White Paper: Curriculum Reform at the Wayne State University School of Medicine

**Purpose**: The purpose of this paper is to review the immediate need for curriculum reform at the Wayne State University School of Medicine and the current direction to achieve this mission.

**Section 1: Why is Curriculum Change Necessary?**

As one of the early medical schools in the United States, established in 1868, the Wayne State University School of Medicine (WSUSOM) continues to provide a quality education to its students. Today, with more than 1,160 medical students, the WSUSOM is the largest single-campus allopathic medical school in the nation. More than one-half of its graduates remain in Michigan to practice medicine and nearly 40 percent of all practicing physicians in southeast Michigan received all or part of their training at the WSUSOM. Our students’ board scores remain competitive, meeting national averages, and the Match rate continues to exceed the national average. With all of these positive attributes, why is curriculum change necessary?

The nature of scientific exploration continues to evolve as separate scientific disciplines begin to merge, making it necessary to adapt our curriculum from the traditional 2+2 model recommended by Abraham Flexner: two years of basic science, followed by two years of clinical education. While we may meet the needs of our students utilizing this model, the direction of medical education and how students learn has rapidly changed, and the WSUSOM has not kept pace with these changes. In fact, according to the Association of American Medical Colleges’ Curriculum Inventory Project, 93.4 percent of medical schools accredited in the United States have either changed their curriculum, have started to change their curriculum or are in the planning process within the last five years (see Figure 1). In short, we are one of approximately nine medical schools that have not evaluated the need for curriculum reform.

In March 2015, the WSUSOM underwent its accreditation site visit by the Liaison Committee on Medical Education (LCME). In June 2015, the school received the final report, an adverse action of probation, an action that less than 5 percent of the nation’s 141 medical schools received. A team of administrators and students filed for a reconsideration hearing with the LCME. The hearing reduced the probation status to a “warning of probation,” an improvement, but still an adverse action. The LCME found 11 standards to be non-compliant. Another eight were compliant with monitoring (standards in compliance, for which there is insufficient evidence indicating effectiveness). Of the 11 noncompliant standards, eight (73 percent) were related to the curriculum. Four were associated with the Year 1-2 curriculum and four with the management of the curriculum. If we look at the specifics of these standards,
the underlying theme is that the structure and function of our medical school curriculum is insufficient in meeting the future direction of medical education.

The current WSUSOM curriculum also does not meet some of the new 2015-2016 LCME standards and elements to which medical schools are now held. The standards call for the horizontal and vertical integration of basic science and clinical curricula. In fact, the LCME convened a task force to look at merging Step 1 and Step 2CK, potentially resulting in a more integrative and competence-based licensure exam. The new standards emphasize a decrease in overall contact hours, specifically lecture-based delivery and more reliance on dedicated time for independent self-directed learning that will help guide students through the learning process and the development of their own inquiry and analytical skills. For example, the WSUSOM Year1 pre-clerkship curriculum on average exceeds 30 scheduled hours per week. According to the AAMC curriculum inventory project, only 9 of 89 medical schools reporting had more than 28 scheduled hours per week in the Year 1 curriculum. Similar data trends are also evident for the Year 2 pre-clerkship curriculum.
Curriculum Reform at the WSUSOM

The WSUSOM curriculum remains heavily lecture-based, while other schools continue to integrate other delivery methods. According to the AAMC curriculum inventory project in 2013-2014, 76 schools reported using cased-based learning in Anatomy, 87 schools in Biochemistry, 107 schools in Neurosciences, and 101 in Pharmacology to name a few. Additionally, 110 medical schools have reported further integration of active learning formats over the past five years. There is also more emphasis on evaluating students through a variety of assessment methods, including narrative feedback during the first two years of medical school. Again, the WSUSOM continues to lag behind other medical schools with nearly 100% of the assessment methods in the basic science courses conducted through multiple choice examinations. Lastly, new curricular content/themes are required and must be taught as a course or longitudinally. These include biomedical informatics, global health issues, health care financing, law and medicine, socioeconomics and population-based medicine.

From a curriculum management standpoint, the standards require a systematic approach to problem identification and problem-solving. The individual years or segments of the curriculum, as well as the integration of a regular process for monitoring the content, must be reviewed. Our curricular content has never been benchmarked to determine the relevance of the information being delivered to students. Most importantly, a new medical education paradigm requires medical schools to develop and implement a Continuous Performance Improvement process (CPI) to monitor and increase the effectiveness and efficiency of the medical school program. Our curriculum was found to be in non-compliance in these areas.

Overall, the WSUSOM needs a curriculum that is robust in order to meet the needs of medical students of today and in the future; a curriculum that is adaptable and remains up to date with current issues, yet is focused; and a curriculum that produces physicians with independent life-long learning skills so they can keep pace with the rapid changes in medicine. Lastly, we need a curriculum management infrastructure and processes to monitor the effectiveness and efficiency of the curriculum.

Section 2: What are the Solutions?

