

# **Southern Illinois University School of Medicine**

## **Beyond Flexner Site Visit Report Site Visit: September 21-23, 2011**

### **Site Visit Team**

#### **Malika Fair, MD, MPH**

Co-Principal Investigator, Assistant Professor of Emergency Medicine, The George Washington University

#### **Sarah Diamond, MPH**

Senior Research Assistant, Department of Health Policy, The George Washington University

#### **Alex Stagnaro-Green, MD, MHPE**

Senior Associate Dean for Education, Professor of Medicine, Professor of Obstetrics & Gynecology, The George Washington University

#### **Henry Sondheimer, MD**

Adjunct Faculty, Department of Health Policy, The George Washington University  
Senior Director of Student Affairs and Student Programs, Association of American Medical Colleges



## Introduction

---

Beyond Flexner, a W.K Kellogg Foundation-funded study at the Department of Health Policy of the George Washington University School of Public Health and Health Services, explored unintended consequences of the Flexner Report with a focus on innovative models of medical education that address social mission. The Beyond Flexner Study began with the development of an Advisory Committee consisting of sixteen leaders in medical education and health policy. The research team and Advisory Committee identified eight core modalities that stand out as essential elements in the social mission of education, and selected six medical schools which have demonstrated a commitment to strengthen their contribution to health equity.

Southern Illinois University School of Medicine was chosen to be a participant in this study because of their stated commitment to local and regional care, deliberate recruitment of underrepresented minorities and students from rural backgrounds, and overt focus on primary care education. A team comprised of Dr. Alex Stagnaro-Green, Dr. Henry Sondheimer, Dr. Malika Fair, and Sarah Diamond traveled to Springfield for a three day visit in September 2011. This visit consisted of multiple group and individual interviews based on a standard Beyond Flexner site visit template and visits to Memorial Health System and St. John's Hospital.

We would like to express our appreciation to the Southern Illinois University School of Medicine leadership, faculty and students for their cooperation and help towards achieving the goals of the site visit. Special thanks go to Dr. J. Kevin Dorsey and Gary Giacomelli for arranging a highly successful visit and for their support of the Beyond Flexner Study.

## Key Findings

---

### 1. MEDPREP

Established in 1972 by the SIU School of Medicine, the Medical/Dental Education Preparatory Program (MEDPREP) is a two-year, post-baccalaureate program designed to prepare underrepresented minority and educationally/economically disadvantaged students for careers in medicine or dentistry. The nationally recognized MEDPREP has prepared 1,296 students since 1972 to attend medical schools, dental schools, or other health professions schools across the country. Since MEDPREP's inception, 88% of its alumni who have matriculated to health professions schools have graduated or are expected to graduate from those schools; this includes 169 MEDPREP graduates who have attended or are now attending SIU's medical school to be trained as physicians. In the past four years, 117 MEDPREP graduates have matriculated to thirty-seven medical schools across the country. About one-sixth (16.4%) of SIU SOM's current medical student enrollment is composed of underrepresented minority students; this is higher than the central and southern Illinois region's 11.1% in these categories. The MEDPREP program has helped SIU SOM achieve this success.

## **2. Rural and First Generation Students**

39% of the SIU matriculants come from towns with populations of less than 10,000, and 57% from towns with populations less than 25,000. In addition, 28% come from families where the father does not have a college degree and 35% where their mothers did not have a college degree. (Based on 2000-2010 enrollments for hometown data and parent educational attainment data for the Classes of 2004-2011).

## **3. Curriculum 2000**

In 2000, the SIU SOM implemented “Curriculum 2000” with problem-based learning (PBL) serving as the core of the educational model supported by lectures and laboratory experiences. This curriculum builds upon educational innovations developed at SIU SOM, including problem-based learning and competency-based learning objectives. The PBL cases integrate the basic and clinical sciences, and include complementary skills and knowledge such as health care policy, the changing environment of health care, and the spirituality and cultural beliefs of the individual patient.

## **4. Family and Community Medicine Clinical Rotation**

The SIU SOM has a required six-week Family and Community Medicine rotation during the third year of medical school that is designed to immerse the student in the delivery of comprehensive patient care provided in the community setting. Four weeks of this immersion experience are completed under the supervision and mentorship of a family physician (preceptor) in the physician’s office or community clinic. Since 1981 more than 2,000 students have rotated through the clerkship which utilizes more than 160 board-certified family physicians throughout Illinois. Students are encouraged to perform the rotation in the office of a family physician in their home community, thereby gaining a new perspective and relationship with their native health care system. Most of the family medicine preceptor sites are rural clinics, federally qualified health centers, or clinics associated with critical access hospitals. SIU SOM tracking data indicate that 43% of its graduates are currently practicing in Illinois. Recent data from AAMC’s Missions Management Tool Dashboard Report rank SIU SOM at the 94<sup>th</sup> percentile among all medical schools in percentage of its graduates practicing in rural areas, at the 83<sup>rd</sup> percentile in graduates practicing in underserved areas, and at the 64<sup>th</sup> percentile of graduates practicing in-state. This suggests a high level of success in preparing physicians for local, rural practice in keeping with the mission of the school.

