

HEALTH SCIENCES AND RURAL HEALTH REPORT



2016

West Virginia Higher Education Policy Commission

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A BOLD GOAL: *Double the degrees.*

The **Higher Education Policy Commission** and **Community and Technical College System** are working together to double the number of associate's and bachelor's degrees earned annually in the state by 2025.



EXECUTIVE SUMMARY

Retaining healthcare providers

West Virginia's three state funded medical schools enroll more medical students per capita than any other state in the country. In the academic year 2015-2016, 168 of the 402 medical students who enrolled in the first year classes of the state's three medical schools were West Virginia residents. Due to its large number of medical student slots, the state typically is able to offer all qualified West Virginians the opportunity to complete their medical education in the state (pages 7-13).

In-state tuition at West Virginia medical schools is among the most affordable in the nation, with in-state tuition at each of the three medical schools hovering at just over \$20,000 per year. In addition to affordability, all three schools continue to well prepare students to succeed as physicians and report licensure exam passage rates at well over 90 percent for the last five years (page 14).

Keeping medical school graduates in state for residency (graduate medical education) is one of the most proven strategies for eventually recruiting them to practice in the state. Unfortunately, although West Virginia has experienced a growth in medical school slots over the last 10 years, a corresponding increase in residency slots has not occurred. The West Virginia Higher Education Policy Commission (the Commission) and the three medical schools have begun to implement more programs that incentivize their best students, particularly those students interested in primary care and rural practice to complete their residency training in West Virginia (page 16-22).

West Virginia medical school graduates select primary care residencies at a rate close to or above the national average. Many of these graduates remain in state to practice, however a chronic maldistribution of primary care physicians persists. The Commission and the medical schools through the Rural Health Initiative and other programs are developing innovative models and engaging underserved communities to help redistribute the primary care physician workforce (pages 26-35).

This report historically has focused on medical education. This year's report provides enhanced information on the other health professions programs offered in West Virginia, including dental hygiene, dentistry, nurse practitioner, pharmacy, physical therapy, and physician assistant. The state has seen a growth in these program offerings in the last several years, and collecting more data on these programs is critical to understanding West Virginia's healthcare workforce (pages 23-24).

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MEDICAL SCHOOL PROFILES

The Marshall University Joan C. Edwards School of Medicine and the West Virginia University School of Medicine are allopathic medical schools, and the West Virginia School of Osteopathic Medicine is an osteopathic medical school. The structure and content of allopathic and osteopathic medical education and training are similar in many ways, while different in others. For this report, where similarities exist, the three schools are discussed together, and where differences occur, the information for allopathic and osteopathic programs is broken out.

All medical school applicants complete the Medical College Admission Test® (MCAT®) as part of the application process. The MCAT® consists of three multiple choice sections each worth 15 points (physical sciences, verbal reasoning, and biological sciences) and a writing sample. For 2015-2016 matriculants, the national combined mean MCAT® score for students entering allopathic medical schools was 31.4; for students entering osteopathic medical schools the score was 27.3. The national mean grade point average (GPA) for these same allopathic students was 3.70 and for osteopathic students it was 3.53 (Association of American Medical Colleges and American Association of Colleges of Osteopathic Medicine).



Marshall University Joan C. Edwards School of Medicine

Marshall University Joan C. Edwards School of Medicine

ENTERING CLASS ADMISSION RATE

	2015-16	2014-15	2013-14	2012-13	2011-12
<i>In-State</i>					
Acceptances/Applicants	73/165	87/149	80/169	59/134	70/174
Admission Rate	44%	58%	47%	44%	40%
<i>Out-of-State</i>					
Acceptances/Applicants	51/1,655	31/1,651	43/1,419	76/1,219	52/1,252
Admission Rate	3%	2%	3%	6%	4%
Total Acceptances/Applicants	124/1,820	118/1,800	123/1,588	135/1,353	122/1,426
Total Admission Rate	7%	7%	8%	10%	9%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2015-16	2014-15	2013-14	2012-13	2011-12
Mean GPA	3.60	3.60	3.60	3.53	3.52
Mean MCAT®	28.7	28.5	27.9	28.3	28.8

ACADEMIC YEAR DATA

		2015-16	2014-15	2013-14	2012-13	2011-12
First Year New Enrollment	In-State	53	61	53	29	40
	Out-of-State	29	18	22	37	31
	Total	82	79	75	66	71
Total Graduates		62	64	65	75	64
Total Medical Students		315	281	292	291	295
Tuition and Fees	In-State	\$20,806	\$20,806	\$20,806	\$20,080	\$19,476
	Out-of-State	\$47,676	\$47,676	\$47,676	\$47,670	\$46,266



West Virginia School of Osteopathic Medicine

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West Virginia School of Osteopathic Medicine

ENTERING CLASS ADMISSION RATE

	2015-16	2014-15	2013-14	2012-13	2011-12
<i>In-State</i>					
Acceptances/Applicants	67/146	62/123	65/147	88/173	108/178
Admission Rate	46%	50%	44%	51%	61%
<i>Out-of-State</i>					
Acceptances/Applicants	416/4,988	439/4,340	379/4,183	306/3,893	377/3,342
Admission Rate	8%	10%	9%	8%	11%
Total Acceptances/Applicants	483/5,134	501/4,463	444/4,330	394/4,066	485/3,520
Total Admission Rate	9%	11%	10%	10%	14%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2015-16	2014-15	2013-14	2012-13	2011-12
Mean GPA	3.51	3.48	3.49	3.40	3.45
Mean MCAT®	24.8	24.8	24.6	24.1	24.0

ACADEMIC YEAR DATA

		2015-16	2014-15	2013-14	2012-13	2011-12
First Year New Enrollment	In-State	52	47	63	75	84
	Out-of-State	158	151	130	123	126
	Total	210	198	193	198	210
Total Graduates		187	181	184	195	160
Total Medical Students		827	819	817	838	817
Tuition and Fees	In-State	\$20,950	\$20,950	\$20,950	\$20,950	\$20,950
	Out-of-State	\$50,950	\$50,950	\$50,950	\$50,950	\$50,950



West Virginia University School of Medicine

West Virginia University School of Medicine

ENTERING CLASS ADMISSION RATE

	2015-16	2014-15	2013-14	2012-13	2011-12
<i>In-State</i>					
Acceptances/Applicants	72/166	79/189	99/231	80/159	78/180
Admission Rate	43%	42%	43%	50%	43%
<i>Out-of-State</i>					
Acceptances/Applicants	92/3,885	102/3,222	72/2,852	84/2,352	94/2,491
Admission Rate	2%	3%	3%	4%	4%
Total Acceptances/Applicants	164/4,051	181/3,411	171/3,083	164/2,511	172/2,671
Total Admission Rate	4%	5%	5%	7%	6%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2015-16	2014-15	2013-14	2012-13	2011-12
Mean GPA	3.78	3.80	3.79	3.77	3.71
Mean MCAT®	29.0	29.0	29.0	28.3	28.4

ACADEMIC YEAR DATA

		2015-16	2014-15	2013-14	2012-13	2011-12
First Year New Enrollment	In-State	63	58	77	67	61
	Out-of-State	47	52	33	39	43
	Total	110	110	110	106	104
Total Graduates		93	103	78	106	100
Total Medical Students		428	421	404	423	430
Tuition and Fees	In-State	\$29,295	\$28,134	\$26,604	\$24,248	\$23,118
	Out-of-State	\$56,673	\$55,107	\$53,028	\$52,188	\$49,728

MEDICAL LICENSURE EXAMS

All medical students must complete a series of licensing exams in order to become licensed physicians. Allopathic students take the United States Medical Licensing Exam (USMLE), and osteopathic students take the Comprehensive Osteopathic Medical Licensing Examination (COMLEX)-USA.

