

2020 WEST VIRGINIA

HEALTH SCIENCES

AND RURAL HEALTH REPORT



WEST VIRGINIA HIGHER EDUCATION POLICY COMMISSION

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About the

DIVISION OF HEALTH SCIENCES

The Division of Health Sciences at the Higher Education Policy Commission leads by leveraging expertise, fostering collaboration, and supporting innovation to improve the health of West Virginians, particularly rural and underserved populations. Our initiatives grow and strengthen the healthcare workforce of the future through promoting equitable access to health sciences and behavioral sciences education and support of research, practice, and policy. The Division coordinates health sciences programs, particularly those involving the state's three academic health centers at Marshall University, the West Virginia School of Osteopathic Medicine, and West Virginia University. The Division collaborates with stakeholders around key topics in the state's healthcare landscape. Current topics include behavioral health workforce development, graduate medical education, mapping primary care and behavioral health access, and community based clinical research. The Division also oversees the Rural Health Initiative, a statewide program directed at improving the recruitment and retention of healthcare providers to rural areas of the state. In addition, the Division administers the Health Sciences Service Program, the Choose WV practice program, and the new Mental Health Loan Repayment Program to begin in 2021. During 2020, the Division played a key role in supporting the response of colleges and universities to COVID-19.

EXECUTIVE SUMMARY

West Virginia's three state-funded medical schools enroll more medical students per capita than any other state in the country. 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. In the academic year 2019-2020, 44 percent of the 392 medical students who enrolled in the first year classes of the state's three medical schools were West Virginia residents. (Pages 2-8)

In-state tuition at West Virginia medical schools is among the most affordable in the nation. In addition to affordability, all three schools continue to well prepare students to succeed as practitioners and report licensure exam passage rates at over 90 percent for the last five years. (Page 10)

Retaining medical school graduates in the state for their residencies is one of the most proven strategies for eventually recruiting them to practice in the state. The Commission and the three medical schools all offer programs to incentivize the state's medical students, particularly those students interested in primary care and rural practice, to complete their residency training in West Virginia. Among all 2020 medical school graduates in West Virginia, 52 percent chose to do primary care residencies. (Pages 13-17)

In recent years, West Virginia higher education institutions have expanded the number of health professions programs offered. West Virginia has experienced growth in social work, pharmacy, and physical therapy. It is hoped that graduates of these programs will assist in better addressing healthcare needs of the state's rural and underserved communities. (Pages 20-21)

The Commission administers three financial aid programs for students in health professions. These programs help to keep healthcare practitioners in West Virginia by providing incentives. Since its inception in 1995, the Health Sciences Service Program has had 208 participants complete the service program. The Medical Student Loan Program provides each year to the state's medical students. The newest program, the Choose WV Practice Program, was begun in 2019-2020. This program provides a tuition waiver to non resident West Virginia Medical Students who agree to remain in WV to practice in an underserved area of the state. Six awards, two to students at each of the state's three medical schools received the award in 2019-2020. (Page 18-19)

West Virginia medical school graduates select primary care residencies at a rate similar to the national average. Many of these graduates remain in state to practice, however, a maldistribution of primary care physicians persists. The Commission and the medical schools, through the Rural Health Initiative and other programs, develop innovative models and engage underserved communities to help redistribute the primary care physician workforce. (Pages 22-28)

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 exist, 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. In 2015, the Association of American Medical Colleges redesigned the MCAT®. As a result, Some West Virginia medical schools still accept scores from either the new and old versions of the MCAT®. The new MCAT® consists of four multiple choice sections each worth between 118 and 132 points (Biological and Biochemical Foundations of Living Systems, Chemical and Physical Foundations of Biological Systems, Psychological, Social, and Biological Foundations of Behavior, and Critical Analysis and Reasoning Skills). The old version of the MCAT® consisted of three multiple choice sections each worth 15 points (physical sciences, verbal reasoning, and biological sciences) and a writing sample.

The new national combined mean MCAT® score for students entering allopathic medical schools during the 2019-2020 academic year was 511.5. For students entering osteopathic medical schools, the score was 503.08 in 2018-2019; data for the class entering osteopathic medical schools nationally was not available at the time of this report. National performance data on the old MCAT® for students entering medical schools is no longer reported.

For the 2019-2020 academic year, the national mean grade point average (GPA) for students matriculating to allopathic medical schools was 3.73, and national data for students matriculating to osteopathic medical schools was not available as of the time of this report (Association of American Medical Colleges and American Association of Colleges of Osteopathic Medicine).

Marshall University Joan C. Edwards School of Medicine



ENTERING CLASS ADMISSION RATE

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
In-State					
Acceptances/Applicants	88/190	88/189	81/160	98/207	73/165
Admission Rate	46%	47%	51%	47%	44%
Out-of-State					
Acceptances / Applicants	29/2,015	27/1,807	44/1,800	17/1,575	51/1,655
Admission Rate	1%	1%	2%	1%	3%
Total Acceptances / Applicants	117/2,205	115/1,996	125/1,960	115/1,782	124/1,820
Total Admission Rate	5%	6%	6%	6%	7%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
Mean GPA	3.65	3.70	3.60	3.60	3.60
Mean MCAT [®] (Old Version)	-	-	30.0	28.8	28.7
Mean MCAT [®] (New Version)	502.0	504.0	503.0	501.0	-

ACADEMIC YEAR DATA

		2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
First Year New Enrollment	In-State	63	62	49	73	53
	Out-of-State	17	17	26	10	29
	Total	80	79	75	83	82
Total Graduates		79	61	68	73	62
Total Medical Students		335	340	305	304	315
Tuition and Fees	In-State	\$23,904	\$23,904	\$22,154	\$21,104	\$20,806
	Out-of-State	\$56,888	\$54,772	\$52,542	\$50,074	\$47,676

West Virginia School of Osteopathic Medicine



ENTERING CLASS ADMISSION RATE

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
In-State					
Acceptances/Applicants	57/131	62/126	52/121	66/148	67/146
Admission Rate	44%	50%	43%	45%	46%
Out-of-State					
Acceptances / Applicants	374/5,081	378/4,591	391/4,581	401/4,703	416/4,988
Admission Rate	7%	8%	9%	9%	8%
Total Acceptances / Applicants	431/5,212	440/4,717	443/4,702	467/4,851	483/5,134
Total Admission Rate	8%	9%	9%	10%	9%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
Mean GPA	3.59	3.55	3.51	3.52	3.51
Mean MCAT [®] (Old Version)	24.7	20.6	23.5	23.3	24.8
Mean MCAT [®] (New Version)	500.8	499.6	498.3	496.8	-

ACADEMIC YEAR DATA

		2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
First Year New Enrollment	In-State	42	43	46	52	52
	Out-of-State	158	158	158	160	158
	Total	200	201	204	212	210
Total Graduates		194	208	192	182	187
Total Medical Students		809	841	849	847	827
Tuition and Fees	In-State	\$21,472	\$21,472	\$21,472	\$20,950	\$20,950
	Out-of-State	\$52,710	\$52,710	\$52,710	\$50,950	\$50,950

West Virginia University School of Medicine



ENTERING CLASS ADMISSION RATE

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
In-State					
Acceptances/Applicants	79/208	88/226	77/182	64/227	72/166
Admission Rate	38%	39%	42%	28%	43%
Out-of-State					
Acceptances / Applicants	78/5,356	74/5,062	89/4,370	112/4,623	92/3,885
Admission Rate	1%	1%	2%	2%	2%
Total Acceptances / Applicants	157/5,356	162/5,288	166/4,552	176/4,850	164/4,051
Total Admission Rate	3%	3%	4%	4%	4%

ENTERING CLASS ACADEMIC QUALIFICATIONS

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
Mean GPA	3.8	3.86	3.80	3.72	3.78
Mean MCAT [®] (Old Version)	-	-	-	29.0	29.0
Mean MCAT [®] (New Version)	509.0	508.0	507.0	507.0	-

ACADEMIC YEAR DATA

		2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
First Year New Enrollment	In-State	67	73	66	55	63
	Out-of-State	45	39	46	55	47
	Total	112	112	112	110	110
Total Graduates		101	93	100	106	93
Total Medical Students		446	432	427	441	428
Tuition and Fees	In-State	\$32,643	\$32,373	\$31,023	\$30,348	\$29,295
	Out-of-State	\$64,152	\$63,342	\$60,642	\$58,914	\$56,673

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 normally 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 2017 is 97 percent.

