Vermont Legislative Research Service

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Addressing the Shortage of Healthcare Workers

In Vermont, geographic and demographic factors have contributed to a current and projected shortage in healthcare workers. The term healthcare worker encompasses professionals employed to address primary care, dental care, and mental healthcare needs. A report prepared for the State of Vermont Agency of Administration, funded by the Centers for Medicaid and Medicare (CMS) Innovation Center Federal Grant, projects that there will be a 13 percent increase in demand for physicians overall by 2030.[1] This report details the challenges currently facing Vermont and describes the federal and state resources available to designated high need areas or populations. It further provides case studies that highlight other states' efforts to address healthcare workforce shortages.

The Healthcare Challenge in Vermont

From 2015 to 2030, Vermont's population is expected to experience a fifty percent growth in the population age sixty-five and older.[2] This increase is above the national average of 46 percent, and unlike the nation's projected 12 percent growth in overall population, Vermont is expected to have a 0.9 percent decline in number of state residents.[3] Specialized disciplines that serve older populations such as geriatric medicine, vascular surgery, and urology are expected to experience 63 percent, 33 percent, and 32 percent increases, respectively.[4] Statewide, the demand for nurses will increase 22 percent. In nursing homes and residential care settings, the demand for nurses will grow 69 percent.[5] Between 2018 and 2020, the

[1] State of Vermont Agency of Administration, *Current and Projected Future Health Care Workforce Demand in Vermont*, accessed April 8, 2019, https://healthcareinnovation.vermont.gov/sites/vhcip/files/documents/Vermont%20Health%20Care%20Demand%20Modeling%20Final%20Report%206-16-17%20FINAL.pdf.

[2] State of Vermont Agency of Administration, *Current and Projected Future Health Care Workforce Demand in Vermont*.

[3] State of Vermont Agency of Administration, *Current and Projected Future Health Care Workforce Demand in Vermont*.

[4] State of Vermont Agency of Administration, *Current and Projected Future Health Care Workforce Demand in Vermont*.

[5] State of Vermont Agency of Administration, *Current and Projected Future Health Care Workforce Demand in Vermont*.

Agency for Administration projects that over 3,900 nursing-related job vacancies will open in Vermont, with only 26 percent of the positions being new jobs.[6] The CMS-funded report partially attributes vacancies in existing jobs to a high burnout rate amongst nursing professionals caused by "expanded responsibilities on the front line" when workforce shortages occur in other healthcare disciplines.

Healthcare Shortage Designations in Vermont

The Vermont Department of Health (VDH) divides the state of Vermont into 38 Rational Service Areas (RSAs) for primary care and dental care.[7] The VDH determines these areas using data from Medicare, Medicaid, and the Vermont Behavioral Risk Factor Surveillance System regarding where Vermont residents live and receive healthcare.[8] The VDH also uses Vermont's ten designated mental health agencies to determine boundaries for its ten mental health catchment areas.[9] Figure 1 is a map of Vermont's twenty-eight RSAs, which are used to determine shortages in the primary and dental care workforce. Figure 2 is a map of Vermont's mental health catchment areas, which are used to determine shortages in the mental health workforce.

The U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA) monitors the healthcare provider to population ratio in RSAs to determine Health Professional Shortage Area (HPSA) designations. While Geographic HPSAs utilize RSAs for primary and dental care and Mental Health Catchment Areas for mental healthcare, other types of HPSA designations do not depend on geography and encompass all three forms of medical care. Table 1 shows the number of Vermont's HPSA designations for medical, dental, and mental healthcare. In Vermont, only two RSAs meet the criteria of a Geographic HPSA—Brighton and Ludlow.[10] A federal HPSA designation can also apply to a population, rather than a geographic area. This can occur when a population is "high need," which may include a higher percentage of residents enrolled in Medicaid, living at or below 100 percent of the federal poverty line, or experiencing homelessness.[11] Vermont has two population HPSAs which are located within the Arlington and Chelsea/Corinth RSAs; they are shaded in Figure 1 alongside Geographic HPSAs.

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[6] Vermont Talent Pipeline, *Two-year forecast for Vermont Jobs in Nursing Careers,* accessed April 8, 2019, https://docs.wixstatic.com/ugd/e92786_17d7096537384be9bb117a264b2beb4f.pdf.

[7] "Vermont Open Geodata Portal," State of Vermont, accessed April 1, 2019, http://geodata.vermont.gov/datasets/b28362657f1f4fac8312741ddf601782_0?geometry=-77.935%2C42.478%2C-70.091%2C45.249.

[8] Luca Fernandez, "All Primary Care Providers by Rational Service Areas: Population per FTE," Vermont Department of Health, accessed April 1, 2019, http://www.healthvermont.gov/sites/default/files/documents/pdf/RSA-AllPCP-2016-17.pdf.

[9] Luca Fernandez, "2016 Psychiatrists by Mental Health Catchment Area: Population per FTE," http://www.healthvermont.gov/sites/default/files/documents/pdf/MHCA-Psychiatrists-2016.pdf.

[10] Health Resources and Service Administration, *HPSA Find*, accessed April 5, 2019, https://data.hrsa.gov/tools/shortage-area/hpsa-find.

[11] Luca Fernandez, "2016 Psychiatrists by Mental Health Catchment Area."

