

2017 WEST VIRGINIA

# HEALTH SCIENCES

AND **RURAL HEALTH** REPORT





## 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.

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*About the*

# DIVISION OF HEALTH SCIENCES

The Division of Health Sciences at the Higher Education Policy Commission (the Commission) coordinates health sciences programs, particularly those impacting the state's three academic health centers at Marshall University, the West Virginia School of Osteopathic Medicine, and West Virginia University. The Division regularly collaborates with stakeholders around key topics in the state's healthcare landscape. Current topics include behavioral health workforce development, graduate medical education, clinical geriatrics, mapping primary care access issues, 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, which offers a recruitment incentive to West Virginia students in advanced degree health professions programs in exchange for a commitment to practice for at least two years in an underserved area of the state.

## 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 2016-2017, 180 of the 405 medical students who enrolled in the first year classes of the state's three medical schools were West Virginia residents. (Pages 3-8)

The Medical College Admission Test® (MCAT)® has been redesigned. The 2016-2017 entering class is the first to apply to medical school using the new MCAT®. All three schools still accept the old version of the MCAT® as well and performance data for both versions is included in this report. (Pages 3-8)

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 well over 90 percent for the last five years. (Pages 3-9)

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. (Pages 11-17)

In recent years, West Virginia higher education institutions have expanded the number of health professions programs offered. West Virginia has experienced growth in its pharmacy, physical therapy, and physician assistant programs in recent years. It is hoped that graduates of these new programs will assist in better addressing healthcare needs in the state's rural and underserved communities. (Pages 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, are developing innovative models and engaging underserved communities to help redistribute the primary care physician workforce. (Pages 21-28)

# 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. The Association of American Medical Colleges recently redesigned the MCAT®. As a result, West Virginia medical schools currently accept scores from both 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.

For 2016-17 academic year matriculants who took the new MCAT®, the national combined mean MCAT® score for students entering allopathic medical schools was 508.70; for students entering osteopathic medical schools the score was 502.17. For 2016-2017 matriculants who took the old MCAT®, the national combined mean MCAT® score for students entering osteopathic medical schools was 26.70. Performance data on the old MCAT® for students entering allopathic medical schools is no longer reported.

For 2016-2017, the national mean grade point average (GPA) for students matriculating to allopathic medical schools was 3.70, and for students matriculating to osteopathic medical schools, it was 3.56 (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

	2016-17	2015-16	2014-15	2013-14	2012-13
<b><i>In-State</i></b>					
Acceptances/Applicants	98/207	73/165	87/149	80/169	59/134
Admission Rate	47%	44%	58%	47%	44%
<b><i>Out-of-State</i></b>					
Acceptances/Applicants	17/1,575	51/1,655	31/1,651	43/1,419	76/1,219
Admission Rate	1%	3%	2%	3%	6%
<b>Total Acceptances/Applicants</b>	<b>125/1,782</b>	<b>124/1,820</b>	<b>118/1,800</b>	<b>123/1,588</b>	<b>135/1,353</b>
<b>Total Admission Rate</b>	<b>7%</b>	<b>7%</b>	<b>7%</b>	<b>8%</b>	<b>10%</b>

## ENTERING CLASS ACADEMIC QUALIFICATIONS

	2016-17	2015-16	2014-15	2013-14	2012-13
Mean GPA	3.60	3.60	3.60	3.60	3.53
Mean MCAT® (Old version)	28.8	28.7	28.5	27.9	28.3
Mean MCAT® (New version)	501.0	-	-	-	-

## ACADEMIC YEAR DATA

		2016-17	2015-16	2014-15	2013-14	2012-13
First Year New Enrollment	<i>In-State</i>	73	53	61	53	29
	<i>Out-of-State</i>	10	29	18	22	37
	<i>Total</i>	83	82	79	75	66
Total Graduates		73	62	64	65	75
Total Medical Students		304	315	281	292	291
Tuition and Fees	<i>In-State</i>	\$21,104	\$20,806	\$20,806	\$20,806	\$20,080
	<i>Out-of-State</i>	\$50,074	\$47,676	\$47,676	\$47,676	\$47,670

# West Virginia School of Osteopathic Medicine



## ENTERING CLASS ADMISSION RATE

	2016-17	2015-16	2014-15	2013-14	2012-13
<b><i>In-State</i></b>					
Acceptances/Applicants	66/148	67/146	62/123	65/147	88/173
Admission Rate	45%	46%	50%	44%	51%
<b><i>Out-of-State</i></b>					
Acceptances/Applicants	401/4,703	416/4,988	439/4,340	379/4,183	306/3,893
Admission Rate	9%	8%	10%	9%	8%
<b>Total Acceptances/Applicants</b>	<b>467/4,851</b>	<b>483/5,134</b>	<b>501/4,463</b>	<b>444/4,330</b>	<b>394/4,066</b>
<b>Total Admission Rate</b>	<b>10%</b>	<b>9%</b>	<b>11%</b>	<b>10%</b>	<b>10%</b>

## ENTERING CLASS ACADEMIC QUALIFICATIONS

	2016-17	2015-16	2014-15	2013-14	2012-13
Mean GPA	3.52	3.51	3.48	3.49	3.40
Mean MCAT® (Old version)	23.3	24.8	24.8	24.6	24.1
Mean MCAT® (New version)	496.8	-	-	-	-

## ACADEMIC YEAR DATA

		2016-17	2015-16	2014-15	2013-14	2012-13
First Year New Enrollment	<i>In-State</i>	52	52	47	63	75
	<i>Out-of-State</i>	160	158	151	130	123
	<i>Total</i>	212	210	198	193	198
Total Graduates		182	187	181	184	195
Total Medical Students		847	827	819	817	838
Tuition and Fees	<i>In-State</i>	\$20,950	\$20,950	\$20,950	\$20,950	\$20,950
	<i>Out-of-State</i>	\$50,950	\$50,950	\$50,950	\$50,950	\$50,950

# West Virginia University School of Medicine



## ENTERING CLASS ADMISSION RATE

	2016-17	2015-16	2014-15	2013-14	2012-13
<b><i>In-State</i></b>					
Acceptances/Applicants	64/227	72/166	79/189	99/231	80/159
Admission Rate	28%	43%	42%	43%	50%
<b><i>Out-of-State</i></b>					
Acceptances/Applicants	112/4,623	92/3,885	102/3,222	72/2,852	84/2,352
Admission Rate	2%	2%	3%	3%	4%
<b>Total Acceptances/Applicants</b>	<b>176/4,850</b>	<b>164/4,051</b>	<b>181/3,411</b>	<b>171/3,083</b>	<b>164/2,511</b>
<b>Total Admission Rate</b>	<b>4%</b>	<b>4%</b>	<b>5%</b>	<b>6%</b>	<b>7%</b>

