

MEDICAL AND DENTAL EDUCATION IN WYOMING

MAY 2015



UNIVERSITY
OF WYOMING

Medical and Dental Education in Wyoming

Introduction:

Medical and Dental Education in Wyoming is provided primarily by the University of Wyoming through the 167 State Budget Authority to qualified Wyoming residents. This education must be viewed as a progression that ideally begins in elementary and high schools and takes the student through graduate education. The state, through the College of Health Sciences, has programs in place to encourage elementary and high school students to consider a career in the health professions, it provides an excellent pre-medicine, pre-dentistry and pre-health professions education at the undergraduate level, it has programs for professional programs either on campus or through affiliations with other institutions, and it provides graduate education at the two UW Family Medicine Residency Programs. Additionally, continuing education for current practitioners is important in today's rapidly evolving health care where change is the norm and is mandatory for health professional's licensure. The College of Health Sciences provides continuing education to many health care professionals on various subjects.

While it has been known for some time that the best approach to patient care is a team of health care professionals, this has become more evident with the advent of the Patient Centered Medical Home and calls by the Institute for Medicine to provide interprofessional education and practice. Interprofessional education is an educational philosophy and approach which seeks to develop and educate students such that a collaborative, team approach is emphasized. Interprofessional education has become an important focus of health care education and the University of Wyoming College of Health Sciences has responded. The UW College of Health Sciences has substantially increased its efforts in this area and will continue to emphasize and invest in interprofessional education. The UW Medical Education programs are very important to this endeavor because the medical students and residents are integral members of the health care team.

These are the University of Wyoming Medical and Dental Programs:

Program	Degree	State Budget	Year Started	Length of program	Enrollment	Total Biennial Budget (FY15-16)
WWAMI	M.D.	167	1997	4 years	20 per year, 80 maximum	\$12,515,926
WYDENT	D.D.S.	167	2007	4 years	8 per year, 32 maximum	\$4,876,597
WICHE	D.O, M.D., D.D.S, D.M.D	069	1953	2 to 4 years	Varies	\$5,195,930 for all programs
UWFMRP-Casper	Post-graduate Certificate	167	1976	3 years	8 per year, 24 maximum	\$15,906,847 (includes clinical revenue)
UWFMRP-Cheyenne	Post-graduate Certificate	167	1981	3 years	6 per year, 18 maximum	\$15,116,002 (includes clinical revenue)

