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H Bruce Vogt

William J. Dendinger

Evelyn Schlenker

Janet C. Linderman

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114 Years and Counting – An Updated History of the University of South Dakota Sanford School of Medicine

H. Bruce Vogt, MD; William J. Dendinger, MD; Evelyn Schlenker, PhD; and Janet C. Lindemann, MD, MBA

If those who founded the USD Sanford School of Medicine in 1907 were to drop in on the school today, what would they find most surprising? Would the time travelers marvel at the modern teaching facilities, our amazing ability to cure previously deadly diseases, or would they be puzzled by the complexities of medical practice in the modern era of technology and regulation? The first century of the medical school's existence brought immense change as the school evolved. As advances in medical science and medical practice accelerated, the school kept pace. The first century resulted in a well-established medical school that provided excellent education and supplied an outstanding medical workforce for South Dakota.

Now more than a dozen years into its second century, the school has moved squarely into the national spotlight. As the following article details, the school has become an award-winning leader in curricular innovation, setting the standard for longitudinally integrated learning. New rural-based programs have drawn students to the wonderful small towns of South Dakota for a deep and meaningful educational experience. Basic science research has blossomed, bringing important discoveries and opening opportunities for students. New residency programs have been developed to train graduating students. The school has deepened its commitment to serve all the diverse communities of the state. Most recently, a new focus on kindness in medicine has emerged.

Yet if visitors from 1907 found much to surprise them, there is much that would seem unchanged. The school still needs, receives and is very grateful for the support it receives from the physicians, healthcare institutions, leaders, and communities of South Dakota. Faculty and students are still known for their integrity, skill and hard work. The unwavering focus on educational excellence and providing a physician workforce for South Dakota continues. The advances of today are built on the foundations of yesterday. The pace of change is always increasing. Imagine the possibilities!

Mary D. Nettleman, MD; Rodney Parry, MD, MS, MACP; and Tim Ridgway, MD

Introduction

The University of South Dakota Sanford School of Medicine (USDSSOM) is now 114 years old. Its history has been chronicled over the years, with the most recent account documented in a book entitled, *Committed to Care: A Century of Medical Education in South Dakota*, published in 2007 at the time of the school's 100th anniversary. The school's maturation has continued, and it has garnered national recognition. Long recognized as a leader in rural and family medicine, USDSSOM has gained a reputation for curriculum reform and as the flagship school for longitudinal integrated clerkships. Further innovation has included implementation of a *three-pillar* curriculum featuring integration of the basic medical sciences with the clinical sciences. Research and other activity have grown substantially, as have the number of endowments for scholarships and faculty support. Finally, service to the state has flourished and the school has been nationally recognized for community engagement (Table 1).

Table 1. Accomplishments/honors of University of South Dakota Sanford School of Medicine.

1. 41.5% of graduates practice in South Dakota, Association of American Medical Colleges (AAMC)
2. 46.1% of residency graduates practice in South Dakota (AAMC)
3. 76.8% of those graduating both from USDSSOM and one of our residency programs practice in South Dakota (AAMC)
4. Consistently ranked as a top 10 school for rural medicine (U.S. News and World Reports).
5. 98th percentile for graduates practicing in rural areas (#1 in 2018) (AAMC)
6. 96th percentile of graduates entering family medicine residency programs (AAMC)
7. 98th percentile of graduates who are Native Americans or Alaska Natives (AAMC)
8. 100th percentile for cultural competence/awareness (AAMC)
9. Recipient of 2017 Spencer Foreman Award for Outstanding Community Engagement (AAMC)
10. 95th percentile for graduates satisfied with quality of medical education (AAMC Graduation Questionnaire)

The purpose of this article is to document the evolution of the medical school over the past 114 years concentrating primarily on changes during the last decade. Importantly, USDSSOM remains true to its mission statement by providing high quality medical education for students of South Dakota, excellent physicians for our state, and commitment to the communities we serve across the breadth of South Dakota.

Establishment of the University of South Dakota School of Medicine

The U.S. Congress formally created the Dakota Territory on March 2, 1861. On April 21, 1862, Gov. William Jayne signed “An Act to Locate the University of the Territory of Dakota” in Vermillion. Courses were to be offered in science, literature and art, law, medicine, training for teachers in elementary education, and agriculture.

In 1882, the Clay County commissioners issued a \$10,000 bond to start construction and citizens of Vermillion contributed land and funds to build the university. The first building, University Hall, was built in 1883 but burned down in 1893. A new building, which we now call “Old Main,” was completed in August of 1899. To expand the facilities of the university, Science Hall was completed in 1902. The South Dakota Board of Regents established the College of Medicine at the University of South Dakota on March 29, 1907, which was housed on the second floor of Science Hall.

The college of medicine was created as a two-year school for the basic medical sciences, and Christian Peter Lommen was appointed as its first Dean. The mission of the school was to provide a place for state residents to receive a medical education and serve the people of South Dakota. Classes commenced in September of 1907 with two students enrolled. The following year, enrollment grew to four first-year and seven second-year students. Dean Lommen began a long tradition of dedicated, public-spirited medical school deans.