These exams have multiple parts. Students typically take the final USMLE or COMLEX soon after graduating from medical school. The data reported below is for the final exam for first-time test takers who took their respective licensing exam within two years of graduation. In evaluating the data presented below, it is important to consider some of its limitations:

- ▶ The data is for first-time test takers.
- ▶ Graduates can elect to not report their results to their medical schools.
- ▶ The data does not reflect graduates who take the exam more than two years after graduation.
- ▶ Not all graduates enter residency programs and therefore do not sit for these exams.

Allopathic medical school graduates

The USMLE, Step 3 is the final of three tests completed by allopathic medical students. Graduates typically take USMLE, Step 3 at the end of their first year of residency. The national average passage rate for first-time test takers for the graduating class of 2013 is 98 percent.

NUMBER PASSING/NUMBER OF EXAMINEES, USMLE, STEP 3, BY GRADUATING CLASS

	2013	2012	2011	2010	2009
Marshall University	67/68	62/64	55/58	57/59	45/49
	99%	97%	95%	97%	92%
West Virginia University	94/95	94/95	93/93	91/91	96/98
	99%	99%	100%	100%	98%

Osteopathic medical school graduates

Osteopathic graduates take the final COMLEX, Level 3, as early as six months into residency training. They must complete Level 3 before starting their third year of residency training. The national average is not available.

NUMBER PASSING/NUMBER OF EXAMINEES, COMLEX, LEVEL 3, BY GRADUATING CLASS

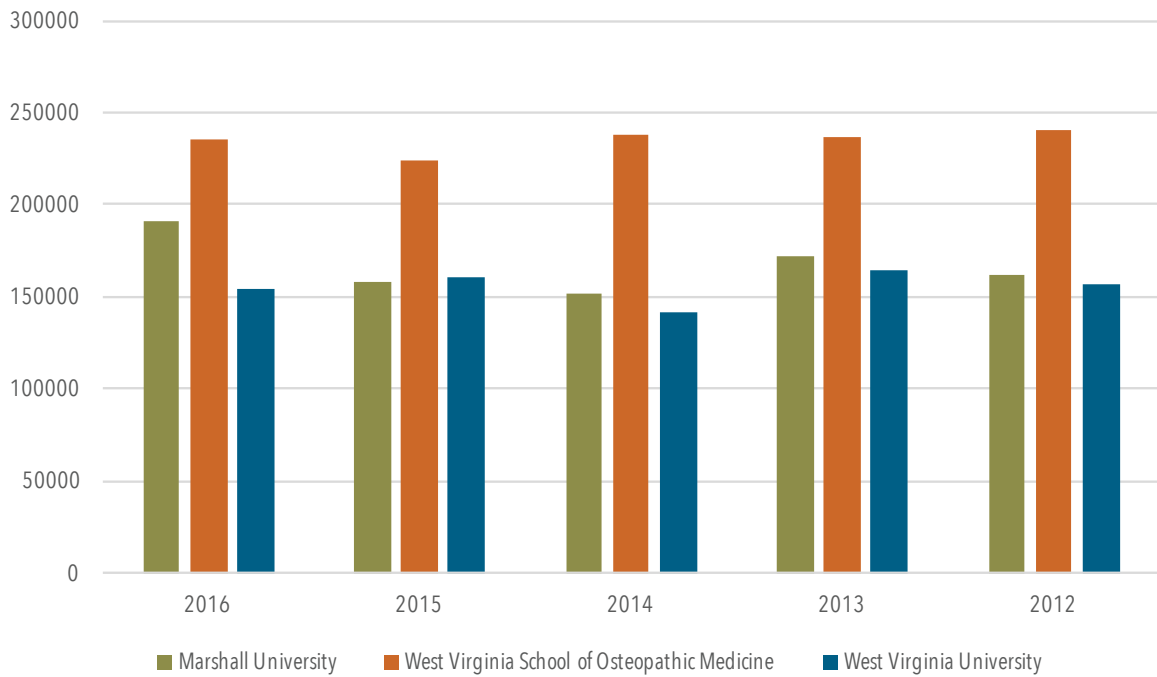
	2013	2012	2011	2010	2009
West Virginia School of Osteopathic Medicine	190/194	144/147	180/191	134/136	91/99
	98%	98%	94%	99%	92%

MEDICAL STUDENT INDEBTEDNESS

The average indebtedness of each graduating medical school class is calculated from all loans, public and private, accumulated while pursuing medical degrees. It does not include pre-medical school debt. Members of the graduating class who do not have any debt are excluded from the calculation. The difference in graduate indebtedness among the schools can be attributed in part to differences in the proportion of students paying out-of-state student tuition and fees. Historically, the West Virginia School of Osteopathic Medicine has had classes composed of more out-of-state students, although the number of out-of-state students at both West Virginia University and Marshall University has grown in recent years.

AVERAGE MEDICAL STUDENT DEBT, BY GRADUATING CLASS

Class	Marshall University	West Virginia School of Osteopathic Medicine	West Virginia University
2016	\$190,345	\$235,108	\$154,789
2015	\$158,408	\$224,457	\$159,944
2014	\$151,980	\$237,900	\$141,807
2013	\$172,324	\$236,991	\$164,789
2012	\$162,010	\$240,283	\$156,425



RESIDENCY TRAINING

Upon graduation from medical school, physicians complete specialized residency training programs (also referred to as graduate medical education) before beginning practice. Residency training typically takes three to five years to complete. The federal Medicare program is the major funding source for residency programs across the country. In West Virginia, Medicaid and the Public Employees Insurance Agency also provide funding to residency training.

Key indicators related to residency choice impacting the supply of physicians across West Virginia are:

- ▶ Location: graduates who complete residencies in West Virginia are much more likely to remain in the state.
- ▶ Specialty: primary care fields generally are most needed in rural West Virginia.