## ENTERING CLASS ACADEMIC QUALIFICATIONS

	2016-17	2015-16	2014-15	2013-14	2012-13
Mean GPA	3.72	3.78	3.80	3.79	3.78
Mean MCAT® (Old version)	29.0	29.0	29.0	29.0	28.3
Mean MCAT® (New version)	507.0	-	-	-	-

## ACADEMIC YEAR DATA

		2016-17	2015-16	2014-15	2013-14	2012-13
First Year New Enrollment	In-State	55	63	58	77	67
	Out-of-State	55	47	52	33	39
	Total	110	110	110	110	106
Total Graduates		106	93	103	78	106
Total Medical Students		441	428	421	404	423
Tuition and Fees	In-State	\$30,348	\$29,295	\$28,134	\$26,604	\$24,248
	Out-of-State	\$58,914	\$56,673	\$55,107	\$53,028	\$51,473

# 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 2014 is 98 percent.

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

	2014	2013	2012	2011	2010
Marshall University	64/65	67/68	62/64	55/58	57/59
	98%	99%	97%	95%	97%
West Virginia University	77/78	94/95	94/95	93/93	91/91
	99%	99%	99%	100%	100%

## 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

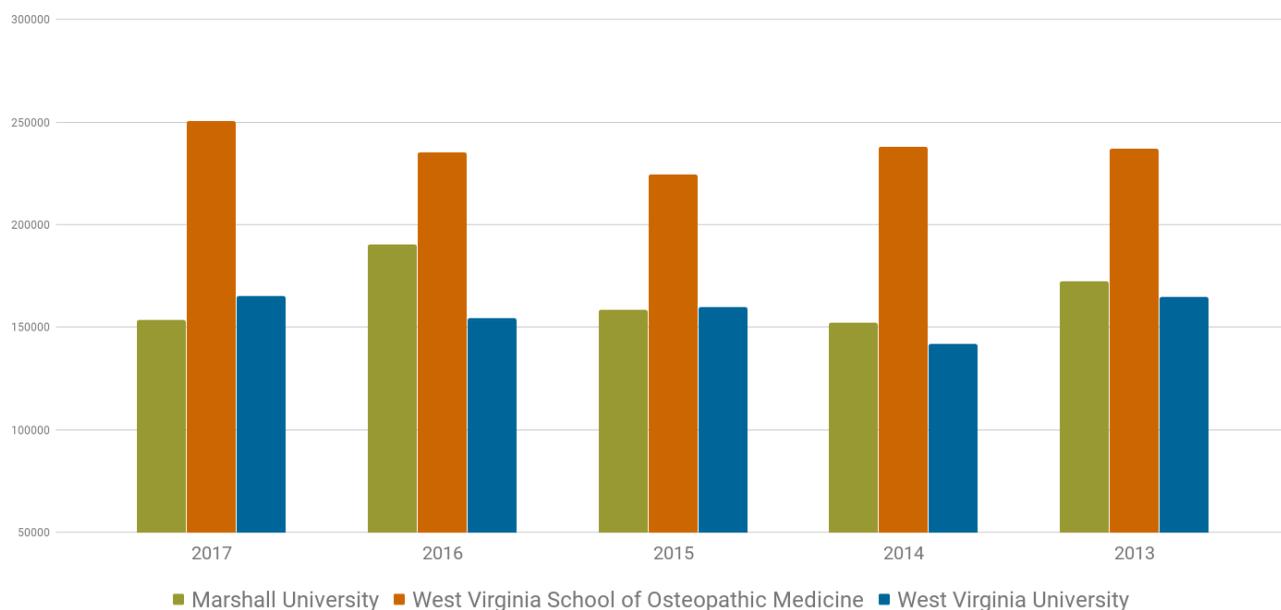
	2014	2013	2012	2011	2010
West Virginia School of Osteopathic Medicine	175/183	190/194	144/147	180/191	134/136
	96%	98%	98%	94%	99%

# 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
2017	\$153,435	\$250,378	\$165,289
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



# 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.

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.

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 typically 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 matching program. Allopathic medical students are only eligible for the allopathic matching program, and osteopathic medical students can enter either the allopathic or osteopathic matching program. For the 2017 allopathic residency match program, 47 percent of allopathic medical school graduates matched with a primary care residency program, and 61 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.

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

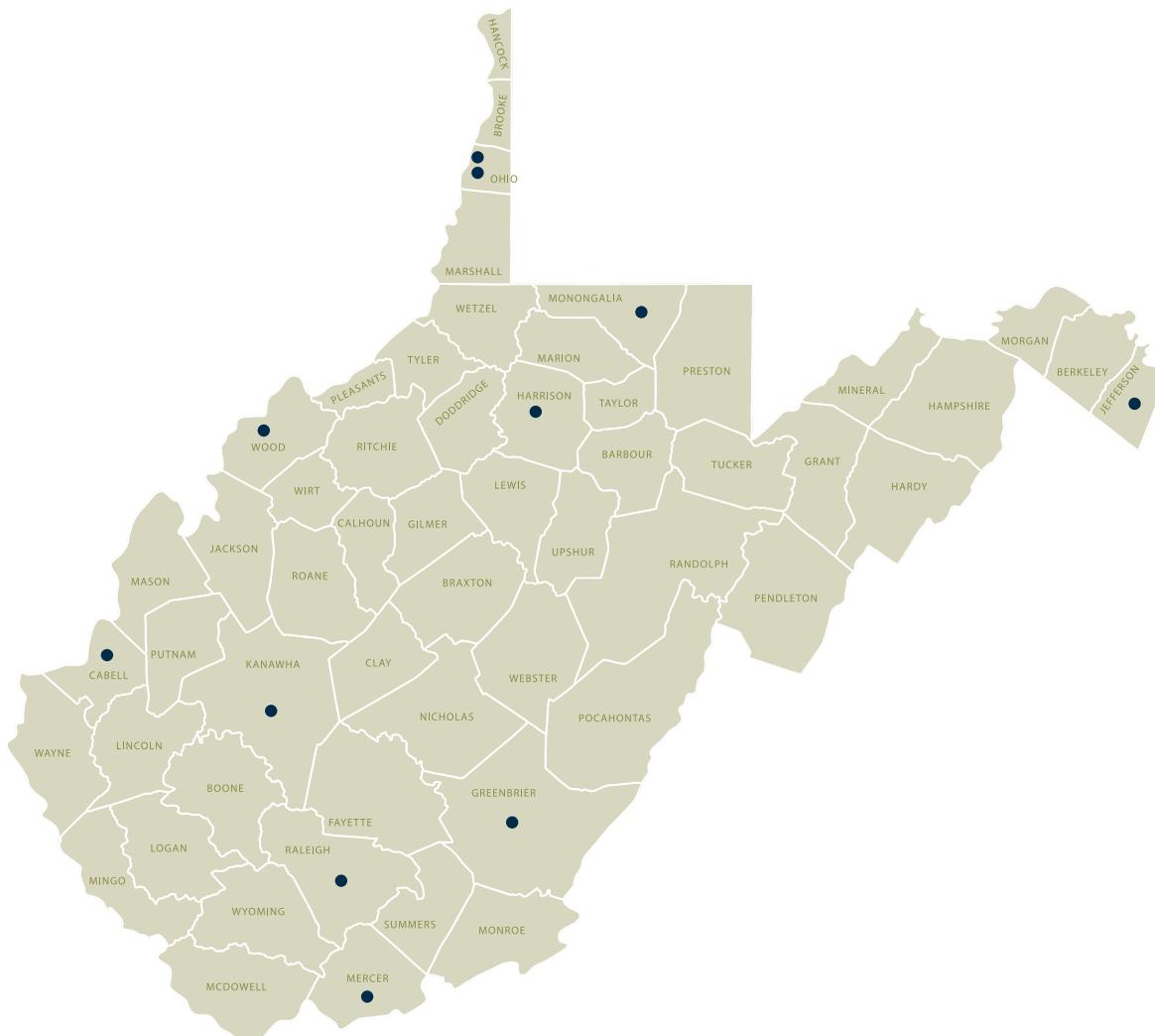
	2017	2016	2015	2014	2013
Marshall University	38 (54%)	28 (47%)	31 (48%)	33 (51%)	44 (60%)
West Virginia School of Osteopathic Medicine	119 (66%)	113 (61%)	111 (62%)	126 (68%)	133 (68%)
West Virginia University	54 (51%)	44 (48%)	48 (48%)	40 (51%)	48 (47%)