In 1921, the designation “college of medicine” was changed to “school of medicine” and, by 1925, the class size was stable at 20 students. The school was recognized as one of the finest two-year medical institutions in the nation. Graduates of the program received a Bachelor of Science in Medicine Degree from the university and transferred to a four-year medical school to complete their MD training. The school of medicine (SOM) remained in the Science Hall until 1953 when it moved to a newly constructed facility at the corner of Dakota and Clark Streets. In 1930 this land was donated in memory of Andrew E. Lee, a former mayor of Vermillion and the third governor of the state of South Dakota.

In 1972, South Dakota had the least favorable doctor-patient ratio in the nation (one to every 1,372 residents). The SOM had continued to grow with class size increased to 40 students in 1955 and to 50 students in 1970. Nevertheless, the school was one of only four schools in the country with a two-year program. At that time, every medical school in the nation was being asked to increase its class size. Thus, it became increasingly difficult to transfer students from a two-year school to a four-year school to complete their training.

SOM advocates proposed expanding the school to a four-year, degree-granting institution. A campaign was developed to accomplish that goal. The campaign was led by then Dean Karl H. Wegner and State Sen. Harvey Wollman. The four-year school was promoted as a “school without walls,” the concept being utilization of existing hospitals and clinics as classrooms for third and fourth-year students. This was both a political and economic necessity. Support for the school grew and had the crucial endorsement of then Gov. Richard Kneip. The legislation proposed by Sen. Wollman was to create “at the University of South Dakota a family practice oriented four-year degree-granting School of Medicine which shall be under the control of the Board of Regents.” The bill was approved unanimously by the Senate and overwhelmingly by the House and signed into law by Gov. Kneip on Feb. 15, 1974.

In 1975, the SOM received provisional accreditation by the Liaison Committee on Medical Education (LCME), allowing 39 students to enter their third year of training. By 1976 the school was fully accredited and, on May 14, 1977, the charter class of 39 students was the first to receive the MD degree from the SOM. Of the charter class of 1977, only two graduates were women. Throughout the 1970s, 80s, and 90s, the number of women enrolled in the school gradually increased. In 1996, for the first time, there were more women than men in the graduating class and women assumed leadership roles at the SOM and in clinical practice. These were also years of expanded programs and facilities throughout the state of South Dakota, especially in Sioux Falls, Yankton, and Rapid City.

In 2012, the medical school expanded its class size to 58 students from 54. In 2014, Dean Mary Nettleman, along with James Abbott, president of USD, successfully procured additional state funding to increase the medical school class size from 58 to 71, the school’s current number. Of the 71 matriculants entering in 2020, 67 were admitted to the regular MD program (including four Alumni Student Scholars), two to the Indians Into Medicine (INMED) program and two to the MD/PhD program. The Alumni

Student Scholars, INMED, and MD/PhD programs are discussed below.

To facilitate recruiting and retaining excellent students, the number of endowed scholarships has increased significantly. The University of South Dakota Foundation currently lists well over 200. A recent scholarship established by Avera Health provides support to a Native American student who is an enrolled member of a federally recognized tribe located in South Dakota or the upper Midwest.

Medical school applications have continued at an impressive level. In the class entering in fall 2020 there were 744 applications and 208 applicants granted interviews for the 71 positions. Sixty-one were South Dakotans and 10 were non-South Dakotans but with ties to South Dakota. The new class is comprised of 39 men and 32 women. Current students in either the MD or MD/PhD program have graduated from 64 different South Dakota high schools.

The mission of the USD Sanford School of Medicine remains “to provide the opportunity for South Dakota residents to receive a quality, broad-based medical education with an emphasis on family medicine.” The curriculum is established to “encourage graduates to serve people living in the medically underserved areas of South Dakota,” and “to provide to our students and the people of South Dakota excellence in education, research and service.”

Campuses/Facilities

The Andrew E. Lee Memorial Medicine and Science Building (Lee Medical Building) in Vermillion served as the home of the first two years of medical school providing space for the Office of Student Affairs, departmental offices, classrooms, and laboratories. There were two expansions of the building in 1956 and in 1968; however, by the mid-1990s, the original building was no longer meeting the educational and research needs of the school. A 1999 campus master plan recommended either expansion or replacement of the original building, and, in 2003, the South Dakota Board of Regents approved replacement of the building. Funding for the project was provided by Higher Education Facilities Funds (\$12.5 million), Campaign South Dakota headed by President James W. Abbott (\$12.5 million), federal appropriations (\$10.2 million) and the South Dakota State Legislature (\$1.8 million). In 2004, the construction of the new Lee Building began. Demolition and construction proceeded in halves with the east side of the old building first demolished and construction of a new wing for graduate education and research completed. The west side of the old building was then demolished, and the new medical education wing built.

Construction was completed in 2008 and the building was dedicated on Sept. 5, 2008. The building features state-of-the-art classrooms, offices, research laboratories, and the latest technology. Over time new technologies were added and laboratories and classrooms modified. On April 1, 2021, a ground breaking will occur for a new Health Science building located next to the Lee Medical Building.