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

	2017	2016	2015	2014	2013
Marshall University	66/69	59/59	53/58	64/65	67/68
	96%	100%	91%	98%	99%
West Virginia University	99/101	89/90	94/99	77/78	94/95
	98%	99%	95%	99%	99%

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, STEP 3 GRADUATING CLASS

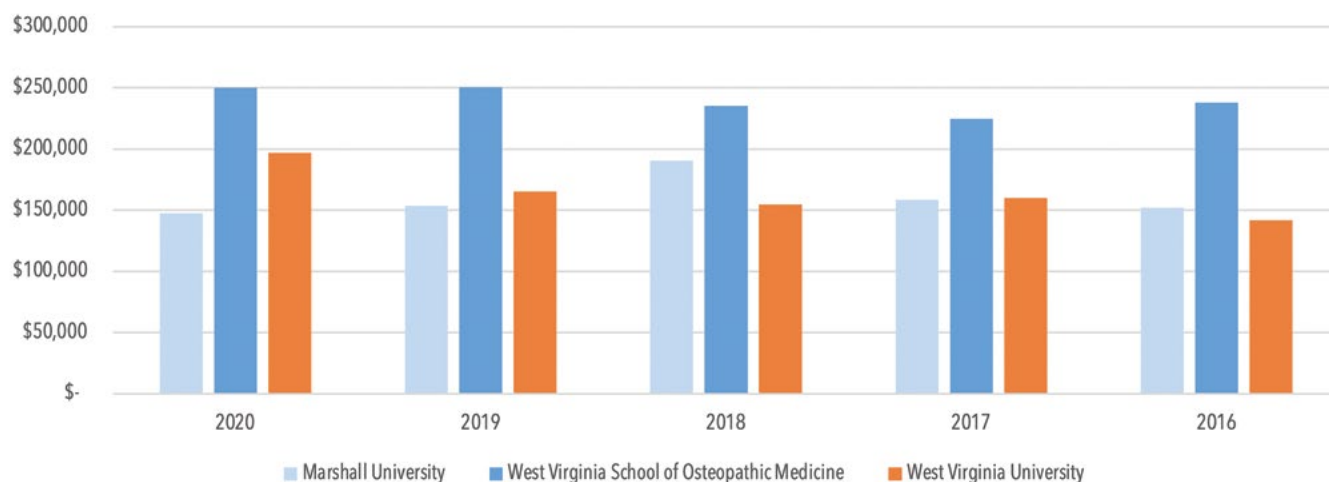
	2017	2016	2015	2014	2013
West Virginia School of Osteopathic Medicine	168/178	169/181	189/200	175/183	190/194
	94%	93%	95%	96%	98%

MEDICAL SCHOOL 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 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
2020	\$149,691	\$253,341	\$201,334
2019	\$158,731	\$240,727	\$197,999
2018	\$147,414	\$249,870	\$196,694
2017	\$153,435	\$250,378	\$165,289
2016	\$190,345	\$235,108	\$154,789



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 funder of residency programs nationwide. In West Virginia, the Bureau for Medical Services (Medicaid) and the Public Employees Insurance Agency also provide funding for residency training.

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. Previously, there was an allopathic matching program and an osteopathic matching program. In 2020, the “Single Match” represents the first time that all allopathic and osteopathic applicants participated in one matching program. The Single Match comes after the creation of a single accreditation system forged by the Accreditation Council for Graduate Medical Education (ACGME), the American Osteopathic Association (AOA), and the American Association of Colleges of Osteopathic Medicine. In 2014, those organizations approved an agreement to recognize the ACGME as the primary accrediting body for graduate medical education programs by 2020. As part of that transition, the AOA Match ended in 2019 (National Resident Matching Program). Across West Virginia, 50 different residency programs exist. Although many of these programs are for primary care specialties such as family medicine and pediatrics, training programs for other critical non-primary care specialties are offered that help ensure West Virginia has providers practicing critical specialties such as dermatology, anesthesiology, psychiatry, ophthalmology, and surgery.

WEST VIRGINIA RESIDENCY PROGRAMS

Sponsoring Institution	Primary Site	City	Specialty	Filled Residency
Mountain State Osteopathic Postdoctoral Training Institution	Access Health Teaching Health Center	Beckley	Family Medicine	12
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Emergency Medicine	18
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Urological Surgery	10
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Family Medicine	21
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Internal Medicine Categorical	27
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Internal Medicine Preliminary	6
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Internal Medicine/Psychiatry	10
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Obstetrics and Gynecology	12
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Pediatrics	19
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Psychiatry	15
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Surgery Categorical	20
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Surgery Preliminary	1
Charleston Area Medical Center	Charleston Area Medical Center	Charleston	Vascular Surgery Integrated	5
Mountain State Osteopathic Postdoctoral Training Institution	Greenbrier Valley Med Center	Ronceverte	Family Medicine	12
Mountain State Osteopathic Postdoctoral Training Institution	Greenbrier Valley Med Center	Ronceverte	Osteopathic Neuromusculoskeletal Medicine	9
Marshall University	Cabell Huntington Hospital	Huntington	Family Medicine	25
Marshall University	Cabell Huntington Hospital	Huntington	Internal Medicine	65
Marshall University	Cabell Huntington Hospital	Huntington	Internal Medicine/Pediatrics	8
Marshall University	Cabell Huntington Hospital	Huntington	Neurology	9
Marshall University	Cabell Huntington Hospital	Huntington	Obstetrics and Gynecology	12
Marshall University	Cabell Huntington Hospital	Huntington	Orthopedic surgery	15

Data was obtained October 2020

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Sponsoring Institution	Primary Site	City	Specialty	Filled Residency
Marshall University	Cabell Huntington Hospital	Huntington	Pediatrics	18
Marshall University	Marshall University/University Physicians and Surgeons Clinics	Huntington	Psychiatry	17
Marshall University	Cabell Huntington Hospital	Huntington	Surgery	24
United Hospital Center	United Hospital Center	Bridgeport	Family Medicine	23
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Anesthesiology	33
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Dermatology	6
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Emergency Medicine	30
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Family Medicine	19
West Virginia University School of Medicine	West Virginia University Rural Family Medicine	Harpers Ferry	Family Medicine	19
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Internal Medicine	75
West Virginia University School of Medicine	Camden Clark Medical Center	Parkersburg	Internal Medicine	18
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Internal Medicine/Pediatrics	16
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Neurological Science (Surgery)	8
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Neurology	25
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Obstetrics and Gynecology	12
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Ophthalmology	12
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Orthopedic surgery	21
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Otolaryngology	11
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Pathology-Anatomic and Clinical	12
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Pediatrics	16
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Plastics - Integrated	5
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Psychiatry	27
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Radiation Oncology	4
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Radiology-Diagnostic	25
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Surgery	27
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Transitional Year	13
West Virginia University School of Medicine	Ruby Memorial Hospital	Morgantown	Urology	8
West Virginia University School of Public Health	WVU School of Public Health	Morgantown	Preventive Medicine - Occupational Medicine	4
West Virginia University School of Public Health	WVU School of Public Health	Morgantown	Preventive Medicine - Public Health/ General Preventive Medicine	1
Wheeling Hospital	Wheeling Hospital	Wheeling	Family Medicine	23

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Key indicators related to residency choice affecting 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.