# 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, West Virginia University - Harper's 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 at a rural practice site.

## Primary Care Residency Programs

- ▶ AccessHealth Teaching Health Center, Raleigh County
- ▶ Bluefield Regional Medical Center, Mercer County
- ▶ Camden-Clark Medical Center, Wood County
- ▶ Charleston Area Medical Center, Kanawha County
- ▶ Greenbrier Valley Medical Center, Greenbrier County
- ▶ Marshall University School of Medicine, Cabell County
- ▶ Ohio Valley Medical Center, Ohio 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.

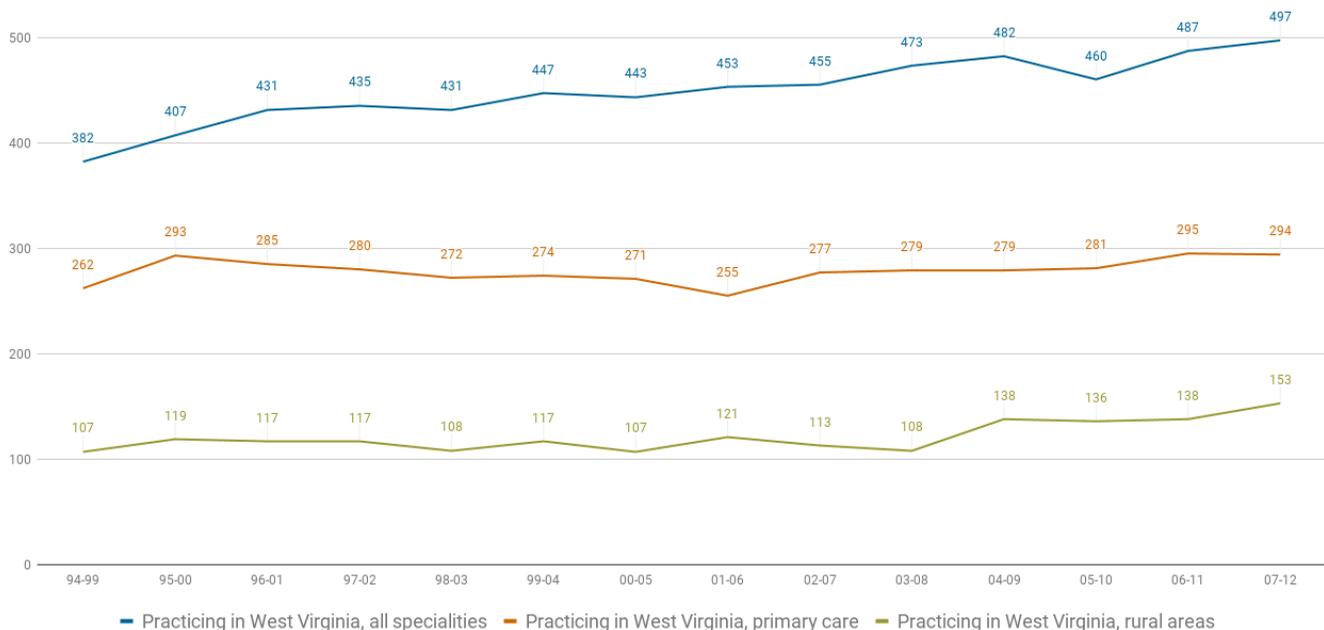
- ▶ Primary care is defined as family medicine, internal medicine, internal medicine/pediatrics, obstetrics/gynecology, and pediatrics.
- ▶ Rural areas include all areas of the state with a 2006 Rural Urban Commuting Area (RUCA) code of 4.0 or higher. These codes classify U.S. Census tracts using measures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

Between 2007 and 2012, 1,621 graduates of the state's three medical schools completed residency training, either in West Virginia or another state, and 31 percent of these graduates (497) are now practicing in West Virginia. Nine percent of the graduates (153) in this cohort are practicing in rural West Virginia, and 18 percent (294) 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.

