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The Development of Online Social Medicine Modules for Medical Students at the Emory University School of Medicine

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Abstract

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Health inequities are associated with the social determinants of health. Though there is potential to impact inequities and social determinants through clinical patient-provider interactions, providers often feel ill equipped to address these non-clinical aspects of patient care and may even perpetuate inequities. The overarching goal of this project was to develop an online foundational level set of modules that could help Emory University medical students to develop and embed these skills prior to their practical post-graduate (residency and/or fellowship) training. Using an initial template from the existing social medicine course as the basic framework, modules were supplemented with skills development centered resources and translated into an interactive format. Three modules were developed, covering the social determinants of health, race and bias, and patient advocacy, respectively. These modules also included a set of pre-post test questions to evaluate short term knowledge acquisition. Further efforts should be made to pilot the program for refinement and to develop a long term evaluation plan.

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I) Introduction

The social determinants of health (SDH) are typically defined as major influences on health outcomes outside of genetic and clinical factors (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003). These include factors such as: socioeconomic status; race/ethnicity; accessibility to health care, transportation, and nutritious foods; and education level, among others (Brach & Fraser, 2000). Among these factors, minority status related to race or gender, poverty, or low education status is often associated with a higher likelihood of experiencing health disparities and poorer health outcomes. These range from conditions including cardiovascular disease, diabetes, infant mortality rates, obesity, asthma, and cancer (KFF, 2002; Murray et al., 2013; Murray et al., 2006).

Many, but not all, of these disparities can be linked to inaccessibility or under-utilization of healthcare services for these individuals. For instance, the differences in life expectancy within the United States between black race individuals and white race individuals have actually increased since Medicare was introduced (Gornick, 2008). Individual SDH are typically highly interrelated, which makes single, targeted interventions less effective.

Although there are clearly many systematic problems influencing health disparities, health care provider practices have some of the clearest impacts on quality of care, both positive and negative. A physician's clinical encounter with a patient has the potential to significantly affect the experience of that patient and even the eventual health outcomes. Strong communication, culturally appropriate interventions, and a bond of trust can help to ensure proper adherence and open dialogue about signs and symptoms. However, the absence of these qualities can result in negative patient experiences and potentially negative health outcomes.

Over the years, the gap in quality of care between whites and all other races has either remained constant or increased for a majority of the indicators (patient satisfaction, cultural acceptability etc.) being measured (Glasgow & Emmons, 2007). There is evidence of inconsistencies and variation in practice on the basis of race and income by physicians in both preventive and chronic care (Egede, 2006; Trivedi & Ayanian, 2006). It is likely that these practices are not the result of blatant prejudice and instead are the result of societal perceptions and subconscious biases of health care providers (Schulman et al., 1999).

In an effort to alter and possibly prevent these perceptions and biases, implementing a curriculum among physicians in training that focuses on exposure to the concepts of SDH and acquisition of cultural competency skills for use in the clinical setting has the potential to improve future patient encounters. Optimally, this curriculum would be concurrent with medical training prior to post-graduate medical training –which is in-practice training– so that translation into practice occurs as a package alongside all other clinical skills development early on.

Problem Statement

Physicians and patients historically cite loss of trust, miscommunication, non-compliance, and cultural barriers as the overarching influences on negative patient-physician relationships and subsequent health outcomes. Many of these issues could stem from a categorical misperception of people based on superficial characteristics such as race or income. To this end, adjusting these perceptions and providing skills for counteracting social biases during early medical training could impact the magnitude of health care disparities and inequities. Emory's School of Medicine (SOM) currently does not have any training modules to support development of these skills.

Purpose Statement

There is broad consensus among medical students at the Emory SOM that social medicine skills development during medical school could be helpful in reducing disparities in future medical care. In addition, revisions to the requirements of the Accreditation Council of Graduate Medical Education (ACGME) offer an opportunity for Emory University's SOM to add such a module to strengthen their current offerings on social medicine. This program emphasizes cross-cultural care, patient advocacy, and the benefits of experiential learning in a variety of clinical settings. The SOM has supported the development of an online, interactive, introductory course on key aspects of Social Medicine for use by first year medical students.

Research Objectives

To meet the needs of the Emory SOM, the following steps were proposed for this project:

- Identify which key portions of Social Medicine are appropriate and necessary to cover in an introductory level course
- 2) Identify what the best platform for developing an online course would be
- 3) Identify what the best platform for delivering the course content would be
- Develop the course content and format in such a way that it is engaging for the medical students

Significance Statement

The development of an online SDH course within Emory's SOM Social Medicine program will have multiple ramifications. From a public health perspective, the course will help close the knowledge gap on the SDH and improve Emory medical students' ability to provide high-quality medical care to their patients in the future. From an education perspective, this course will allow students to become more competitive in graduate medical education programs (residency and fellowships) as they are fulfilling ACGME requirements. From an administrative perspective, the format of the course will provide a relatively self-sustaining platform in a program where faculty and staff are often pressed for time and have demanding schedules. The online component will also be more flexible with regard to students' schedules. Additionally, the course will serve as a model for potential use by other departments within the SOM, other schools at Emory University, or other universities altogether as a method for introducing subject matter in a flexible and interactive format.

Definition of Terms

<u>Accessibility to health care</u>- Having the ability to easily use a given service including, but not limited to, reasonable distance to the care facility, lack of language barriers, and financial feasibility.

<u>Cross-cultural care</u>- The sector of health care that focuses on the skills involved in communicating effectively with patients from a variety of socio-cultural backgrounds and using this communication to provide high quality of care.

<u>Formative evaluation</u>- Evaluation that is typically conducted during the developmental portion of an intervention. The results from formative evaluation are used to inform the intervention and increase the likelihood of uptake and success among the target population.