Graduates of all three West Virginia medical schools typically enter primary care residency programs at a rate at or above the national average for these same programs. Among all three medical schools, 46 percent of 2020 medical school graduates chose a primary care residency. Nationally for the 2020 single match program, 41% of US graduates matched with a primary care residency program (National Resident Matching Program).

Selecting a primary care residency program does not always translate to practicing primary care, particularly in an outpatient setting. For example, individuals entering internal medicine residencies often 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, primary care graduates frequently elect to work as hospitalists in inpatient settings. Thus, some of the graduates reported below ultimately may not practice in an outpatient, primary care setting.

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

	2020	2019	2018	2017	2016
Marshall University	36 (46%)	30 (51%)	38 (58%)	38 (54%)	28 (47%)
West Virginia School of Osteopathic Medicine	117 (60%)	119 (59%)	124 (66%)	119 (66%)	113 (61%)
West Virginia University	51 (50%)	50 (55%)	47 (47%)	54 (51%)	44 (48%)

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.

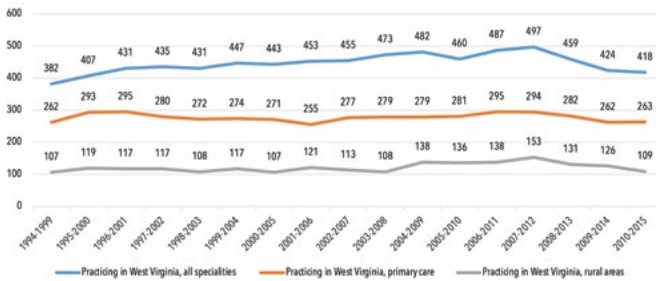
- ▶ Primary care is defined as family medicine, internal medicine, internal medicine/pediatrics, obstetrics/gynecology, and pediatrics.
- ▶ Rural areas include all areas of the state with a 2006 Rural Urban Commuting Area (RUCA) code of 4.0 or higher. These codes classify U.S. Census tracts using measures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

Between 2010 and 2015, 1,956 graduates of the state's three medical schools completed residency training, either in West Virginia or another state, and 21 percent of these graduates (418) are now practicing in West Virginia. Six percent of the graduates (109) in this cohort are practicing in rural West Virginia, and 13 percent (263) are practicing primary care in the state (either in a rural or urban location). 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.

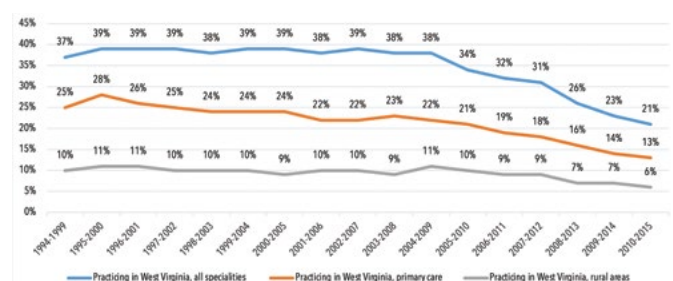
MEDICAL SCHOOL GRADUATES RETAINED, BY INSTITUTION, GRADUATING CLASSES OF 2010–2015

	Total with completed training	Total in practice in West Virginia	Total in primary care in West Virginia	Total in rural areas of West Virginia
Marshall University	390	94 (24%)	64 (16%)	17 (4%)
West Virginia School of Osteopathic Medicine	1037	168 (16%)	122 (12%)	68 (7%)
West Virginia University	529	156 (29%)	77 (15%)	24 (5%)
Total	1,956	418 (21%)	263 (13%)	109 (6%)

NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1994–2015

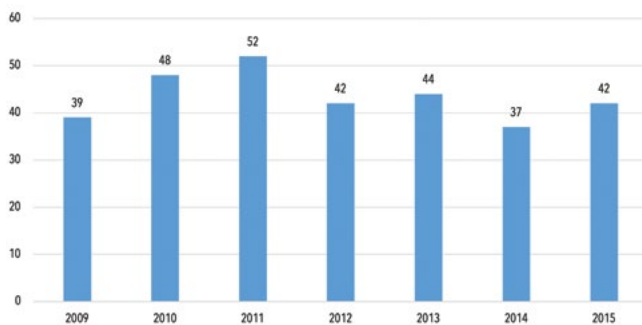


PERCENTAGE OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1994–2015

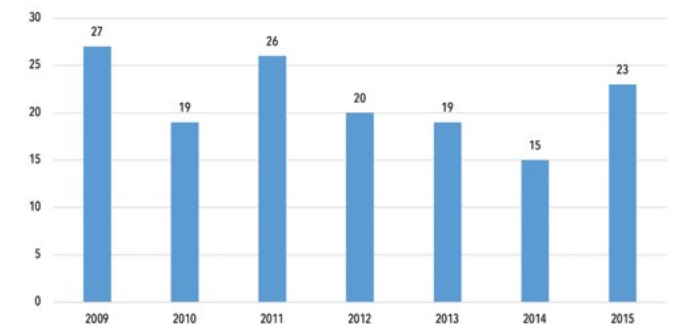


NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES PRACTICING PRIMARY CARE OR IN RURAL AREAS, BY GRADUATING CLASS

Practicing Primary Care in West Virginia



Practicing in Rural Areas of West Virginia



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 who practice primary care and/or in rural areas is crucial to ensuring communities across the state have access to health 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. 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 2010 who are practicing in these counties. Thus, a zero listed in any 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 2010–2015

County	Number in Practice	Number Practicing in Rural Areas	Number Practicing in Primary Care
Barbour	1	1	0
Berkeley	18	0	13
Boone	4	4	3
Braxton	1	1	1
Brooke*	1	1	0
Cabell*	56	0	35
Calhoun	0	0	0
Clay	2	2	2
Doddridge	1	1	1
Fayette	5	1	4
Gilmer	0	0	0
Grant	3	3	3
Greenbrier	23	23	21
Hampshire	0	0	0
Hancock	2	0	2
Hardy	0	0	0
Harrison	18	18	11
Jackson	2	2	1
Jefferson	4	4	4
Kanawha*	68	1	36
Lewis	4	4	3
Lincoln	0	0	0
Logan	2	2	2
Marion	4	4	4

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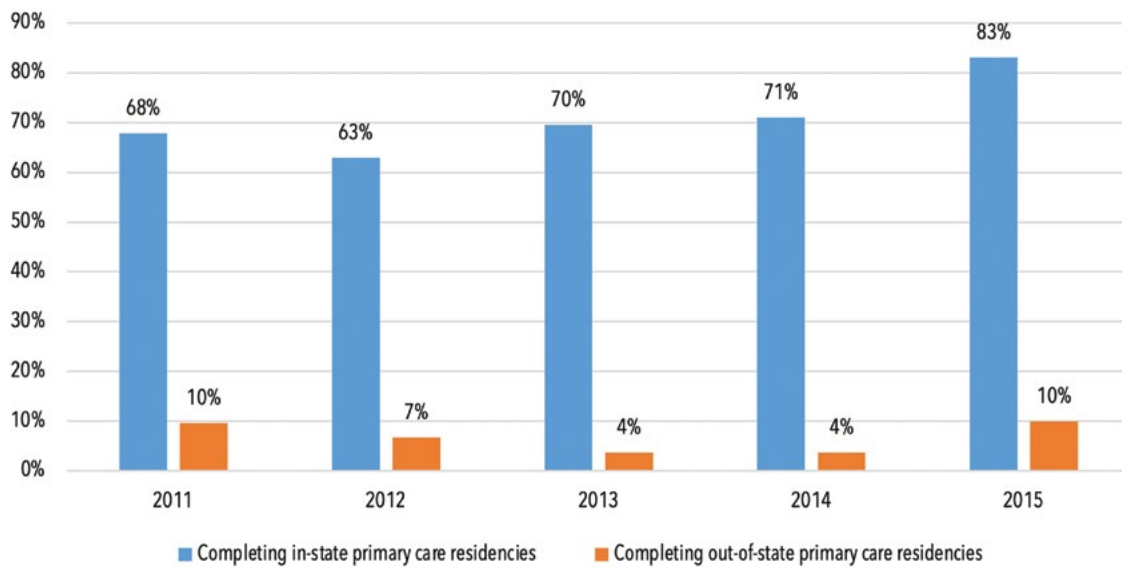
County	Number in Practice	Number Practicing in Rural Areas	Number Practicing in Primary Care
Marshall *	2	0	2
Mason	6	6	6
McDowell	2	2	2
Mercer	9	9	7
Mineral	1	1	1
Mingo	0	0	0
Monongalia*	121	1	53
Monroe	0	0	0
Morgan	0	0	0
Nicholas	1	1	1
Ohio*	7	0	5
Pendleton	0	0	0
Pleasants	0	0	0
Pocahontas	2	2	2
Preston	3	3	3
Putnam*	8	1	5
Raleigh	13	0	11
Randolph	0	0	0
Ritchie	0	0	0
Roane	0	0	0
Summers	0	0	0
Taylor	1	1	1
Tucker	0	0	0
Tyler	1	1	0
Upshur	3	3	2
Wayne	4	2	4
Webster	3	3	2
Wetzel	1	1	0
Wirt	1	1	1
Wood*	10	0	7
Wyoming	1	1	1
Total	419	111	149