In West Virginia, primary care residencies include specializations in:

- ▶ family medicine
- ▶ internal medicine
- ▶ internal medicine/pediatrics
- ▶ obstetrics/gynecology
- ▶ pediatrics

Graduates of all three West Virginia medical schools frequently enter primary care residency programs at a rate at or above the national average for these same programs. Through a computerized process referred to as “the match”, medical students rank their top residency program choices, and residency programs rank the top medical students they would like to recruit. Based on these rankings, an algorithm then matches each medical student with a residency program. There is an allopathic matching program and an osteopathic program. Allopathic medical students are only eligible for the allopathic matching program, and osteopathic medical student can enter either the allopathic or osteopathic matching program. For the 2016 allopathic residency match program, 48 percent of allopathic medical school graduates matched with a primary care residency program, and 59 percent of osteopathic medical school graduates matched with a primary care residency program (National Resident Matching Program). National data is not available for the osteopathic only matching program.

However, selecting a primary care residency program does not always translate to practicing primary care, particularly in an outpatient setting. Often, individuals entering internal medicine residencies forego a general internal medicine track, and instead subspecialize in fields not traditionally viewed as primary care, such as cardiovascular disease, gastroenterology, and infectious diseases. Additionally, there is a growing trend for primary care graduates to work as hospitalists in inpatient settings. Thus, some of the graduates counted below ultimately may not practice in an outpatient, primary care setting.

NUMBER AND PERCENTAGE OF GRADUATES CHOOSING PRIMARY CARE RESIDENCIES, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
Marshall University	28 (47%)	31 (48%)	33 (51%)	44 (60%)	41 (64%)
West Virginia School of Osteopathic Medicine	113 (61%)	111 (62%)	126 (68%)	133 (68%)	107 (68%)
West Virginia University	44 (48%)	48 (48%)	40 (51%)	48 (47%)	43 (43%)

Location of primary care residencies

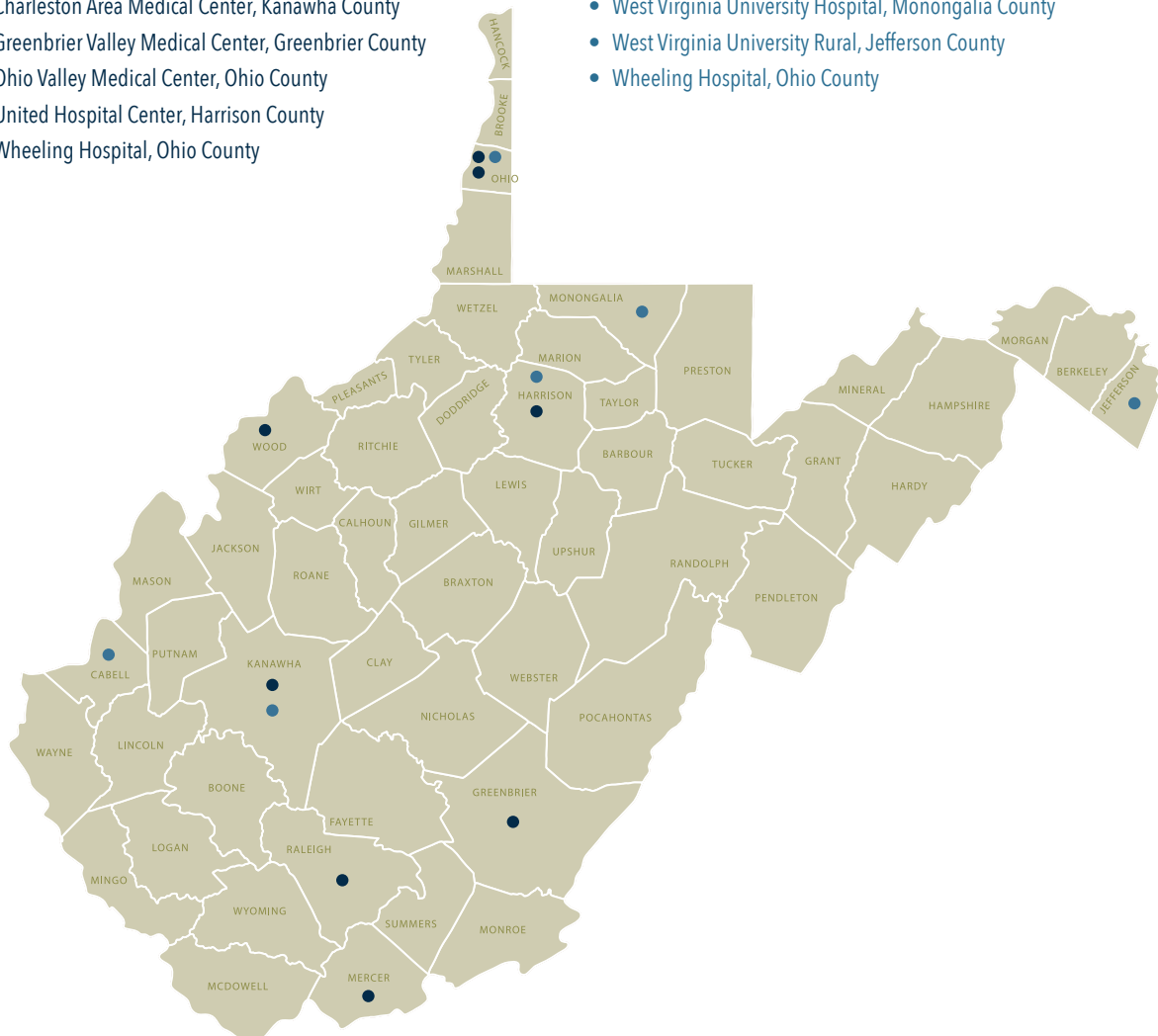
Primary care residency programs are offered across West Virginia, however, these sites predominantly are hospital-based and located in more urban areas. Unique programs like the AccessHealth Teaching Health Center Family Medicine Residency Program in Raleigh County, West Virginia University - Harpers Ferry Rural Family Medicine Residency Program, and the Marshall University - Lincoln Primary Care Center Rural Residency Program, allow residents to spend all or a significant portion of their residency in a rural or underserved area. As part of more traditional programs, residents may spend a small percentage of their time practicing away from the main residency site such as in a rural health clinic or a community health center.

Osteopathic Primary Care Residency Programs

- AccessHealth Teaching Health Center, Raleigh County
- Bluefield Regional Medical Center, Mercer County
- Camden-Clark Memorial Hospital, Wood County
- Charleston Area Medical Center, Kanawha County
- Greenbrier Valley Medical Center, Greenbrier County
- Ohio Valley Medical Center, Ohio County
- United Hospital Center, Harrison County
- Wheeling Hospital, Ohio County

Allopathic Primary Care Residency Programs

- Charleston Area Medical Center, Kanawha County
- Marshall University School of Medicine, Cabell County
- United Hospital Center, Harrison County
- West Virginia University Hospital, Monongalia County
- West Virginia University Rural, Jefferson County
- Wheeling Hospital, Ohio County



MEDICAL SCHOOL GRADUATE RETENTION

for practice in West Virginia

Retention denotes the number or percentage of West Virginia medical school graduates who remain in the state to practice. Retention is tracked annually for a six-year cohort of medical school graduates who have completed residency training. The data in this section focuses on retention of West Virginia medical school graduates in primary care and/or rural practice.