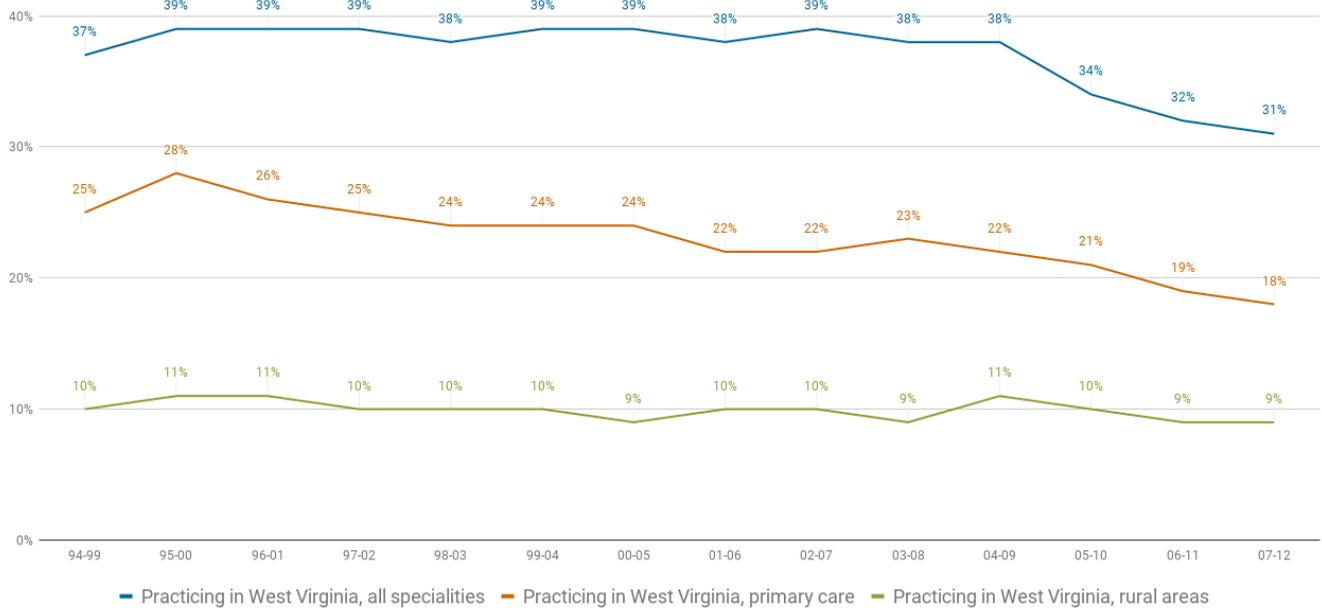
### MEDICAL SCHOOL GRADUATES RETAINED, BY INSTITUTION, GRADUATING CLASSES OF 2007–2012

	Total number with completed training	In practice in West Virginia	In primary care in West Virginia	In rural areas of West Virginia
Marshall University	272	121 (44%)	73 (27%)	29 (11%)
West Virginia School of Osteopathic Medicine	773	177 (23%)	124 (16%)	81 (10%)
West Virginia University	576	199 (35%)	97 (17%)	43 (7%)
<b>Total</b>	<b>1,621</b>	<b>497 (31%)</b>	<b>294 (18%)</b>	<b>153 (9%)</b>

### NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1994–2012

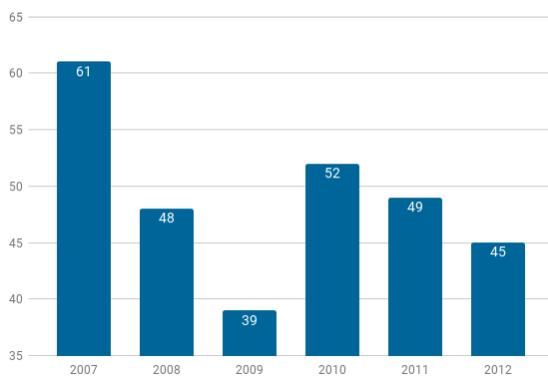


## PERCENTAGE OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES RETAINED, GRADUATING CLASSES OF 1994-2012

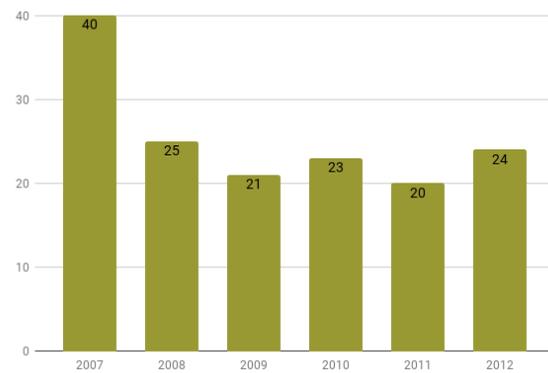


## NUMBER OF WEST VIRGINIA MEDICAL SCHOOL GRADUATES PRACTICING PRIMARY CARE OR IN RURAL AREAS, BY GRADUATING CLASS

Practicing primary care in West Virginia



Practicing in rural areas in 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 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 2007 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 2007-2012

County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care
Barbour	3	3	2
Berkeley	18	0	12
Boone	2	2	2
Braxton	1	1	1
Brooke*	2	0	1
Cabell*	71	0	42
Calhoun	0	0	0
Clay	2	2	2
Doddridge	1	1	1
Fayette	11	9	9
Gilmer	0	0	0
Grant	3	3	3
Greenbrier	23	23	14
Hampshire	1	1	0
Hancock	2	0	2
Hardy	0	0	0
Harrison	22	22	17
Jackson	2	2	1
Jefferson	10	2	9
Kanawha*	88	0	49
Lewis	5	5	4
Lincoln	1	1	1
Logan	4	4	0
Marion	9	9	4

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## WEST VIRGINIA MEDICAL SCHOOL GRADUATES PRACTICING IN WEST VIRGINIA, BY COUNTY, GRADUATING CLASSES OF 2007-2012

County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care
Marshall*	3	0	3
Mason	4	4	3
McDowell	1	1	1
Mercer	8	8	7
Mineral	1	1	1
Mingo	0	0	0
Monongalia*	107	0	39
Monroe	0	0	0
Morgan	1	1	1
Nicholas	2	2	2
Ohio*	19	0	10
Pendleton	0	0	0
Pleasants	0	0	0
Pocahontas	4	4	4
Preston	3	2	3
Putnam*	9	0	7
Raleigh	16	16	13
Randolph	4	4	2
Ritchie	0	0	0
Roane	2	2	2
Summers	1	1	1
Taylor	0	0	0
Tucker	0	0	0
Tyler	0	0	0
Upshur	4	4	3
Wayne	8	6	4
Webster	1	1	0
Wetzel	4	4	1
Wirt	1	1	1
Wood*	12	0	9
Wyoming	1	1	1
<b>Total</b>	<b>497</b>	<b>153</b>	<b>294</b>