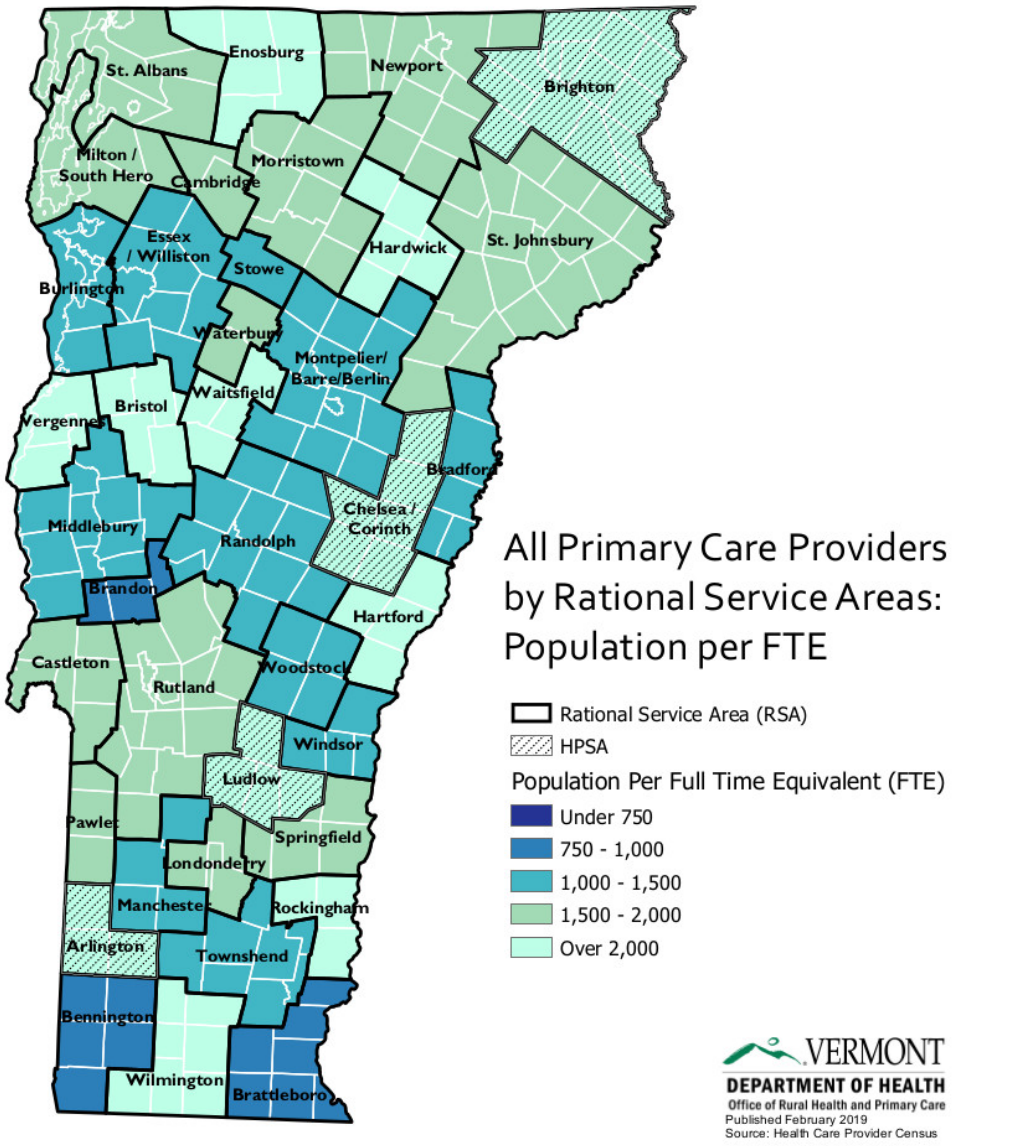

Figure 1. Rational Service Areas in Vermont With HPSA Designations

Source: Vermont Department of Health, "All Primary Care Providers By Rational Service Areas," accessed April 18, 2019, http://www.healthvermont.gov/sites/default/files/documents/pdf/RSA-AllPCP-2016-17.pdf.