## **5. Community Service**

SIU has a stated and active commitment to community service that is institutionalized, organized, and manifest in the work of much of the SIU community. The written commitment to community service was recently added to the mission statement of the SIU SOM which was followed by creating committees and cultivating institutional accountability to the stated mission.

## **6. Hidden Curriculum**

The dreaded “hidden curriculum” that may be present in other schools is actually in reverse at SIU SOM. The hidden agenda is an exposure to career satisfied primary care physicians who are dedicated to the mission of the school. SIU SOM hopes that students will want to emulate these physicians regardless of what specialty they choose.

## Background

---

### State Demographics

Illinois is the 5<sup>th</sup> most populous and 24<sup>th</sup> largest state in the US, with a population of approximately 12.8 million and a land area of about 55,500 square miles.<sup>1</sup> The majority of the population (88%) lives in metropolitan areas and only 12% live in non-metropolitan areas.<sup>2</sup> The most populous city is Chicago and the most population-dense city is Berwyn.<sup>1</sup> From 2000 to 2010, the population of Illinois grew 3.3%, compared to the US average of 9.7%.<sup>3</sup> The majority of the population growth was among minority ethnic groups, as evidenced by a 41.8% increase in American Indian/Alaskan Natives, a 38.6% increase in Asians, and 32.5% increase in Hispanic/Latinos.<sup>4</sup> For comparison, during this time the population of Whites increased by only 0.6%, while Blacks/African Americans experienced a population decrease of -0.6%.<sup>4</sup>

In 2010, 71.5% of Illinois’ population was white, 15.8% was Hispanic/Latino, 14.5% was Black/African American, 4.6% was Asian, and 0.3% was American Indian/Alaska Native.<sup>4</sup> This is similar to the composition of the US population as a whole, which in 2010 was 72.4% White, 12.6% Black/African American, 16.3% Hispanic/Latino, 4.8% Asian and 0.9% American Indian/Alaska Native.<sup>4</sup> Based on the 2005 U.S. Population Census data, within the 86 counties of central and southern Illinois Blacks/African Americans represent 8.2%, Hispanics 2.7%, and Native Americans, Alaska Natives, and Native Hawaiians 0.2% of the population.

### Economy

Illinois has the 16<sup>th</sup> highest median household income in the US, at \$56,235 (\$3,753 above national average). In 2008, 12.8% of Illinois residents were living below the poverty level.<sup>5</sup> Rates of poverty are highest among ethnic minorities with 36% of African Americans/Blacks and 31% of Hispanic/Latinos living in poverty.<sup>2</sup>

### Springfield Background

In 2010, the population of Springfield was 116,250.<sup>6</sup> The population is mostly White (75.8%), with smaller minority populations of Black/African Americans (18.5%), Asians (2.2%), and American Indians/Alaska Natives (0.2%). The median household income from 2005-2009 was \$46,819, compared to the state average of \$55,222 for that time period.<sup>6</sup> As indicated by its lower median income, in 2009 Springfield’s poverty rate was about 3% higher than the Illinois state average of 15.8%. Poverty in the city is largely concentrated among the Black/African American and Asian populations, with 41.8% of African American/Blacks and 18.3% of Asians

earning an income below poverty, compared to statewide averages of 28.6% and 10.6%, respectively.<sup>7</sup>

## **Health Indicators**

Illinois has the tenth highest percentage of obese and overweight children in the country (34.9%).<sup>2</sup> The rates of overweight and obesity for adults in Illinois are in line with the US average, at 63.2% compared to 63.8%, respectively.<sup>2</sup> Similarly, rates of diabetes (8.7%) and heart disease (192.8 deaths per 100,000) in Illinois mirror US averages.<sup>2</sup> Illinois has an AIDS diagnosis rate of 9.3 per 100,000, below the national rate of 11.2 per 100,000.

Mental health is one of the few areas where Illinois indicators deviate from national averages. In 2010, the state ranked highest for the percentage of adults who report having poor mental health (38.6% compared to 34.0% nationally).<sup>2</sup> The percentage of African Americans/Blacks reporting poor mental health is 47.5% compared to 35.4% in the US.<sup>2</sup> Moreover, 36.8% of Whites and 38.5% of Hispanic/Latin Americans report poor mental health, compared to the US averages of 33.4% and 36.5% respectively.<sup>2</sup>

## **Health Care System**

In 2008-2009, 14% of the Illinois population was uninsured, which is lower than the nationwide 17% uninsurance rate. At the time of measurement, eight percent of children were uninsured and 19% of adults were uninsured.<sup>2</sup> According to the Commonwealth Fund 2009 State Scorecard<sup>8</sup>, Illinois scored 42 out of 51 in health system performance measures as determined by multiple benchmarks for access to care, quality, cost, and health outcomes. Illinois also ranked 31<sup>st</sup> for children's potential to live healthy lives, as measured by indicators such as infant mortality, child obesity, and youth physical activity levels.<sup>8</sup> The United Health Foundation America's Health Rankings<sup>9</sup> rated the overall health of Illinois' residents as 29<sup>th</sup> in the nation, citing risk factors that included binge drinking, preventable hospitalizations, and air pollution.