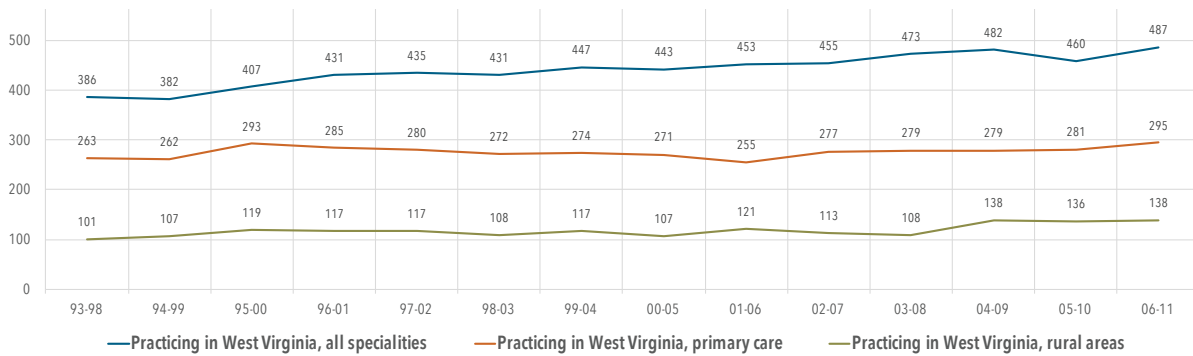
- ▶ Primary care is defined as family medicine, internal medicine, internal medicine/pediatrics, obstetrics/gynecology, and pediatrics.
- ▶ Rural areas include all areas of the state with a 2006 Rural Urban Commuting Area (RUCA) code of 4.0 or higher. These codes classify U.S. census tracts using measures of population density, urbanization, and daily commuting.
- ▶ Data is provided only for graduates who have completed their residency training.

Between 2006 and 2011, 1,540 graduates of the state's three medical schools completed residency training, either in West Virginia or another state, and 32 percent of these graduates are now practicing in West Virginia. Nine percent of the graduates in this cohort are practicing in rural West Virginia, and 19 percent are practicing primary care in the state (either in a rural or urban location). These numbers and percentages increased slightly from last year's report. The growth in medical school class sizes in recent years is supplying more graduates to practice in West Virginia; however, issues still persist in recruiting graduates to practice in both outpatient primary care and rural settings.

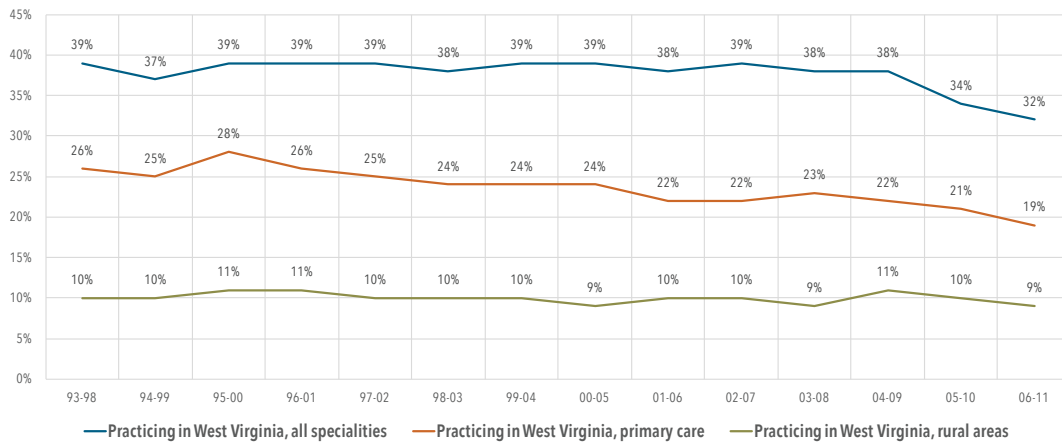
MEDICAL SCHOOL GRADUATES RETAINED, BY INSTITUTION, GRADUATING CLASSES OF 2006-2011

	Total number with completed training	In practice in West Virginia	In primary care in West Virginia	In rural areas of West Virginia
Marshall University	268	94 (35%)	61 (23%)	19 (7%)
West Virginia School of Osteopathic Medicine	710	201 (28%)	137 (19%)	77 (11%)
West Virginia University	562	192 (34%)	97 (17%)	42 (7%)
Total	1,540	487 (32%)	295 (19%)	138 (9%)

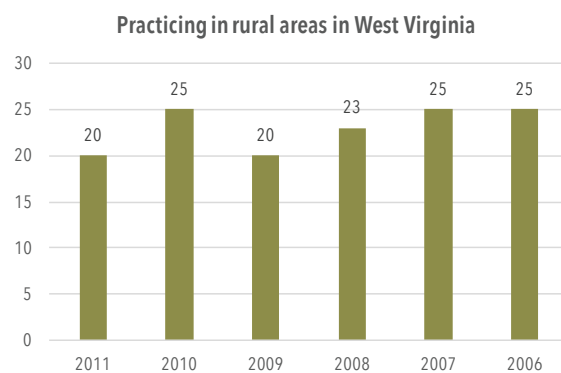
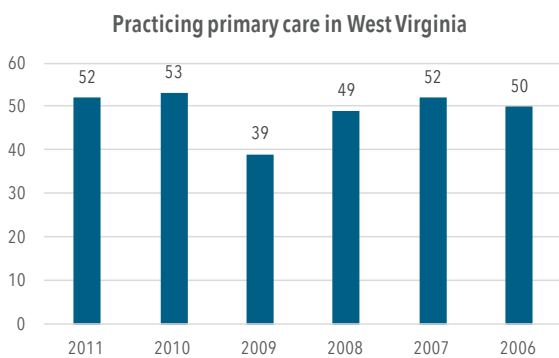
NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1993-2011



PERCENTAGE OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1993-2011



NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES PRACTICING PRIMARY CARE OR IN RURAL AREAS, BY GRADUATING CLASS



County of practice of recent West Virginia medical school graduates

West Virginia continues to focus on recruiting more physicians to the state, especially to rural areas. Having physicians that practice primary care and/or in rural areas is crucial to ensuring communities across the state access to quality care.

The table below illustrates recruitment of the most recent six-year cohort of West Virginia medical school graduates to all 55 counties of West Virginia. This information must be interpreted carefully, however. It is a snapshot of the placement of the most recent West Virginia medical school graduates over a six-year period only and does not include graduates of out-of-state medical schools or physicians who graduated prior to 2006 who are practicing in these counties. Thus, a zero listed in a column does not necessarily indicate that a county is underserved. At the same time, tracking this type of information over an extended period can help inform education and training program activities and physician recruitment priorities.