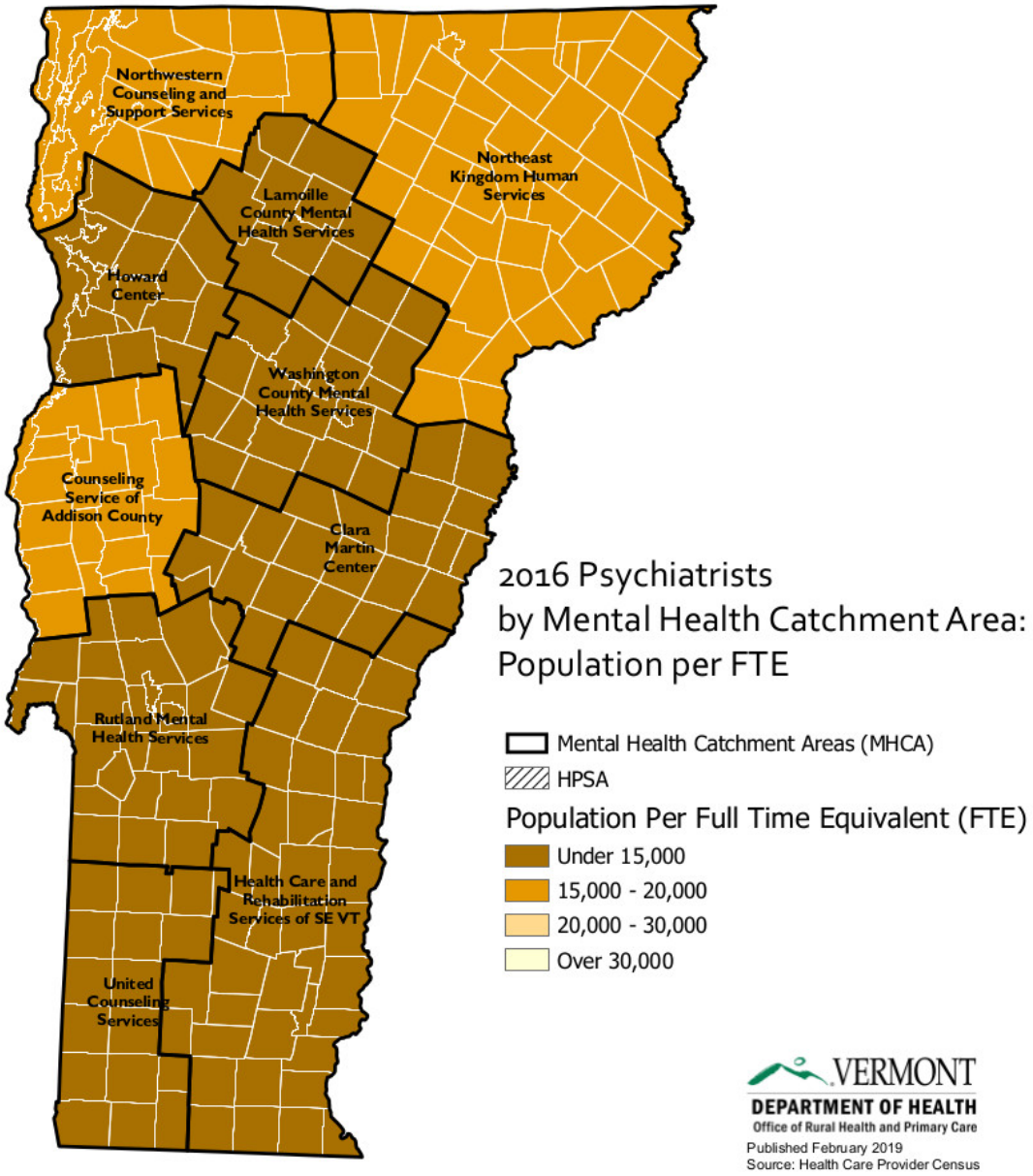

Figure 2. Mental Health Catchment Areas in Vermont

Source: Vermont Department of Health, "2016 Psychiatrists by Mental Health Catchment Area: Population per FTE," accessed April 18, 2019, http://www.healthvermont.gov/sites/default/files/documents/pdf/MHCA-Psychiatrists-2016.pdf.

Certain healthcare facilities can also be designated as HPSAs. The Health Care Safety Net Amendments of 2002, which strengthened programs under the Public Health Service Act, created automatic HPSA designations for Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs).[12] FQHCs, monitored by the HRSA, are community-based organizations directed by patient-majority boards of directors that are committed to providing integrated care that meets the needs of unique medically underserved populations.[13] RHCs provide out-patient care to residents in medically underserved non-urban areas.[14] By mandating that services are provided by teams of physicians and non-physician practitioners, RHCs seek to increase the breadth of healthcare workers in these areas.[15] Table 1 shows the number of HPSAs in Vermont for primary, dental, and mental healthcare. An RSA, high need population, or facility can be designated as an HPSA more than once if it furnishes primary, dental, and mental health services, so it is important to note that the total number of HPSAs in Table 1 is more than the sum of Vermont's underserved RSAs, high need populations, and facilities.

Table 1. Number of Health Professional Shortage Area Designations in Vermont

Form of Care	Geographic Area	Population Group	Federally Qualified Health Center	Rural Health Clinic	Total
Primary Care HPSAs	2	2	12	18	32
Dental Health HPSAs	2	1	10	16	29
Mental Health HPSAs	0	0	10	14	24

Source: Health Resources and Service Administration, *HPSA Find*, accessed April 5, 2019, https://data.hrsa.gov/tools/shortage-area/hpsa-find.

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[12] S.1533, 107th Cong. (2002), https://www.govinfo.gov/content/pkg/BILLS-107s1533enr/pdf/BILLS-107s1533enr.pdf.
[13] Health Resources and Services Administration, *What Is a Health Center?* accessed April 13, 2019, https://bphc.hrsa.gov/about/what-is-a-health-center/index.html.
[14] Centers for Medicare and Medicaid Services, "Rural Health Clinic," accessed April 14, 2019, https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/ruralhlthclinfctsht.pdf; Health Resources and Services Administration, "Rural Health Clinics (RHCs)," accessed April 14, 2019, https://www.ruralhealthinfo.org/topics/rural-health-clinics.
[15] Centers for Medicare and Medicaid Services, "Rural Health Clinic"; Health Resources and Services Administration, "Rural Health Clinics (RHCs)."