<u>Graduate medical education-</u> Formal in-practice medical training that is received after completing an MD (Doctor of Medicine) or DO (Doctor of Osteopathic Medicine) degree; other terms to describe this include "residency" and "fellowship." <u>The social determinants of health</u>- Major influences on health outcomes outside of genetic and clinical factors.

<u>Medical education</u>- Formal medical training that is received before the completion of an MD or DO degree.

II. Literature Review

This literature review examines the following: the use of formative research and qualitative data in developing an intervention; the value of social medicine training; best practices among medical, social medical, and online medical training; issues in evaluating social medicine courses; and the current state of social medicine offerings at Emory University SOM.

1) Role of Formative Research in Developing a Course

The development of any intervention should take into account the context in which it will be applied. Satterfield's transdisciplinary model of evidence-based practice (EBP) (see Figure 1) describes a model which includes the environmental and organizational context of the intervention in addition to characteristics of the target audience (Satterfield et al., 2009). This context helps to maintain a balance between the primary intention of the intervention and the feasibility of uptake by the target population. Flexibility such as this is particularly important in the fields of education and public health, where the receptiveness of the audience is paramount to the aspired successful behavior change espoused by the intervention and those deploying it. Satterfield has predicted that using this new EBP model in the development of curricula would facilitate high quality uptake as well as a realistic depiction of an appropriate intervention.



Figure 1 Satterfield, 2009

The data to better understand the context in which an intervention will be deployed are often gathered during a formative evaluation. The results of formative evaluation of an intervention are often used to ensure that the intervention is not only able to efficiently reach the intended audience but that it is also likely to be acceptable to and culturally appropriate for the target audience (Thompson N, 2006). In the specific case of medical education modules, this would mean generating buy-in from the students as well as other stakeholders and finding time for additional courses within the already-busy standard medical curriculum (Shah, Levy, Moriates, & Arora, 2015). Limited staff or student time and failure of staff and/or students to contextualize new knowledge are typically major barriers in implementing and gaining from training modules, particularly in the case of medical education (Glasgow & Emmons, 2007). Glanz recommends using a participatory program design and evaluation as methods to increase buy-in among participants (Glanz & Bishop, 2010).

Lomas also notes that dissemination of information should be tailored to the audience in order for implementation to become most effective and to promote buy-in (Lomas, 1993). Particularly, the format should be user friendly, readily accessible, originate from an influential body or organization, and the importance of the findings should be apparent from a variety of sources. Furthermore, Lomas argues that actively engaging training modules should be the preferred method of dissemination as opposed to pure didactics or readings. The sentiment of targeted strategies is echoed by Tinkle et al.-particularly when concerning dissemination of information (Tinkle, Kimball, Haozous, Shuster, & Meize-Grochowski, 2013).

Formative evaluation through the use of qualitative research methods offers strong potential to help inform project development and increase chances of success of an intervention by using data on participant beliefs, priorities, and opinions (Malterud, 2001; O'Donnell, Lutfey, Marceau, & McKinlay, 2007). Malterud argues that qualitative research methods have excellent applications in understanding social experience, communication, attitudes, and processes. She further posits that these methods can help lessen the distance between theory and practice in the medical field specifically. O'Donnell et al. followed a similar line of reasoning and used focus groups to refine a research project targeted at physicians. By including these focus groups, they increased instrument validity, streamlined the data collection protocols, and decreased the overall cost of the study. In sum, it can be argued that using qualitative data in the process of formative evaluations can lead to more tailored and acceptable interventions.

2) The Value of Social Medicine Training

Health disparities have been observed in the United States for a number of decades (Egede, 2006; IOM, 2002; Nelson, 2003). One of the major recommendations from the Institute of Medicine's 2002 report on health disparities was the need for training in cross cultural

competence and in the social determinants of health as tools to decrease racial and ethnic disparities that exist in health care The arguments for this appear to fall in one of three groupings: 1) that practitioners are unaware of the impact a patient's social and cultural circumstances can have on the status of their health and likelihood to adhere to prescribed health behaviors and treatments; 2) that practitioners may be contributing to health care disparities by making impartial diagnoses and recommendations; and 3) that practitioners feel unequipped to address issues that are outside of their clinical encounters with patients. Each of these is discussed in greater detail below.

A) The Patient's Social Context

Factors such as social stressors and support networks, changes in environment, life control, and literacy can be particularly influential on health status (Green, Betancourt, & Carrillo, 2002). Incorporating training for assessing a patient's understanding of their illness, strategies for bridging communication gaps, skills for negotiating and shared medical decisions, and tools for recognizing the complexity of non-clinical, non-genetic social issues could be of value in improving provider practices and care delivery (Betancourt & Green, 2010). Betancourt et al. find that such additions to medical school curricula result in practitioners feeling more confident in their ability to reach mutual decisions with their patients concerning adherence to treatment plans.

B) Provider Bias

The Institute of Medicine report highlights the following factors as responsible for racial and ethnic disparities in health care: bias or prejudice against minorities, greater clinical uncertainty when caring for minority patients, and beliefs or stereotypes on the part of the provider concerning the behavior or lifestyle of minorities (IOM, 2001). Betancourt (2006) does note that these disparities could be due to conscious or subconscious judgements and biases of practitioners (Betancourt, 2006)

Variations and inconsistencies in practices based on race, gender, and SES in situations are abundant and may indeed affect health outcomes (Trivedi & Ayanian, 2006). Schulman et al. found that a patient's race and sex appeared to influence doctor's recommendations for cardiac catheterization in their randomized experimental study (Schulman et al., 1999). A majority of physicians surveyed by the Institute of Ethics in 2005 mirrored these sentiments, reporting that "minority patients generally receive lower quality care than white patients" and "close to 2/3 of the nation's physicians have reported seeing a patient receive a lower quality of health care because of the patient's race or ethnicity"(IOE, April 2005)

Van Ryn (2000) acknowledges that physicians are expected to be unaffected by social characteristics and to be objective (van Ryn & Burke, 2000). She argues that demographic characteristics such as age, race, and income influence the clinical encounter, diagnosis, treatment plans, and ultimately outcomes. Using medical record abstraction and surveys from 8 New York hospitals, she found that patients whom providers categorized as black were believed by the sampled providers to be at higher risk for substance abuse and less likely to desire an active lifestyle or to comply with physician recommendations. They were further rated as being less intelligent than white patients when income, education, patient age, and sex were accounted for. Through her model, physician response to the patient's demographic characteristics are at least somewhat impacted by the physician's perceptions and stereotypes about those characteristics.