WEST VIRGINIA MEDICAL SCHOOL GRADUATES PRACTICING IN WEST VIRGINIA, BY COUNTY, GRADUATING CLASSES OF 2006-2011

County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care
Barbour	2	2	2
Berkeley	13	0	8
Boone	3	3	3
Braxton	1	1	1
Brooke*	2	0	1
Cabell*	63	0	38
Calhoun	0	0	0
Clay	2	2	2
Doddridge	0	0	0
Fayette	7	6	7
Gilmer	0	0	0
Grant	2	2	2
Greenbrier	22	22	14
Hampshire	1	1	0
Hancock	1	0	1
Hardy	0	0	0
Harrison	22	22	17
Jackson	1	1	1
Jefferson	12	3	10
Kanawha*	101	0	54
Lewis	6	6	5

Table continues

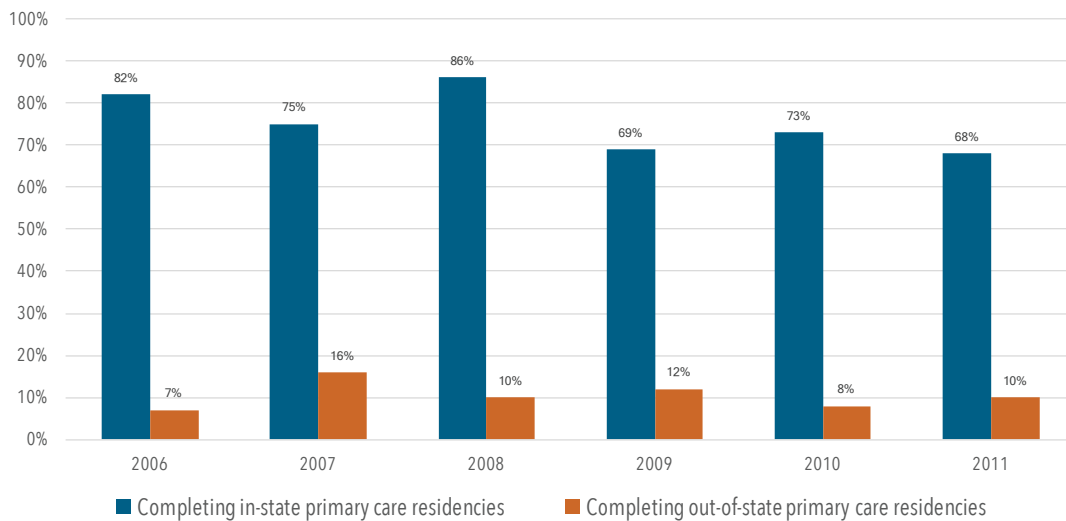
County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care
Lincoln	2	0	2
Logan	2	2	0
Marion	8	8	4
Marshall*	3	0	3
Mason	3	3	2
McDowell	0	0	0
Mercer	14	14	12
Mineral	2	2	2
Mingo	0	0	0
Monongalia*	107	0	45
Monroe	0	0	0
Morgan	1	1	1
Nicholas	5	5	4
Ohio*	24	0	11
Pendleton	0	0	0
Pleasants	0	0	0
Pocahontas	2	2	2
Preston	2	2	2
Putnam*	5	0	5
Raleigh	11	11	9
Randolph	4	4	1
Ritchie	0	0	0
Roane	1	1	1
Summers	0	0	0
Taylor	1	1	1
Tucker	0	0	0
Tyler	0	0	0
Upshur	5	5	4
Wayne	5	0	4
Webster	2	2	1
Wetzel	3	3	1
Wirt	1	0	1
Wood*	12	0	10
Wyoming	1	1	1
Total	487	138	295

* Denotes urban/non-rural county with a 2006 Rural Urban Community Area Code (RUCA) of less than 4.0, and therefore, the county has no rural areas.

Retention of West Virginia medical school graduates completing primary care residencies

The location of a medical school graduate's residency program frequently predicts whether that graduate will practice in West Virginia. For the 2011 graduates of West Virginia medical schools, 212 graduates went on to complete primary care residency programs (56 in-state and 156 out-of-state). Upon completing residency, 68 percent of these graduates who completed in-state primary care residencies were retained in West Virginia to practice, while only 10 percent of these graduates who completed out-of-state primary care residencies returned to West Virginia to practice.

PERCENTAGE OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES COMPLETING PRIMARY CARE RESIDENCIES RETAINED, BY GRADUATING CLASS



OTHER HEALTH PROFESSIONS PROGRAM GRADUATES

This year, graduation data from other health professions programs around the state has been added to the report. The following data includes information on nursing, dentistry, dental hygiene, pharmacy, physician assistant studies, and physical therapy. The following charts include data from public and private institutions, as well as two and four-year institutions.

NUMBER OF GRADUATES OF MASTER'S LEVEL NURSING PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
Marshall University	38	46	52	61	59
West Virginia University	37	44	72	39	43
West Virginia Wesleyan College (<i>private institution</i>)	14	5	2	3	5
Wheeling Jesuit University (<i>private institution</i>)	61	48	55	31	16
Total Graduates	150	143	181	134	123

NUMBER OF GRADUATES OF DENTISTRY PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
West Virginia University	54	48	48	42	43
Total Graduates	54	48	48	42	43

NUMBER OF GRADUATES OF DENTAL HYGIENE PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
BridgeValley Community and Technical College*	19	13	15	16	23
West Liberty University (Associate)	22	34	32	34	31
West Liberty University (Bachelor's)	33	22	22	29	28
West Virginia University	25	12	19	20	19
Total Graduates	99	81	88	99	101

* BridgeValley Community and Technical College graduated its first dental hygiene class in 2015. Bridgemont Community and Technical College offered a dental hygiene degree, but the institution ceased operation at the end of the 2014 academic year. It merged with Kanawha Valley Community and Technical College to become BridgeValley Community and Technical College.

NUMBER OF GRADUATES OF PHARMACY PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
Marshall University**	75
University of Charleston (<i>private institution</i>)	67	69	68	78	71
West Virginia University	91	85	82	75	81
Total Graduates	233	154	150	153	152

** Marshall University graduated its first pharmacy class in 2016.

NUMBER OF GRADUATES OF PHYSICIAN ASSISTANT PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
Alderson Broaddus University (<i>private institution</i>)	34	29	12	1	45
University of Charleston (<i>private institution</i>) ***	20	27	36	35	.
West Liberty University****	16	.	17	.	.
Total Graduates	70	56	65	36	45

*** University of Charleston graduated its first physician assistant class in 2015. It also taught out the remaining physician assistant students at Mountain State University prior to 2015.

**** West Liberty University graduated its first physician assistant class in 2014. It graduates cohorts on a biennial basis.