Total Medicare enrollment in Illinois is 12% of the population, a lower rate than the 15% across the US, and similarly, total Medicaid enrollment is 15% in the state, lower than the 19% nationally. Thirty-two percent of Illinois children are enrolled in Medicaid, compared to 33% nationally, and 9% of Illinois adults are enrolled in Medicaid compared to 10% nationally.<sup>2</sup>

## **Healthcare Workforce**

According to the AAMC<sup>10</sup>, in 2010, Illinois had 33,594 active physicians, of whom 12,336 were working in primary care. In 2010, the state ranked 19<sup>th</sup> in the nation (out of the 50 states and excluding the District of Columbia) for active physicians per 100,000 population (259.5 per 100,000) and 20<sup>th</sup> for the number of active primary care physicians per 100,000 (95.3 per 100,000).<sup>10</sup> Illinois has 215.8 active patient care physicians per 100,000 population, while the national median is 239.6 per 100,000.<sup>10</sup> In terms of active patient care primary care physicians, Illinois ranks 22<sup>nd</sup> with 81.8 physicians per 100,000, compared to the national median of 80.1 per 100,000.<sup>10</sup>

The state also ranks 10<sup>th</sup> for the number of students enrolled in medical or osteopathic school per 100,000, but 40<sup>th</sup> for the percentage change of students enrolled in medical or osteopathic school, with only a 6.8% increase between 2000 and 2010.<sup>10</sup> In terms of retention, 31.8% of students are retained in-state from undergraduate medical education, and 49.4% are retained in-state from graduate medical education.<sup>10</sup> This compares to national averages of 37.2% and 45.4%, respectively.<sup>10</sup>

## **History**

In 1968, the Illinois Board of Higher Education (IBHE) recommended that Southern Illinois University create a medical school in downstate Illinois capable of graduating its first class by 1978.<sup>11</sup> The University complied, and in an effort to make maximum use of existing facilities and expertise, the clinical education programs were established in Springfield, which had large sophisticated hospitals and a strong core of physicians in the various specialties.<sup>11</sup> Similarly, the basic science programs were established at the Carbondale campus, where educational resources were readily available. The first year of the medical school curriculum continues to the present to be taught on the Carbondale campus with the second, third and fourth year medical students based in Springfield. The School's medical education curriculum received provisional accreditation from the Liaison Committee on Medical Education (LCME) in 1972, and, in June 1973, the first class began their studies in Carbondale. In 1975, the medical school received full accreditation.<sup>11</sup>

SIU's first graduate medical education training program was in family medicine, and began admitting residents in July 1972. That same year also marked the establishment of SIU's Medical Dental Education Preparatory Program (MEDPREP).<sup>11</sup> The first MEDPREP students began their studies in 1973.<sup>11</sup>

In 1976, SIU was the first medical school to publish a complete set of goals and objectives for the medical degree.<sup>11</sup> Almost ten years later, in 1985, the school implemented a new condition for graduation with the MD degree: all students must satisfactorily complete a final comprehensive performance-based assessment procedure using standardized patients.<sup>11</sup> In 1987, U.S. News and World Report described SIU as the medical school most frequently cited as having an innovative program.<sup>11</sup>

In 2000, SIU School of Medicine continued the tradition of innovation by implementing a reorganized curriculum that emphasized problem-based learning.<sup>11</sup> The revised curriculum includes self-directed small-group learning activities focused on actual patient problems, and integrates both basic and clinical sciences.<sup>11</sup>

## **Social Mission Modalities**

---

The remainder of this site visit report will focus primarily on the education of medical students at the SIU SOM and the ability of the institution to meet its stated social mission. The information gleaned from this visit will provide actionable information and perspective for new and expanding medical schools and to suggest ways in which traditional medical schools can

improve their contribution to health equity. SIU's strategy for meeting its social mission is described using the following modalities:

## **Mission**

The mission of Southern Illinois University School of Medicine is to “assist the people of central and southern Illinois in meeting their health care needs through education, patient care, research, and service to the community.” While from a social mission perspective, this statement is notable because of its community orientation, what truly makes SIU SOM unique is that the School's dedication to its mission is seen in every element of the educational cycle. From leadership to students to hospital administrators, members of the SIU SOM community are personally invested in the school's mission and are united in their goal to serve the health needs of southern Illinois.

Two student focus groups confirmed SIU SOM's non-competitive, supportive, patient-centered, and community-focused environment, which is consistent with the overall mission of the institution. Students both understood and internalized SIU SOM's mission. For example, one student explained that she was from a small community in southern Illinois that lacked a pediatrician. Her reason for attending medical school at SIU SOM was so that she could become a pediatrician and return to her town to practice. The majority of students the site visit team interviewed were from central and southern Illinois, and many expressed interest in remaining in the region after residency training.

Throughout the site visit, school leadership expressed whole-hearted support for the mission. As one member of the school leadership put it, “We are here to improve the health of the region...It's why we exist.” Another school leader commented that the school community has “an expectation that we don't compete with each other and that patients are people who come first. It's sort of part of the fabric.” Additionally, hospital administrators have also expressed understanding and belief in the mission of SIU SOM, and confirmed the school's dedication to serving the community. For example, one hospital administrator made the following comment about the medical school dean: “He loves students, he is relentless in his pursuit of mission, and really pays a lot of attention to patients.”