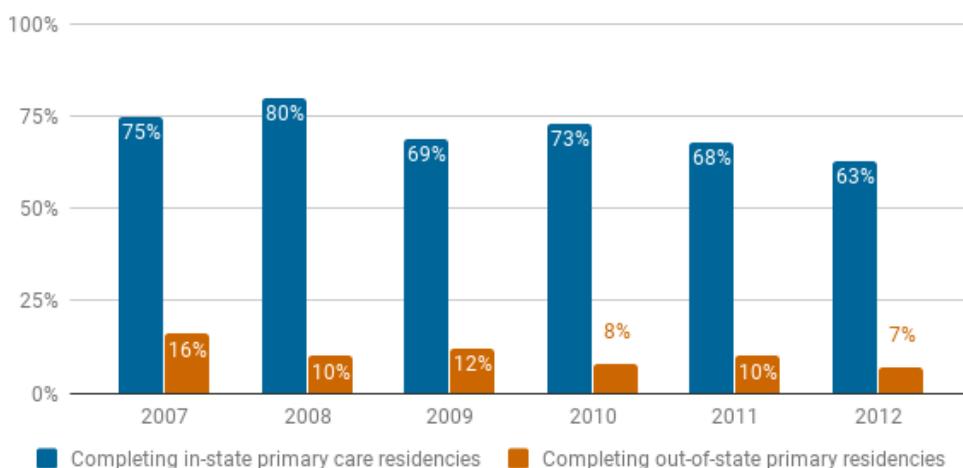
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\* Denotes urban/non-rural county with a 2006 Rural Urban Community Area Code (RUCA) of less than 4.0, and therefore, the county has no rural areas.

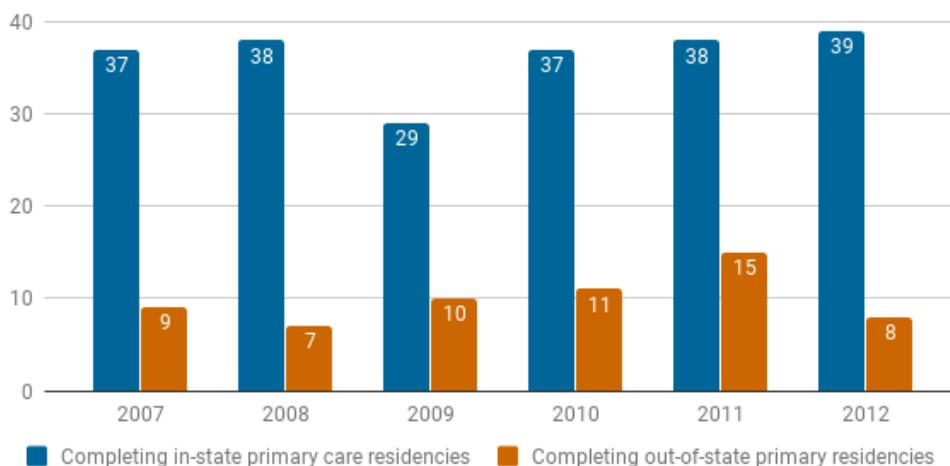
# Retention of West Virginia medical school graduates completing primary care residencies

The location of a medical school graduate's residency program frequently predicts whether that graduate will practice in West Virginia. For the 2012 graduates of West Virginia medical schools, 181 graduates went on to complete primary care residency programs. Upon completing residency, 39 of the 62 graduates who completed in-state primary care residencies were retained in West Virginia to practice, while only eight of the 119 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



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



# OTHER HEALTH PROFESSIONS

## *Program graduates*

Although this report historically emphasized medical education, the Commission has increased its focus on the role of other health professions in completing our state's healthcare workforce. The following charts provide graduation numbers for a variety of health professions programs at public and private institutions, as well as two and four-year institutions.

### NUMBER OF GRADUATES OF GRADUATE-LEVEL NURSING PROGRAMS, BY GRADUATING CLASS

	2017	2016	2015	2014	2013
Marshall University (Master's)	35	38	46	52	61
West Virginia University (Master's)	40	37	44	72	39
West Virginia Wesleyan College (Master's) (private institution)	27	14	5	2	3
Wheeling Jesuit University (Master's) (private institution)	44	61	48	55	31
Shepherd University (Doctoral - clinical)*	-	-	-	-	-
West Virginia University (Doctoral - Ph.D.)	2	2	3	1	3
West Virginia University (Doctoral - clinical)	5	3	7	7	11

\* Shepherd University will graduate its first class of doctoral-level nurse practitioners in 2018.

### NUMBER OF GRADUATES OF DENTISTRY PROGRAMS, BY GRADUATING CLASS

	2017	2016	2015	2014	2013
West Virginia University	58	54	48	48	42

### NUMBER OF GRADUATES OF DENTAL HYGIENE PROGRAMS, BY GRADUATING CLASS

	2017	2016	2015	2014	2013
BridgeValley Community and Technical College*	16	19	13	15	16
West Liberty University (Associate)	36	22	34	32	34
West Liberty University (Bachelor's)	29	33	22	22	29
West Virginia University (Bachelor's)	21	25	12	19	20
West Virginia University (Master's)	-	-	1	-	1

\* 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

	2017	2016	2015	2014	2013
Marshall University*	65	75	-	-	-
University of Charleston (private institution)	84	67	69	68	78
West Virginia University	82	91	85	82	75

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

## NUMBER OF GRADUATES OF PHYSICIAN ASSISTANT PROGRAMS, BY GRADUATING CLASS

	2017	2016	2015	2014	2013
Alderson Broaddus University (private institution)	32	34	29	12	1
University of Charleston (private institution) *	26	20	27	36	35
West Liberty University**	18	19	16	17	-

\* 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.

## NUMBER OF GRADUATES OF PHYSICAL THERAPY PROGRAMS, BY GRADUATING CLASS

	2017	2016	2015	2014	2013
Marshall University *	38	36	25	-	-
West Virginia University	37	36	37	36	40
Wheeling Jesuit University (private institution)	48	47	47	47	42

\* 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 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 students receive a \$15,000 award.

Since 1995, 177 participants have completed their service obligation. In the 2016-2017 academic year, 16 awards totaling \$375,000 were offered to:

- ▶ Six medical students
- ▶ Three dental students
- ▶ Three physical therapy students
- ▶ Two nurse practitioner students
- ▶ One pharmacy student
- ▶ One physician assistant 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

	2016-17	2015-16	2014-15	2013-14	2012-13
Loans awarded in Fiscal Year	247	247	256	245	273
Total amount awarded	\$1,424,846	\$1,404,300	\$1,462,142	\$1,523,500	\$1,589,301
Amount of unexpended funds*	\$2,535,240	\$1,991,422	\$1,993,939	\$1,811,521	\$1,781,561
Loan postponement**	12	23	24	26	30
Loan forgiveness***	33	49	42	48	40
Default rate on previous awards	2.5%	2.5%	2.5%	1.8%	1.9%

\* 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:

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 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 2017 (FY 2017), 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 17 include:

- ▶ Cabin Creek Health Systems: Growing partnerships between academic health centers and community-based primary clinics focused on research and quality improvement activities.
- ▶ Fairmont State University: Development of an associate degree nursing program with a weekend-based class schedule.
- ▶ McDowell County Schools: Travel support for River View High School students enrolled in a dual credit psychology class with Marshall University.
- ▶ West Virginia State University: Evaluating the use of FitBits by elementary school students in Clay County.
- ▶ West Virginia University Geography Department: Development of a web-based mapping program to identify the state's highest need areas for additional primary care workforce.