In a subsequent paper, van Ryn refines this model with the inclusion of subtyping (van Ryn, Burgess, Malat, & Griffin, 2006). Social cognitive theory describes subtyping as breaking down gender and race into each of their subcategories such that black woman, white man, black man, and white woman each have different descriptors but generally remain homogenous within the subtype group (Moskowitz, 2005). This is an effort to simplify the information the brain processes on a daily basis so that critical decisions can be made as quickly as possible. Van Ryn (2007) finds that a majority of cultural competence programs focus only on the explicit prejudices an individual may have and thus may not improve the overall quality of care if the physician does not believe they are acting in a prejudiced manner.

C) Skills Development through Social Medicine Training

The Institute of Ethics suggests that education and training could help alleviate racial and ethnic health disparities if they concentrate on attitudes (cultural sensitivity), knowledge (multicultural/categorical approach), and skills development (IOE, April 2005). Many researchers have advocated the need for space within medical school curricula to expose students to the impacts of a multitude of social factors including race and ethnicity on health care (Betancourt et al., 2003; Haughton & Stang, 2012; Lim, Brown, & Justin Kim, 2014). Such an inclusion would promote the development of skills that some physicians feel they otherwise lack when attempting to address SDH.

As part of the 2007 update of the Accreditation Council for Graduate Medical Education (ACGME) General Competency, new competencies were included such as: "communicate effectively, demonstrate caring and respectful behavior", "identify strengths, deficiencies and limits in one's knowledge and experience", "communicate effectively with patients, families, and the public", "demonstrate sensitivity and responsiveness to diverse patient populations", "advocate for quality patient care and optimal health care or public health systems", and "awareness of the impact of race, ethnicity, and culture on clinical decision-making" (Swing, 2007).

Lim et al. found that practitioners with a more complete grasp of the social determinants of health garnered higher rates of patient satisfaction with health care among both racial and sexual minority patients (Lim et al., 2014). In a similar study utilizing nationally representative surveys, when perceived racism and medical mistrust were controlled for, race no longer became a significant predictor for the patient's satisfaction with a clinical encounter. (Kirby, Taliaferro, & Zuvekas, 2006)

Ultimately, social medicine courses aim to enrich the student's understanding of social context and the SDH, and to give them the tools necessary to address these issues.

3) Medical Education

A) General Medical Education

Typically, medical students are exposed to system specific courses (e.g., anatomy, physiology, pathology), a broad range of clinical scenarios-often times a combination of case studies and rotation experiences, and a few variants on medical ethics, professionalism, and communication. There are a multitude of important factors involved in creating a successful introductory level course in medical education. Chief among these is a mutual understanding of the importance of the subject matter between the instructors and the students (Betancourt & Cervantes, 2009). Betancourt (2009) suggests using a mixture of peer-reviewed literature and clinical case studies to increase buy-in among the students. This is based on his work integrating social medicine and cultural competency into the curriculum at Harvard University's SOM. This approach allows the

instructor to build a strong support system for the merit of the course which appeals to students, instructors, and funding sources alike among many of the courses examined by Betancourt et al. Similarly, the randomized controlled trials performed by Schilling et al. suggest demonstrating how the knowledge and skills gained through the course will have application in real life situations to increase student buy-in (Schilling, Wiecha, Polineni, & Khalil, 2006). This would typically involve discussion and interaction among students and an emphasis on experiential learning. Programs that pair an introductory level course with experiential based learning are more likely to result in retention and practice of those ideas expressed within the course, while those without often resulted in inadequate development of the intended skills (Nasca, Weiss, & Bagian, 2014).

Finally, an introductory level course must be mandatory if it is to reach all students, regardless of their individual competence of the subject matter (Lum & Korenman, 1994). Methods for engaging students who already have some experience with the material include marketing it as a review or as an opportunity to learn the material from a new perspective. Nasca describes particular success when including these "expert students" as resources for the remainder of the students (Nasca et al., 2014). This has the added benefit of generating further student buy-in. In summary, for general medical education, it is key that 1) buy-in is created by highlighting the potential usefulness of the knowledge or by peer feedback and support and 2) that introductory level courses be mandated.

B) Socio-Medical Education

The following section details the specific need for generating buy-in for socio-medical courses as well as best practices found in delivery format for these types of courses.

a) Student buy-in and socio-medical education

The themes of student buy in and practical skills-based learning surfaced multiple times in the literature specific to socio-medical education as well as general medical education. Many courses aimed to motivate their students by focusing on cultural competency as a tool to providing high quality care (Betancourt & Green, 2010; Park et al., 2006; van Ryn et al., 2006). This was typically accomplished through examining case studies and emphasizing clinical applications of the skills developed through the courses. This approach aims to overcome students' hesitancies about the clinical utility of their courses.