As noted above, the campaign to expand the SOM to a medical degree-granting program promoted the enterprise as “the school without walls.” In fact, since its beginning, the major health systems in South Dakota have housed administrative and departmental offices, classroom space and served as clinical teaching sites. A \$9.1 million dollar grant from the Veterans’ Administration Assistance and Health Manpower Training Act of 1972 was key to the initial funding for the four-year program. The Royal C. Johnson Veterans Administration Hospital (SFVA) became formally affiliated with the school in March of 1974, and had served as a site for the physical diagnosis course, the first clinical experience for medical students in the two-year school, for many years. Similarly, Avera McKennan Hospital and University Health Center (AMK), formerly McKennan Hospital, and the Sanford USD Medical Center (SUSD), formerly Sioux Valley Hospital (SVH), also served as physical diagnosis teaching sites for the two-year school. Moreover, lectures and clinical experiences were conducted weekly at what was then Sacred Heart Hospital, now known as Avera Sacred Heart Hospital (ASH) in Yankton.

The first third-year students started clinical rotations on May 12, 1975. Twenty-seven students were assigned to the three Sioux Falls hospitals (SFVA, AMK, SUSD) and 13 to ASH in Yankton. Only two students were women. Rapid City Regional Hospital (RCRH) became affiliated with the school in 1975 and, what is known as the West River campus, evolved in the late 1970s to include the Ft. Meade and Hot Springs Veteran Administration hospitals, Ellsworth Air Force Base, and the Indian Health Service’s Sioux San Hospital. The West River campus became one of the three main clinical campuses for the SOM. The first third-year students completed clerkships on the West River campus in the 1978-1979 academic year. In addition, the South Dakota Human Services Center (state psychiatric hospital) in Yankton became affiliated with the SOM in 1977 and has provided psychiatry rotations for students since 1978.

South Dakota stretches 380 miles from east to west and 245 miles from north to south. It is also comprised of two time zones. Given these factors, and the SSOM’s four distant main campuses and many rural teaching sites, there are unique challenges for the school. (See map.) From early on,

the school has relied on communications technology to connect our faculty and students. The early adoption of teleconferencing and videoconferencing for educational and administrative purposes, and integration of newer more facile technological advances have been invaluable. Learning platforms such as D2L™ and video conferencing platforms like Zoom™ are important resources as are the services provided by the Wegner Health Science Information Center. Additionally, telemedicine is being integrated into medical student and residency education. Greater use of such methodologies has benefited our school, particularly, during the Covid-19 pandemic.

The Basic Sciences

Basic Science Departments began in the late 1940s with Professor Walter Hard starting the Department of Anatomy in 1948. The original function of the basic science faculty was to teach medical students; few faculty members were involved in research. In 1956, the Board of Regents authorized the development of doctoral programs in anatomy,

biochemistry, microbiology, and physiology/pharmacology, contributing to the duties of faculty to train graduate students and increase research capabilities. The doctoral programs reflected the four departments that comprised the basic sciences, each of which was headed by a chair.

Reorganization of the Basic Science Departments

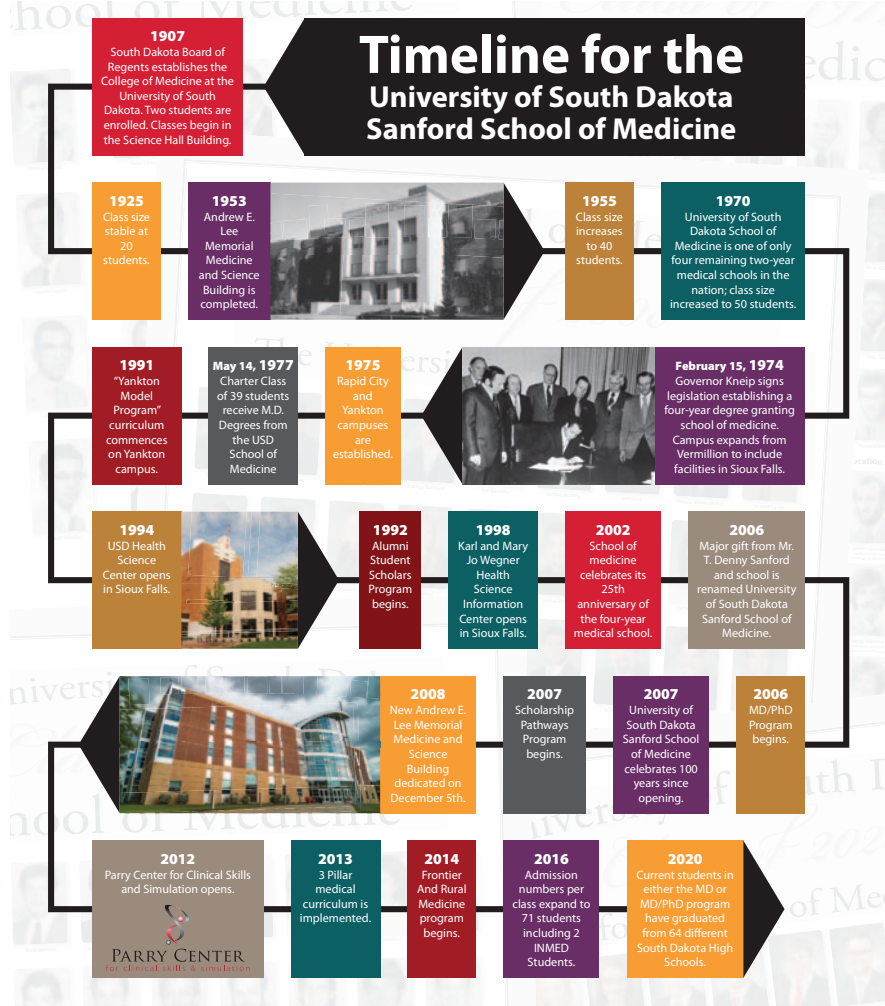
Three factors caused a major reorganization of the basic science departments in 1998. These included a budget crunch, the retirement of senior faculty, and the loss of departmental chairs either to retirements or moving on to other opportunities. Consequently, the departmental structure was reorganized into a Division of Basic Biomedical Sciences (BBS) with Ronald Lindahl, Ph.D., formerly Chair of Biochemistry and Molecular Biology, as dean. He held the position until December 2015. The following year William Mayhan, PhD became Dean of BBS and he currently holds that position. The reorganization of the departments into a division allowed greater integration of education programs and research opportunities. Faculty's roles