SIU SOM graduates continue to promote the school's mission. One member of school leadership commented that often, students' first contact with SIU SOM is through a graduate practicing medicine in his or her community. These graduates set an example for both current and prospective students by clearly demonstrating the importance of caring for the community. According to the school leader, “We have people out there walking the walk and talking the talk...they know what our mission is, they have trained in our programs, they know the importance of being a humanistic person in addition to being the scientist.”

SIU SOM's stated dedication to community service was recently added to their mission statement to institutionalize their commitment to community service. The SIU SOM developed a formal committee to monitor how the medical school maintains its presence in the region to ensure active pursuits in addressing local issues of population health. One faculty member expressed that students should come to SIU SOM to see the deep commitment to community service because it is “just what we do.” One community hospital leader explained that his

institution seeks to address the unmet healthcare needs in rural America and that this mission aligns very well with SIU SOM.

## **Pipeline**

### MEDPREP

Perhaps the most well-known of SIU SOM's pipeline initiatives is the Medical/Dental Education Preparatory Program (MEDPREP). Established in 1972 by the SIU School of Medicine, MEDPREP is a two-year (five semesters) post-baccalaureate program designed to prepare underrepresented minority and disadvantaged students for a career in the health professions. The program is specifically designed for students from racial and ethnic groups under-represented in American medicine but additionally, in view of the mission of the medical school a few truly rural students are taken into each cohort. Whereas many similar programs are only one year in length, MEDPREP is two years. This allows the program to accept students from more disadvantaged backgrounds who may need additional time to prepare for medical or dental school. The MEDPREP takes students from across the country, not solely from Illinois. Dr. Harold Bardo has been the director of the program since 1985.

The MEDPREP program is located on the SIU Carbondale campus, approximately 170 miles from the main clinical campus of the medical school in Springfield. The program is a unit of and administered by SIU SOM. Its faculty and staff are employees of SIU SOM. Faculty and leadership of the medical school in Springfield travel to Carbondale regularly to meet with the MEDPREP students. Program faculty and staff often travel with the MEDPREP students to SIU SOM in Springfield to expose them to various problem-based learning small groups and other discussion-based teaching sessions. This exposes them to the SIU SOM student body and faculty which allows for a smooth transition into medical school should they choose to matriculate. In addition, as the first year medical students are also on the Carbondale campus, this allows continuous interaction with the medical students for the MEDPREP community. On average, seven graduates of the MEDPREP program matriculate to the SIU SOM as medical students each year.

MEDPREP employs seven faculty members and seven professional and support staff, and accepts about thirty students per year. Advisors work closely with students to create academic schedules tailored to each individual's specific needs. Each student's progress is carefully monitored throughout the program, and schedule adjustments are made as necessary. Most MEDPREP students enroll in MCAT/DAT prep courses during the first academic year, and take upper level science enrichment courses during their second academic year. Around 80% of entering students complete the program. Common reasons for not completing the program include acceptance into a health professions program after the first year, or financial hardship.

In the program's history, 73% of the graduating MEDPREP students have been accepted into a medical professional program. In the past four years 117 MEDPREP students have matriculated to thirty-seven medical schools across the country which truly makes it a national pipeline

program. One or two students each year matriculate to dental schools. Since the program's inception, 169 MEDPREP graduates have attended SIU SOM as medical students. In an effort to encourage MEDPREP graduates to attend SIU SOM to train as physicians, the Alliance program provides automatic admission to SIU SOM for students in the program meeting certain academic criteria. This is an incentive to allow some of the best graduates of the MEDPREP program to attend SIU SOM. If students do not meet the criteria, they can still apply but they go through the School's standard admissions process. Each MEDPREP student can decide to become an Illinois resident if they choose so that they are qualified to go to SIU SOM.

### Physicians Pipeline Preparatory Program

The Physicians Pipeline Preparatory Program (or P<sup>4</sup>) engages students in the Springfield Public School district who have a strong interest in the field of medicine. Students enter P<sup>4</sup> when they are in ninth grade, and continue with the program through all four years of high school. Students are considered for admission to the program based on academic performance, extracurricular and community service activities, socioeconomic background, minority status, work experience, and potential to be a first generation college graduate.

P<sup>4</sup> consists of three two-week modules per year. Students attend after-school sessions at the SIU School of Medicine on Monday through Thursday, and didactic sessions at the school district on Saturdays. Program activities include case studies, job shadowing, laboratory experiences, guest speakers, research projects, mentoring by SIU medical students and staff, workshops, community health fairs, hospital tours, and academic support to prepare for the college admissions process. One unique element of the P<sup>4</sup> program is that it is integrated with the SIU School of Medicine curriculum. For example, if faculty members are lecturing on a specific subject within problem-based learning (PBL), medical students will lead similar sessions using PBL for P<sup>4</sup> students. This allows medical students to reinforce their knowledge, teach, and be involved with the community. Similarly, it gives P<sup>4</sup> students a real taste of medical school. While many of the sessions are lead by medical students, faculty also play an active role in the program.