The Pathway

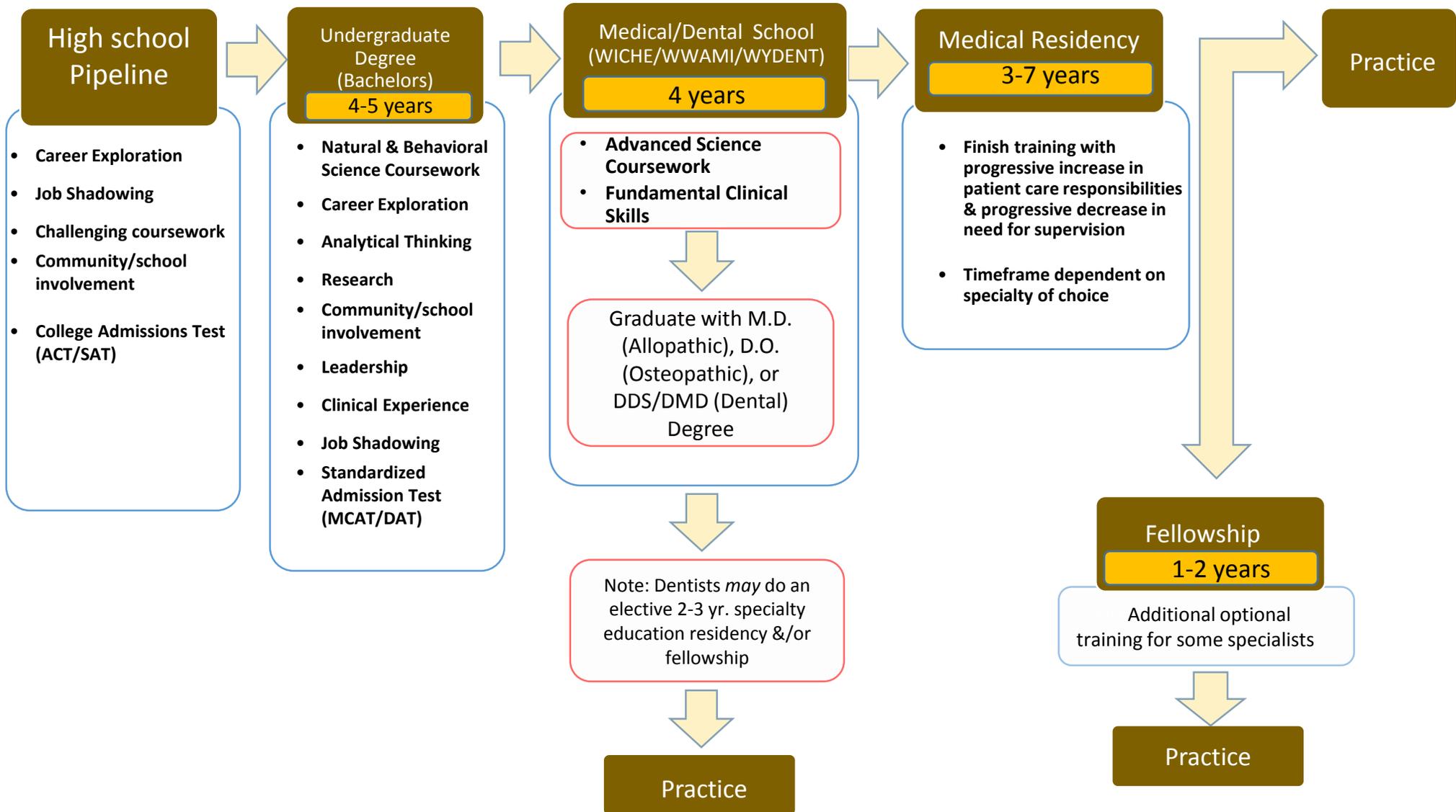
Wyoming ranks 48th in the country in terms of meeting the physician workforce needs of its populous and Wyoming's physician workforce is the 12th oldest of any state. The same can be said for many of the other health care professions in Wyoming. There are a variety of programs for eligible Wyoming residents and administered at the University of Wyoming that are designed to address this critical shortage in our state. To understand the programs, it is helpful to understand the educational process that exists (see Figure 1 on next page). This description will concentrate on medicine but the model is similar for most of the other health care professions, only the times spent in certain areas will vary. This is good because the general focus at first allows the student to select from any of the professions. Medical education can be viewed as an 15-22 year, ever-expanding, apprenticeship that begins in the high school as students develop a serious interest in careers (leftmost rectangle in Figure 1) and ends with graduating from a residency program (second box from the top right in Figure 1).

The medical education process, broken into the first four brown rectangles in Figure 1, involves two major threads: 1. education in the sciences where an individual learns about the complexities of the human body; and 2. clinical instruction in which the individual learns about the physician-patient interaction, physical examinations, diseases (etiology), diagnoses, and treatment plans. During the *high school* years this involves establishing a strong foundation in math, science and analytical thinking, developing leadership skills, and demonstrating a commitment to service. During the *bachelor's* pre-professional degree years, more advanced science training takes place (biology, chemistry, physics, etc.) and the clinical component generally involves observing physicians in their practice (*shadowing*). Students in their undergraduate years must also demonstrate of a commitment to service and leadership (in medicine and in the community). The student's medical education officially begins with admission into *medical school*. Admittance to medical school is extremely competitive and is dependent upon a strong written application (including bachelor's degree grade point average, Medical College Admission Test score) as well as an exceptional in-person interview with a medical admissions panel. Once admitted to medical school, students continue their study in the sciences and clinical practice.

Traditionally, the first two years of medical school have been devoted to an intense period of advanced science training. Clinical skills learned in the first two years of medical school are basic physical examination skills and the patient interview (family history, medical history, social history, etc.). Students have opportunities to practice these skills in the first two years of medical school with patients under the direction of a practicing physician (*preceptor*). This experience goes beyond just observation to where the student participates in patient care in a highly supervised environment. The *clerkship* years (years 3 and 4) are when the bulk of the clinical instruction takes place. Students rotate through required clinical rotations in primary care medicine and have the opportunity to do elective rotations in specialty areas. After successfully completing the fourth year of medical school, the student is awarded the MD degree. Unlike many disciplines, however, obtaining the MD degree does not imply a certification to practice medicine. Physicians must complete an accredited *residency* program to become certified in their area of practice. The residency portion of medical education is known as graduate medical education (commonly referred to as GME). Residency training is the final stage of the physician apprenticeship. During this period of time, physicians finish clinical training with a progressive increase in patient care responsibilities. The timeframe that one spends in residency depends upon their area of medicine (e.g., family medicine takes less time to complete than orthopedic medicine). Additional training may be obtained through a fellowship or advanced degrees.

Most of the other health care professions follow a similar model although in some the student is ready for practice after the completion of their professional degree.