and tasks were defined into three paths, the academic basic scientist (tenure track), academic basic science educator (non-tenure track), and the academic researcher (non-tenure track). Faculty increased their teaching involvement in undergraduate and graduate programs, including occupational therapy, physical therapy, and physician assistant studies. Increasing focus on changes in medical education led some basic science faculty to be integrally involved in curriculum development and reform.

Early Clinical Exposure in Two-Year School

The major clinical experience for students in the two-year school was the Sophomore Preceptorship, which has been in existence since 1948. Originally a four-week experience, following curricular reform the rotation was reduced to three weeks and renamed the Family Medicine receptorship Mini-block. 2021 marks the 73rd year of the preceptorship with students placed at 30 sites within 29 communities.

Developed by an interdisciplinary committee, the Introduction to Clinical Medicine course commenced with the beginning of the four-year school. As the first exposure to clinical medicine for the students, the course emphasized the



biopsychosocial model, interdisciplinary, preventive, community and professional aspects of medical practice and physical diagnosis. These course components continue but the reformed curriculum allows greater integration and synchronization of the basic biomedical science courses with physical diagnosis and other clinical skills, and this occurs earlier with more substantial patient experiences. The course was renamed Clinical Foundations as part of the new curriculum.

Research

While research and scholarship activities have occurred at the medical school since the 1940s, the 1990s began a period of research development. In 1999, the Cardiovascular Research Institute was developed with a \$10 million commitment by SVH and outside grant funds. Research centers also emerged within health systems. Sanford Research focuses its investigations on diabetes, enabling technologies, environmental influences on health and disease, behavioral sciences, cancer biology and therapeutics, cellular therapeutics and stem cells, genetics and genomics, and pediatrics and rare diseases. The Avera Research Institute focuses on cancer research, twin studies, genetics, and pediatric and community research. Finally, the Great Plains Veteran's Research Foundation partners with the Sioux Falls VA Medical System to investigate diseases of the nation's veterans. Many investigators in these research institutions have cross appointments in school of medicine departments. Faculty members collaborate with colleagues within the university, the state of South Dakota and beyond in research projects.

Technology advances impact research, teaching, and administrative functions at USDSSOM. The Cloud and other technology allows teachers and researchers to share information across many locations. A university-based staff supports technology in teaching and research, and the USD Center for Teaching and Learning assists faculty in remote teaching and evaluation. During the COVID-19 pandemic, the role of technology increased considerably demonstrating ways that people at remote sites could effectively interact. The many changes in use of technology brought about because of COVID-19 will persist into the future.

To aid faculty and students in research, core facilities in BBS and research institutes consist of state-of-the art equipment, qualified technicians and experts in bioinformatics and data analysis. These facilities support faculty and students in behavioral studies, physiological studies, and proteomic investigations. The ID Weeks library in Vermillion, including material formally located in the Lommen Health Sciences Library, and the Karl and Mary Jo Wegner Health Science Information Center in Sioux Falls offer extensive

electronic resources used to develop grants and research papers.

Graduate education at the SSOM provides opportunities for students to conduct research and achieve Master of Science and PhD degrees. Another non-research master's degree (MSc Plan B) was started in 2016 for students seeking to improve their possibilities for admission to professional training programs including the medical school. All the graduate programs are overseen by a Graduate Committee made up of basic biomedical sciences faculty in Vermillion and at the Sioux Falls institutes. The committee evaluates graduate student curriculum and student progress.

Several centers of excellence and research networks were developed to promote research with funding and infrastructure for faculty and students. The South Dakota Biomedical Research Infrastructure Network (SDBRIN) promotes research for undergraduate research fellows and faculty mentors. In addition, through the Research Apprentice Program, SDBRIN offers the opportunity for disadvantaged high school students to work with researchers at USD and conducts the Lawrence Brothers Camp during the summer for middle school students interested in science. SDBRIN recently received renewed funding for a total of \$16.5 million. The Center for Brain and Behavioral Research (CBBRe) promotes innovative basic to translational research that investigates neurological and behavioral disorders. CBBRe consists of a compendium of members in BBS, USD, Sanford Research and Avera Research Institutes. The Summer Program for Undergraduate Research in Addiction (SPURA) program funds several undergraduate students each year. The USD Neuroscience and Nanotechnology Network promotes graduate student research.