NUMBER OF GRADUATES OF PHYSICAL THERAPY PROGRAMS, BY GRADUATING CLASS

	2016	2015	2014	2013	2012
Marshall University *****	36	25	.	.	.
West Virginia University	36	37	36	40	31
Wheeling Jesuit University (<i>private institution</i>)	47	47	47	42	35
Total graduates	119	109	83	82	66

***** Marshall University graduated its first physical therapy class in 2015.

LOANS AND INCENTIVES

Health Sciences Service Program

The Health Sciences Service Program is a state-funded incentive program and is administered by the West Virginia Higher Education Policy Commission. The program provides financial awards to health professions students who agree to practice in underserved areas of the state upon completion of their education and training. Participants complete either two years of full-time service or four years of part-time service. Medical and dental students receive a \$30,000 award. Doctoral clinical psychologists, licensed independent clinical social workers, nurse educators, nurse practitioners, physical therapists, pharmacists, and physician assistants receive a \$15,000 award. Since 1995, 170 participants have completed their service obligation.

In 2015-2016, 17 students were selected for awards totaling \$330,000:

- ▶ Four doctoral clinical psychology students
- ▶ Four physical therapy students
- ▶ Three medical students
- ▶ Three nurse practitioner students
- ▶ Two dental students
- ▶ One pharmacy student

Medical Student Loan Program

The Medical Student Loan Program, which is funded from student fees, is a need-based program for students at West Virginia medical schools and administered by the Commission. Institutions award loans of up to \$10,000 each year per eligible student, and a student may receive a loan in more than one year of medical school. Upon graduation and once in practice, borrowers either must repay the loan or seek loan forgiveness. Borrowers are eligible for loan forgiveness of up to \$10,000 per year for each year they practice in West Virginia in an underserved area or in a medical shortage field. Borrowers are permitted to reapply for loan forgiveness in subsequent years.

MEDICAL STUDENT LOAN PROGRAM ACTIVITY, BY PROGRAM YEAR

	2015-16	2014-15	2013-14	2012-13	2011-12
Loans awarded in Fiscal Year	247	256	245	273	256
Total amount awarded	\$1,404,300	\$1,462,142	\$1,523,500	\$1,589,301	\$1,379,420
Amount of unexpended funds*	\$1,991,422	\$1,993,939	\$1,811,521	\$1,781,561	1,983,043
Loan postponement**	23	24	26	30	16
Loan forgiveness***	49	42	48	40	36
Default rate on previous awards	2.5%	2.5%	1.8%	1.9%	2.2%

* Amount of unexpended funds includes loan repayments.

** Loan postponement is the number of borrowers who applied for the first time in a given year to begin practicing toward earning loan forgiveness. If these borrowers complete one year of service, they receive up to \$10,000 in loan forgiveness at the end of the year, and then, are included in the subsequent year's loan forgiveness count.

*** Loan forgiveness is the number of borrowers who received up to \$10,000 in loan forgiveness in a given year.

RURAL HEALTH INITIATIVE PROGRAM

The West Virginia Rural Health Initiative (RHI) program is derived from West Virginia Code §18B-16-1 et seq. and focuses on several goals, including:

- ▶ Increasing the recruitment of healthcare providers to rural areas.
- ▶ Increasing the retention rate of healthcare providers in rural areas.
- ▶ Developing pipeline programs to enhance student interest in rural healthcare careers.
- ▶ Supporting the involvement of rural areas of the state in the health education process.

Overall responsibility for the RHI program rests with the Vice Chancellor for Health Sciences at the West Virginia Higher Education Policy Commission. To carry out the goals, the Commission grants the majority of funding to the Joan C. Edwards School of Medicine at Marshall University, the West Virginia School of Osteopathic Medicine, and the West Virginia University Health Sciences Center (“the academic health centers”). In state Fiscal Year 2016 (FY 2016), each academic health center received \$587,000. The following pages contain program overviews for each of the academic health center’s RHI activities during FY 2016.

The Commission also uses RHI program funding to make smaller grants to other higher education programs, healthcare facilities, and nonprofit organizations to further advance RHI activities across the state. Examples of projects funded during FY 16 include: the creation of a rural fellows program at Concord University to recruit students from rural high schools interested in healthcare careers; the development of two courses at Fairmont State University that introduce students to the array of career opportunities in health care and then connect them with service learning opportunities; and the purchase of supplies and equipment to enhance hands on learning for health related programming at Glenville State College. Rural Health Initiative funding also was directed at growing partnerships between academic health centers and community-based primary care clinics focused on research and quality improvement activities, as well as engaging the state’s geriatricians in collaborative activity directed at improving clinical outcomes for older adults in West Virginia.

Lastly, the Commission allocates RHI funding for program administration staff and to support the statewide health professions student housing system. The statewide housing system is operated by West Virginia University and is comprised of 19 housing units located across West Virginia. The housing is available for students from health professions training programs in West Virginia to utilize while completing clinical rotations in rural or underserved areas of the state. In FY 2016, students utilized 1466.8 weeks of housing.

Marshall University Joan C. Edwards School of Medicine

The Marshall University Joan C. Edwards School of Medicine (Marshall University) is dedicated to providing high quality medical education and postgraduate training programs to foster a skilled physician workforce to meet the unique healthcare needs of West Virginia. Marshall University is committed to the development of innovative rural initiatives that encourage and prepare students and residents to practice in rural communities. This rural educational model focuses on students and residents with an interest in rural medicine and provides them with intensive, high-quality educational experiences.

Increase the recruitment of healthcare providers to rural areas.

A new initiative underway at Marshall University is the Rural Family Medicine Scholars program, which in state Fiscal Year 2016 (FY 2016) selected nine fourth-year medical students based on their interest in rural medicine and commitment to practicing in West Virginia. The program continues into residency where residents in a variety of primary care specialties have opportunities to complete rural clinical rotations, rural research, and community-based initiatives.

Another initiative that places students in rural communities focuses on rural research projects. Conducting research on rural topics gives students and residents opportunities to learn about study design and methodology while becoming immersed in a rural community or health issue. Students and residents, with faculty mentors, apply for rural research grants to support projects that could enhance rural health care, lead to more effective health promotion and disease prevention programs, and address barriers to care. Five residents and seven students participated in rural research during FY 2016 with topics such as:

- ▶ Opioid compliance program through a local health department;
- ▶ Validation of a pediatric fitness test; and
- ▶ Evaluating cardiovascular health in a rural West Virginia community with high risk of cardiovascular disease.

Increase the retention rate of healthcare providers in rural areas.

Marshall University focuses on increasing the retention rate of healthcare providers in rural areas through activities that connect rural providers to the academic health center campus. Many of the field faculty are Marshall University alumni and provide rural rotation opportunities for students.

Annual forums are held to keep field faculty connected to the academic medical center as well as informing them of curriculum changes, rotation updates, and other important academic changes. Research opportunities regarding the Affordable Care Act and diabetes projects also have connected the field faculty back to Marshall University. The rural health fellowship is an opportunity for new physicians who recently completed residency and are practicing in a rural area to:

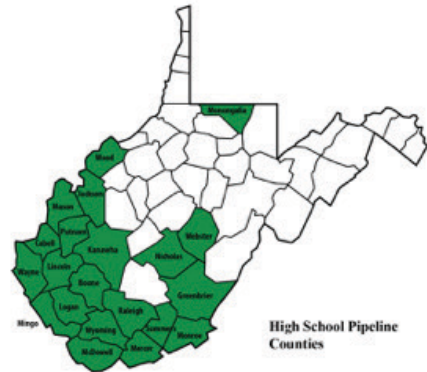
- ▶ Strengthen their ties to the medical school after graduation.
- ▶ Reduce isolation of rural practice.
- ▶ Explore additional clinical areas they might not have had time to pursue while in residency.