Figure 1. Pathway to Medicine & Dentistry



Wyoming Medical and Dental Education Pipeline 2015

Facts

- Current need and predicted shortages in medicine, nursing, dentistry, pharmacy, and a wide variety of ancillary medical positions require that we identify early and help support students interested in healthcare careers.
- Each year over 400 high school students from more than 30 Wyoming schools attend the AHEC Healthcare Career Fair.
- Since 2011, over 275 high school students have participated in a week long AHEC Healthcare Careers Camp.
- Over 71 students have taken advantage of the subsidized Kaplan MCAT and DAT prep course since we started offering it a few years ago, paying \$500 for a \$2000/\$1400 class.
- 30 students completed the inaugural “applications strategies” course offered by UPHAO in the spring of 2015.
- In the spring of 2014, we had 58 students sign contracts to practice in Wyoming in return for subsidized professional schooling.

Importance of a Pipeline- Growing our Own

Pipeline programs are designed to inspire and prepare students for healthcare careers. Studies show students from rural backgrounds are more likely than their urban peers to practice in a rural community. Pipeline programs are a critical component of efforts to meet Wyoming’s medical and dental workforce needs.

What are Medical and Dental Schools Looking For in Applicants?

Schools across the nation are utilizing a holistic approach when considering applicants. Holistic review gives balanced consideration to an applicant’s life experiences, personal attributes, and academic metrics. Selection criteria are linked to the school’s mission and goals. The mission of the WWAMI and WICHE programs is to meet the health care needs of our region.

The Making of a Competitive Applicant

Preparation begins, ideally, in high school. Students are encouraged to challenge themselves academically with special attention to advanced math and science courses as well as courses that will develop critical thinking skills. In college, students must be sure to take coursework which will prepare them for standardized admissions exams (MCAT/DAT) and meet the requirements of the schools to which they will apply. Additionally, students must develop a well-rounded candidacy, which typically includes: job shadowing, community involvement, leadership and research.

Wyoming AHEC

Wyoming AHEC’s (Area Health Education Center) mission is to improve the supply and distribution of the Wyoming healthcare workforce. Wyoming AHEC is funded primarily through a federal grant from HRSA. Pipeline programs include:

High School Healthcare Career Exploration Day

- Students are engaged in a more thorough exploration of health careers - types of skills needed, education requirements, work environments, etc.

Healthcare Careers Camp

- Campers explore a wide variety of health careers through interactive, hands-on session with local professionals and faculty.

IN-A-BOX Traveling Science Curriculum

- Complete lesson plans & activities designed to enhance science and health curricula for grades 4-8.

UW Undergraduate and Preprofessional Health Advising Office (UPHAO)

The UPHAO offers preprofessional advising services to all UW students who are seeking health professions degrees beyond the bachelor’s degree. Most preprofessional advising is done **one-on-one** but also through **workshops** on a variety of topics. Other services include the “**Application Strategies**” course, the subsidized **MCAT and DAT prep courses**, and resources for obtaining community service, leadership, research, and clinical and shadowing experiences.

The UPHAO also serves as the state certifying office for the WICHE, WWAMI, and WYDENT programs and processes the contracts for the students participating in these programs.

WWAMI Facts

- WWAMI has been Wyoming's medical school for over 18 years.
- More than 158 Wyoming residents have earned medical degrees through WWAMI (98.75% completion rate).
- The average return rate of WY students graduating from WWAMI is 67%; this number increases to nearly 73% return-on-investment, when including all non-WY WWAMI graduates practicing in the state.
- Nearly 130 WY physicians have clinical faculty appointments at UWSoM.
- Wyoming has 12th oldest physician workforce.
- 15% of WY WWAMI admission slots target rural underserved practice through the TRUST program
- WY WWAMI graduates choose primary care residencies (75%).
- Per annum economic impact of one physician in a WY community (\$1.1M)
- WY WWAMI students who do not return to Wyoming to practice must 'payback' the state's subsidy.
- Wyoming's aging population and rural/frontier nature combine to produce a large medically underserved population.

Program Summary

In 1997, Wyoming entered into a cooperative program with the University of Washington School of Medicine (UWSoM) along with the states of Montana, Idaho and Alaska, resulting in "WWAMI", the acronym for the partner states. WWAMI's goal is to make medical education accessible to students in northwestern states that do not have independent medical schools, and to help meet physician workforce needs for each of the states.

Wyoming WWAMI Program Goals

1. Access to public medical education for Wyoming residents (UWSoM- top 10 US medical School in both primary and rural care).
2. Wyoming physician workforce: encourage graduates to locate their practices in underserved or rural areas in Wyoming.
3. Encourage and support talented students to enter the field of medicine.