Prior to the implementation of the new curriculum, medical students could conduct research during the two-month summer break between the first and second year of medical school. With the shortening of the summer break under the new curriculum, students participate in research the summer prior to matriculating under the Medical Student Summer Research Program, which admits up to eight to 10 students per year. Students are paired with faculty mentors. The Scholarship Pathways Program, started in 2007, allows up to 15 students per class to design a mentored research, service or education project following their completion of the basic science curriculum.

In 2006 the MD/PhD program was initiated to educate physician-scientists. Prior to implementation of the new curriculum, MD/PhD students were required to complete two years of medical school and pass Step 1 of the USMLE

before their dissertation research commenced. Presently, students need to complete *Pillar 1* and pass Step 1 of the USMLE prior to selecting a mentor and potential research project. Students conduct research for three years and write and defend their dissertation. Subsequently MD/PhD students complete *Pillars 2 and 3* of their medical school training. The MD/PhD selection committee vets potential MD/PhD candidates who also need approval by the USDSSOM Admissions Committee to matriculate into the medical school. Since its inception in 2006, 18 students have completed the program as of 2020 and 11 students are matriculated in the program.

Sioux Falls Campus Expansion

A consequential event to enhance facilities and infrastructure was a \$6 million gift from SVH to the USD Foundation in 1991 to build and equip the USD Health Science Center (HSC). The 58,000 square foot building provided locations for the Dean's Office, clinical departments, and classrooms. Affiliations with SVH, now Sanford Health (SH), as well as close relationships with the SFVA and AMK have continued with these institutions providing clinical teaching sites and significant financial support.

The Karl and Mary Jo Wegner Health Science Information Center (Wegner Center), a library facility adjoining the Health Science Center, opened in 1998. It was funded entirely by private individuals, medical institutions, and businesses. Although books and journals are available in the library, it was designed to provide information electronically, 24 hours-a-day to healthcare professionals and the community.

The University Physicians (UP) practice plan, originally called Medical Services Plan, allowed academic faculty a site for practice and provided significant financial resources to the school. Faculty provided patient care in several sites in Sioux Falls, Rapid City and Yankton. A new clinic building was constructed in 1997 in Sioux Falls and attached to the HSC. In 2001, however, there was a major downsizing and only 17 physicians remained with UP. Over time, the practice group dissolved, and faculty became members of the major health systems or went into private practice. The UP clinic building on the school's main campus became the property of SH, which renamed the building in honor of Dr. Robert Talley.

In 2012, the lower level of the Sioux Falls Health Science Center was repurposed for a clinical simulation center, named the Parry Center for Clinical Skills and Simulation (Parry Center). The Parry Center was specially designed for simulation-based education and performance assessment

across the continuum of education for the medical school, the USD School of Health Sciences, affiliated residency programs, and healthcare providers. Named for Dr. Rodney Parry, who retired as dean the same year, the 6,000 square foot facility was funded through private donations and a major gift from the Leona M. and Harry B. Helmsley Charitable Trust.

Name Change

A major monetary gift to the school of medicine was announced by then Gov. Mike Rounds on Dec. 27, 2005 – a 20-million-dollar donation from T. Denny Sanford to the school “to ultimately improve the state of healthcare for all South Dakotans.” On that day, the Board of Regents renamed the school the Sanford School of Medicine of the University of South Dakota.

Administrative Structure

At the inception of the four-year school in 1975, the organization of the clinical departments was traditional with that of medical schools nationwide including departments of community and family medicine (now family medicine), internal medicine, pediatrics and adolescent medicine (now pediatrics), obstetrics/gynecology, surgery, psychiatry, and pathology. Neurology was originally a division of internal medicine, but in 1991 the Department of Neurosciences was established and includes neurology, neurosurgery, neuroradiology, and physical medicine and rehabilitation. Several of the departments now have divisions. For example, Emergency Medicine, initially only designated as a course administered through the Department of Family Medicine, became a division within this department.

The medical school chief academic leader is the dean/vice president of health affairs for the university. In recent decades, this position was held by Dr. Robert Talley (1987-2004), Dr. Rodney Parry (2005-2012), Dr. Mary Nettleman (2012-2020), and Dr. Tim Ridgway (2020-present). The University of South Dakota has had two presidents in the last 24 years, James Abbott (1997-2018) and Sheila Gestring (2018-present). As the complexity of the medical school grew, the administrative structure expanded to include an executive dean, campus deans, and deans of student affairs, medical education, basic biomedical sciences, graduate medical education, and rural health.

Curriculum Reform

When the medical school became a four-year program, medical school deans were committed to assuring strong programs in education. Being the only medical school in South Dakota, the school's ability to train physicians for rural practice was paramount. The expertise of Dean Robert

Talley in accreditation, based on his service on the LCME, and innovative collaboration among his leadership team, led to the Yankton Model Program (YMP), the first longitudinal integrated clerkship (LIC) in the nation. USDSOM became the flagship school for the LIC. Unlike traditional block clerkships during the third year, students rotate through all clerkships simultaneously. Relying on community physicians as teachers, the LIC emphasizes continuity of relationships between patients and students and between students and faculty. Clinical education is now based in the outpatient setting, reflecting nationwide trends linked to changes in the way healthcare is being delivered. The YMP began in 1991 and, five years later, the Primary Care Ambulatory Program (PCAP) commenced on the Sioux Falls and Rapid City campuses. This one-half day per week ambulatory experience promoted student expertise in the diagnosis and treatment of common primary care conditions, the promotion of disease prevention, continuity of care, and the development of continuity in patient and faculty relationships.