When an RSA in Vermont is designated an HPSA, it may apply to become a National Health Service Corps (NHSC) service site.[16] The NHSC is the federal program administered by the HRSA that can provide medical students and graduates with scholarships, stipends, and loan repayment in exchange for their service in HPSAs for a two to four year term of service.[17] Vermont has 58 of these NHSC sites.[18]

When a facility is designated as a Federally Qualified Health Center or Rural Health Clinic, it becomes eligible to receive other federally subsidized resources. HPSA facilities use a Prospective Payment System to offer patients who are Medicaid and Medicare recipients a sliding pay scale.[19] These centers are also eligible to receive discounted pharmaceutical products through the 340B Drug Pricing Program, free vaccines for uninsured and underinsured children, and resources for primary care provider recruitment and retention from the NHSC.[20] As an incentive, the Centers for Medicare and Medicaid Services (CMS) provides a ten percent bonus payment to primary care and mental healthcare providers located in geographic HPSAs who furnish service to Medicaid patients. Vermont does not have any mental health geographic HPSAs, but has two primary care HPSAs, the Brighton and Ludlow RSAs, that receive this bonus payment.[21]

For RSAs that do not meet the strict federal criteria for an HPSA, the state can address healthcare workforce shortages through the Governor-Certified Rural Shortage Area (GCRSA) designation.[22] In GCRSAs, primary care providers can be classified as Rural Health Clinics under the Centers for Medicare and Medicaid Services (CMS).[23]Hardwick, Brighton, Newport, and Castleton are the only four RSAs currently qualifying as GCRSAs.[24]

The second federal designation in Vermont, which takes more factors into account than availability of healthcare providers, is the Medically Underserved Area/Population designation (MUA/MUP). The U.S. Department of Health, Education, and Welfare created a 0.00-100.00

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[16] U.S. Department of Health and Human Services, "National Health Service Corps," accessed April 8, 2019, https://www.usphs.gov/student/nhsc.aspx.

[17] U.S. Department of Health and Human Services, "National Health Service Corps"; U.S. Department of Health and Human Services, Health Resources and Services Administration, "National Health Service Corps (NHSC) Approved Sites," 2019.

[18] U.S. Department of Health and Human Services, "National Health Service Corps"; U.S. Department of Health and Human Services, Health Resources and Services Administration, "National Health Service Corps (NHSC) Approved Sites."

[19] U.S. Department of Health, Health Resources and Services Administration, "What is a Health Center?" accessed April 8, 2019, https://bphc.hrsa.gov/about/what-is-a-health-center/index.html.

[20] U.S. Department of Health, Health Resources and Services Administration, "What is a Health Center?"

[21] U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, "Health Professional Shortage Area Physician Bonus Program," accessed April 7, 2019, https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/hpsafctsht.pdf.

[22] Vermont Department of Health, "Health Workforce Data, Shortages, and Designations," accessed April 3, 2019, http://www.healthvermont.gov/systems/health-professionals/shortages-and-designations

[23] Vermont Department of Health, "Health Workforce Data, Shortages, and Designations."

[24] Vermont Department of Health, "Health Workforce Data, Shortages, and Designations."

ranking called the Index of Medical Underservice (IMU) in which 0.00 is highest need, and 100.00 indicates lowest need. The IMU accounts for factors such as "too few primary care providers [with respect to consumers in an area], high infant mortality, high poverty, and high elderly population."[25] In order for the federal government to designate an MUA/MUP, the area or population must have an IMU of 62.00 or less.[26] There are twenty-eight MUAs/MUPs in Vermont, ten of which are designated as an MUA/MUP: Governor's Exception.[27] This occurs when an area does not receive less than or equal to a 62.00 IMU score, but the governor and local health officials acknowledge there are "unusual local conditions which are a barrier to access to or the availability of personal health services."[28] By including more criteria into the designation process than HPSAs, which account solely for the number of health professionals in an RSA, MUAs and MUPs seek to broadly assess an area's primary care capacity and needs.[29] As sister programs to HPSAs, MUAs and MUPs provide similar benefits such as eligibility for Rural Health Clinics and Federally Qualified Health Centers, and they are the most easily attainable government designation that targets federal grants and reimbursement funding to rural communities.[30]

Federal Initiatives

The federal government has taken steps to address the workforce shortage of primary care professionals. While the Affordable Care Act (ACA) requires individual states to implement programs aimed at strengthening their primary care workforces and primary care capacities, federal agencies have implemented national programs with the same goal in mind.[31] In 2010, the U.S. Department of Health and Human Services (HHS) announced $320 million in grant funds aimed to providing education, training, and support for low-income Americans seeking to become primary care professionals.[32] The Center for Medicare and Medicaid Innovation (CMMI) also funds programs which address workforce development. CMMI's Health Care Innovation Awards fund up to $1 billion for entities which use innovative methods to improve care and lower costs for users of Medicare, Medicaid, and CHIP. CMMI's State Innovation

[25] Health Resources and Service Administration, "MUA Find," accessed April 7, 2019, https://data.hrsa.gov/tools/shortage-area/mua-find.
[26] Health Resources and Service Administration, "Medically Underserved Areas and Populations (MUA/Ps)," accessed on April 18, 2019, https://bhw.hrsa.gov/shortage-designation/muap.
[27] Health Resources and Service Administration, "MUA Find".
[28] Eileen Salinsky, "Health Care Shortage Designations: HSPA, MUA, TBD," *National Health Policy Forum* (2010), https://www.nhpf.org/library/background-papers/BP75_HPSA-MUA_06-04-2010.pdf.
[29] Eileen Salinsky, "Health Care Shortage Designations."
[30] HPSA Acumen, "Medically Underserved Areas / Populations (MUA/Ps)," https://hpsa.us/services/muaps/medically-underserved-areas-populations-muaps/.
[31] United States. National Conference of State Legislatures. *Primary Care Workforce: Health Care Safety-Net Toolkit for Legislators*. By Dianne Mondry. Edited by Leann Stelzer. Denver, CO, 2013, http://www.ncsl.org/documents/health/PCWorkforceTK13.pdf.
[32] United States. National Conference of State Legislatures. *Primary Care Workforce: Health Care Safety-Net Toolkit for Legislators*. By Dianne Mondry. Edited by Leann Stelzer. Denver, CO, 2013, http://www.ncsl.org/documents/health/PCWorkforceTK13.pdf.