How Does the Program Work?

The program operates through a decentralized education process. In Wyoming, 20 new medical students enter the program each year and complete their 1st year of studies on the University of Wyoming campus. Students then go to Seattle to get their 2nd year of classroom studies. During the 3rd and 4th years, students do clinical rotations at clerkship sites throughout the five state WWAMI region.

State Support

The state of Wyoming provides a subsidy for each student enrolled in the program. For FY14 the state provided \$6.1 M to support 79 students of the WWAMI program at an average subsidy per student of \$76,884 annually. Collectively, nearly 28% of state funds committed each year to the WWAMI program is spent in Wyoming, supporting classroom teaching at the University of Wyoming and clinical teaching of WWAMI students in 22 clerkships located throughout the state.

New Curriculum and new opportunity for Wyoming

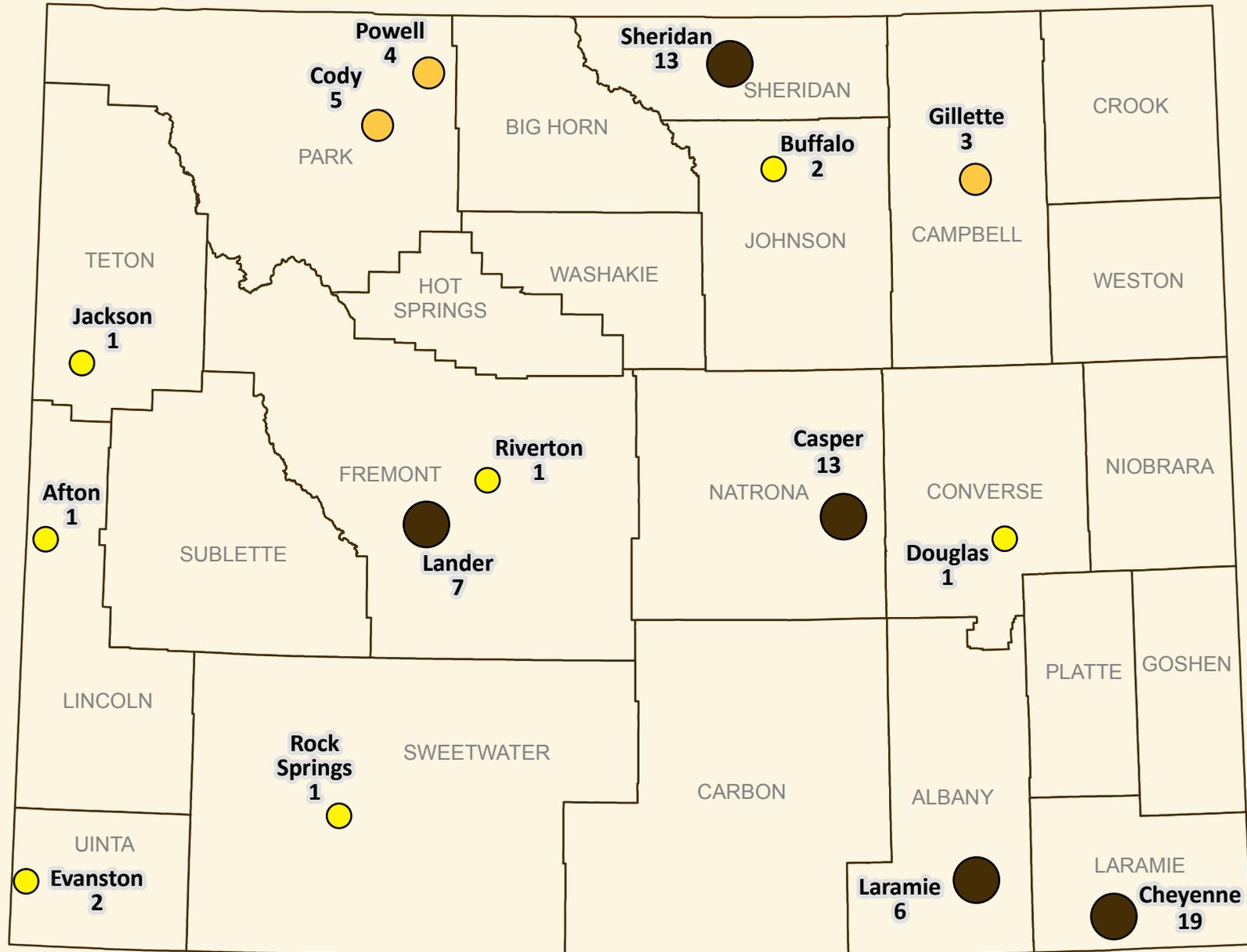
A new curriculum commences in fall semester, 2015. The new curriculum will serve to adapt medical education to meet the current physician workforce needs of society, particularly for the WWAMI region. Nearly 75% of medical schools in the U.S. have adopted or are currently adopting a curriculum model which resembles that of the University of Washington. Beginning with the entering 2017 WWAMI class, Wyoming students will spend their first 2 years of medical training in Wyoming, while continuing to rotate through Wyoming and across the WWAMI region for clinical clerkships (years 3 and 4). This provision of clinical training in Wyoming engages over 130 Wyoming physicians in helping educate the next generation and helps recruit WWAMI students to Wyoming communities.