* 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.

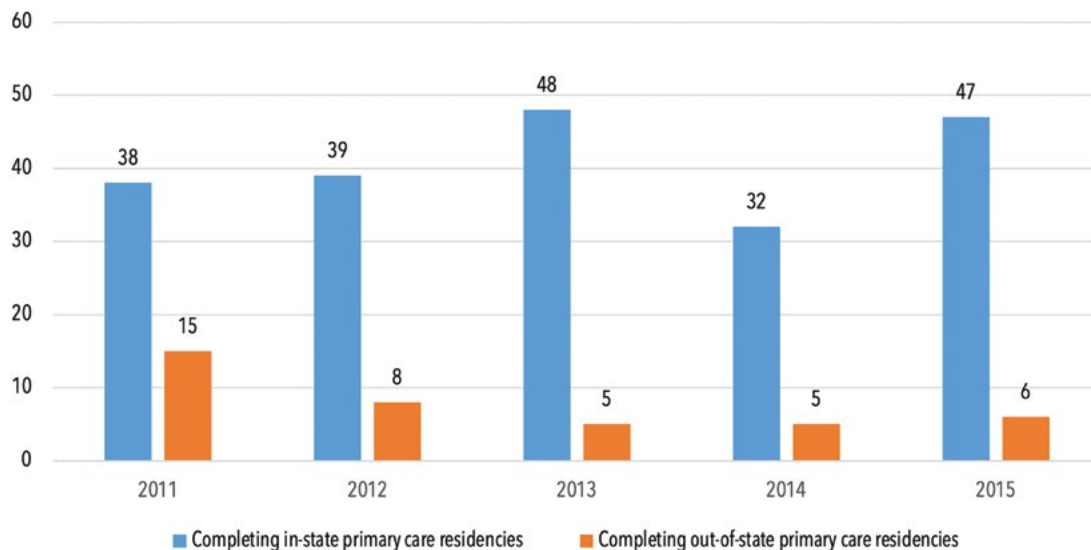
Retention of West Virginia Medical School Graduates Completing Primary Care Residencies

The location of a medical school graduate's residency program frequently predicts whether that graduate will practice in West Virginia. For the 2015 graduates of West Virginia medical schools, 181 graduates went on to complete primary care residency programs. Upon completing residency, 74% of those who completed in-state primary care residencies were retained in West Virginia to practice, while only 4% of graduates who completed out-of-state primary care residencies returned to West Virginia to practice.

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



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



LOANS AND INCENTIVES

Health Sciences Service Program

The Health Sciences Service Program is a state-funded incentive program and is administered by the 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 psychology, licensed independent clinical social work, nursing education, nurse practitioner, physical therapy, pharmacy, and physician assistant trainees receive a \$15,000 award.

Since 1995, 208 participants have completed their service obligation. In the 2019-2020 academic year, 15 awards totaling \$345,000 were offered to:

- ▶ 6 medical students
- ▶ 2 dental students
- ▶ 2 physical therapy students
- ▶ 1 clinical psychology student
- ▶ 3 nurse practitioner students
- ▶ 1 clinical social work 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

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
Loans awarded in Fiscal Year	242	246	240	247	247
Total amount awarded	\$1,801,000	\$1,732,612	\$1,830,125	\$1,424,846	\$1,404,300
Amount of unexpended funds*	\$2,760,525	\$2,628,242	\$2,643,084	\$2,535,240	\$1,991,422
Loan postponement**	11	16	35	12	23
Loan forgiveness***	300	300	255	33	49
Default rate on previous awards	7.97%	7.17%	7.16%	2.50%	2.50%

* 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, 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.

Choose WV Practice Program

The Choose WV Practice Program is a state funded incentive program administered by the Commission. The program provides a tuition waiver to non-resident WV medical students who agree to remain in WV to practice in an underserved area of the state upon completion of their education and training. Two students from each WV medical school are eligible to be awarded each academic year and receive a tuition waiver for the difference between in-state and out of state tuition (approximately \$30,000). The first awards were provided in 2019-2020.

CHOOSE WV PRACTICE PROGRAM 2019-2020

	Marshall University	West Virginia School of Osteopathic Medicine	West Virginia University
Number of Awards	2	2	2
Amount Awarded	\$65,362	\$62,476	\$63,018

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:

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

Overall responsibility for the RHI Program rests with 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 FY 2020, each academic health center received \$587,000.

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 2020 include:

- ▶ WVU Department of Geography-Expansion of the Healthlink project, a geo-mapping system to identify rural health, behavioral health, pharmacy, and COVID testing sites and travel time for the population across WV.
- ▶ West Virginia Rural Health Association – support for the 27th Annual West Virginia Rural Health Conference.
- ▶ West Virginia University School of Public Health – Provision of a contact tracing course with associated continuing education credits to health care professionals across WV to prepare them to assist in the COVID-19 contact tracing efforts by the local health departments in WV.

The following pages contain a profile of the statewide student housing system for clinical rotations and program overviews for each of the academic health center's RHI activities during FY 2020.

Statewide Housing System

The RHI statewide housing system for health sciences students has allowed students to complete clinical rotations away from the main campus and immerse themselves in a rural or underserved community. The housing is open to all health sciences students, but in FY 2019, the housing was most frequently used by medical, dental, occupational therapy, pharmacy, and physical therapy students. The typical length of stay for students utilizing housing is about four weeks.

The 17 housing locations are primarily leased houses or apartments, which are property managed by West Virginia University. Housing locations are identified based on demand for clinical rotations in certain geographic areas, as well as the ability to secure the appropriate type of rental property. The operating costs of the program are supported through the Commission's RHI funding and a \$150/week fee paid by students utilizing the housing. Often, the cost of housing is covered by the student's institution.