As the 21st century dawned, medical education program planning and development became centralized under the watchful eyes of, first Dr. Robert Talley, and then Dr. Rodney Parry. Having successfully passed accreditation visits in 2002 and 2009, in which the YMP was recognized as a strength, the school entered a period of significant curriculum reform. The drumbeat of reform was heard across the nation with a mandate to increase medical school enrollments and the publication of *Educating Physicians: A Call for Reform of Medical School and Residency* (Cooke M, Irby D, O'Brien B. 2010 Jossey-Bass, San Francisco). The authors of this extensive study of medical education called for the standardization of learning outcomes, individualization of the learning process, integration of basic, clinical, and social sciences, and focus on professional identity formation. USDSOM held several aces in its hand: excellent basic science education reflected in solid USMLE Step 1 scores; outstanding physician faculty embedded in communities across the state; a strong relationship with the South Dakota State legislature; and the successful LIC program in Yankton.

Under Dean Rodney Parry's leadership, the integration of basic science education occurred, changing from the traditional courses of anatomy, biochemistry, pharmacology, pathology, and physiology to integrated medical foundations courses followed by organ-system blocks. *Pillar 1* of the new three pillar curriculum and pre-clerkship education now took place in eighteen months rather than two years. What had previously been third-year block clerkships on the

Rapid City and Sioux Falls campuses now became the new *Pillar 2* longitudinal integrated clerkships on all campuses. The *Pillar 2* year began in mid-winter and ended in winter of the medical student's third year, allowing a longer *Pillar 3*, in which students could do more sub-internships and electives at other sites to better prepare for residency. This significant curriculum reform across all four years was implemented in 2013 and completed its first full run in 2017. Across the state, students were faced with methodologies and schedules not used for former classes and coped well. Student feedback was incorporated as much as possible into program modifications. Importantly, student scores on USMLE Steps 1 and 2 were excellent.

Special Programs

Alumni Student Scholars Program

The Alumni Student Scholars Program (ASSP), started in 1992 to increase the number of South Dakotans attending the medical school, is a collaboration between the medical school, its Alumni Relations Council, and the USD Honors Program. Four senior high school students who commit to attending USD and have an interest in primary care medicine are selected by the ASSP Committee. The program provides conditional acceptance to the medical school if students enroll in the USD Honors Program, pursue a baccalaureate degree in their chosen major(s), complete pre-medicine requirements in four years, participate in one six-week long summer clinical preceptorship, and graduate with a GPA of 3.5 or higher. Acceptance for admission to the medical school is subject to the final decision of the USDSSOM Admissions Committee.

Frontier And Rural Medicine

To further address the healthcare needs of citizens residing in rural and frontier areas of South Dakota, the 2012 South Dakota Legislature appropriated funding for the medical school to develop a Frontier And Rural Medicine (FARM) training track, with the goal of increasing the number of primary care physicians in rural South Dakota. FARM is a unique opportunity for a select group of *Pillar 2* students to obtain nine months of their clinical training in a rural community rather than on the longitudinal integrated clerkships at the main campuses. The program was built on the school's recognized tradition of excellence in rural medical education. Students have the opportunity for enhanced hands-on clinical experiences and to gain an understanding of the rewards and challenges of rural practice while living, learning, and becoming engaged in their communities. Prior to locating to their FARM sites, students complete week-long mini-blocks in the major clinical disciplines, and training in a variety of clinical skills conducted in the Parry

Center. Learning is further enhanced at the FARM sites through specialty clinics, small group discussions, tele-medicine, videoconferencing, and through simulated patient experiences coordinated by the Parry Center and in participation with the Pierre Rural Family Medicine Program residents. A community project is a requirement of the program. Eleven recently selected students will be on site in seven communities (Milbank, Mobridge, Parkston, Pierre, Spearfish, Vermillion, Winner) as of February 2021.

Interprofessional Education and Practice

Another special emphasis is interprofessional education, designed to prepare future physicians for a collaborative approach to healthcare. Students not only learn the kinds of expertise their colleagues from other disciplines offer, but also how to work together more effectively. Opportunities for interprofessional learning abound with the USD School of Health Sciences and its programs including addiction counseling and prevention, dental hygiene, medical laboratory science, nursing, occupational therapy, physician assistant, physical therapy, public health, and social work. For example, the recognized need for education in disaster preparedness resulted in annual interprofessional workshops cosponsored by the Yankton Area Health Education Center (AHEC) and the state health department. Topics covered over the years have included bioterrorism, weather-related disasters, bird flu pandemics, medical triage, incident command, and mass immunizations. As the COVID-19 pandemic emerged, graduates of the medical school and school of health sciences have had significant preparation for the coming challenges.

Ethics

The Section of Ethics and Humanities was established in the Department of Neurosciences in 1995. Seminars are held for *Pillar 1* students and all *Pillar 2* students take a five-month on-line Clinical Ethics course focusing on clinical issues that arise in the various disciplines. There are on-line electives in *Pillar 3* including an option for students to receive a 12-credit Certificate in Bioethics.