Wyoming Physician Workforce

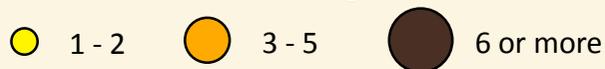
Wyoming has a shortage of physicians (48th nationally for meeting physician workforce needs), especially in primary care. Wyoming WWAMI continues to address this need, with a 73% return on investment (translating to nearly 15 WWAMI graduates returning to Wyoming to practice for every 20 students Wyoming trains). The majority (75%) of Wyoming WWAMI students choose to practice in primary care. The partnership between the University of Washington School of Medicine and Wyoming continues to be a productive and cost-effective approach for meeting the needs of the physician workforce in Wyoming.

WWAMI Graduates in Wyoming

N = 79



Number of WWAMI Graduates Practicing/Fulfilled Contract in Wyoming



Wyoming WYDENT Dental Education 2015

WYDENT Facts

- WYDENT has been providing access and affordability to Wyoming dental students for 9 years.
- More than 35 Wyoming residents have earned dental degrees through WYDENT (97% completion rate).
- As of August, 2014, the return rate of Wyoming students graduating from WYDENT is 88%; 22 of 25 graduates have returned to practice in Wyoming communities.
- 23% of WYDENT students have completed advanced education compared to 14% nationally.
- Wyoming has 49 dentists per 100,000 people vs 66 to 100,000 nationally.
- Most WYDENT graduates choose general dentistry (77%).
- Over ½ of Wyoming's practicing dentists are over 51 years old.
- WY WYDENT students who do not return to WY to practice must pay back the state's subsidy.
- WY's aging population and rural/frontier nature combine to produce a large medically underserved population.

Program Summary

The 2007 Wyoming legislature established a dental education contract program, informally referred to as WYDENT. The University entered into agreements with Creighton University and the University of Nebraska Medical Center under which the State of Wyoming through UW would pay the cost of attendance for up to five dental students at each institution. Due to FY 10 statewide budget cuts, only 4 new students are admitted to each school annually, starting in the 2010-11 academic year. They complete all 4 years of dental school at their respective schools.

Wyoming WYDENT Program Goals:

1. Access to dental education for qualified Wyoming residents (many schools prefer or limit enrollment to their own residents);
2. Wyoming dental workforce: encourage graduates to choose careers in general dentistry and locate their practices in underserved or rural areas in Wyoming.
3. Support and encourage talented students to enter the field of dentistry.

How Does the Program Work?

1. Students must meet a Wyoming residency requirement as specified in the state statutes.
2. Students apply to dental school. Admissions decisions are made by the individual schools.
3. To be competitive applicants, students must meet academic prerequisites, excel on the Dental Admission Test, have completed dental shadowing, have active human service records, and must demonstrate well-balanced biographical and academic backgrounds.
4. WYDENT graduates are required to repay what Wyoming has paid toward their dental educations with either 3 years of dental service in the state or repayment of the funds expended plus interest.

Graduates seeking careers as general dentists are eligible to start practice after passing their board exams although they may complete Advanced Dental Education in general dentistry. Any graduate who wants to specialize will complete a Specialty Education Program typically lasting 24-36 months.

State Support

The state of Wyoming provides a subsidy for each student enrolled in the program. For FY14 the state provided \$2.44 M to support 32 students of the WYDENT program at an average subsidy per student of \$76,000 annually.

Wyoming Dental Workforce

Wyoming has a shortage of dentists, especially general dentists. WYDENT continues to address this need, with an 88% return on investment (translating to nearly 22 WYDENT graduates returning to Wyoming to practice for every 25 students Wyoming trains). The majority of Wyoming WYDENT students choose to practice general dentistry (77%). The partnership between the University of Nebraska and Creighton University and Wyoming continues to be a productive and cost-effective approach for meeting the needs of the dental workforce in Wyoming.