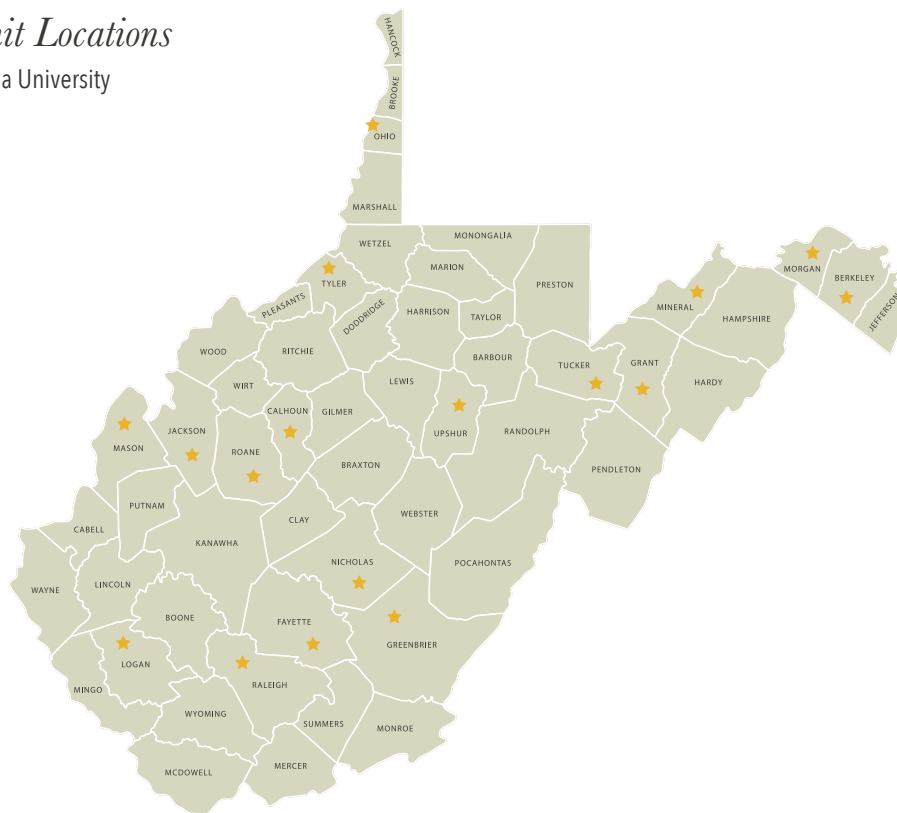
Students enrolled in training programs in West Virginia receive priority for housing. Students from out-of-state programs are accommodated based on availability. In FY 2020, students from the following institutions utilized housing: Marshall University, University of Charleston, West Virginia School of Osteopathic Medicine, West Virginia University, Wheeling Jesuit University, Shenandoah University (VA), University of Pittsburgh (PA), and Spalding University (KY).



Housing is provided across West Virginia where health sciences students from varied disciplines, which includes, dentistry, medicine, occupational therapy, pharmacy and physical therapy, complete community-based rotations. Students utilizing housing were from both in-state and out of state universities: Marshall University, University of Charleston, West Virginia School of Osteopathic Medicine, West Virginia University, Wheeling Jesuit University, Spalding University in Kentucky, University of Pittsburgh in Pennsylvania and Shenandoah University in Virginia.

17 Housing Unit Locations

Managed by West Virginia University



Marshall University Joan C. Edwards School of Medicine

Marshall University Joan C. Edwards School of Medicine (Marshall) 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 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 and underserved areas.

Rural Family Medicine Scholars Track Program: A fourth year medical student program for those interested in rural health care and remaining in the state for their residency. Fourth year electives are spent in Family Medicine with a focus on rural issues. Activities include case studies, research projects, rotations, and opportunities to work with underserved populations.

Rural Research Grants: The Robert C. Byrd Center for Rural Health provides resources for community-based research. During the 2019-20 academic year, the Center for Rural Health provided five grants to medical students, residents, and fellows for rural research projects totaling approximately \$90,000 with topics including:

- ▶ CT head in syncope and near-syncope workup in Emergency Department: A Rural Versus Urban Comparison
- ▶ Using Live Video Feed as a Diagnostic and Educational Tool to Prevent Unnecessary Burn Transfers from WV Rural Emergency Departments
- ▶ Impact of a Supervised, Patient Centered Medical Home, Multidisciplinary, Longitudinal Rural Homebound Visit Program on Patients and Learners
- ▶ Utilization of tele-education to improve emergency treatment of students with asthma and food allergies in rural West Virginia schools
- ▶ Making Connections: Determining a Relationship Between Literacy and Rural Substance Use Disorder Recovery

Health Policy Fellowship: A program for family medicine residents to develop leadership and interest in health policy with an emphasis on rural issues. Offerings include educational forums, activities during the legislative session, and opportunities to attend state/national conferences.

Rural Health Scholars Program For Residents: A program to encourage residents in a rural track to pursue a career in rural medicine. The program requires participation in rural research or community development.

Rural/Underserved Experience Activities For Residents: Marshall's residency programs provide opportunities for Pediatric and Family Medicine residents to participate in rural/underserved experiences and activities. Eighty-nine percent of pediatric residents participated in the rural mobile clinic or other rural activities. Seventy-seven percent of family medicine residents participated in rural continuity care, 15 percent participated in rural obstetrical care and 38 percent participated in underserved women's health care.

Rural Residency Program: Based at Lincoln Primary Care Center in Hamlin and Marshall Family Medicine in Lavalette, this unique residency program allows residents to hold their continuity clinics at rural sites. Since 1994, 25 residents have completed the rural residency program, 14 (over 50 percent) of whom went on to practice in a rural or underserved area.



Increase the retention rate of healthcare providers in rural and underserved areas.

Rural Health Service Program: An incentive program that provides financial assistance to third and fourth-year students committed to rural practice in exchange for a rural practice service obligation upon completion of residency.

Rural Health Fellowship: A year-long training program that allows a newly practicing physician to participate in community-based projects, community-based research, and supports training that will enhance the physician's clinical skills.

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

High School Pipeline Programs: The Center for Rural Health collaborates with multiple organizations to reach rural, minority and underserved students through broad-based initiatives that build awareness and break barriers for college and the pursuit of healthcare careers for high school students. Over 2,100 students from 31 high schools in 18 counties participated in a total of 55 Center for Rural Health high school pipeline events. The programming is evaluated via pre and post testing of students and evaluative surveys of teachers and counselors.

Marshall Bachelor of Science/Doctor of Medicine (BS/MD) Program: A three year program that provides enrichment activities to undergraduates who intend to enter medical school. This past year the program welcomed 10 West Virginia high school students bringing the program total to 28 undergraduate students. The goal is to educate more future physicians who will choose to practice medicine in the state.

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

Coalfield High School Student Outreach: Coalfield Health Center staff participate in events with area high school students in Logan and surrounding counties. Activities include suturing workshops as well as discussions about healthcare careers and medicine.

West Virginia School of Osteopathic Medicine

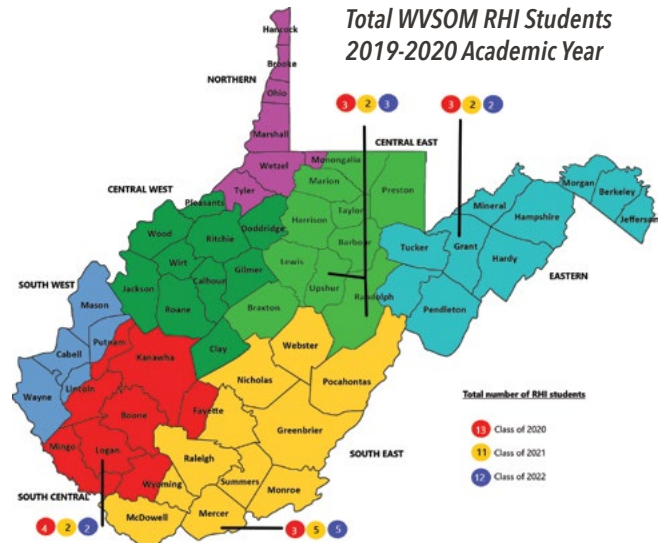
The Rural Health Initiative (RHI) mission is to enhance the rural primary care curriculum at the West Virginia School of Osteopathic Medicine (WVSOM) in order to produce graduates uniquely qualified to practice medicine in underserved communities of West Virginia. In addition to offering rural training opportunities to all students, WVSOM operates an intensive RHI program, which provides special training and enrichment opportunities to its students who express the strongest interest in rural practice.