During the first year the program accepted twenty-four students of whom 20 remain involved. Ten freshman students were chosen to start the second cohort in the fall of 2011. Though the program has only thirty active students it appears to be a well launched and organized program that has a high potential for success. As one program administrator commented: "We believe that there is a high probability that many of these students are going to go on to become medical doctors. And one thing that I'm very proud of, ... is that when you ask them, 'what do you want to become' they will quickly correct you and tell you, 'I am going to become a neurosurgeon, I am going to become...' They are speaking in the affirmative."

### Medical Explorers Program

The Medical Explorers Program is for high school students in Sangamon County who are interested in health related careers. Between twenty and forty students are involved in the program during each school year. Participants visit SIU School of Medicine about twice a month between September and April, and learn about health-related topics with either a faculty member

or medical students. The Medical Explorers Program has been in existence for nearly thirty years.

### Enos Elementary School

SIU SOM has a partnership with the Enos Elementary School located a few blocks from the medical school. This partnership has existed since 1986 through the Partners in Education Adopt-a-School program with Springfield Public Schools District 186. Enos School is a kindergarten through fifth grade center with approximately 300 children. The majority of students at this school come from a socioeconomically depressed background.

SIU SOM works to support the school in a variety of ways. Approximately twenty elementary students are paired with a second year medical student mentor throughout the year. SIU SOM medical students started a program to raise money to purchase shoes for Enos students over the holidays. This program called “Shoes That Fit” helped outfit over ninety students with shoes and socks. SIU SOM also pays for Enos’ field trips and often brings students to the medical school. The students from SIU SOM led a health fair at Enos that served approximately 200 Enos students and members of their families. Students also lead reading and tutoring programs that benefit large groups of children. Donations collected by the medical students and staff provide supplies, books, and other materials to nearly all Enos students. During the past academic year, approximately 40% of the second-fourth year SIU SOM students participated in an Enos school project. An administrator commented: “A seed has been planted through those experiences, because when people have the opportunity to really touch doctors and future doctors of the world, that’s amazing. I must say that SIU SOM has been a blessing to Springfield Public Schools.”

### Informal Pipeline

School leadership also identified an “informal” pipeline at SIU. The surrounding SIU community is filled with alumni that influence the lives of students in various stages of their educational career. This concept was described as follows: “As an informal pipeline, one of the things we hear consistently from our applicants is they were treated in their community by an SIU doctor, and that was their first impression of what it means to be a physician. They saw the role that this person played in their community.” One notable alumnus in the charter class has recruited eight students to SIU SOM from his rural town where he practices and other faculty commented that it is not uncommon to hear stories like this one.

### **Admissions**

The admissions brochure begins with the Southern Illinois University School of Medicine mission, including the recently-added “and service to the community.” In addition the new brochure prominently features the Innovative Curriculum and the Holistic Review of all applications. The entire admissions process seems very well suited to the missions of the Southern Illinois University School of Medicine.

The medical school was founded in 1970 after the publication of the Campbell Report, which advocated for a “downstate medical school.” This is emphasized throughout the admissions process by a specific question on the secondary application to SIU SOM which asks how each applicant will contribute to the mission of the medical school. According to their data, about 43% of the graduates of the Southern Illinois University School of Medicine are currently practicing in Illinois.

The admissions process at SIU SOM is truly holistic. As they are an “Illinois only” school, their application number is manageable at about 1200/year. Secondary applications are sent to applicants who fulfill three out of five criteria: a) residents of southern or central Illinois, or any rural area or inner-city within Illinois, b) under-represented in American medicine or lower socio-economic group (e.g. first generation college graduates), c) unusually strong extra-curricular activities, d) unusually strong employment or volunteer history, and e) superior academics (3.65/32). The primary screening of all applicants is done by one person to ensure consistency. “We will have students who have tremendous academic qualifications but they are not a fit for how we teach or our mission as an institution and they are not accepted to our program...The admissions committee members ‘live and breathe’ the mission of the school and see this as being what helps foster the culture of the school,” stated a faculty member.

Approximately 300 students received secondary applications and interview for 72 positions in the entering class. The interview day occurs in Springfield and entails a tour of the medical school, two one-on-one interviews, time with the financial aid staff and time with current medical students. Only three to six applicants are interviewed each day. In the end, the school makes about 150 offers each year to fill the 72 positions in the class.

The end results of the admissions process are notable as, over the past decade, 39% of the matriculants have come from towns with populations of less than 10,000, and 57% from towns with populations less than 25,000. In addition, 28% come from families where the father does not have a college degree and 35% where their mothers did not have a college degree. These are truly remarkable figures that would be difficult to replicate anywhere else in the United States.