Furthermore, faculty and institutional support are necessary for the successful implementation and development of socio-cultural coursework (Rutherford, McIntyre, Daley, & Ross, 2012). As demonstrated in a survey of 176 medical schools in the United States and Canada, if trainers and medical school leaders within the academic institution show more interest and positive attitudes toward the content, students generally mimic these tendencies (Obedin-Maliver et al., 2011). Students have also reported feeling more prepared to have a clinical encounter with a patient with a different SES than themselves when there were major social medicine role models available to them during training, particularly in the form of instructors or mentors (Greer, Park, Green, Betancourt, & Weissman, 2007)

b) Delivery Format of Socio-Medical Education

Didactic, group learning, and problem based learning are all common formats for teaching social medicine (Flores, Gee, & Kastner, 2000). However, community based and experiential training consistently have been associated with higher levels of success than pure didactic courses (Brach & Fraser, 2000; Park et al., 2006). This is likely due to a combination of longer exposure to the

subject material as well as opportunities to actively implement and practice the skills being learned. Flores et al. and Betancourt et al. (2009) recommend a separate course or courses devoted specifically to social medicine rather than integrating the subject matter into the normal course load. Flores et al. postulate that integration could lead to a "dilution" of the potential behavior change and awareness that the course(s) are intended to elicit.

Social medicine courses should be taught in a developmental fashion in medical school and continued during post-graduate continuing medical education (Betancourt & Green, 2010). Systematic reviews of medical curricula reveal that such longitudinal designs permit the student to absorb basic knowledge and information in earlier courses and transition to skills acquisition and behavioral change through ongoing education and application (Price et al., 2005). Vignettes, videotaped interviews, discussion about personal beliefs or views, discussion of social context-SES, migration history, literacy, social networks, etc. are common methods to providing the foundational knowledge of social medicine (Carrillo, Green, & Betancourt, 1999). Ideally, future courses would include shadowing opportunities in a variety of settings to challenge and develop the skills of the student (Park et al., 2006). Park et al. notes that the longer the period of socio-cultural training the clinician undergoes, the more likely one is to see improvements in patient satisfaction.

c) Content within socio-medical courses

A potential downfall within social medicine courses is the antiquated approach of teaching students about cultural issues by isolating given combinations of race/ethnicity and SES and attributing certain factors or behaviors to those groups (Gornick, 2000; Kaplan & Greenfield, 2004). This category-based approach can lead to stereotyping of these populations even more which in turn can potentially contribute to and/or worsen existing health disparities (Betancourt, 2006).

A more successful approach focuses on the students developing skill sets to identify major impediments to treating patients from a variety of backgrounds (Carrillo et al., 1999; Kaplan & Greenfield, 2004). These impediments can include language, lack of trust of authority figures or health professionals, conscious or unconscious judgement on the part of the clinician and/or the patient, and a lack of health literacy. Then, building communication skills, self-awareness and humility help to address the impediments students most often cite. Communication, self-awareness, and humility consistently rank among the most valuable skills when working among diverse patient population and acquisition of these skills should be a primary objective of any social medicine course (van Ryn et al., 2006).

C) Online approach

Tabak has suggested that creative approaches might be used in order to make dissemination of information more visually attractive. Social media, online applications, and smart phone applications were among the dissemination modalities listed (Tabak, Stamatakis, Jacobs, & Brownson, 2014).

Several schools of medicine, contemporaries of Emory University, have used these methods, particularly, web-based and online systems, for their curricula, and these are described further here.

University of Michigan's Medical School, as examined by Hammoud, uses a web-based system for student directed learning around evidence based research (Hammoud & Barclay, 2002). This includes multimedia tools in order to appeal to a wide variety of learning styles and an easy system for monitoring use and student progress. Multi-media options were particularly sought after by the students at the University of Michigan based on post-testing feedback.

Boston University's School of Medicine (SOM) as examined by Wiecha in 2002 had developed the Heuristic for Electronic Asynchronous Learning (HEAL) model, which emphasizes a combination of didactic modules, case discussions, and practical experience in an evidence based medicine course for medical school students (J. M. Wiecha, Vanderschmidt, & Schilling, 2002). Pre- and post-testing showed increases in diabetes case management when compared to a control group with no online exposure. The students reported perceiving more flexibility in terms of managing their time with the course and better adoption of concepts due to the experiential component of the course.

Boston University's SOM also has used BlackBoard software as a platform for their continuing medical education program (J. Wiecha & Barrie, 2002). BlackBoard allows for participants to access modules posted to the website and discussion boards with both instructor and student contributions. Many of the participants noted that the course design and timing allowed for flexibility in terms of learning style and scheduling constraints when compared to traditional lecture formats. Furthermore, students can give feedback on any lacking resources, which the instructor can post easily to the platform.

The University of British Columbia Faculties of Medicine and Dentistry, as examined by Broudo, use the Medicine and Dentistry Integrated Curriculum Online (MEDICOL) as a supplement to their curricula (Broudo & Walsh, 2002). The course management system allows for easy tracking of student progress, student-directed learning components, weekly quizzes and immediate feedback, and easier structured communication between the students and instructors through email and bulletin board functions. Over 90% of their students used the MEDICOL sites and believed them to be helpful as an adjunct to their learning experience. Instructors also reported finding the MEDICOL site useful as an environment for exchanging ideas, innovations, and data.

New York University's School of Medicine, as examined by Kalet, implemented a web-based interactive module on strategies for working with interpreters and navigating cultural issues amongst diverse patient populations. The course includes pre- and post-test questionnaires as well as videos and case studies. All first year medical students completed the course and on average, improved by 20% between the pre- and post-module questionnaires (Kalet, Gany, & Senter, 2002). They reported that 86% of the students were satisfied with the module, although many critiqued the technical difficulties that made completion of the module time consuming.

Online learning as a method within education has shown improvement in skills in the short term range (1 year post intervention) in randomized controlled trials, however longitudinal evaluation also needs to occur (Schilling et al., 2006). Furthermore, while small group discussions and constructive feedback have been identified as key in the successful development of new skills and behaviors (Tervalon & Murray-Garcia, 1998), many online courses do not emphasize these components or fail to pair the online course with an in-person component that does include them.