Models Initiative provides funding up to $300 million to support state models for multi-payer payment and healthcare servicing.[33]

Expanding Healthcare Capabilities: Scope of Practice Law

In the United States, the scope of practice of allied health professionals is determined at the state level. The scope of practice determines what procedures and services a healthcare practitioner is authorized to perform based on professional licensing, certification, or registration.[34] The American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA) defines allied health professionals as practitioners whose functions are to assist, facilitate and complement the work of physicians and other healthcare specialists.[35] Although education for every profession is the same across the U.S., the scope of practice varies depending on the state. Expanding the scope of practice of nurse practitioners (NPs), physician assistants (PAs), and clinical mental health counselors can be used to improve the healthcare system's capacity and patients' access to care, especially in rural areas.[36]

In Vermont, scope of practice laws are defined by the Vermont General Assembly. PAs, clinical mental health counselors, and nurse practitioners are three allied health professions that offer primary care services in Vermont.[37] PAs operate under a supervising physician. A delegation agreement is required between the PA and the physician, defining the level of supervision, monitoring, and documentation.[38] PAs are able to prescribe medication under the supervision of a physician, if it is defined in their delegation agreement. NPs are recognized as full primary care providers under Vermont law, and can independently write prescriptions. During the first 2,400 hours of an NP's practice, they must be under a formal agreement with a collaborating provider.[39] Clinical mental health counselors are able to diagnose and treat mental health conditions, emotional disorders, and psychiatric disabilities.[40] Clinical mental health counselors are eligible for licensure if they have received a master's degree in counseling or a related field,

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[33] Dianne Mondry, *Primary Care Workforce: Health Care Safety-Net Toolkit for Legislators*, a report published by the National Conference of State Legislatures, 2013, accessed May 7, 2019, http://www.ncsl.org/documents/health/PCWorkforceTK13.pdf.

[34] Federations of State Medical Boards, "Assessing Scope of Practice in Health Care Delivery: Critical Questions in Assuring Public Access and Safety" (2005), accessed April 7, 2019, http://www.fsmb.org/siteassets/advocacy/policies/assessing-scope-of-practice-in-health-care-delivery.pdf.

[35] Institute of Medicine (US) Committee to Study the Role of Allied Health Personnel, "What Does 'Allied Health' Mean?" 1989, accessed April 5, 2019, https://www.ncbi.nlm.nih.gov/books/NBK218863/.

[36] Alex M. Azar II, Steven T. Mnuchin, and Alexander Acosta, "Reforming America's Healthcare System Through Choice and Competition" (2019), *U.S. Department of Health and Human Services*, accessed April 7, 2019, https://www.hhs.gov/sites/default/files/Reforming-Americas-Healthcare-System-Through-Choice-and-Competition.pdf.

[37] Scope of Practice Policy, "Vermont Scope of Practice Policy: State Profile," 2019. accessed April 7, 2019, http://scopeofpracticepolicy.org/states/vt/.

[38] 26 V.S.A. § 1735a, https://legislature.vermont.gov/statutes/section/26/031/01735a.

[39] Vermont Board of Nursing Administrative Rules, Part 8, January 15, 2015, accessed April 7, 2019, https://www.sec.state.vt.us/media/656823/Adopted-Clean-Rules-Dec-23-2014.pdf.

[40] 26 V.S.A. § 3261, https://legislature.vermont.gov/statutes/section/26/065/03261.

have documented a minimum of 3,000 hours of supervised work, and have passed the National Clinical Mental Health Counseling Examination (NCMHCE).[41]

In comparison to other states, Vermont's scope of practice laws are relatively relaxed. For example, in Alabama, NPs must practice under a collaborative agreement with a physician and are not recognized as primary care providers.[42] PA's scope of practice in Alabama is determined by the State Medical Board, unlike in Vermont where it is determined by the supervising physician in the delegation agreement.[43] Allowing supervising physicians to determine a PA's scope of practice based on their competence ensures that PAs are practicing to their full capacity. Vermont has already expanded the scope of practice of allied health professionals to improve residents' access to care.

Expanding Healthcare Workforce Capacity

Expanding the healthcare labor force and capacity in underserved, often rural areas has been a major priority for the U.S. healthcare system in the 21st century.[44] There are some documented signs of improvement. According to the Association of American Medical Colleges (AAMC), 23.7 percent of physicians who completed their residency from 2007 to 2016 are practicing in underserved areas, up from 21.7 percent between 2003 and 2012.[45] However, the 20% of the U.S. population which lives in rural areas is only serviced by 9% of the U.S. physician workforce.[46] This disparity is pervasive in Vermont's rural counties.[47] The problem is not strictly limited to physicians; there is an overall shortage of dentists, mental health providers, primary care providers, and specialists in the state.[48]

State governments have implemented incentive policies to attract healthcare workers and college graduates in general. This section will detail some of the programs through which states have attempted to expand their healthcare workforce.

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[41] 26 V.S.A § 3261.

[42] Alabama Board of Nursing, "Administrative Code Chapter 610-X-5 Advanced Practice Nursing- Collaborative Practice," updated December 31, 2018, accessed April 14, 2019, http://www.alabamaadministrativecode.state.al.us/docs/nurs/610-X-5.pdf.