MEDPREP students may also consider applying to SIU SOM if they meet minimum academic criteria (MCAT of 22 or higher and GPA of 2.7, which will be raised to a minimum of 2.8 with the 2012-13 admissions cycle). These students are divided into five categories of which the top two are ‘recommended with enthusiasm’ and ‘recommended with confidence’ by the MEDPREP faculty, of which many are also SIU SOM faculty members. The MEDPREP applicants receiving those top two recommendations are automatically admitted to the SIU SOM without having to formally interview, which on average is 15 students per year. This is a welcomed benefit for some students that have difficulty in the interview process. Those in the lower three recommended categories may apply competitively to the medical school and be included in the traditional application process. However, it should be noted that in no sense are the successful MEDPREP students forced to matriculate at the SIU SOM and as noted above, over the past four years graduates of MEDPREP have enrolled in thirty-seven different medical schools.

## **Structure and Content of the Curriculum**

The SIU SOM commitment to developing a medical school curriculum to accomplish its mission, and to focus the faculty and administration on creating an innovative and student focused medical education experience, permeates all aspects of the medical school. It is therefore not surprising that education is the first of the four major activities defined in the mission statement of the SIU SOM. The SIU SOM is internationally known for its curricular innovations including its focus on problem-based learning, wide-spread use of standardized patients, focus on primary care and required clinical competency examinations.

In 2000 the SIU SOM implemented “Curriculum 2000” with problem-based learning serving as the core of the educational model supported by lectures and laboratory experiences. The PBL cases integrate the basic and clinical sciences, while focusing on healthcare policy, the changing environment of health care, and the spirituality and cultural beliefs of the individual patient. Grading in the first two-years is pass/fail so as to decrease competition and foster team-based learning.

Students are involved in patient care starting in the first week of medical school through the PBL curriculum, their mentors and the Doctoring sequence, which spans the four-years of medical school. In the Doctoring curriculum students spend one half-day per week learning clinical reasoning skills and how to perform a history and a physical examination, and to see the practice of medicine in action with their assigned physician mentors in the community. The majority of mentors are primary care physicians (Family Medicine, Internal Medicine, Pediatrics or Obstetrics-Gynecology). As SIU SOM has graduated nearly 800 physicians who practice in Illinois, most of the clinical faculty in Doctoring are SIU SOM graduates who are committed to the mission of the medical school. In Year 2 of the Doctoring curriculum students are assigned a primary care physician in a different discipline from year one. Seven half-day sessions are interspersed throughout Year 2 covering a wide range of topics that include: Elder Care, Diversity, Patient Safety, Intimate Partner Violence and Health Care Literacy.

The Department of Medical Humanities conducts a comprehensive four-year vertically integrated curriculum for the medical students. Medical Humanities is taught throughout the first two years of the curriculum and is continued in the clinical years through mandatory two-week clerkships in Year 3 and Year 4. The two-week Medical Humanities clerkship in Year 3 is called, “The Physician-Patient Relationship.” The course stresses a core knowledge of the humanities, with a focus on clinical reasoning, ethics, health policy, law, medical history, psychosocial care and physician-patient interaction. The clerkship, which is given in the middle of Year 3, uses multiple teaching modalities including reflective reading and writing, small group interactive sessions and standardized patient exercises. In Year 4 the Medical Humanities course is entitled, “The Physician and Society.” The clerkship focuses on the physician’s role in the administration of justice, the legal and professional structures that regulate the conduct of physicians as expert witnesses and health policy in the United States health care system. A biomedical ethicist joined the faculty one year ago and is integrating further teaching of ethics and the humanities into the various clerkships. The skills learned in the medical humanities course is are tested in the senior clinical competency exam, which highlights its importance within the curriculum.

The SIU SOM has a required six-week Family and Community Medicine rotation during the third year of medical school that is designed to immerse the student in the delivery of

comprehensive patient care provided in the community setting. Four weeks of this immersion experience are completed under the supervision and mentorship of a family physician (preceptor) in the physician's office or community clinic. Since 1981 more than 2,000 students have rotated through the clerkship which utilizes more than 160 board-certified family physicians throughout Illinois. Students are encouraged to perform the rotation in the office of a family physician in their home community, thereby gaining a new perspective and relationship with their native health care system. Most of the family medicine preceptor sites are rural clinics, federally qualified health centers, or clinics associated with critical access hospitals. One faculty member stated, "the students gets to go back home and work with the doctors that they grew up with....students love it, preceptors love it."

The SIU SOM has other experiences over the four years which support the mission of serving the people of central and southern Illinois. These include a recent focus on population health, biostatistics and diversity. A unique aspect of the medical school is the major curriculum and mentoring role assigned to nurse educators and physician assistants to promote interprofessional education. Initiated in the surgery curriculum in the 1990s, and expanded extensively with the roll-out of Curriculum 2000, eight full-time nurses and PAs coordinate sections of the Doctoring Curriculum and basic science courses, and are assigned specifically to work with specific groups of students on clinical skills through years two and three of the curriculum.

While SIU has embraced several innovations in medical education the faculty note that their approach is not perfect for every student. "We put a premium on interpersonal skills...they are team based throughout the curriculum," stated a faculty member. This is emphasized during the application process so that students are fully aware of the unique approaches to teaching in the SIU SOM curriculum.