4) Evaluating Social Medicine Programs

In addition to the challenges in designing multicultural education and training curricula in the field of medicine, there is also substantial difficulty in evaluating the processes and outcomes of such an intervention. One of the most frequently described shortcomings in social medicine courses is the lack of a standardized evaluation system (Tervalon & Murray-Garcia, 1998). Tervalon posits that many institutions struggle with the evaluation of cross-cultural medical

courses because they do not lend themselves well to quantitative assessment. The courses are rarely objectively assessed, with progress typically being measured via self-report from clinicians (Brach & Fraser, 2000; Gozu et al., 2007; Park et al., 2006) and social desirability bias has been hypothesized to have a significant impact on these assessments.

Betancourt (2010) suggests that the reliability and credibility of socio-cultural interventions relies on results that are objective and systematically measured (Betancourt & Green, 2010). Betancourt reviews several possible systems for evaluation, but concludes that they are inconsistently applied in randomized controlled trials of social medicine courses. This further impedes the medical community's ability to assess the impact(s) of a social medicine course.

5) Emory University SOM's Social Medicine Offerings

The Emory SOM currently has two curricular options for medical students to participate in aspects of social medicine. One of these is the Social Medicine Grand Rounds which brings in a wide variety of speakers to discuss social medicine and its impacts on clinical practice. Since this is a grand rounds didactic style of exposure, it is not required to attend nor is it incentivized in any way. The second option is a social medicine elective course, which takes place during a medical student's third or fourth year. It is a month long course which is offered in both February and March (aligning with the state of Georgia's legislative sessions in Atlanta). This course offers students the opportunity to have both didactic and field-based experiences in learning about SDH and seeing first-hand how they can impact a clinical visit. Typically, 15-20 students out of an average medical school class of 135 take the course each time it is offered. Since it is open to third and fourth year students, this results in a total of around 35 students per year. It has historically received excellent evaluations from the students.

6) <u>Conclusions</u>

Based on the literature evaluated to date, a successful social medicine course should aim for the following qualities:

- To be tailored to and easily accessible by the students, which can be accomplished through formative evaluation and use of qualitative methods
- To impart both knowledge of the SDH and skills to address health disparities based on the SDH
- 3) Should be a mandatory and introductory level course given as early as possible with repeated "booster" doses during graduate training and continuing medical education so that skills can be integrated into clinical practice and reinforced regularly
- To generate buy-in by emphasizing the usefulness of the information learned and by having strong role models and mentors within the SOM
- 5) To incorporate longitudinal evaluation into such a curriculum to demonstrate the impacts such a course might have

Such a course does not currently exist at the Emory SOM. The creation of this course as described in the following sections will endeavor to capture all of these qualities.

A large remaining gap, beyond the scope of this project, is the creation of an objective system for assessing impact of social medicine courses that can be applied to any course (medical school, graduate medical education, or continuing medical education) and in any setting (international, domestic, hospital, private practice etc.).

III. Methods

Introduction

A need was identified by Emory SOM faculty, staff, and students to strengthen the SOM medical student curriculum with regard to social medicine. It was requested that this take the form of a mandatory set of online modules, if possible. These were to be developed and pilot tested before May, 2016.

Since the use of formative evaluation data to increase student buy-in and program success is considered critical in these types of courses, previous data from focus group discussions and surveys implemented by faculty and students associated with the existing social medicine course in 2014 and 2015 were used to select the topics of the online modules. These topics were determined to be Social Determinants of Health, Race and Bias, and Patient Advocacy. The Emory SOM students and faculty who took the surveys or participated in the focus group discussions during this time period had been asked to focus on perceived usefulness in terms of knowledge base development and skills acquisition.

Since the combination of the three modules is intended to be a foundational course, the scope covered by each of them is limited to an overview of the subject matter and focuses on encouraging the students to think critically about the issues presented.

Target Audience

The students of this course are intended to be first year medical students attending the Emory SOM. The number of students within this cohort varies from year to year but is typically around 135. Every member of the cohort would be required to complete the course within their first year as registered students.

Anyone with an Emory email address and access to the Blackboard website will also have access to the modules, however at this point, it will not be mandated of anyone outside of first year medical students to participate in the course.

What follows is a detailed description of the tasks associated with developing the modules.

Procedures

A) Review of Existing Tools and Materials

Initial review included an assessment of PowerPoints, handouts, activities, and other materials associated with the Social Medicine elective course currently offered by the SOM. This elective course is a month long combination didactic and experiential course for third and fourth year medical students. Typically, only 35 students out of 260 elect to take this course in a given year. However, student feedback on the elective course has historically been very positive and the utilization of its materials, if valuable and possible, was deemed appropriate.

Furthermore, an assessment of other similar courses available online and at other institutions was performed to evaluate the usefulness of outside courses in providing an acceptable level of training in the subject matter. The list of those courses evaluated can be found in Appendix B. These courses were evaluated independently by both the author and by Dr. Bussey-Jones, Chief of General Medicine and Geriatrics at Grady Hospital and associate professor of medicine at the Emory SOM.

Criteria for potentially including materials from other sources into the Emory SOM Social Medicine course involved assessing:

1. value of information presented,

- 2. level of engagement provided to the user,
- 3. ability to track user progress, and
- 4. cost to utilize the modules such as access fees.

Evaluation of these criteria was based on professional opinions of the public health, medical, health care, and educational value of the materials. Findings were compared between the two evaluators and any discrepancies discussed. If necessary, courses were further evaluated by Dr. Maura George, assistant professor of medicine at the Emory SOM. None of the courses evaluated offered satisfactory results in all these categories and the decision was made to utilize portions of the PowerPoints from the currently-offered elective course as a framework for the mandatory modules.

