriculum now reflects an active approach toward joining faculty with student so that both can benefit from the academic perspective and expertise of the other.

Exemplars of Quality Work

Reflecting upon Albert Bandura's concept of self-efficacy, Kaufman notes that when a student is able to observe others completing specific tasks, his/her likelihood of completing similar tasks is greatly enhanced [20]. Thus, we have adopted a strategy that allows upperclassmen to model their achievements and experiences. First, well-constructed community-based project narratives, submitted the year prior, are available for student review. In addition, during first year visit orientation, sophomores share with freshmen their community experiences. Finally, a platform for discourse regarding preceptor ideology, clinical opportunities, and community characteristics is provided by matching current student rotations with those completed prior within a specific practice or community setting. Using exemplary work and student modeling removes much of the angst many students feel when asked to explore the unfamiliar.

CONCLUSION

The community-responsive physician is poised to promote enduring advancements in health and wellness among rural and underserved populations. As part of a longitudinal methodology, this requires deliberate attentiveness toward the blending of "community" with "clinic." Educational strategies geared toward population health should originate with the footing on which the curriculum is based, rather than content, assignments, and experiential learning; without giving consideration to educational scaffolding one has little hope of enjoying substantive educational successes. The ideas presented here include *a priori* considerations necessary to fortify the community medicine experience, especially those presented through longitudinal means. In our case, we found that a clear articulation of philosophy, process, and expectation was warranted to support a curriculum designed to address the needs of a diverse and ever-changing population.

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