### **Location of Clinical Experience**

The location of the clinical experience in the first two years of the Doctoring curriculum is in primary care physicians' offices as discussed above. The third year clerkship rotations at the SIU SOM are very similar to clinical rotations at other medical schools but the faculty emphasized that there is a significant outpatient component in nearly every clerkship. The two major differences between the school's curriculum and the more traditional medical school curriculum are the Family and Community Medicine six-week rotation (previously described) and the commitment of the two community hospitals in Springfield to the success and mission of the SIU SOM. Both Memorial Medical Center and St. John's Hospital in Springfield have service to the community, care of the underserved, and a dedication to excellence in primary care as core components of their mission. Furthermore, both hospitals have open door admission policies and are blind to payer status. The majority of clinical training in the third year occurs at the two community hospitals. Leadership at both institutions view the success of their hospitals as inextricably intertwined with the success of SIU SOM. Similarly, the Dean of SIU SOM is committed to maintaining strong ties with both hospitals and views them as critical partners in achieving the mission of SIU SOM.

Founded in 1897, Memorial Medical Center was a major force behind the creation of the SIU SOM in the late 1960's. Recognizing the importance of developing an academic medical center in central and southern Illinois, Memorial Medical Center sold to the State of Illinois the land in Springfield to create a new medical school. As an ongoing component of their commitment, Memorial Medical Center provides significant grants and contracts in support of the medical school. St. John's Hospital also provides approximately the same level of annual support to SIU SOM. This support is facilitated through: Academic Support agreements which help to fund teaching, research and other SIU SOM academic programs; Medical Director agreements which support faculty salaries for administrative duties done on behalf of the hospital; Professional Services agreements to support specific professional services rendered to the hospital (e.g., hospitalist services); and charitable donations for research grants and academic endowments. Top administrators at both hospitals clearly articulate that the success of their institutions over the last 20 years has been directly related to the success of, and their interactions with, the SIU SOM.

Faculty described these community hospitals as "front door community hospitals... They see the weird stuff that might come to a tertiary center but they are commonly experiencing what is off the street." The breadth of clinical exposure is similar to other medical schools but the strong link to the community and the expressed mission driven care is unique. In addition, students are able to participate in an elective in an urban area of East St. Louis if desired.

### **Tuition Management**

For the 2011-2012 academic year the tuition \$26,446 which is slightly above average for public US M.D. granting medical schools at \$24, 457<sup>12</sup> but the most affordable option within the state of Illinois. Although there is limited scholarship funding available for SIU SOM students, the Dean funds four full tuition need-based scholarships for MEDPREP graduates each year. A few alumni and former MEDPREP students have started to fund scholarships for students but these programs are in their infancy. In spite of these relatively small resources for scholarships, and perhaps because of the low cost of living in Carbondale and Springfield, SIU School of Medicine graduates have only a 50th percentile average debt load on graduation when compared to all U.S. medical schools.

The Dean supports one full-time staff member to assist medical students with financial aid. In our meetings with the students, they are truly appreciative of this support. The long term incumbent in this position, Ms. Nancy Calvert, has recently retired and Ms. Leslie Fry is now in this role. The students were very positive about their interactions with Ms. Fry and feel that they have adequate access to and sufficient advising for financial matters. The advising of the students starts during the interview day. SIU SOM leadership believe that it is extremely important to help applicants and students become knowledgeable of their financial obligations and make informed decisions. Ms. Fry is available to applicants as well as to students throughout the entire matriculation process.

### **Mentoring**

SIU SOM's approach to mentoring is both formal and informal. Three strategies are particularly notable: structured faculty mentoring throughout each year, inter-professional mentoring, and peer mentoring.

During their first two years of medical school each student is paired with a primary care physician to become familiarized with the practice of medicine. The students spend on average sixteen hours with their mentor during the first year and forty hours in the second year with a different mentor. Unique to SIU SOM, each clerkship has its own mentor or 'go-to' person that meets with the students once a week or a minimum of four times during a six week clerkship. This person is not the clerkship director and does not have a role in evaluating the student. Their role is to assist the student with understanding the specialty, help with their clinical progress with the rotation, and provide advice and guidance along the way. During the fourth year of medical school, students choose a career advisor who will help with the residency application process and write the students' letter of recommendation. One fourth year commented, "There is always someone here that you can talk to about what you want to do. There are avenues for every interest."

Remarkably, the students at SIU have strong mentorship from nurse educators throughout their medical school experience. As one faculty member explained, "The message from the beginning is that medicine is a team exercise. You don't just learn from physicians you learn from other members of the team." Nurse educators are interspersed in all third year clerkships and participate in the pre-clinical years in the Doctoring curriculum. The nurse educators are critical to the learning environment at SIU SOM and often serve as the first point-of contact for the students. This fosters inter-professional respect and an environment that fosters collaboration and teamwork.

Peer-to-peer mentoring is exhibited as fourth year medical students serve as tutors and small group facilitators to second year students. This gives the fourth years experience with teaching and provides more mentoring opportunities for students. The small class size facilitates spontaneous mentoring and non threatening camaraderie between students and faculty. One student commented, "It really does feel like a family."

Faculty feel supported to mentor formally and informally within the medical school. Some faculty members receive protected time for education and mentoring duties. The leaders in the institution value educational and mentoring activities as a part of their academic advancement.