Wyoming WICHE PSEP 2015

WICHE Facts

- Wyoming was one of the original states to sign the WICHE Compact in 1953.
- WICHE members consist of Alaska, Arizona, California, Colorado, Commonwealth of the Northern Mariana Islands, Hawai'i, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.
- WICHE is governed by a group of commissioners, 3 from each state appointed by their respective governors.
- In 2014-15 Wyoming, its institutions, and its students saved or brought in some \$8.3 million through WICHE and spent \$137,000 for membership, yielding a 60 fold return on investment.
- Wyoming has sent over 2000 students to professional schools through PSEP.
- In 2014, PSEP saved 110 Wyoming students \$2,171,060 in tuition costs.
- WY WICHE PSEP students who do not return to WY to practice must pay back the state's subsidy.
- WY's aging population and rural/frontier nature combine to produce a large medically underserved population.

Program Summary

The Western Interstate Commission on Higher Education (WICHE) Compact was signed by the original states in 1953 and has been providing educational access and support ever since. As an original WICHE participant, Wyoming has reaped benefits for over 60 years and has helped countless students obtain educations not available or accessible in their home states.

Among other initiatives, WICHE offers 3 student exchanges: Western Undergraduate Exchange (WUE), Western Regional Graduate Program (WRGP), which also gives reduced tuition to many health professional programs, and the Professional Student Exchange Program (PSEP). PSEP assists students attend health professions programs in other states; it is subsidized by the state. PSEP programs typically require a bachelor's degree prior to admission. Wyoming supports PSEP students in dentistry, medicine, occupational therapy, optometry, osteopathic medicine, physical therapy, physician's assistant study, podiatric medicine, and veterinary medicine.

At its inception and up until fall, 2013, WICHE PSEP had been considered primarily an access program, helping students attend these programs in other states. In 2013, it changed directions to focus more on workforce needs and began requiring a contract with payback provisions for all fields except veterinary medicine.

Wyoming WICHE PSEP Program Goals:

1. To provide access to Wyoming residents to professional health programs not available in the state. This helps our applicants get reviewed where they otherwise may not as a non-resident applicant.
2. Wyoming workforce: encourage graduates to locate their practices in underserved or rural areas in Wyoming.
3. Support and encourage talented students to enter the field of healthcare.

How Does the Program Work?

1. Students must meet a Wyoming residency requirement as specified by the Wyoming commissioners.
2. Students apply to professional schools and may receive a preferential review. Admissions decisions are made by the individual schools.
3. To be competitive applicants, students must meet academic prerequisites, excel on the admissions text, have completed shadowing/observation, and/or clinical experiences, have active human service records, and must demonstrate well-balanced biographical and academic backgrounds.
4. While financial support is not guaranteed, those who receive it pay reduced tuition at their schools and Wyoming pays the school a support fee to help offset costs of education.
5. WICHE graduates (except veterinary medicine) are required to repay what Wyoming has paid toward their professional educations with either 3 years of professional service in the state or repayment of the funds expended plus interest.

State Support

The state of Wyoming provides a subsidy for each student supported in the program. For FY14 the state provided over \$2.4 M to support 110 students in WICHE PSEP. The duration of support is determined by program length and ranges from 2-4 years.

University of Wyoming Family Medicine Residency Programs/Educational Health Center of Wyoming 2015



UWFMRP/EHCW Facts

- Established in 1976
- Clinics are based in Casper and Cheyenne and administered through UW.
- Ambulatory education centers for family medicine residents, WWAMI medical students, UW nurse practitioners, UW nursing, UW pharmacy and other health professional students.
- The Casper clinic has approximately 30,000 patient visits per year and the Cheyenne clinic has approximately 20,000.
- The Casper clinic provides \$2 million a year in uncompensated medical care and the Cheyenne Clinic provides \$1 million.
- There are 8 graduates from the Casper program and 6 graduates from the Cheyenne program per year.
- 104 UWFMRP graduates are practicing in Wyoming.
- With the longevity of the programs there have been other graduates with Wyoming practices who have retired, died, returned to additional education, and moved practice sites.
- Graduates are or have practiced in virtually every city and town in Wyoming. (*see map*)
- The UWFMRP's operate under the HRSA approved FQHC umbrella, the Educational Health Center of Wyoming.

Program Summary

Established in 1976, the University of Wyoming Family Medicine Residency Programs (UWFMRPs) located in Casper and Cheyenne have three purposes:

Educate Family Medicine Physicians:

1. Family Medicine Residents are trained primarily at the community hospitals (Wyoming Medical Center in Casper and Cheyenne Regional Medical Center) and at the UW operated ambulatory care clinics.
2. Residents participate in off-site rural rotations in various Wyoming communities.
3. Studies have shown that a majority of family medicine residency graduates practice within several hundred miles of their residency program. This provides Wyoming communities the opportunity to recruit Wyoming trained physicians.