Increase the recruitment of healthcare providers to rural areas.

RHI Rural Practice Day 2020: West Virginia School of Osteopathic Medicine hosted its 9th annual Rural Practice Day with WVSOM students, spouses/significant others, faculty/employees, and speakers on its campus on March 6, 2020. The theme for Rural Practice Day 2020 was "Embracing Rural Communities". Future doctors and their significant others heard from partners/spouses of physicians, experienced rural doctors, and current residents on the uniqueness and opportunities rural communities can offer.

RHI Student Rotations: RHI students complete rotations within four different WVSOM Statewide Campus regions. Five different hospitals serve as four RHI base sites in rural/underserved areas. RHI base sites for the 2019-2020 academic year included:

- ▶ Davis Medical Center/St. Joseph's Hospital
- ▶ Grant Memorial Hospital
- ▶ Logan Regional Medical Center
- ▶ Princeton Community Hospital



Rural Physician Service Program: The Rural Physician Service Program is a program that incentivizes WVSOM students to remain in West Virginia to practice. Students selected receive a monetary award in exchange for agreeing to practice in an eligible rural/underserved service site within West Virginia for one year. In addition, students receive enhanced rural health training during medical school through the Rural Health Initiative program. Through the Rural Physician Service Program and the Rural Physician Scholarship Program, \$176,000 was awarded to seven WVSOM medical students during FY 2020.

Increase the retention rate of healthcare providers in rural areas.

Residency Sign-on Incentive: Five of the 11 RHI program graduates from the WVSOM graduating class of 2020 each received a \$6,500 sign-on incentive for acceptance into a primary care or emergency medicine residency within West Virginia. Five graduates accepted primary care residencies (two at Charleston Area Medical Center, Charleston; one at Greenbrier Valley Medical Center, Ronceverte; one at United Hospital Center, Bridgeport; and one graduate at West Virginia University School of Medicine, Morgantown).

Mentor Program: During FY 2020, 45 RHI and RHI pipeline students received a rural practitioner mentor. The mentorship program goals for RHI students include:

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

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

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.

Eight students from the University of Charleston composed the seventh cohort of CAMC Green Coat students. The fifth cohort of Davis Health System Green Coat students was composed of two students from Davis and Elkins College and two students from West Virginia Wesleyan College.

Health Education Resource Library: WVSOM RHI began a new initiative to further community outreach support. The Health Education Resource Library expands upon the health education supplies available to community groups, medical students, and schools through RHI for in-state health education-related events. The Resource Library provides education and demonstration materials geared towards various ages. Examples of topics that demonstration materials address include anti-drug, nutrition, hygiene, and mental health initiatives.

To address concerns related to the current pandemic, the library has resources available to educate on the prevention of the spread of respiratory viruses such as COVID-19. Additionally, items such as handwashing stations and thermometers are available to facilitate proper sanitation and screening at educational events.

High School Pipeline: A week-long neuroscience-themed Just Say KNOW education camp for 29 high school students was held via teleconference from the Lewisburg campus in June. RHI is proud to co-sponsor of the event. Additionally, the RHI Coordinator and RHI Program Specialist, along with WVSOM admissions, AHEC director, and the anatomy lab conducted a tour for 29 GEAR UP students from Pikeview in December.

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

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 2020:

- ▶ Poultry Plant Safety and Tour, Moorefield, on October 18, 2019
- ▶ Coal mining in West Virginia, Beaver, on November 18, 2019
- ▶ Underground mine tour, Eccles, on November 19, 2019
- ▶ Rural Health Workforce Day, Charleston, on February 14, 2020
- ▶ Reversing Degenerative Disease, Lewisburg, on March 6, 2020

West Virginia University Health Sciences Center

Increase the recruitment of healthcare providers to rural areas.

A.H.E.C.: The WV Area Health Education Centers Program (WV AHEC) developed by Congress in 1971, is a program to recruit, train and retain a health professions workforce committed to underserved populations. WV AHEC partners with WVU to manage statewide housing for health professions students and scheduling WVU medical student rotations.

WV AHEC Rural Community Health Scholars: The WV AHEC Rural Community Health Scholars program (RCH Scholars) provides supplemental and interprofessional educational experiences for health professions students interested in practicing in rural and/or medically underserved communities. To date, RCH Scholars has graduated 33 Scholars (June 2020), has 66 Scholars in training (graduation date: June 2021), and will accept up to 75 Scholars this year (anticipated graduation, June 2022).

Rural Track: The WVU Rural Track Program's goal is to increase the number of primary care physicians who enter and remain in practice in rural West Virginia. Rural Track students are exposed to more time in rural areas during their primary clerkship and in their fourth year of medical school.

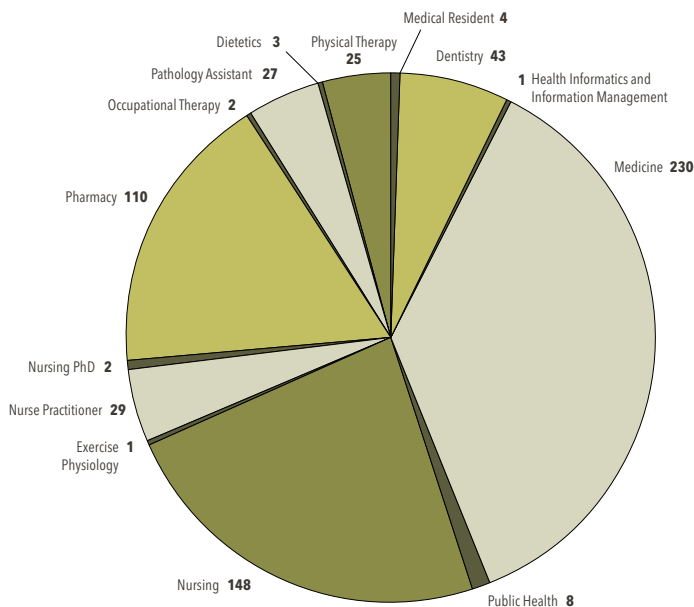
Rural Immersions: In-depth experiences for health professions students, which allow them to learn about community health and disease processes while immersed in a rural community. In FY20, students participated in six immersions focused on nutrition, rural outdoor rescue, chronic disease prevention, trauma informed care, social determinants of health and addressing the opioid epidemic.

R.H.I.G.: The Rural Health Interest Group is a student-led group of health professions students of different disciplines who learn about rural health issues through guest speakers and activities. In FY-20, three meetings were held instead of the usual six due to the COVID-19 pandemic. Topics covered included the drug crisis in West Virginia, smoking cessation, addiction and customized treatment and the similarities between rural medicine and global medicine. Students also participated in a service-learning project by organizing a food drive for the food banks in Clay and Mullens, WV.

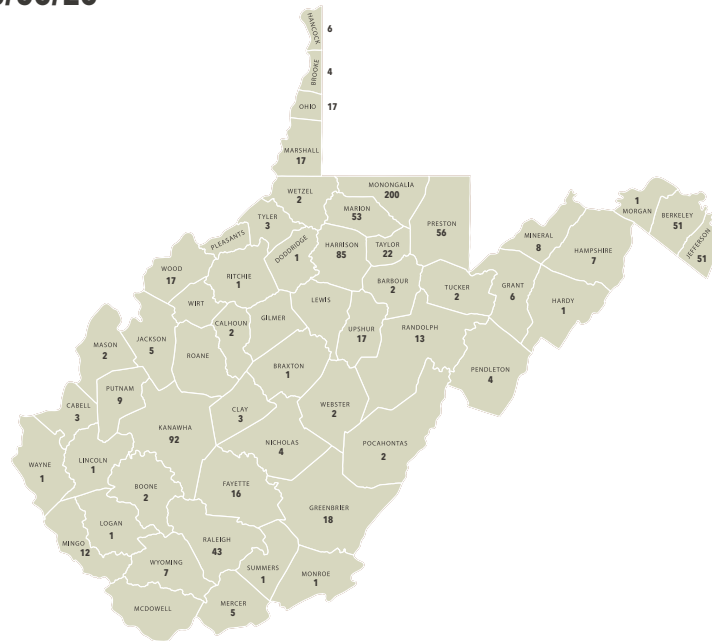
WVU: collaborated with WV AHEC to coordinate seven interprofessional team meetings that included students from medicine, nursing and pharmacy. Students addressed a variety of issues including, access to health care, seasonal affective disorder and substance use research, disorders and recovery.