### **Post-Graduate Engagement**

Because of the small class size and extensive mentoring strategy described above, guidance about career options is a deliberate effort to meet the mission of the medical school. Most schools realize that students are bombarded with the "hidden curriculum" or advice from other students or residents about career options and residency selection that may not be related to social accountability. Instead of stressing to each medical student that they should strongly consider primary care, SIU SOM has chosen to expose their students to various career satisfied

primary care physicians and allow students to make informed decisions based on these powerful examples.

SIU SOM is more concerned with helping students find their true passion within medicine while retaining a strong tie to central and southern Illinois than the decided specialty choice. “They just want you to be passionate about what you are doing. They would love for you to invest in Illinois and stay here in southern and central Illinois,” commented a fourth year student. In several focus groups, the students mentioned that SIU SOM does not push primary care on the students. “They see a bunch of SIU SOM trained, positive minded, community service oriented, happy physicians in primary care, practicing medicine in central and southern Illinois and those are their role models and they emulate them,” commented a faculty member.

About forty percent of the clinical faculty are alumni of the school or its residency and fellowship programs which sends a strong message about the allegiance that SIU graduates have to the school and to their local community. One recent SIU SOM graduate stated, “I knew I wanted to stay here for residency when I realized I wanted to pattern my care around what I see from my attending physicians. To emulate is the best form of flattery.”

## Challenges

---

SIU SOM has shown significant investments in producing students who are interested in pursuing primary care related fields. However, as primary care salaries remain stagnant the school will need to pursue creative options to limit student debt and create more opportunities for students to make career decisions without severe monetary consequences.

SIU SOM has close ties with the undergraduate Carbondale campus however there is a lack of formal pipeline programs to the medical school for the regular SIU undergraduates. An investment in the undergraduate student population may help to improve the commitment to staying and practicing central and southern Illinois.

The effective recruitment of URM students is remarkable. However, to fully embrace diversity it should be noted on all levels of institutional involvement. Increasing the number of URM faculty may create a more nurturing environment for URM students, improve mentoring strategies for the students, and further improve recruitment efforts. Deliberate URM recruitment was noted in the Orthopedic department and was acknowledged as an area for growth by the leadership at SIU SOM.

## Conclusion

---

When the leadership was asked whether a school like SIU could be replicated the answer was a resounding “yes.” The mission of the school is clear and is embraced by all levels of the institution and surrounding community. SIU SOM set institutional priorities, recruited energetic

stakeholders, and secured sufficient funding for their social mission. The priorities we identified during the site visit were a commitment to: a defined area, rural practice, primary care, and training of underrepresented minority physicians and community service.

The leadership of Dean Dorsey is a strong element to the success of the social mission of SIU SOM. He has dedicated several years to the institution and is dedicated to “practicing what he preaches.” Although it takes a strong leader, community buy-in and participation is equally as essential and the surrounding community has given its support of the mission.

## References

---

1. US Census Bureau. 2010 Census. 2010. Available at: <http://2010.census.gov/2010census/data/> [Accessed November 10, 2011].
2. The Henry J Kaiser Family Foundation. [statehealthfacts.org](http://www.statehealthfacts.org). 2010. Available at: <http://www.statehealthfacts.org/profile.jsp> [Accessed November 10, 2011].
3. Mackun P, Wilson S. *Population Distribution and Change: 2000 to 2010*. 2011.
4. Minnesota Department of Administration. Minnesota State Demographic Center. 2010. Available at: <http://www.demography.state.mn.us/> [Accessed November 2, 2011].
5. US Census Bureau. The 2012 Statistical Abstract: State Rankings. 2010. Available at: <http://www.census.gov/compendia/statab/rankings.html> [Accessed November 10, 2011].
6. U.S. Census Bureau. State & County QuickFacts. 2010. Available at: <http://quickfacts.census.gov/qfd/states/13/1304000.html> [Accessed November 10, 2011].
7. city-data.com. Springfield, Illinois Poverty Rate Data. 2009. Available at: <http://www.city-data.com/poverty/poverty-Springfield-Illinois.html> [Accessed November 11, 2011].
8. The Commonwealth Fund. State Scorecard. 2011. Available at: <http://www.commonwealthfund.org/Maps-and-Data/State-Data-Center/State-Scorecard.aspx> [Accessed November 3, 2011].
9. United Health Foundation. America’s Health Rankings. 2010. Available at: <http://www.americashealthrankings.org/yearcompare/2009/2010/IL.aspx> [Accessed November 3, 2011].
10. Association of American Medical Colleges Center for Workforce Studies. *2011 State Physician Workforce Data Book*. 2011.
11. Anon. Historical Overview of SIU School of Medicine. *Southern Illinois University*. 2011. Available at: <http://www.siumed.edu/news/SIUhistory.htm> [Accessed November 22, 2011].
12. [https://services.aamc.org/tsfreports/report\\_median.cfm?year\\_of\\_study=2012](https://services.aamc.org/tsfreports/report_median.cfm?year_of_study=2012)

13. <https://www.aamc.org/download/263712/data/gq-2011.pdf>