B) PowerPoint, Voiceover, and Supplemental Material Development

Adobe Captivate was selected as the tool for use in module development since it could combine PowerPoint, voiceovers, and links to supplemental materials: the main sources of visual information, auditory information, and interactive components, respectively. PowerPoints from the elective courses were sorted for applicability within the scopes of the three topics to be conveyed (Social Determinants of Health, Race and Bias, and Patient Advocacy) and any excess material deleted to maintain focus within a given module. Supplemental material was then culled from a variety of sources with an emphasis on both student engagement and impact of information. A list of supplemental materials used and recommendations for utilization within the modules can be found in Appendix C. Once these materials had been integrated into the PowerPoint slide decks, voiceovers were performed by both Dr. Bussey-Jones and Dr. George, co-instructors of the Social Medicine elective course.

C) Module Development

The slide decks and voiceovers were combined in Adobe Captivate along with pre/post questions to assess understanding. Assistance in compiling the various components into a fully usable module was provided by Christopher Alspaugh, an information analyst at the SOM. Individual completed modules were then reviewed by the author, Dr. Bussey-Jones, and Dr. George for consistency, flow, appropriateness, and quality.

Institutional Review Board (IRB) Approval

As this project was focused on the development of course modules and did not involve de novo data collection, it was not considered human subjects research and Emory IRB approval was not required. The scope of work of this project consisted of utilizing previously-collected formative qualitative data to aid in the development of course modules.

IV. Results

The project resulted in the development of three modules (Social Determinants of Health, Race and Bias, and Patient Advocacy), each requiring approximately 30 minutes to complete. Several multiple choice questions are placed throughout each module to gauge knowledge uptake; explanations for correct answers are included after each question. What follows is a brief description of each module. Full visual content of modules can be found in Appendix A.

A) Module 1: Social Determinants of Health

This module begins with a set of pre-test questions. Following these questions is a description of the social determinants of heath (SDH) and how they can present during a clinic encounter. The advantages of addressing the SDH as a method to reduce tertiary care burdens are discussed. Education, income, and housing are then examined as they relate to health outcomes. At this point, an interactive activity from an outside website is presented for the students to explore. This activity, Playspent, allows the player to move through a short flash game wherein their character has a limited amount of funds with which to get through everyday activities. These include paying for health bills, utilities, tuition fees, and groceries whilst accounting for limited income. Several skill sets (motivational interviewing, strategies for harm reduction, and identification of high-risk patients) are then presented as options for navigating the SDH from a clinical perspective.

B) Module 2: Race and Bias

This module opens with asking the student to take the Implicit Association test (IAT) regarding race. The IAT is an online tool that is intended to evaluate a student's automatic responses to various stimuli. In the case of the race IAT, the students are presented with pictures and words

and asked to sort them as quickly as possible. Within the module, this tool is paired with a short article written by a medical student on the implicit biases surrounding race that are presented in medical curricula across schools. The association of race with other SDH such as housing, education, and income are then explored. These associations are accompanied by health outcomes and statistics from a variety of sources. The students are then given the opportunity to play an outside game called Fairplay where their character is a young black graduate student. The game purposefully has the player engage in situations where both overt and more subtle examples of racism and bias impact the character.

The module then focuses on the clinical impact of race including disparities in care, procedural allocation, and bias in curricula. The link between simplification of material and categorization based on superficial characteristics is discussed as are the impacts of this categorization. Finally, the students are presented with some options in terms of advocacy (attendance of legislative sessions, monitoring of QI reports, and personally prescribed treatment decisions) with which they can minimize disparities within their professional spheres.

C) Module 3: Patient Advocacy

The costs of health care are examined as is the issue of financing health care among disadvantaged populations. Health insurance coverage and income distribution are discussed as they relate to inequities within health. Georgia's Medicaid and Peach Care programs are examined as specific examples of health coverage programs. Medicaid expansion and the Affordable Care Act (ACA) are reviewed in terms of how they address gaps in coverage. The student is then walked through a case study focusing on health care coverage gaps.

Various types of policy that influence health care coverage are presented and the medical student's role in policy and advocacy is discussed. The skills needed are briefly discussed as are specific organizations which physicians can easily access given busy professional schedules. The third module concludes with the same set of questions posed at the beginning of the first module.

V. Discussion

Since social inequities can often have a multitude of impacts on health status and health outcomes, minimizing the presence of these inequities is an essential first step to improving health in the general population. Some of this inequity stems from poor communications between physicians and patients, physician's perceptions of their ability to address health disparities, or subconscious bias on the part of the physician or the patient. Providing physicians in-training with education and resources regarding these non-clinical aspects of care can result in both the increased awareness among physicians of the impact of SDH and increased patient satisfaction with regard to clinical encounters. Based on best practices described in the literature, to address the need for a stronger yet accessible foundational course on social medicine for Emory University medical students, we developed an online set of course modules. Using formative data collected in 2014 and 2015 by faculty, an in-depth literature review, the existing framework from the previous social medicine course, and tools and examples from Emory's contemporaries, the three online modules (social determinants of health, race and bias, and patient advocacy) were developed for use by first year medical students. These modules are now part of a mandatory course and aim to provide a foundational level of knowledge. Next steps include piloting the modules, making alterations based on this piloting, and the development and implementation of a monitoring and evaluation plan for the modules.

Strengths and Limitations of the Project

This project has resulted in the development of the first mandated course work for medical students at the Emory SOM which focuses specifically on the social determinants of health and their effect on health outcomes. The modules will require no additional maintenance from faculty or other staff outside of allowing student access or any updates or revisions based on new
research. This has the benefit of being a low time investment in the long term for faculty. This being said, the modules should be revised after the pilot study as well as the first few cycles of the course is first implemented to refine the way modules are conveyed to ensure they are as impactful as possible.