[43] Alabama Board of Medical Examiners, "Administrative Code Chapter 540-X-7 Assistants to Physicians," updated December 31, 2018, accessed on April 14, 2019.

[44] Mary Wakefield, "Strengthening Health and Health Care in Rural America," Commonwealth Fund, October 4, 2018, accessed April 3, 2019, https://www.commonwealthfund.org/blog/2018/strengthening-health-and-health-care-rural-america.

[45] Yana Fedyanova,"Incentivizing Young Doctors to Practise in Underserved Areas," *Canadian Medical Association Journal* 190, no. 7 (February 20, 2018), accessed March 27, 2019, doi:10.1503/cmaj.109-5563.

[46] Roger A Rosenblatt, and L. Gary Hart, "Physicians and Rural America," *Western Journal of Medicine* 173, no. 5 (November 2000): 348-51, accessed April 23, 2019, doi:10.1136/ewjm.173.5.348.

[47] Health Resources and Service Administration, "HPSA Find."

[48] Vermont Department of Health, "Shortages and Designations," February 7, 2019, accessed March 31, 2019, http://www.healthvermont.gov/systems/health-professionals/shortages-and-designations.

Recruiting Reimbursements: Wyoming

To address the general healthcare professional shortage in the rural state of Wyoming, the state implemented the Wyoming Provider Recruitment Grant Program which reimburses recruiting entities up to $50,000 for "eligible costs" accrued when recruiting an "eligible provider."[49] Under Chapter 5 of W.S. § 35-1-1101, eligible costs include hiring a professional recruitment company, interview costs, and advertising expenses.[50] Eligible providers are providers that do not already work full time in the state of Wyoming. Once recruited, the providers must work full time in a designated HPSA serving Medicare, Medicaid, and Children's Health Insurance Program (CHIP) patients for two years.[51]

Subsidies and Loan Repayments: Wyoming

As of 2016, medical school graduates who borrowed money owe an average of $174,299 in individual debt. [52] Some states have enacted subsidy and/or loan repayment programs to assist medical students in combating this debt. In Wyoming, there is a state loan repayment program, WY-SLRP, that is open to physicians, nurse practitioners, physician assistants, certified nurse midwives, and mental health clinicians. In exchange for two years of practice at an approved HPSA site, recipients are eligible for up to $20,000 in loan repayment.[53] HPSA sites are determined by the Health Resources and Services Administration under guidelines found in Section 1905(l)(2)(B) of the Social Security Act.[54] Additionally, the Wyoming Conrad 30-J Visa Waiver Program waives the two-year home country residency requirement for international medical graduates in exchange for providing medical care in a designated HPSA. Up to thirty waivers per year may be supported by Wyoming's Office of Rural Health.[55]

Oklahoma

In Oklahoma, a subsidy program offers medical students grants of $15,000 per year for up to four years to pay off student loan debt. Another Oklahoma program gives participating family practice residents a stipend of $1,000 per month for up to three years. In return for the

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[49] Wyoming Office of Rural Health, "Provider Recruitment Grant," accessed April 3, 2019, https://health.wyo.gov/publichealth/rural/officeofruralhealth/provider-recruitment-grant/.
[50] W.S. § 35-1-1101, accessed April 2, 2019, https://health.wyo.gov/wp-content/uploads/2016/09/PRGP-Rules-and-Regulations.pdf.
[51] W.S. § 35-1-1101, accessed April 2, 2019.
[52] Kelly Mae Ross,"10 Med Schools Where Students Leave With the Most Debt," U.S. News & World Report, August 21, 2018, accessed March 24, 2019, https://www.usnews.com/education/best-graduate-schools/the-short-list-grad-school/articles/10-medical-schools-where-students-leave-with-the-most-debt.
[53] Wyoming Office of Rural Health, "Wyoming State Loan Repayment Program," 2018, accessed April 3, 2019, https://health.wyo.gov/publichealth/rural/officeofruralhealth/wyoming-state-loan-repayment-program/.
[54] Health Resources and Services Administration, "Federally Qualified Health Centers," May 2018, accessed April 12, 2019.
[55] Keri Wagner, "Wyoming Conrad 30 J-1 Visa Waiver Program Guidelines and Application Information," accessed April 3, 2019, https://health.wyo.gov/wp-content/uploads/2016/04/53-13067_Wyoming_Conrad_30_J-1_Visa_Waiver_Program_Guidelines_and_Application_Information_October_2012.pdf.

subsidies and stipends, the participating students must commit to working in Oklahoma rural medicine for as long as they are receiving the subsidy.[56] The state's Physician Manpower Training Commission has reported about 50 percent of subsidized rural health workers remaining in their rural areas.

Kentucky

Kentucky, another state with a significant rural population, has a similar program for loan repayment. Since 2003, the state has partnered with employers, corporations, and philanthropies to provide loan repayment funding to primary care workers in the state.[57] Participants are awarded funding in a tiered format (see Table 2).

Table 2. Kentucky Loan Repayment Funding by Occupation Tier

Occupation tiers	Maximum award amounts
Physicians, dentists, pharmacists	$80,000
Physician assistants, nurse practitioners, certified nurse midwives, behavioral and mental health specialists	$40,000
Registered nurses, registered dental hygienists, alcohol and substance abuse counselors	$20,000

Source: University of Kentucky College of Medicine, "Kentucky State Loan Repayment Program," accessed April 5, 2019, http://ruralhealth.med.uky.edu/kentucky-state-loan-repayment-program.