Educate Health Professional Students:

1. Health care is primarily practiced in the ambulatory care setting and students must be taught in this environment.
2. The UWFMRPs provide modern interprofessional, patient focused educational environments for all health care students. Unfortunately, being a small state, there are few ambulatory health care sites that provide this environment.
3. These sites are essential for students in the UW College of Health Sciences and other students. (WWAMI medical, pharmacy, nursing, physician assistant, etc.)

Safety-net Care:

1. Since their inception, the UWFMRP clinics have cared for Wyoming citizens regardless of their ability to pay. They make up the largest safety-net provider in the state.
2. Clinic fees are based on a HRSA approved sliding-fee scale.
3. The patient catchment areas are large with patients receiving care from surrounding communities 50 to over 100 miles distant.
4. The Casper clinic provided \$2 million and the Cheyenne clinic provided \$1 million in uncompensated care in fiscal year 2014.

How Does the Program Work?

The Casper residency offers 8 resident positions per year and the Cheyenne residency offers 6 for a total in the 3 year program of 24 and 18 respectively. UW in affiliation with the Educational Health Center of Wyoming (EHCW) operates teaching clinics in Casper and Cheyenne. UW faculty members including physicians, pharmacists, nurses and social workers provide teaching for the residents and other health care professionals in a modern, interprofessional, patient centered environment. The programs meet all the requirements and are dually accredited by the American Council on Graduate Medical Education (ACGME) and the American Osteopathic Association (AOA).

Funding

In the 2013-14 Biennial Budget, Governor Mead requested that UW "submit a plan that addresses the services provided to both students and the community members and to provide options for a more efficient delivery system."

1. Funding for medical residencies normally comes from three sources: federal through Graduate Medical Education (GME) Medicare funds, clinic revenue and local (state) funding. Wyoming does not receive GME funds which puts these programs at a disadvantage.

- Enhanced FQHC Medicare and Medicaid funding will be \$800,000 for Casper and \$400,000 for Cheyenne yearly.
- Wyoming is the only state where its residency programs do not receive Graduate Medical Education funding through Medicare.
- It is estimated that the value of one family medicine physician to a community hospital has the economic impact of \$1.7m.
- An economic impact study by Tripp Umbach consultants shows the annual impact of the 104 UWFMRP graduates practicing in Wyoming results in \$116.1m, 583 jobs, and \$3.3m in taxes generated.

2. The University of Wyoming administration and statewide residency program stakeholders explored a number of options to provide more stable funding for the programs. The two most attractive were forming an Educational Health Center to increase clinical reimbursement through Health Resources and Services Administration (HRSA) and obtaining GME.
3. The Educational Health Center of Wyoming (EHCW) was formed in February of 2013 as an umbrella organization to manage the clinic operations of both residency programs. Under HRSA policies the EHCW had to operate under Federally Qualified Health Center (FQHC) policies for 6 months before applying for the FQHC designation. Those policies include a separate EHCW Board of Directors consisting of patients from both clinics and UW representatives. That designation was applied for in September 2013. HRSA conducted a site review in January 2014, all requirements and policies were either in compliance or altered to meet compliance, and the FQHC designation was awarded August 1, 2014. This designation allows for several benefits, enhanced Medicare and Medicaid reimbursement, subsidized pharmacy benefits, and medical student loan repayments. It is estimated that the enhanced reimbursement for Casper will be \$800,000 and for Cheyenne \$400,000 yearly.
4. GME funding is a more complex issue and is still being investigated. UW is working with a Washington DC law firm to investigate access to this funding. UW representatives are also working with the health care staff members of Wyoming's senators and congresswomen. It appears federal legislation will be required for Wyoming to gain access to those funds.