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 2017.

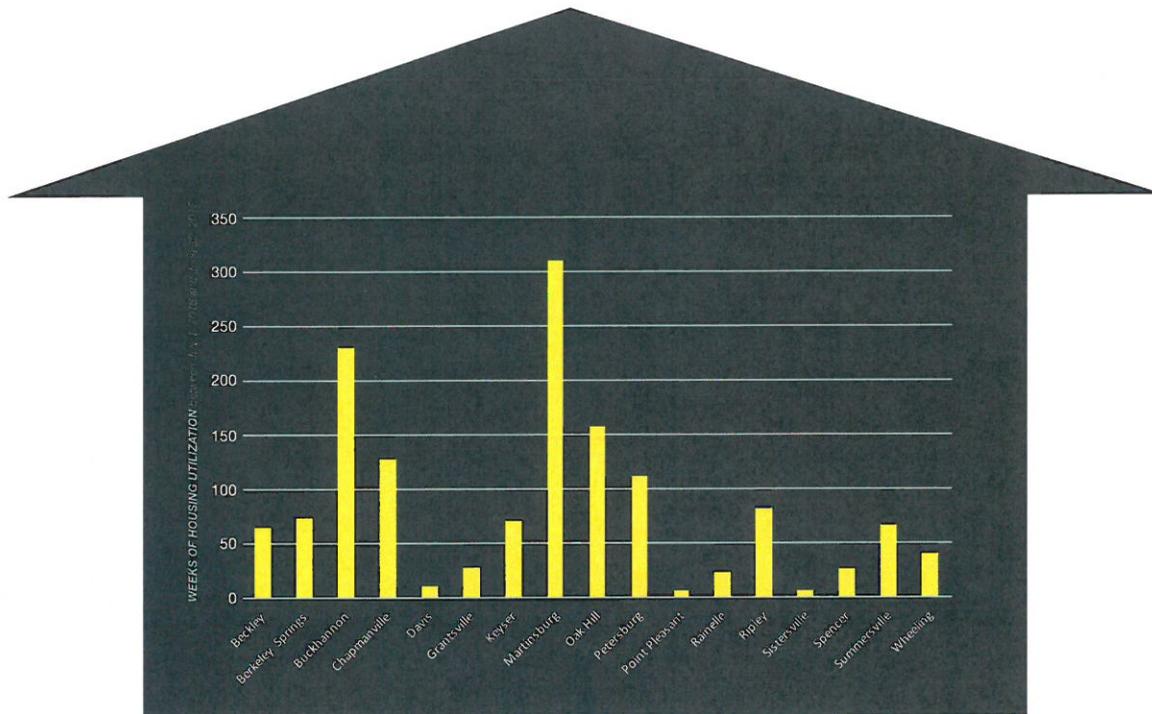
## State-wide housing system

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 operating costs of the program are supported through RHI funding and a \$115/week fee paid by students utilizing the housing. Often, the cost of housing is covered by the student's institution.

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.

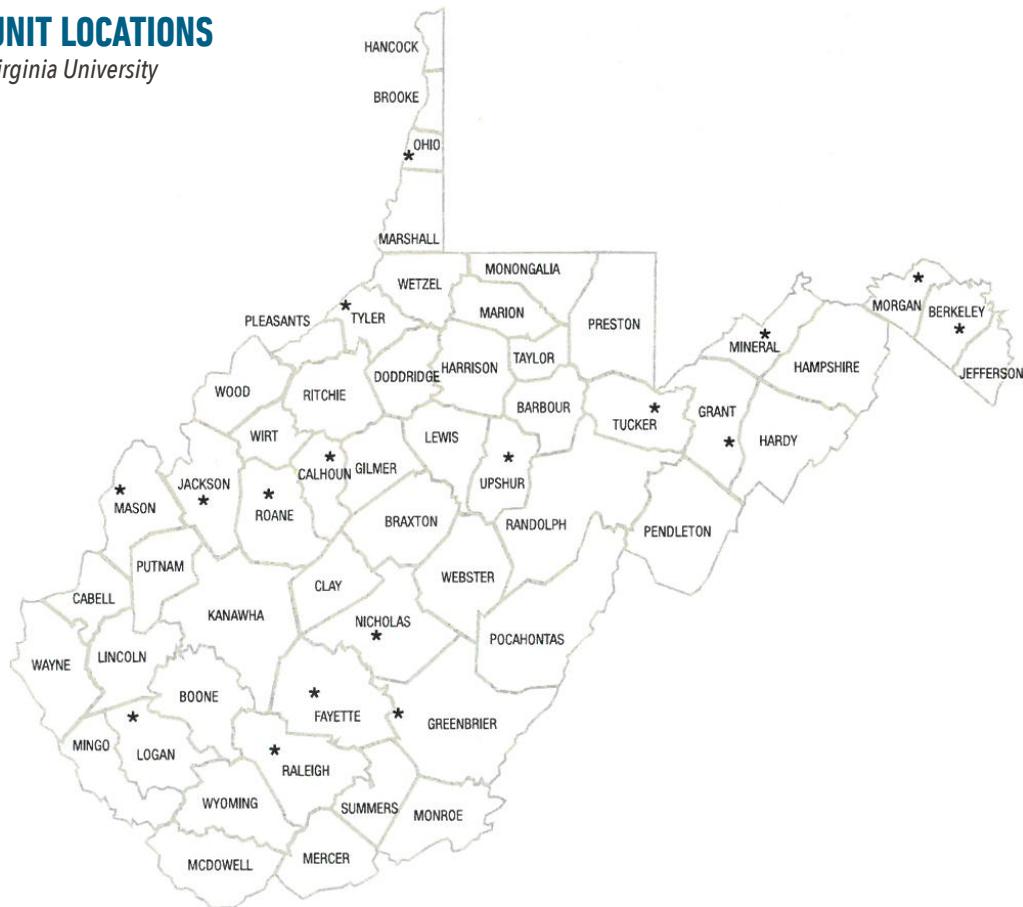
Students enrolled in training programs in West Virginia receive priority for housing. Students from out-of-state programs are accommodated based on availability. In FY 2017, students from the following institutions utilized housing: Marshall University, University of Charleston, the West Virginia School of Osteopathic Medicine, West Virginia University, Wheeling Jesuit University, Spalding University (KY), University of Pittsburgh (PA), and Shenandoah University (VA).