WVU STUDENT ROTATIONS IN COMMUNITY BASED CLINICAL ACTIVITIES, BY DISCIPLINE

7/1/19 – 6/30/20



NUMBER AND LOCATION OF WVU STUDENT ROTATIONS IN COMMUNITY BASED CLINICAL ACTIVITIES 7/1/19 – 6/30/20



Increase the retention of healthcare providers in rural areas.

WVU partnered with WV AHEC to provide 24 continuing education opportunities for current healthcare professionals. Sixty-seven percent of opportunities took place in rural and/or underserved areas. The partnership also included the participation of 877 current healthcare providers in 127 WV Project ECHO sessions including topics such as Cardiac Health, Chronic Lung Disease, COVID-19, Endocrinology and Nutrition.

Develop pipeline programs to enhance student interest in healthcare activities.

H.S.T.A.: The Health Sciences & Technology Academy is a one-of-a-kind mentoring program in WV that helps participating high school students enter and succeed in STEM-based undergraduate and graduate degree programs. In FY20 WVU collaborated with HSTA to support 32 clubs and 299 students to participate in educational and research activities.

Rural Health Day: An annual event that brings pre-health undergraduate students together to learn more through various speakers and hands-on activities about the medical school application process and health professions career opportunities in rural areas. RHD was planned for April 4, 2020 but was canceled due to the COVID-19 pandemic. The 5th annual RHD is being planned with an online option.

R.U.S.H.: The Rural Undergraduate Shadowing in Healthcare Program is designed to provide pre-medical participants with a unique experience that offers insight into what it is like to practice a health profession in rural WV. Selected students were placed in Calhoun, Jefferson, Pendleton, and Wyoming counties for the 20-hour shadowing program. All four students reported the experience increased their interest in rural health.

MEDICAL AND DENTAL STUDENT SERVICE PROGRAMS AWARDED 2011-2020

\$2 MILLION

WHERE OUR AWARD RECIPIENTS ARE TODAY

23 DENTAL STUDENTS



20 PRACTICING IN WV

20 MEDICAL STUDENTS



5 IN SCHOOL

5 RESIDENCY

7 PRACTICING IN WV

1 ARMED FORCES

WVU Service Program Outcomes: Fifty-five percent of medical student awardees currently have their commitments deferred while completing medical school. Eighty-seven percent of dental student awardees have completed their obligation and 85% are still practicing in West Virginia, 88% of which continue to practice at rural and/or underserved locations. The retention rate for medical and dental providers that complete their obligations and remain in a rural and/or underserved area is 82%.

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

Project R.E.A.C.H.: Project Rural Education Alliance for Community Health is a student-run outreach program that provides education and health information throughout the state. In FY20, students participated in seven health education events that served 384 people from Hampshire, Preston, Greenbrier, Monongalia, and Wyoming counties.

CARRS: Community and Rural Rotations Support Program provides financial support for health professions students interested in rural practice and offers the opportunity to contribute to impacting health outcomes through community-based projects. CARRS also creates a platform for rural community recruitment efforts. In FY20, six students completed CARRS rotations and three were postponed due to the COVID-19 changes. These students are working with ICRH to identify an appropriate rural rotation on their current schedules so the students will still participate in the program and receive the award. From January 1, 2018 to June 30, 2020 there have been 20 CARRS rotations completed by 19 students.

Newsletter: Provides annual updates on WVU health profession students' educational and outreach activities to nearly 800 field faculty across the state.

COVID-19 RESPONSE AT OUR WEST VIRGINIA COLLEGES AND UNIVERSITIES AND HEALTH SCIENCES PROGRAMS

In March 2020, the threat of COVID-19 was recognized. With the declaration of a State of Emergency in West Virginia by Governor Jim Justice and the subsequent stay at home order issued to protect our citizens, West Virginia colleges and universities, and in particular health sciences programs went to work to accomplish four goals:

1. Protect the health of students, faculty, and staff;
2. Support the continued education of students in a safe manner;
3. Provide health care and health care services where needed;
4. Assist in providing PPE and testing for the needs of West Virginians.

These goals were accomplished in a variety of manners. All schools used innovation, evidence, and dedication to their educational goals to guide their actions. While a complete accounting of the strategies used by colleges and universities to meet these goals is beyond the scope of this report, examples of strategies from schools are found below.

Protect the health of students, faculty, and staff.

Stay at home orders by the Governor were immediately implemented at colleges and universities. Some halted return from Spring Break. Others extended their Spring Break to allow for continued planning. All schools kept students, faculty, and staff on campus at minimal levels. Schools immediately began to work on new policies, processes, and procedures to re-open safely when allowed to do so. The WV Higher Education Policy Commission Division of Health Sciences worked with the WV Department of Health and Human Resources, Bureau for Public Health, local health departments, and the WV National Guard to develop return to campus guidelines to inform policy development to mitigate the risk of transmission of COVID-19 once stay at home orders were lifted. Colleges and universities developed COVID-19 taskforces, college Presidents worked together to share best practices, and the WVHEPC provided continual support. All schools communicated their plans via a variety of means, including weekly emails, web postings, and videos. For example, West Virginia University created the "WVU and the Coronavirus" podcast series to help answer questions and educate the public. [Click here to listen.](#)

Colleges and universities made evidence-based decisions regarding return to campus following state and national guidelines as they emerged. Each campus made the difficult decisions related to returning to campus in the Fall based on their community, environment, and needs. All Community and Technical colleges in the state opted to pivot all coursework in the Fall semester to online, with the exception of those programs where "hands on" or clinical experiences are necessary. Four year colleges and universities returned to campus in the Fall with a hybrid approach of online and in person classes, with new operating procedures designed to protect the health of students, faculty, and staff, including social distancing, proper hand sanitization, and mandatory mask wearing on campus. The HEPC worked with the West Virginia National Guard to assure adequate supplies of masks were made available, to forecast the amounts of hand sanitizer and cleaning supplies needed for safe reopening, and to implement special cleaning protocols where positive cases of COVID-19 were found. Schools developed plans for using their space appropriately to implement social distancing. The Erma Byrd Higher Education Center, located in Beaver, WV, provides a prime example of how the physical environment can be managed to assure safety. The Center, which was established in 2007 to provide higher education opportunities to the citizens of southern West Virginia, is the state's first higher education collaborative and is home to Bluefield State College, Concord University, and Marshall University, as well as the New River Community and Technical College, and the WV School of Osteopathic Medicine. The Center is managed by the West Virginia Higher Education Policy Commission. Students here have the opportunity to complete programs in Nursing, Radiologic Technology, Emergency Medical Technology (EMT), Laboratory Technology, and Medical Assisting. To see how the Erma Byrd Center used innovation, evidence, and planning to manage the environment for safety during COVID-19, [click here.](#)



Governor Justice's office provided the HEPC funding for COVID-19 testing for all returning students, faculty and staff within the first week of school, and HEPC assured that appropriate contact tracing, quarantine, and isolation protocols were in place at all colleges and universities. Working with the WV Department of Health and Human Services Emergency Command Center, surveillance testing was implemented on all campuses weekly beginning in early September for 10% of all students, faculty, and staff who were on campus. Surveillance testing was also funded by the Governor's office. Vigilance, planning, and quick action allowed a successful Fall semester.