Diversity and Inclusion/Kindness Initiative

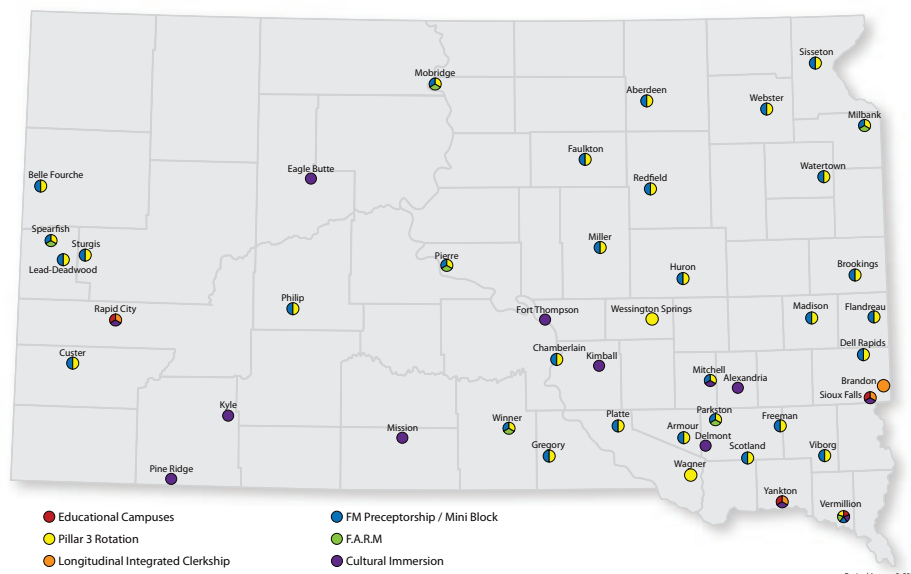
Under the leadership of Dean Mary Nettleman, a renewed focus on Diversity and Inclusion led to

several initiatives as part of the curriculum. The cultural and environmental impact of discrimination and bias were addressed among faculty, staff, and students. The school chose three areas of emphasis on diversity to enrich the learning environment and promote inclusive excellence: American Indians, rural, and gender. The USDSSOM is among the top medical schools in the nation for the proportion of American Indian students. USDSSOM has participated in the INMED program based at the University of North Dakota School of Medicine (UND) since 1989. The initial agreement designated two students who would transfer to USDSSOM for their clinical training following completion of their first two years of medical school at UND. As of 2014, two INMED students matriculate directly into USDSSOM. The focus on gender led to enhanced policies on aiding students attending medical school while married and/or a parent. Similarly, the 2019 Kindness Project articulates the goal to make kindness an intentional part of the school's culture and curriculum. The project aimed to place the school on the threshold of making an enduring impact on medical education.

Coyote Student Clinic

The Coyote Student Clinic was created by a group of medical students in 2006 to respond to a need to serve individuals in the community who are uninsured or under-insured. The clinic is operated by a steering committee comprised of students elected from all classes. Each year, the current membership elects six new first-year students to

University of South Dakota Sanford School of Medicine Department of Family Medicine **Clinical Sites**



the committee. The clinic is in space provided by Avera Health in downtown Sioux Falls. Volunteer students provide primary care services under the supervision of volunteer faculty or private practicing physicians. The clinic operates two evenings per week, and since 2019, offers a behavioral health clinic supervised by psychiatrists and psychiatry residents. This opportunity enhances student learning, which includes gaining an improved understanding of the problems faced by some of the most vulnerable populations in the community. The program is consistent with the school's kindness initiative and has been highly rated by students.

Spencer Foreman Award

In 2017, USDSSOM received the prestigious Spencer Foreman Award for Outstanding Community Engagement from the Association of American Medical Colleges (AAMC). The Foreman Award is presented annually to a school with a long-standing, major institutional commitment to partnering with the community it serves to identify and address community needs. The Foreman Award recognized the school's FARM and INMED programs, as well as the commitment to the school by communities across the state of South Dakota.

Residency Programs/Fellowships

It may be surprising to many that graduate medical education has existed in South Dakota since 1950. A general internship was established at Sacred Heart Hospital in Yankton at that time. It was short-lived. The inaugural residency program in South Dakota, general surgery, was developed at the hospital in 1952, and later expanded to the Veterans Administration Hospital in Sioux Falls to broaden the surgical experiences of the residents. As accreditation standards changed for surgical training, the program closed in 1984. The need for general surgeons particularly in rural South Dakota remained, and the momentum to develop a residency program based in Sioux Falls geared to train rural general surgeons gradually grew. This came to fruition when the new surgical residency program opened in 2014.

The program with the longest tenure in South Dakota is the USD Sanford School of Medicine Pathology Residency, which celebrated its 60th anniversary in 2018. The SFVA and SH have provided the primary financial and clinical support for the program since its inception.

An Obstetrics and Gynecology residency program was initiated in Yankton in 1970. Efforts to broaden its clinical base led to a few subspecialty rotations in Sioux Falls, however, they were inadequate to meet increasingly

rigorous accreditation requirements, and the program was discontinued in 1989. Interest in developing a new program based in Sioux Falls has been discussed periodically but has not gained adequate momentum.

An Internal Medicine residency program was established in Yankton in 1975 with gradual expansion to include Sioux Falls. Due to the challenges of maintaining a two-community program, the Yankton campus graduated its last resident in 1987. The Sioux Falls-based program continued with the SFVA becoming the primary teaching hospital, although the primary teaching sites have migrated to AMK and SH.