## HOUSING UTILIZATION: 1,446 WEEKS



## 16 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 areas.*

An initiative on rural health research places medical students and residents in rural communities. 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 which could enhance rural health care, lead to more effective health promotion and disease prevention programs, and address barriers to care. Seven residents and six students are currently participating in seven rural research projects with topics such as:

- ▶ Marshall Teen Talk: a Telehealth Project to Rural High School Teens
- ▶ Integration of Onsite Primary Care Services in a Community-based Behavioral Health Agency
- ▶ Impact of Music on Memory in Patients with Dementia

The biennial Marshall University Joan C. Edwards School of Medicine Research Conference concentrating on rural projects was held in October 2016.

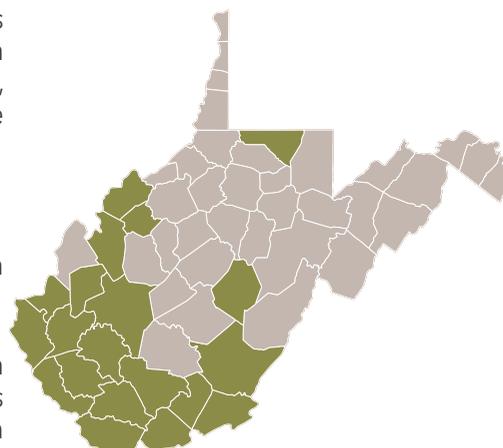
## *Increase the retention rate of healthcare providers in rural areas.*

Marshall focuses on increasing the retention rate of healthcare providers in rural areas by connecting rural providers to activities at the medical school. Marshall's Rural Health Fellowship is an opportunity for new physicians, who recently completed residency, to participate in rural health fellowship programs while beginning their practice. The fellowship is designed 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.

This program makes an enormous impact as it keeps these rural physicians involved with Marshall through teaching and working with residents on a number of rural initiatives. This spring, a past Rural Health Fellow collaborated with medical school faculty and staff on a presentation about leadership at the National Rural Health Conference.

**High school pipeline counties**



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

Marshall 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 and the Joan C. Edwards School of Medicine have 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 supports them on a fast track to medical education. The goal is to educate more physicians who will want to practice medicine in the state.

The program allows students to complete the requirements for both the Bachelor of Science and Doctor of Medicine program in seven, instead of eight years. Incentives include:

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

Ten students were accepted in 2017, bringing the total to 33 students enrolled in the program. Thirteen students have completed applications for the upcoming 2017-2018 admissions cycle.

For over a decade, Marshall has carried out a high school pipeline program in southern and southwestern West Virginia, expanding this year to six more counties. High school activities reached over 3,000 students from 29 high schools in 22 counties who participated in 82 events. Several collaborative events were held with entities that serve minority and underserved students. Activities included trips to Marshall's anatomy lab, real-time surgeries via videoconference, hands-on suturing workshops, and lectures from a variety of healthcare specialists.

On the college level, the fifth annual residential academy was held on the Marshall campus on June 12-16, 2017, to prepare undergraduate students interested in medical school. Eighteen participants included students from colleges around the state and Hampton University in Virginia. The 59 participants in past academies include: 13 students (22%) currently attending medical school and five students (8%) pursuing other health degrees. In addition to the academy, regular visits by staff to West Virginia colleges and universities 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.*

A focus group was held in Logan County to help assess community needs and determine how Marshall could help meet those needs. Community members identified a need for programs working with area youth. As a result, the Men's Health Organization, a group of community-driven Marshall medical students, began working in Logan County high schools to teach students about various healthy living choices. In addition, medical students are providing student health, healthy choices, and behavior education to high school students in McDowell County using teleconferencing. These sessions have given medical students leadership opportunities as well as interaction with rural high school students and teachers.



Pictured: Students in the Accelerated Bachelor of Science/Doctor of Medicine Program.



Pictured: Students participating in the fifth annual residential summer academy.



*Increase the retention rate of healthcare providers in rural areas.*

**Residency sign-on incentive:** Six of the 13 RHI program graduates from the graduating class of 2017 each received a \$5,000 sign-on incentive for acceptance into primary care residencies at AccessHealth Teaching Health Center, Beckley; Camden Clark Medical Center, Parkersburg; Cornerstone Care, Morgantown; Greenbrier Valley Medical Center, Ronceverte (two students); and, West Virginia University - Harpers Ferry Rural Family Medicine, Harpers Ferry.

**Mentor program:** During FY 2017, all 58 RHI 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 the students' interest in rural primary care through mentor interactions; and,
- ▶ Exposure to the quality of life offered by rural communities.

Five RHI Mentors who are also WVSOM alumni and six residents who graduated from the WVSOM RHI Program participated in a mentor and resident focus group on January 28, 2017. The results of the focus group were three action items that will serve as goals in the upcoming year:

1. Increase efforts to recruit West Virginia high school students into the RHI program.
2. Allow greater flexibility for RHI students doing rotations in the third year of medical school, especially in primary care.
3. Investigate the possibility of family housing or methods to allow family to visit during rotations.

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

**High school pipeline:** The WVSOM RHI Coordinator and RHI Program Assistant, along with the admissions and recruitment offices, SWC assistant deans and directors, and the anatomy lab conducted pipeline activities for 2,454 high school students to introduce them to rural medicine opportunities in West Virginia. This number includes 334 high school students who participated in a new program called "CPR in Schools" where WVSOM students taught high school students CPR and promoted careers in health care.

**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 fourth cohort of University of Charleston students completed the program at Charleston Area Medical Center, in Kanawha County, on December 9, 2016 (three students) and May 5, 2017 (four students). The second cohort of students from Davis & Elkins College completed the program at Davis Health Systems in Randolph County on November 30, 2016 (two students) and May 4, 2017 (three students).