Support the continued education of students in a safe manner.

State of Emergency and Stay at Home orders had the potential to halt education in the health sciences in March of 2020. However, schools quickly pivoted to online offerings. The West Virginia School of Osteopathic Medicine began providing all lectures via live streaming which were saved for later viewing. Small group activities such as team-based learning were held using Microsoft Teams and WebEx platforms. First year medical students completed communication labs on a telemedicine platform. Practical exams were filmed by students at home and graded by faculty. Anatomy labs in the first year were completed virtually using videos. Year 3 and Year 4 clinical rotations were paused and replaced with online learning modules. The Higher Education Policy Commission quickly provided examples and resources for alternative clinical experiences for health sciences students, including virtual lab platforms, ideas for socially distanced leadership activities like follow up phone calls to patients discharged from the hospital to assess their needs during the pandemic, and alternative clinical experiences such as policy development for clinical practice during COVID-19.

To preserve the integrity of examinations in health sciences programs, schools became innovative with technology. At the West Virginia University Health Sciences Center (HSC) several HSC Schools created their own version of online proctoring using the Zoom platform. The HSC's use of Zoom for proctoring involves the proctor watching students in real-time via Zoom during the test. Test takers are also required to show their surroundings prior to the start of the exam. The HSC Information Technology Services department was able to work with Zoom to lock down the testing environment, as well as create recordings of the sessions in the event they needed to be viewed at a later time. Training materials were created by HSC Information Technology Services and by individual schools to ensure that students and proctors learned the new process. In the School of Pharmacy, faculty and graduate students collaborated and assisted each other in securely proctoring 40 exams (60 hours of proctoring) from March 30 – May 5. Each assessment had 5 – 6 proctors per exam or quiz, with back-up FaceTime proctors for students with poor Internet connectivity.

Schools were even able to support the recruitment and pipeline activities they typically offer in the Spring and Summer for aspiring health sciences students. Marshall University was able to pivot their Pre-medical Intensive Summer Program to a virtual format. This intensive summer program is a residential week-long camp for pre-med college students who meet specific academic criteria. The program provides educational activities to help prepare these students for medical school. Participants are encouraged to remain in contact after the program to ensure they have the essential information necessary for the successful matriculation to medical school. Due to the COVID pandemic, the Intensive Summer Program was transitioned to a virtual format and condensed to a shorter duration only including the sessions previous students most valued during evaluation. Twenty two students participated from various schools including Concord University, Davis & Elkins College, Marshall University, West Virginia State University, West Virginia University, and West Virginia Wesleyan College. Feedback from the event was positive with 18 (81%) participants responding to a survey evaluation. All those responding rated the virtual summer academy excellent (61%) or very good (39%). This is an example of how we can use the innovative thinking necessitated by the COVID-19 pandemic to expand reach to students in the future who may not be able to access a residential program.

Provide health care and health care services where needed.

Health sciences students and faculty are well attuned to the health care needs of the communities in which they learn. Faculty and students quickly identified where needs existed due to the pandemic and worked to fulfill those health care needs. Students volunteered to assist local health departments with testing events across the state. As large testing events were created in every county, health sciences students donned their personal protective equipment (PPE) and learned to do nasopharyngeal swabs, provided education and information to those being tested, and learned how to handle a mass testing event. On most campuses, students and faculty learned the importance of contact tracing, and working in collaboration with local health departments were able to get important information out to the campus community about quarantine and isolation as well as other mitigation strategies. The WVU School of Public Health, with grant funds provided by the WV HEPC Rural Health Initiative fund, was able to provide continuing education credits to students and providers across the state for a virtual contact tracing course developed by the faculty at the School of Public Health. Our Rural Health Initiative students across the state returned to clinical practice in the late summer and early Fall, providing needed services to rural communities. The Rural Health Initiative Housing program was able to continue to provide housing safely for rural health students, decreasing the number of people in housing units using special funding provided by the HEPC through the Rural Health Initiative program. Finally, behavioral health staff on campuses across the state continued to provide crucial behavioral health services to students, faculty, and staff using funding from the HEPC to subscribe to safe telehealth platforms. During the pandemic, anxiety, depression, and suicidal ideation has increased—our campuses are doing what they can to prevent and treat behavioral health issues caused or exacerbated by the pandemic.

Assist in providing PPE and testing for the needs of West Virginians.

In the beginning of the pandemic, PPE needs were identified and supply chains were sometimes slow to respond. Our colleges and universities donated thousands of pieces of PPE to hospitals, health departments, first responders and others in need from their stock used in laboratories, simulation centers and clinical areas. This initial donation of supplies helped to bridge the gap until deliveries of supplies occurred. Students and faculty have also been critical partners in innovation around PPE development and expanding testing capacity. Several students partnered in the WVU College of Engineering 3D printing hub, which began a cooperative working relationship with the WVU HSC, University Health Services, and private practices in WV to help meet some critical pandemic needs in PPE as well as beyond our borders (MA, NY, CA, Ireland) with the team led by Dr. Gene Cilento. Projects included making mask extenders, face shields, including variations of the design to work for dentists and ophthalmologists, Intubation boxes, vials and sheaths for various purposes and sample collection booths. In addition the hub has produced approximately 100k swabs to date toward a goal of 200k by year end. Marshall University and the WV School of Osteopathic Medicine, as well as many other colleges and universities joined in the efforts to make PPE for our state.



Captain Samantha Fabian of the WV National Guard and a WVU PhD Student in Genetics and Developmental Biology, established the first COVID-19 Mobile Testing Laboratory (MTL) within the Department of Defense (DoD), certified under the Clinical Laboratory Improvement Program (CLIP) in response to COVID-19 response efforts within West Virginia. The experience and education obtained at WVU (Masters in Genetics and Developmental Biology, currently in the Genetics and Developmental Biology PhD Program) qualified Ms. Fabian to be the Laboratory Director for the MTLs, which enabled the WV National Guard to obtain the CLIP certification.

PhD trainees in the WVU HSC Immunology and Cancer Cell Biology Programs are engaged in the expansion of SARS-CoV-2 virus in the Biosafety Level 3 (BSL-3) Laboratory. The team has expanded wild-type SARS-CoV-2 virus (obtained from the National Institute of Allergy and Infectious Diseases and isolated from a patient in Washington State) as well as a SARS-CoV-2-GFP virus obtained from the University of North Carolina. In addition, the team led by Dr. Ivan Martinez, is currently expanding three other human coronaviruses that are related to common cold in humans. This experience provides hands on training and training that will have relevance beyond COVID specific work.

At Marshall University, Dr. Suzanne Strait, a professor at Marshall University's Department of Biological Sciences, earned a new title: commander-in-chief of the West Virginia Mask Army. Strait led the volunteer effort to make reusable masks, in which people take orders from medical facilities and provide volunteers with materials to make masks at home.

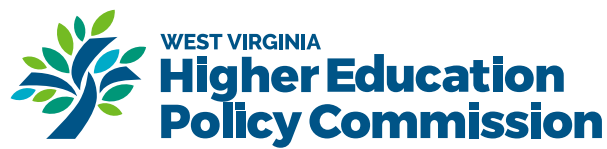
Strait said on a recent episode of MetroNews "Talkline" the idea for the West Virginia Mask Army came while thinking about her former students, many of whom go into health care fields. Strait worked with former students in developing a mask design using furnace filters. Tens of thousands of masks were made by the volunteer "mask army" and distributed to health care facilities across the state.

From the beginning of the pandemic, West Virginia's colleges and universities have innovated, collaborated, and worked to lessen the impact of COVID-19 on their campuses, their communities, and the state. Continued vigilance and quick action to mitigate risk will continue until a vaccine is developed. To be sure, health sciences education looked different in 2020, but the goal of educating the health care workforce of the future has never been more important.

West Virginia Higher Education Policy Commission

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