This project finds limitations in that it has yet to be implemented among the target audience. Delays in development resulted in an inability to pilot test the modules during the intended time frame. In addition, another limitation is that the course does not yet have a longitudinal evaluation plan developed. Simply having access to the modules or even requiring that they be completed does not ascribe any value of quality or usefulness to them, and it is difficult to estimate what value might be gained without evaluation.

Strengths and Limitations with Regard to the Literature

Flexibility of scheduling and ease of access were key concerns for the success of these modules and their integration was assured by designing online modules which could be completed at learner discretion within a set semester. Furthermore, focusing on the provision of skills within the modules satisfied the emphasis in the literature of providing less abstract and more applicable concepts to learners with this type of material. In addition to this, student buy-in and support was generated by utilizing previously-collected formative data to inform the framework of the modules.

The single largest limitation of this project is its failure to incorporate experiential opportunities for students. This could have hypothetically taken the form of a rotation in a clinic within a low income neighborhood or shadowing a social worker or clergy member in rounds at hospitals or clinics. Unfortunately, these were outside the intended scope of the course as laid out by the Emory SOM. Combining experiential opportunities with the online classroom didactic can

produce a stronger course offering and should be recommended to the course leadership to consider during implementation.

Additionally, an argument can be made for the benefit of in-person small group discussion and interaction with other learners while completing the course. Discourse and exposure to differing points of view can often trigger a more solid rooting of the concepts and theories presented. However, given the preference for online modules to accommodate already overburdened course loads, this was not feasible in this stage of development. Again, as a recommendation to the course leadership, this aspect can be built in as the course evolves in coming years and can be offered as elective opportunities to engage with classmates to discuss the course content. Process development could been strengthened by using an objective method to assess which topics to include in the final modules. This could have resulted in topics that were more common in general clinical practice and therefore, potentially more useful. However, the topics selected do cover most of the more pressing issues related to social medicine and have the added benefit of being actively sought after by students.

Future Steps and Recommendations

Although the modules have been developed, neither pilot testing nor evaluation have been implemented to assess the quality or response to the material. Next steps would include pilot testing among a subset of students and focus group discussions to determine strengths and limitations of the modules from the learner point of view. Following any necessary modifications, the modules would become available to all first year medical undergraduate students to complete.

An evaluation plan should be developed to track student progress and completion rates as well as to compile any feedback from students who have finished the course. The pre- and post-module questions embedded within the modules will serve to evaluate short-term goals of knowledge acquisition. The long term goal of this course is to give students the tools they need to effectively address health care disparities in their roles as physicians; also, as mentioned, reinforcing these concepts during graduate medical education and continued medical education is a desired goal. Evaluation of these goals could be assessed by tracking where students of the course choose to practice (hospitals in low-income neighborhoods, free clinics etc.) or how much advocacy work they engage in on behalf of their patients. Ideally, these could be assessed via survey or interview on a yearly basis. It should be noted that results from within the first few years of taking the course are more likely to be directly related to the course rather than results from several years out. Since a multitude of factors could influence the student's choice of where and how to practice, it is significantly more difficult to attribute this choice to the course as the time between them lengthens.

Should focus group discussion results or student feedback show a strong inclination toward more small group discussion, an effort should be made to incorporate a discussion board or some similar outlet using the Blackboard website to allow for this option.

Implications of Social Medicine

The impact of the social determinants of health on the clinical encounter and on health outcomes is constantly present and evolving. By introducing this material early in the educational career of medical students and then reinforced in clinical practice, more time can be given for the material to be absorbed and to be witnessed by the time the students become physicians managing their own clinical visits. Although an experiential component would assist dramatically in establishing a more concrete understanding of the SDH, these modules provide a step in the right direction – toward focusing physicians on all aspects of patient care and health, not just the clinical and genetic aspects.

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<u>Appendix A</u> <u>Module 1</u>

Slide 1

















Intern Case Presentation

45 year old female with h/o CHF admitted for the 2nd time in 1 month with exacerbation. The intern's frustration is evident.



EMORY UNIVERSITY

DEpartment of Medicine





"As physicians, most of our time in medical education and professional development is focused on getting the diagnosis and treatment plan right. All that work is meaningless without the dismount, which, in medicine, requires enabling the patient to understand and act in ways that maximize health outcomes."

Darren A. DeWalt, MD, MPH JAMA 11/30/2010





Department of Medicine















Slide 20





Slide 22







Slide 25



Slide 26






















































































Module 2















































Criminal Record	White	Black
No	34%	14%
Yes	17%	5%







































Black / White Differences in S Procedure Utilization Among Beneficiaries Age 65 and Old	Department of Medicine			
	Black	White	Black-to- White Ratio	
Angioplasty (procedures per 1,000 beneficiaries per year)	2.5	5.4	0.46	
Coronary Artery Bypass Graft Surgery (procedures per 1,000 beneficiaries per year)	1.9	4.8	0.40	
Mammography (procedures per 100 women per year)	17.1	26.0	0.66	
Hip Fracture Repair (procedures per 100 women per year)	2.9	7.0	0.42	
Amputation of All or Part of Limb (procedures per 1,000 beneficiaries per year)	6.7	1.9	3.64	
Bilateral Orchiectomy (procedures per 1,000 beneficiaries per year)	2.0	0.8	2.45	
Source: Gornick et al., 1996				














































Module 3

Slide 1







































































Slide 34







Clinician, policy expert, or community activist?!

What's a physician's social responsibility to address healthrelated matters beyond providing care to individual patients?