The current state of the Undergraduate Medical Education curriculum at WSUSOM must be addressed in an expedited manner. In early March 2016, the LCME will conduct a formative assessment of our progress toward addressing our deficient standards. We must be able to demonstrate progress for the current 2015-2016 academic year and continue to correct these deficiencies for the 2016-2017 academic year. Additionally, we must provide a curriculum reform plan, which the literature has shown can take three to five years to develop and implement. As a result, the WSUSOM Curriculum Committee approved a two-phase approach to curriculum reform at its August 2015 meeting.
Phase I addresses immediate curricular issues related to LCME standards deficiencies. These include curricular-specific standards, such as adding alternative forms of content delivery and assessment methods, narrative assessment, protected time for independent and self-directed learning, and the integration of new curriculum management strategies. Curricular modifications will take place within the current curriculum structure and will be implemented during the 2015-2016 and 2016-2017 academic years. Phase II addresses whole scale and long-term curricular reform, and is anticipated to be implemented for the matriculating class of 2017-2018. This phase will involve a review of the medical education literature; analysis of peer medical schools, Michigan medical schools, schools that are known leaders in medical education; and an internal review of our current curriculum.

Overall, both Phase I and Phase II activities are based on two key principles: team-based management and best practices. All activities associated with each phase will be conducted through working committees authorized by the Curriculum Committee. These committees will be comprised of administrators, faculty and students. Additionally, all activities are required to be based on best practices, which will be derived from literature reviews and collaboration with other medical education professionals.

Phase 1

During Phase I, the pre-clerkship and clerkship subcommittees have been charged with correcting the deficient standards. Much of the effort thus far has been in two key areas: delivery/assessment of the curriculum and curriculum management. The pre-clerkship subcommittee has already started integrating alternative delivery mechanisms (e.g., flipped classroom in Pathophysiology-Dermatology) and assessment methods (e.g., narrative assessment in Immunology/Microbiology and Physical Diagnosis). In fact, over 40% of the Year1-2 courses have integrated some type of alternative assessment method during the 2015-2016 academic year. This is an excellent start, but will not meet expectations of the LCME. Additionally, a CPI process is being implemented to assist in managing areas within the curriculum that have been identified for improvement. The clerkship subcommittee is piloting CPI methods to address clerkship quality issues, while the pre-clerkship subcommittee will be piloting CPI principals to address course materials (i.e., course notes).

Additional Phase I activities will be guided by a full curriculum inventory. A concern raised by internal stakeholders is that students not only have to learn curricular content to pass internal exams, but also have to prepare for Step 1. As a result, we have started a process to map our curricular content (i.e., lectures) to the new USMLE Unified content outline, which serves as the blueprint for Step 1 and Step
2CK exams. This will help us focus teaching priorities on the key content for students achieving medical licensure. Since national standards for curriculum content do not exist, schools such as the University of Arizona and University of Michigan have mapped to Step 1, a national benchmark against which students are assessed.

Once we have collected and analyzed our curricular content, we will be able to accomplish the following: 1) identify and address unintended redundancies and gaps in content across the curriculum; 2) identify areas within the curriculum to strategically implement the new LCME requirements, including independent learning; and 3) have the curriculum inventory serve as the baseline for a full curriculum reform, which is the focus of Phase II. Overall, Phase I activities are focused on immediate curricular needs addressing current LCME deficiencies. These activities have already started and will continue through the 2016-2017 academic year.

Phase II

The purpose of Phase II is to design the curriculum of the future, using the guiding principles of team-based management and best practices. This phase consists of a review of the medical education literature; analysis of peer medical schools, Michigan medical schools; and an internal review of our current curriculum. These activities will be carried out through a five-part process that has been outlined by Loeser et al. (2007). Specifically, we will: 1) create a vision for the curriculum – define the knowledge, skills and attitudes of future WSUSOM graduates; 2) design and obtain approvals for the curriculum; 3) develop curricular content, including courses; 4) implement the curriculum and evaluate outcomes; and 5) apply CPI methods developed during Phase I.

The best practices in medical education will be determined through a thorough review of the literature and visits to other medical schools, focusing on areas of learning theory and curricular design, human organ system designed curricula, case-based learning and theme-based curricula, and pre-clerkship and clerkship integration. To date, we have visited Case Western, University of Michigan, and the University of California – San Francisco. We have also conducted on-line reviews and have collected and analyzed the curricular structure and function for schools such as Boston University, Dartmouth, Drexel, Duke, Florida Central, Illinois, Indiana, Iowa, Michigan State University, Minnesota, New York University, Rutgers, Temple, University of Chicago and Wright State, to name a few. Additionally, our WSUSOM Association of American Medical Colleges OSR representatives have conducted a survey of medical students at 46 other medical schools to determine curricular structure and
function. Our review of other medical schools will continue until we feel there is sufficient evidence to make a recommendation for the future direction of the WSUSOM curriculum.

Finally, we will conclude with an internal review of our curriculum that began during Phase I. Our content map will be used to realign curricular content with the new curriculum design. Stakeholders who will be engaged during the vision, design and implementation process include students, faculty, alumni, administrators and clinical partners who will be affected by decisions made during the development, implementation and CPI stages. It is important that during the vision process we reach out to current students to understand our strengths and the areas that need improving. Recent graduates can inform us what we have done to prepare them for residency. Lastly, our clinical partners are essential to informing us about the preparation of our students for clerkships, as well as the knowledge and skills needed for future physicians. Understanding different perspectives, open lines of communication and transparency are key factors to our success. “Education is the most powerful weapon you can use to change the world”. Today, we are in the position to make a difference and provide the highest quality education to our students for the benefit of their future patients.
References