*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 2017 including:

- ▶ Pilgrim's Pride Poultry Plant, Moorefield, Hardy County, October 17, 2016
- ▶ Coal mining industry, Beaver, Raleigh County, December 5, 2016
- ▶ Underground mine tour, Raleigh County, December 6, 2016
- ▶ Rural Health Workforce Day, Charleston, Kanawha County on February 9, 2017
- ▶ Snowshoe Search & Rescue, Snowshoe, Pocahontas County, February 12 and 13, 2017

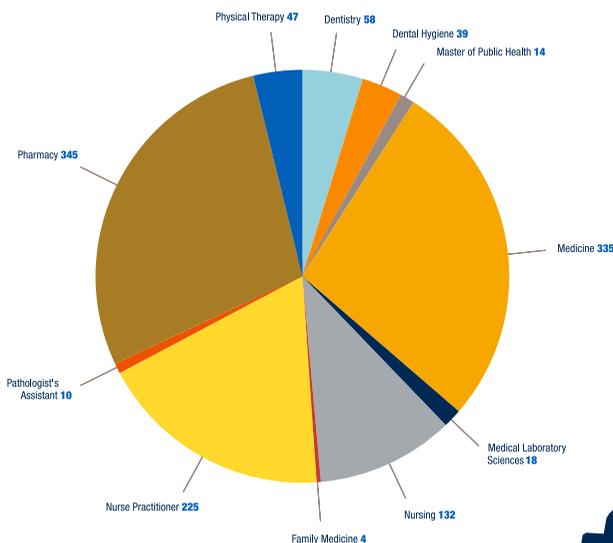
# West Virginia University Health Sciences Center

*Increase the recruitment of healthcare providers to rural areas.*

/// **A.H.E.C.** – The Area Health Education Centers Program (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 West Virginia University (WVU) to manage statewide housing for health professions students and scheduling WVU medical student rotations.

/// **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/underserved areas during their primary care clerkship and in their fourth year of medical school.

## WVU STUDENT ROTATIONS IN COMMUNITY BASED CLINICAL ACTIVITIES BY DISCIPLINE 7/1/16 - 6/30/17

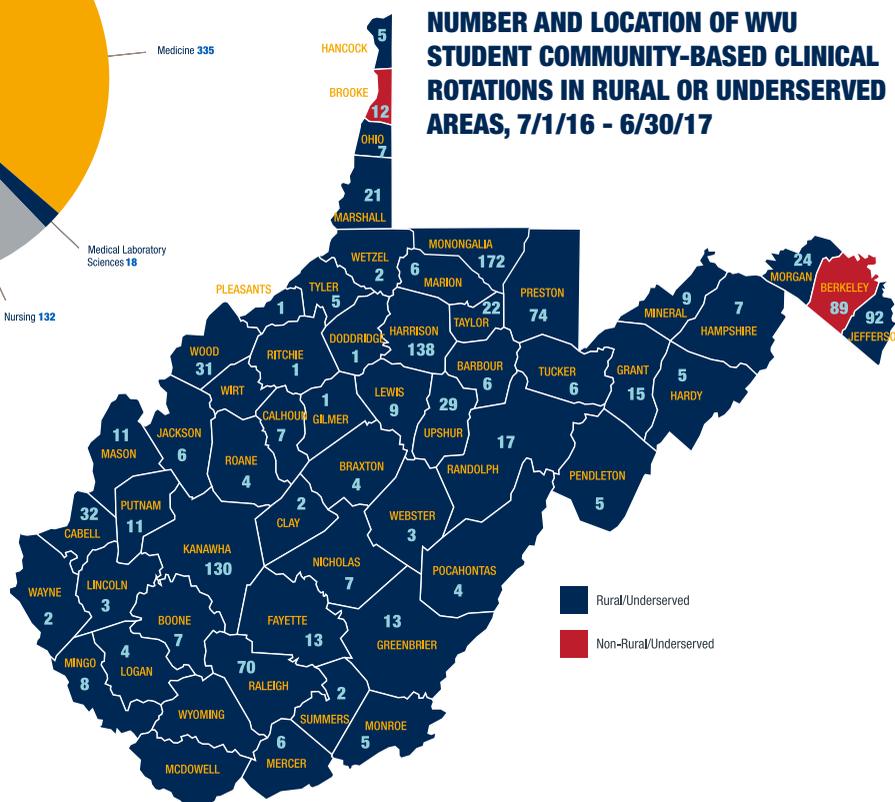


/// **Rural Immersions** – In-depth experiences for health professions students which allow them to learn about community health and disease processes while immersed in a rural community. In FY17, students participated in two immersions, one in the coalfields of Southern West Virginia and another focused on nutritional food access and patient care in Pocahontas County.

/// **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 FY17, seven meetings were held and topics covered included awareness about prescription drug abuse, the intersection between justice and health care, and physical therapy in rural WV.

/// **WVU** collaborated with WV AHEC to hold 41 interprofessional team meetings that included students from health promotion, medical assistant, medicine, nursing, nurse practitioner, and pharmacy programs. Students completed 13 clinical and community interventions around topics such as diabetes, infectious disease outbreaks, telehealth, and harm reduction.

## NUMBER AND LOCATION OF WVU STUDENT COMMUNITY-BASED CLINICAL ROTATIONS IN RURAL OR UNDERSERVED AREAS, 7/1/16 - 6/30/17



*Increase the retention of healthcare providers in rural areas.*

/// **Resident Stipend Matching Program** – A recruitment and retention mini grant program that allows community health centers (CHC) or small rural hospitals to partner with WVU to offer medical residents a stipend during their residency for signing a contract to practice. In FY17, WVU partnered with Community Care of WV, a CHC, to support two third year residents planning to practice at the CHC after residency in either Upshur or Lewis counties.

/// WVU partnered with WV AHEC to provide 30 continuing education opportunities for current healthcare professionals. Eighty percent of opportunities took place in rural areas of WV.

/// In FY17, 15 medical preceptors donated \$33,000 to a scholarship fund for students planning to work in rural areas of the state.

*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 FY17, WVU collaborated with HSTA to provide funding for 70 HSTA clubs and 397 students to participate in various field trips to learn more about science, art and history.

/// **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. In April 2017, 64 undergraduate students from WV, PA and MD participated.

/// **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. One student was placed in Preston County and two students were placed in Wyoming County for the 20 hour shadowing program. All three students reported the experience increased their interest in rural health.

## MEDICAL AND DENTAL STUDENT SCHOLARSHIPS AWARDED 2011-2017

# \$1.6 MILLION

### WHERE OUR SCHOLARSHIP RECIPIENTS ARE TODAY

#### 17 DENTAL STUDENTS



1 RESIDENCY      16 PRACTICING IN WV

#### 15 MEDICAL STUDENTS



5 IN SCHOOL      7 RESIDENCY      3 PRACTICING IN WV

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

/// **R.E.A.C.H.** – Project Rural Education Alliance for Community Health is a student-run outreach project which provides education and health information throughout the state. In FY17, students participated in five health education events that served 275 people from Marion, Fayette, Greenbrier and Preston counties.

/// **Newsletter** – Provides annual updates on WVU health profession students' educational and outreach activities to nearly 600 field faculty across the state.



West Virginia  
Higher Education  
Policy Commission

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