Issues

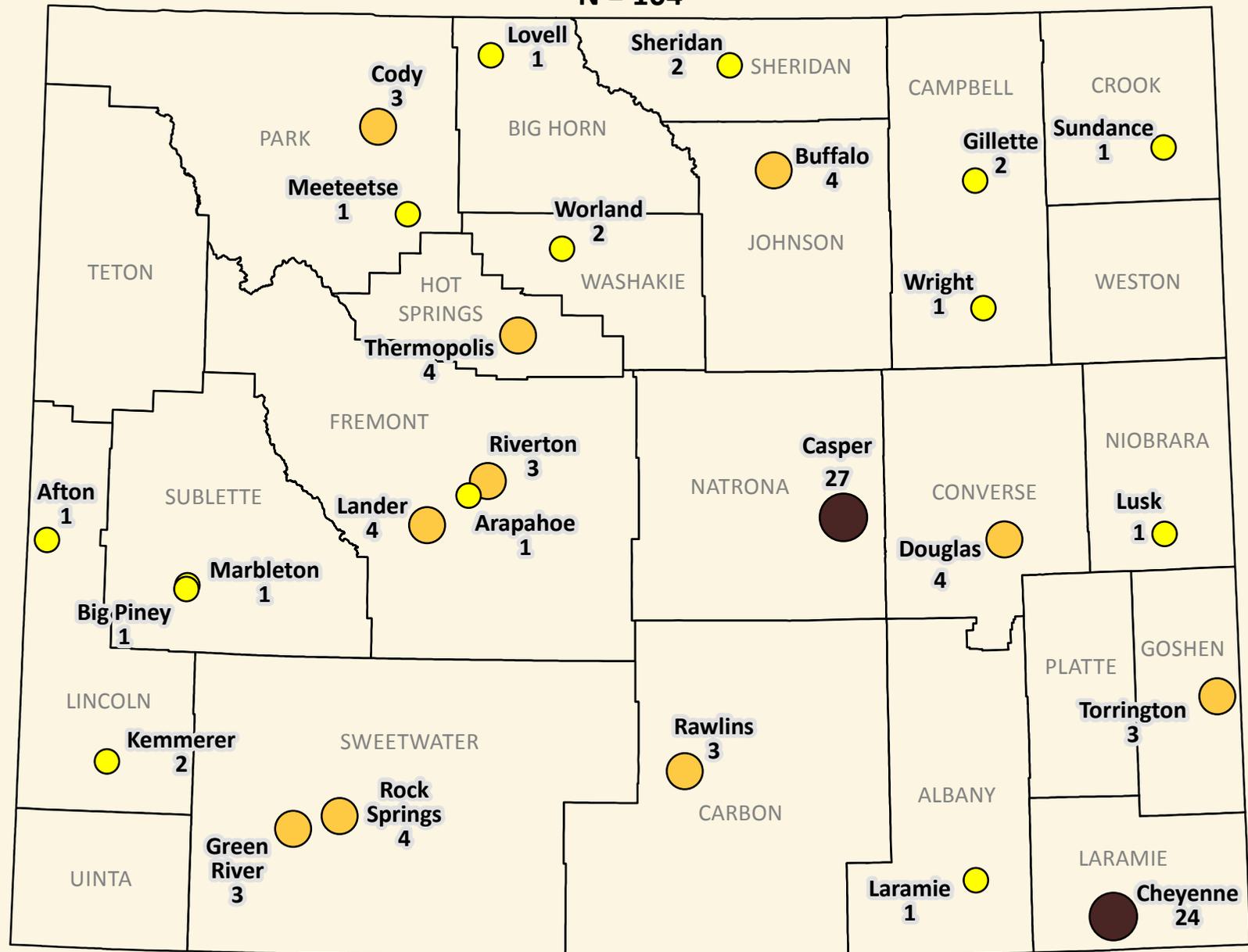
1. Budgets for the last several bienniums have consisted of both ongoing and one time funding. It is anticipated that only on-going funding will be requested in future bienniums.
2. Faculty salaries have not kept pace with the market place. UW physician faculty salaries are significantly behind WWAMI family medicine faculty comparisons. The Cheyenne program has had faculty positions open for over a year, and the Casper program is concerned with retention of faculty.
3. The inability to adjust quickly to a changing marketplace within the constraints of the biennial budget.

Budget request

The University of Wyoming administration and the EHCW Board of Directors will be requesting base state funding for the next biennium that will be augmented by clinical income. The base will primarily support the educational functions of the residency program while clinical income will support clinic operations. However, the operations of the residency programs are such that there may not be a clear distinction between educational and clinic functions. The request will ask that a special revenue account be established that will receive the clinical income (similar to the account established at the State Hospital, 2013 Session Laws, Chapter 73, Section 048b). The money from the special revenue account will be distributed for clinic and HRSA related expenses at the direction of the EHCW Board of directors and University of Wyoming administration. Expenditures will conform to the University of Wyoming fiscal policy and procedures. The University shall report to the Joint Appropriations Committee not later than November 1 of each year detailing expenditures from the previous fiscal year (or more frequently if required).

University of Wyoming Family Medical Residency Program Graduates Currently Practicing in Wyoming (July 2015)

N = 104



Number of Graduates Serving Each City