The USD Psychiatry Residency Program received provisional accreditation from the ACGME in November of 1986. With a coordinated effort of the Department of Psychiatry, AMK, and the SFVA, the first residents started the program in 1987. SUSD has also participated in the program for several years. The program established a pediatric and adolescent fellowship in 1992.

The Sioux Falls Family Medicine Residency Program is a joint effort of SUSD and AMK and has been affiliated with the medical school since 1978. Initiated in 1973, the program grew to 12 residents per year intending that four residents would transfer to Rapid City for their final two years of training; however, this did not materialize. Two rural track programs were eventually established and accredited in June 1993 with advanced level residents transferring to Brookings and Watertown. Unfortunately, a lack of state funding to support these programs resulted in their closure in 1998. The ongoing need for family physicians, particularly, in central and western South Dakota became increasingly of concern. In 1995, another family medicine residency program was established in Rapid City, sponsored by RCRH, now Monument Health, and affiliated with the medical school. The critical need for physicians and other primary healthcare providers to serve our more rural and frontier communities prompted Gov. Dennis Daugaard to convene a Primary Care Task Force in 2012. Among the recommendations of the task force was funding support for a new rural track family medicine residency program, which was established in conjunction with the Sioux Falls Family Medicine Residency Program and the Pierre community in 2018 and welcomed its first second-year residents in 2019.

The Transitional Year residency program in Sioux Falls grew out of the two long-standing internship programs at AMK and SUSD. In 1992, the two programs, which since their inception had been sponsored by the community hospitals, were merged into a single, USD administered program. This offers students who require a preliminary

year prior to entering their specialty program and students unsure of their eventual career paths the opportunity to remain in Sioux Falls for their first year of residency training.

In 2011, the Pediatrics Residency Program was initiated. The inpatient setting for the program is the Sanford Children's Hospital, which also provides ambulatory clinics along with additional outpatient experiences with Sanford physicians in their clinic settings.

In addition to the Child and Adolescent Psychiatry Fellowship, the school of medicine also offers two other fellowship programs, the Geriatrics Fellowship program, a joint effort of the Departments of Internal Medicine and Family Medicine, and the Cardiovascular Fellowship program. The Geriatrics Fellowship began in July 2011 and the Cardiovascular Fellowship began in July 2012.

South Dakota Area Health Education Center

Area Health Education Centers (AHECs) are community-academic partnerships established by the U.S. Congress with the purpose "to recruit, train and retain a health professions workforce committed to underserved populations." The South Dakota AHEC collaborates with higher education, state agencies, health systems, and numerous other stakeholders to help address the healthcare needs of the underserved in the state. The AHEC offers educational programs for students and healthcare professionals (including interdisciplinary experiences), skills training, and sponsorship or cosponsorship of several conferences (e.g., Rural Health Equity Summit). Additionally, it coordinates the popular Health Occupations Students of America (HOSA) - Future Health Professionals organization described below. The program's administrative offices are in Sioux Falls within the USDSSOM's Department of Family Medicine. The Southeast South Dakota AHEC (formerly Yankton AHEC), was established in September 2009 with offices in ASH, followed by the Northeast South Dakota AHEC initiated in 2011 with offices on the Presentation College campus in Aberdeen. A third center, the West River AHEC, was established in 2019 with offices on the campus of Western Dakota Tech in Rapid City.

Health Occupations Students of America (HOSA) - Future Health Professionals

HOSA - Future Health Professionals is a student organization coordinated through the AHEC program office. The goal is to recruit students into healthcare careers. The program is aligned with Career Tech Education standards and through local chapters offers education on multiple topics and procedural skills in healthcare and healthcare careers. A Competitive Events component of the program

allows students to participate in 60 activities with many students advancing to the annual HOSA National Leadership Conference. Forty chapters have been organized in South Dakota over eight years and have over 1,000 student members.

Conclusion

The USDSSOM has evolved from a two-year school providing instruction in the basic sciences to a flagship school for innovation in medical education and a major resource for physicians in South Dakota. Recent years have seen major changes in the medical school curriculum and the development of an MD/PhD program. Scholarly activity of faculty and students, both medical and graduate, has grown significantly, as have endowments to provide scholarships and faculty support. The medical school has become interwoven into the fabric of South Dakota's urban and rural communities to have a profound impact on improving healthcare in the state and as a resource for providers from all disciplines and all South Dakotans. USDSSOM's service to the state has been recognized in a national award for community engagement. The school remains committed to further advancement in its education, research, and service as it continues to meet its mission statement to offer high quality education for South Dakota students and to provide dedicated physicians for our state.

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About the Authors:

H. Bruce Vogt, MD, Professor Emeritus and Former Chair, Department of Family Medicine, University of South Dakota Sanford School of Medicine, Sioux Falls, South Dakota.

William J. Dendinger, MD, Former Clinical Professor, Department of Family Medicine, University of South Dakota Sanford School of Medicine.

Evelyn Schlenker, PhD, Professor Emerita, Division of Basic Biomedical Sciences, University of South Dakota Sanford School of Medicine.

Janet C. Lindemann, MD, MBA, Professor Emerita, Family Medicine, Former Dean, Medical Student Education, University of South Dakota Sanford School of Medicine.