EMORY **Medical education transforms** learners in less desirable ways Department of Medicine

SCHOOL OF MEDICINE

Medical students tend to become

- Less idealistic
- More cynical
- Less benevolent
- Less humanitarian
- Less tolerant of vulnerable patients

Eron, 1958; Gordon and Mensh, 1962; Gray et al., 1965; Kopelman, 1983; Merrill et al., 1994; Merrill et al., 1991; Merrill et al., 1995, 1996; Reinhardt and Gray, 1972; Rezler, 1974; Testerman et al., 1996



		Reports of 84 Health Legislative Assistants on How Much Physicians Lobby for the Following Issues*		
EMORY		Amount of Lobbying		
UNIVERSITY SCHOOL OF MEDICINE	Issue	"A Lot"	"Somewhat"	"A Little" or "Not at All"
Department of Medicine	Increasing or maintaining physician compensation	41 (49)	19 (23)	24 (29)
When we	Increased funding for medical research	34 (40)	29 (35)	21 (25)
lobby, what	Improving the future viability of Medicare	33 (39)	27 (32)	24 (29)
are our issues?	Giving patients the right to sue their health maintenance organization	33 (39)	25 (30)	26 (31)
	Increased funding of medical education	28 (33)	36 (43)	20 (24)
	Malpractice tort reform	13 (15)	18 (22)	53 (63)
	Better access to care for uninsured citizens	12 (14)	33 (39)	39 (46)
Landes Arch Int Med.	Tobacco control legislation	5 (6)	20 (24)	59 (70)
2000.	The right to have an abortion	0	6 (7)	78 (93)



































<u>Appendix B</u> Coursera examples

https://www.coursera.org/course/publichealth

https://www.coursera.org/course/mentalhealth

Sick Kids Hospital in Toronto through the National Collaborating Centre for Determinants of Health (NCCDH)-2012

http://www.sickkids.ca/culturalcompetence/elearning-modules/eLearning-modules.html

Association of Academic Health Centers Toolkit

https://healthleadsusa.org/2013/07/association-of-academic-health-centers-releases-socialdeterminants-of-health-toolkit/

Society of Teachers of Family Medicine

http://www.stfm.org/Advocacy/AdvocacyCourses

Caring with Compassion

https://caringwithcompassion.org/

Appendix C

Resource name/location	Description	Recommendation		
Maps				
AidsVu http://aidsvu.org/map/	 Depicts incident cases and rates of HIV in the United States Can be targeted to specific cities etc. 	Put in as link in the SDH module- supplementary materials for students to use at their leisure		
Health Disparities Map (major cities) <u>http://graphics.latimes.com/healthcare-disparity/</u>	 Shows differences across the US (by marked city boundaries) in terms of health insurance, available doctors, poverty, preventable deaths, avoidable hospitalizations, and recommended care 	Put in as link in the SDH module- main content for students to look through		
<u>Center of Society and Health age</u> <u>predictions</u> <u>http://www.societyhealth.vcu.edu/work</u> /the-projects/mapping-life-expectancy.html	 Projections of life expectancies in various zipcodes of a selection of cities. 	Put in as picture in as a picture near the introduction of the SDH module (Atlanta specific)		
	Games/Tests			
Playspent <u>http://www.playspent.org</u>	 Short game imitating choices made over the course of a month for someone starting at \$1000 and unemployed 	Put in as link the SDH module- main content for students to play		
IAT <u>https://implicit.harvard.edu/imp</u> licit/selectatest.html	 Large selection of tests aimed at recognizing unconscious biases. Includes disabilities, age, race, weight, sexuality, religion, skin-tone, and gender 	Put in just after introduction of race/bias module-encourage students to take at least one of the tests		

Fairplay http://gameslearningsociety.org/fairpla y_microsite/ SDH Fast Fact Series http://www.sgim.org/web-only select Social Determinants of Health on left hand bar)	 Role playing video game following a young black graduate student Meant to expose implicit biases and allow the player to recognize these biases in everyday life 12+ short case studies with multiple choice options for how best to approach the patient's problem given the SDH's applicable in the situation. 	Put in as link in SDH module- supplementary materials to play at their leisure
	Tutorials	
<u>Kaiser Family Foundation Interactive</u> <u>Tool</u> <u>http://kff.org/interactive/the-</u> <u>uninsured-an-interactive-tool/</u> <u></u>	 Tool using powerpoint type style that allows the user to select an uninsured sub group (pre- existing condition, self-employed, young adult, living in a rural area etc.) and gives statistics on amount of people within that sub group, why they may be uninsured, and how the ACA may affect them. Resources are also given at the end for more information 	Place in advocacy module under main content for the student to explore
Caring with Compassion Modules	 7 modules including Populations in Need, Insurance, Delivery Systems, Homelessness and Disease, Social Determinants of Health, Biopsychosocial Health, and Team Care which provide a significant amount of information on each topic and include multiple choice quiz questions relevant to available material Interactive game which puts the player in the position of a clinician and gives options to find out more about a patient's background in order to provide a more effective visit. 	

<u>Caring with Compassion Pocket Guide</u> <u>https://caringwithcompassion.o</u> <u>rg/downloads/Pocket Guide A.pdf</u>	 Provides general assessment plan including key SDH related domains (social history, community and environmental resources, behavioral or substance use or psychiatric disorders) Also leaves space for user to fill in local members of the "care team" (social worker, case managers, clinical pharmacists, violence hotlines etc.) 	Cite and use key elements and combine with aspects of the Advocacy module
	Miscellaneous	
Social Medicine Pocket Guide Word Document	 Series of links for a variety of social services and options when caring for a non-insured or otherwise disadvantaged patient 	Put in advocacy module??
Social Services Resource Card for Atlanta Word Document	 Provides example of the SELF approach (social stressor and sources of support, environment and experiences of medical care, life control and literacy, and faith in fact and family beliefs Back page has the phone numbers for many organizations involved with providing resources to homeless and low income patients 	Provide as supplementary material in advocacy module
A Silent Curriculum PDF	 Powerful writing on how lessons/thoughts/events impacted by race and social factors are "taught" 	Use as mandatory reading in race/bias module