In exchange for the loan subsidies, the participating healthcare workers must sign contracts requiring them to work full-time for two years in rural and underserved locations throughout Kentucky.[58]

As explained in the 2013 NCSL report, these types of programs are not limited to Wyoming, Oklahoma, and Kentucky. Other states with large rural and/or underserved populations, such as Alaska and Mississippi, have loan repayment initiatives which are similar to those detailed above.[59]

[56] Joe Wertz, "The Cause and Cure of Oklahoma's Rural Doctor Deficiency Might Be Money, National Public Radio, March 1, 2012, accessed April 6, 2019, https://stateimpact.npr.org/oklahoma/2012/03/01/the-cause-and-cure-of-oklahomas-doctor-deficiency-might-be-money/.
[57] University of Kentucky College of Medicine, "Kentucky State Loan Repayment Program," accessed April 5, 2019, http://ruralhealth.med.uky.edu/kentucky-state-loan-repayment-program.
[58] University of Kentucky College of Medicine, "Kentucky State Loan Repayment Program."
[59] Mondry, *Primary Care Workforce: Health Care Safety-Net Toolkit for Legislators*.

Tax Credits

Georgia

The state of Georgia's Rural Hospital Tax Credit (RHTC) program went into effect on January 1, 2017. Tasked with addressing the rural health crisis in Georgia, the state expanded the program in 2018 to offer a Georgia tax credit of 100% of a taxpayer's charitable contribution to a rural hospital in Georgia.[60] As explained by Georgia Rural Health executive director Patricia Whaley, there are rural hospitals who use funds to address physician and nursing recruitment needs. There are other hospitals who use a portion of donations to address retention by raising the salaries of personnel who may not have had increases in several years.[61] The tax credit, which will exist until at least 2021, is offered on a first-come-first-serve basis and was capped at $60 million statewide in 2018. The 58 hospitals which qualify as rural hospitals may receive up to $4 million each until the statewide cap is reached. As of 2018, the Internal Revenue Service (IRS) had not yet provided guidance on the federal deductibility of RHTC contributions.

Maine

The state of Maine's Educational Opportunity Tax Credit (EOTC) program went into effect in 2008 as a means to encourage Maine residents to earn their degrees at Maine institutions of higher education (IHEs) and work in Maine upon graduation. While the state of Maine lacks a medical school offering allopathic doctoral degrees, or MDs, its IHEs offer STEM degrees which tend to produce the greatest number of medical school applicants, thus educating future medical professionals for the state.[62]

As of the 2019 tax year, the credit is available to Maine residents who obtained an associate or bachelor's degree from a Maine IHE from 2007 to 2015. The credit is also available to those who earned an associate or bachelor's degree after 2015 from an accredited Maine or non-Maine IHE, or a graduate degree after 2015 from an accredited Maine IHE. To be eligible, the taxpaying graduates must, after graduation, live, work and pay taxes in Maine. The credit is also available to employers of qualified graduates.[63]

The EOTC is equal to payments, up to the benchmark loan payment amount, made by a Maine taxpayer on eligible loans included in the qualified graduate's financial aid package. The monthly benchmark loan payment amounts are detailed in the chart below.

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[60] Bennett Thrasher LLP, "Georgia Rural Hospital Tax Credit Program," accessed April 5, 2019, https://www.btcpa.net/2018/06/12/georgia-rural-hospital-tax-credit-program/.
[61] Patricia Whaley, Office of Rural Health Executive Director, Office of Rural Health, Department of Community Health, State of Georgia, email message sent to authors, April 18, 2019.
[62] David Luther, "Best Major for Med School Might Not Be Biology," Zippia, 2017, accessed April 17, 2019, https://www.zippia.com/advice/med-school-major/.
[63] Maine Department of Administrative and Financial Services, "Educational Opportunity Tax Credit FAQs," March 2019, accessed April 1, 2019, https://www.maine.gov/revenue/faq/eotc_faq.html#eotc2.

Table 3. EOTC Benchmark Loan Payments

The benchmark loan payment is:			
If one graduated in:	**With an associate degree**	**With a bachelor's degree**	**With a graduate's degree**
2008	Determined by Opportunity Maine contract	Determined by Opportunity Maine contract	N/A
2009	Determined by Opportunity Maine contract	Determined by Opportunity Maine contract	N/A
2010	$72.00	$343.00	N/A
2011	$68.00	$344.00	N/A
2012	$65.00	$342.00	N/A
2013	$65.00	$356.00	N/A
2014	$66.00	$363.00	N/A
2015	$70.00	$377.00	N/A
2016	$70.00	$373.00	$325.00
2017	$68.00	$364.00	$317.00
2018	$74.00	$377.00	$328.00

Source: Maine Department of Administrative and Financial Services, "Educational Opportunity Tax Credit FAQs," accessed on April 1, 2019, https://www.maine.gov/revenue/faq/eotc_faq.html#eotc2.

There are some caveats to this general rule. For the years 2013 and later, the credit is refundable if the graduate has obtained an associate or a bachelor's degree in a science, technology, engineering or mathematics (STEM) field. The state of Maine defines STEM fields in accordance with the U.S. Department of Homeland Security, Immigrations and Customs Enforcement STEM-designated degree program list. For the tax years 2016 and later, the EOTC is refundable for all associate degrees. Unused portions of the nonrefundable credit may be spread across up to ten tax years.[64]

Increasing Healthcare Access through All-Payer Models

The state of Maryland is of interest to Vermont because it utilizes innovative methods of addressing access to healthcare, such Accountable Care Organizations (ACOs) and an All-Payer Model. While Maryland has not addressed healthcare workforce shortages in rural areas specifically, the state has taken steps to generally address access to healthcare by reducing costs. ACOs are groups of healthcare providers who have voluntarily agreed to coordinate care

[64] Maine Department of Administrative and Financial Services, "Educational Opportunity Tax Credit FAQs."

for the Medicare recipients they serve, thereby expanding access to care and reducing costs.[65] As of January 2019, there are 477 ACOs in the United States.[66] In Vermont, there is one ACO network, OneCare Vermont.[67] Vermont could look to the expand its quantity of ACO networks, similar to Maryland's ACO system, to improve access to care and decrease costs.