Develop pipeline programs to enhance student interest in rural healthcare careers.

Marshall University has developed a very active pipeline program that begins in high school and continues through college, medical school, residency training, and into practice. This program includes dozens of initiatives along the pathway to increase exposure to health professions careers.

Most recently, Marshall University has created an accelerated Bachelor of Science/Doctor of Medicine (BS/MD) program for West Virginia high school students. This pathway seeks to attract high performing and highly motivated high school students and support them on a fast track to medical education. The goal is to educate more future physicians who will want to practice medicine in the state. The program allows students to complete the requirements for both the BS and MD programs in seven, instead of eight years, with:

- ▶ No Medical College Admission Test® (MCAT®) required.
- ▶ Guaranteed acceptance into medical school at Marshall University upon successful completion of program requirements.
- ▶ A tuition waiver for the medical school portion of the program.



Thirteen BS/MD students enrolled at Marshall University in fall 2015, and 10 new students were accepted in 2016 for enrollment in fall 2016.

For over a decade, Marshall University has carried out a high school pipeline program in southern and southwestern West Virginia, with numbers growing every year. High school activities during FY 2016 reached over 3,400 students from 29 high schools in 16 counties who participated in a total of 82 events, including several collaborative events with entities serving minority and underserved students. Pre- and post-testing of students indicated a significant increase in knowledge of healthcare careers, and a 100 percent satisfaction score from surveyed teachers and counselors. Activities included trips to Marshall University's anatomy lab, real-time surgeries via videoconference, hands-on suturing workshops, lectures from a variety of healthcare specialists, as well as other activities.

On the college level, the fourth annual residential academy was held on the Marshall University campus on June 13-17, 2016, to prepare undergraduate students interested in medical school. Fourteen participants included students from colleges around the state and Hampton University in Virginia. Participants in past programs include: nine students currently attending medical school (15 percent), one student attending physician assistant school, one student enrolled in a clinical psychology program, and one student in a graduate biomedical sciences program. In addition to the academy, staff make regular visits to West Virginia colleges and universities to ensure that faculty advisors and students receive up-to-date information on changes in medical education.



Support the involvement of rural areas of the state in the health education process.

Coalfield Health Center in Chapmanville, Logan County acts as a teaching hub that uses technological and human resources to work on chronic healthcare problems in the southern region, while implementing educational objectives and research activities. Coalfield Health Center providers and staff conduct outreach for students interested in healthcare careers at area high schools. One of the Rural Health Scholars who recently completed a family medicine residency at Marshall University began practicing at Coalfield to help expand local services. Allied health students, medical students, and students from local colleges routinely participate in rural rotations and shadowing opportunities.

Increase the retention rate of healthcare providers in rural areas.

Residency sign-on incentive: Five of the 12 RHI program graduates from the graduating class of 2016 each received a \$5,000 sign-on incentive for acceptance into primary care residencies at: Marshall University, Huntington; Greenbrier Valley Medical Center, Ronceverte; AccessHealth Teaching Health Center, Beckley; West Virginia University, Harpers Ferry; and Bluefield Regional Medical Center, Bluefield.

Mentor program: The mentorship program goals for RHI students include:

- ▶ Participation in rotations that will enhance rural primary care training;
- ▶ Reinforcement of the students' interest in rural primary care through mentor interactions; and,
- ▶ A linkage to the quality of life offered by rural communities.

During FY 2016, all 44 of the students participating in the RHI program received a rural practitioner mentor who contacted the student by email, text/phone or in person. Mentors submit report forms monthly to document their interactions with the students and track students' continuing interest in rural primary care.

Six RHI mentors who are also WVSOM alumni and five residents who graduated from the WVSOM RHI program participated in a mentor and resident focus group on January 30, 2016. This focus group meeting was held to identify issues affecting the residents' decision whether to practice in West Virginia upon completion of residency. Future plans are to develop a focus group session for residents in out-of-state residency programs to identify opportunities/barriers regarding their interest to return to West Virginia to practice.

Develop pipeline programs to enhance student interest in rural healthcare careers.

High school pipeline: The WVSOM RHI coordinator, along with the admissions and recruitment offices, SWC assistant deans and directors and the anatomy lab, conducted pipeline activities for 2,399 high school students to introduce them to rural medicine opportunities in West Virginia.

Green Coat programs: The WVSOM Green Coat program provides undergraduate students who are interested in medical school and/or a healthcare profession an opportunity to gain exposure to clinical responsibilities in a hospital environment. To be selected for the program, a student must have at least a 3.0 GPA and be majoring in a health-related field.

The third cohort of University of Charleston students completed the program at Charleston Area Medical Center in Kanawha County on December 16, 2015 (two students) and May 4, 2016 (two students).

An initial cohort of students from Davis & Elkins College completed the WVSOM RHI Green Coat program at Davis Medical Center in Randolph County on December 16, 2015 (two students) and May 1, 2016 (two students).

Support the involvement of rural areas of the state in the health education process.

Community outreach: Sixteen community events were held in which WVSOM students and rural adjunct faculty provided healthy lifestyle and chronic disease information to rural West Virginians. Events included: a high school health fair at Montcalm High School in Mercer County and a community health fair at Summersville Armory in Nicholas County.

RHI industry activities: Rural Health Initiative activities seek to acquaint RHI students with statewide industries to understand environmental exposures that could cause injury or disease to rural patients. Five RHI industry activities occurred during FY 2016 including:

- ▶ Timber and logging industry, Greenbrier County on September 28, 2015
- ▶ Coal mining industry, Beaver, Raleigh County on December 1, 2015
- ▶ Underground mine tour, Raleigh County on December 2, 2015
- ▶ Rural workforce day, Charleston, Kanawha County on February 28, 2016
- ▶ Memorial Tunnel, Charleston, Kanawha County on April 28, 2016



West Virginia University Health Sciences Center

Increase the recruitment of healthcare providers to rural areas.

Support for students with rural health interests: In state Fiscal Year 2016 (FY 2016), West Virginia University (WVU) awarded substantial scholarships to four medical students and two dental students in exchange for their commitment to practice in an underserved area of the state. The two dental students graduated in May and have begun practice in Mingo and Morgan counties. Additionally, WVU supplemented a stipend provided by Camden on Gauley Medical Center, a federally qualified health center (FQHC) based in Webster County, to two third-year family medicine residents. These two residents began practice in Webster County in July 2016. These scholarship and stipend recipients will be tracked over the next several years to assess recruitment and retention efforts.