Beginning in 1971, Maryland implemented a rate-setting system for users of commercial insurance plans and expanded the system in 1977 to include Medicare and Medicaid recipients.[68] With the rate-setting system, Medicare, Medicaid, and commercial insurance users pay the same prices for services in hospitals, prices which are determined by the state.

On January 1, 2014, Maryland implemented an All-Payer Model that expanded upon the hospital rate-setting system.[69] The All-Payer Model shifted hospital reimbursement from a fee-for-service system to a population-based system, known as global budgeting. With global budgeting, hospitals budget for a set amount of revenue based on population served rather than services provided, creating a safety-net that allows hospitals to focus on reorganizing care delivery with an emphasis on preventative care.[70] This has proven to be effective in reducing potentially preventable complications (PPC). In 2015, the first year after the All-Payer Model implementation, the PPC rate was reduced by 35.66 percent. [71] This system has saved the federal Medicare program more than $940 million between 2014 and 2018. In October of 2016, Vermont signed an agreement with CMS to create an All-Payer ACO Model, similar to the model in Maryland.

On January 1, 2019, further changes were made to Maryland's healthcare system, expanding upon the All-Payer Model to other non-hospital healthcare providers. The Total Cost of Care Model (TCOC) utilizes the population-based system in hospitals, the Care Redesign Program (CRP) and the Maryland Primary Care Program (MDPCP). The CRP and the MDPCP are programs designed to incentivize primary care providers and other healthcare providers to coordinate care and improve quality through performance-based payments from CMS.[72] Having all healthcare providers coordinate care ensures that patients get the correct care while avoiding

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[65] Centers for Medicare & Medicaid Services, "Accountable Care Organizations (ACOs): General Information," April 1, 2019, accessed April 3, 2019, https://innovation.cms.gov/initiatives/aco/pdf

[66] Centers for Medicare & Medicaid Services, Accountable Care Organizations – Map, Updated February 12, 2019, accessed April 12, 2019.

[67] OneCare Vermont, "2019 Participants and Collaborators," accessed April 22, 2019, https://www.onecarevt.org/wp-content/uploads/2019/01/2019_OneCareVT_Network_Participants_Web.pdf.

[68] Jerry Schmith, "History and Overview of the HSCRC," January 30, 2015. Accessed March 30, 2019. http://hfmamd.org/downloads/HSCRC_Workshop_2015/schmith_hscrc_history___overview.pdf.

[69] McCurdy, "Preliminary Evaluation of the Health Services Cost Review Commission."

[70] Joshua M. Sharfstein, Sule Gerovich, Elizabeth Moriarty, and David C. Chin, "An Emerging Approach to Payment Reform: All-Payer Global Budgets for Large Safety-Net Hospitals," August 16, 2017, accessed April 1, 2019, https://www.commonwealthfund.org/publications/fund-reports/2017/aug/emerging-approach-payment-reform-all-payer-global-budgets-large.

[71] Nathan McCurdy, "Preliminary Evaluation of the Health Services Cost Review Commission."

[72] Centers for Medicare and Medicaid Services, "Maryland Total Cost of Care Model," December 30, 2018, accessed April 1, 2019, https://innovation.cms.gov/initiatives/md-tccm/.

duplication of services. These programs are intended to expand Maryland residents' access to quality care, regardless of income or locality.

Conclusion

Research conducted in Vermont has identified a need to incentivize and retain healthcare professionals in the state. State broadening of the scope of practice for allied health professionals is one method of expanding access to care. Vermont, however, already has a relaxed scope of practice for NPs, PAs, and clinical mental health counselors. Several states with significant rural areas have taken steps to combat low rural health workforces and can be looked at for potential solutions to address the shortage of healthcare workers in Vermont. These include recruiting reimbursements, subsidies, loan repayment programs, and individual tax credits. Vermont could implement programs like Wyoming's, such as the Provider Recruitment Grant Program, to increase attraction of healthcare workers by reducing expenses for recruiters. Oklahoma can be looked upon as a state with a successful subsidy program. According to Rick Ernest, executive director of Oklahoma's Physician Manpower Training Commission, most students who undertake the obligated commitment become permanent practitioners in those rural areas. In Georgia, rural hospitals have used revenue from the Rural Hospital Tax Credit to address recruitment and retention. Each of these programs are programs which could be explored by the state of Vermont.

Another way to improve access to healthcare is by providing more efficient care through a Total Cost of Care Model. Implementing programs similar to Maryland's TCOC or MDPCP in Vermont could improve residents' access to and quality of primary care. Maryland's All-Payer Model has created a financial safety-net which allows hospitals to allocate resources with an emphasis on preventative care, which can expand healthcare workers' work capacities.

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Contact: Professor Anthony "Jack" Gierzynski, 534 Old Mill, The University of Vermont, Burlington, VT 05405, phone 802-656-7973, email agierzyn@uvm.edu.