State Fiscal Year 2016 was the fifth year of the Rural Track Program in the WVU Department of Family Medicine. Rural Track students spend three to four weeks at a rural site the summer before medical school and the summer between their first and second year. Additionally, they spend 12 weeks in a rural community in their third year and eight weeks in their fourth year of medical school. In the spring of 2016, the Department of Family Medicine signed on five additional Rural Track students, and in the summer of 2016 signed on six additional Rural Track students for a total of 31 WVU medical students currently enrolled in the Rural Track Program. Three Rural Track students graduated in May 2016. Seven upcoming first- and second-year Rural Track students received stipends for completing summer rotations in Barbour, Hampshire, Harrison, Jefferson, Pocahontas, Raleigh and Randolph counties. Seven additional stipends were awarded to first- and second-year medical students who completed summer rotations with a family medicine physician in Grant, Greenbrier, Jackson, Jefferson, Mineral, Nicholas and Pendleton counties.

PARTICIPATION IN COMMUNITY-BASED CLINICAL ACTIVITIES, 7/1/15 TO 6/30/16

School or program	Number of students/residents participating in WV community-based rotations*	Number of students/residents participating in WV rural** rotations	Number of student/resident-weeks*** at WV rural** sites	Number of student/resident-weeks*** in a primary care or dental HPSA in WV****	Number of rural or community-based adjunct faculty serving as preceptors between 7/1/15 - 6/30/16
Dental	53	38	228	94	46
Dental hygiene	24	14	28	28	
Family medicine residents	8	8	29	26	119
Medicine	201	142	491	331	
Nursing	135	50	260	-	67
Nurse practitioner	22	17	147	63	82
Laboratory sciences*****	11	3	12	-	5
Pharmacy	203	144	1,002	-	114
Physical therapy	46	35	280	-	41
Public health (MPH)	24	4	21	-	29
Total	727	455	2,498	542	503

* "Community-based" for medical students is a location outside of Morgantown, Huntington or Charleston. Community-based for all other disciplines is outside of the WVU Physicians Office Center, Ruby Memorial Hospital and the Health Sciences Center.

** Rural is defined as sites that have a Rural Urban Commuting Area code of 4.0 or higher.

*** All weeks are the equivalent of 40 hour weeks.

**** HPSA is a health professional shortage area. Numbers of dental and dental hygiene student-weeks are the number of weeks in a dental HPSA, and numbers of resident, medical and nurse practitioner student-weeks are the numbers of weeks in a primary care medical HPSA.

***** Medical laboratory science and pathologists' assistant students.

Housing for students on rotations: West Virginia University has been the recipient of a federal Area Health Education Center (AHEC) grant since 2000. Since June 2012, WVU has maintained contracts with the five West Virginia AHECs for services that include the management of 17 houses across the state used by students from WVU and other educational institutions while on their clinical rotations in rural or underserved areas. During FY 2016, the AHECs scheduled 1,002 weeks of student housing in rural or underserved areas.

Increase the retention rate of healthcare providers in rural areas.

Honoraria and services for community-based preceptors: Efforts to keep quality rural medical preceptors involved in teaching and mentoring have been vital. West Virginia University has affiliation agreements with 253 rural medical facilities and/or physicians to train students. Those physicians who precept medical students who are fulfilling their rural or community-based requirement are eligible for an honorarium payment, and all preceptors receive online access to WVU libraries. In FY 2016, 11 preceptors chose to donate their honoraria to a scholarship fund for students who intend to practice in underserved areas of the state. These preceptors collectively donated \$21,000 to the fund.

Uncompensated care provided by dental and dental hygiene students: Dental students help to reduce the demand for dental services by providing uncompensated care while they are on their community-based rotation. During FY 2016, dental and dental hygiene students provided \$5,498,719 in uncompensated care while on community-based or rural rotations. These students performed over 14,996 procedures on 8,018 patients. In FY 2016, 100 percent of dental student community-based weeks and 70 percent of dental hygiene community-based weeks were in a rural area or a dental health professional shortage area.

Continuing education for rural providers: The WVU contract with the five AHECs provided support for continuing education (CE) programs. Twenty-nine CE events were offered and were attended by 695 people, 463 of whom were from a rural workplace. Of these 29 events, 22 were held in rural locations.

Develop pipeline programs to enhance student interest in rural healthcare careers.

West Virginia University Rural Health Day provided 80 pre-health students from 11 different colleges and universities in West Virginia, Pennsylvania and Maryland the opportunity to interact with practicing rural physicians and participate in hands-on workshops to enhance interest in practicing medicine in a rural area of West Virginia.

West Virginia University provided support for field trips for 51 Health Sciences and Technology Academy (HSTA) clubs comprised of 301 disadvantaged and minority high school students. In addition, WVU contracted with the five AHECs to provide pipeline programs in their regions. Some of these programs included:

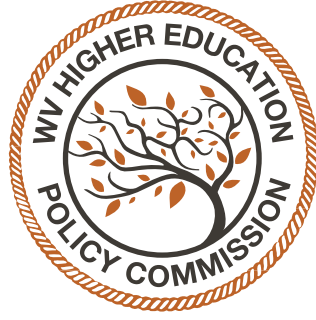
- ▶ 120-hour shadowing program for nine high school students at a FQHC in Calhoun County (Northern WV AHEC).
- ▶ Eleven health career presentations serving a total of 1,000 middle and high school students were organized by four of the five AHECs (Central Counties AHEC, Eastern AHEC, SE AHEC, Southern WV AHEC).
- ▶ Two high school health career clubs in Berkeley and Grant counties provided 20-25 hours of programming for a total of 68 students (Eastern AHEC).
- ▶ A health career day in Randolph County for 239 high school students from five rural counties (Northern WV AHEC).
- ▶ Co-sponsorship of a medical career program for 64 Health Occupations Students of America (HOSA) and HSTA students from Greenbrier, Fayette and Raleigh County high schools held at the West Virginia School of Osteopathic Medicine that offered exposure to anatomy and robotic simulator labs, a HealthNet helicopter, and multiple health career presentations (SE AHEC).

Support the involvement of rural areas of the state in the health education process.

Interprofessional learning opportunities for students: The development of interprofessional team-building skills by rural healthcare professionals assists in effectively managing a heavy workload and providing high-quality care. West Virginia University contracted with three of the five AHECs to coordinate interprofessional team experiences for students at rural sites or FQHCs. Forty-seven interprofessional team meetings were held with participation by 39 students from eight disciplines to address a variety of topics including Hepatitis C, immunization, addiction, diabetes, teen pregnancy prevention, and pneumonia.

The interprofessional student rural health interest group held eight meetings where students discussed topics that impact rural health care and delivery in the state. Additionally, students who participated in the student-led service group Project R.E.A.C.H (Rural Education Alliance for Community Health) provided health education, screening and outreach services at seven different events to more than 700 primarily rural West Virginians in five counties (Berkeley, Fayette, Jackson, Monongalia and Preston). In October 2016, three student leaders of Project R.E.A.C.H. received the West Virginia Rural Health Association's Outstanding Rural Health Students of the Year award.





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