Final Report #127

The Aging of the Rural Primary Care Physician Workforce: Will Some Locations Be More Affected than Others?

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The WWAMI Rural Health Research Center (RHRC) is one of six centers supported by the Federal Office of Rural Health Policy (FORHP), a component of the Health Resources and Services Administration (HRSA). The major focus of the RHRC is to perform policy-oriented research on issues related to rural health care and the rural health professional workforce. Specific interests of the RHRC include the adequacy of the supply and education of rural health care professionals, and the availability and quality of health care for rural populations, with particular emphasis on access to high-quality care for vulnerable and minority rural populations.

The WWAMI Rural Health Research Center is based in the Department of Family Medicine at the University of Washington School of Medicine, and has close working relationships with the WWAMI Center for Health Workforce Studies, state offices of rural health, and the other health science schools at the University, as well as with other major universities in the five WWAMI states: Washington, Wyoming, Alaska, Montana, and Idaho. The University of Washington has over 30 years of experience as part of a decentralized educational research and service consortium involving the WWAMI states, and the activities of the RHRC are particularly focused on the needs and challenges in these states.

The Rural Health Final Report Series is a means of distributing prepublication articles and other working papers to colleagues in the field. Your comments on these papers are welcome, and should be addressed directly to the authors. Questions about the WWAMI Rural Health Research Center should be addressed to:

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EXECUTIVE SUMMARY

BACKGROUND

In rural counties, primary care physicians (PCPs) deliver the majority of health care. However, a substantial percentage of primary care providers in the United States are approaching retirement age at the same time that fewer new U.S. medical graduates (USMGs) are opting for primary care specialties. As the population ages and millions gain health insurance coverage as a result of the Patient Protection and Affordable Care Act (ACA), demand for health care services is expected to increase. Identifying those rural areas most likely to be affected by loss of retiring PCPs is essential for planning efforts to minimize PCP shortfalls.

METHODS

This study used the American Medical Association and the American Osteopathic Association 2005 Physician Masterfiles to identify clinically active PCPs aged 74 and younger, excluding residents, teachers, administrators, researchers, and federally employed physicians. Physician self-designated specialty was used to classify PCPs (n = 206,012), which include family physicians, general internists, and general pediatricians. Physicians 56 and older in 2005 were considered to be "near retirement" and were the focus of this national, cross-sectional, descriptive study. Data were analyzed at the county, state, and national levels by metropolitan status. Physician practice counties were categorized in several ways. Counties were classified as being metropolitan or non-metropolitan based on federal Office of Management and Budget designation. Urban Influence Codes (UIC) were used to further categorize metropolitan (UIC = 1,2) and non-metropolitan (UIC = 3-12) counties. Non-metropolitan was further subdivided into adjacent to metropolitan (UIC = 3-7), micropolitan non-adjacent (UIC = 8) and remote non-core (UIC = 9-12). Counties were also categorized according to risk level by their proportion of near-retirement PCPs: the county characteristics of those in the top decile of near-retirement PCPs as well as those with lower PCP-to-population ratios were compared with those counties having no PCPs and with other rural counties. For this study, urban refers to metropolitan counties and rural to non-metropolitan counties.

RESULTS

Using data from 2005, we observed the following:

- Rural counties contained a slightly higher proportion of near-retirement PCPs than did urban ones (27.5% vs. 25.5%, respectively), with the proportion increasing as the degree of rurality increased, reaching 28.9% in remote non-core locations.
- The 184 counties in the top decile of near-retirement PCPs were characterized by having lower population density and lower socioeconomic status, as measured by low education, low employment, and persistent poverty.

- There were 166 rural counties that lacked PCPs; of these roughly 60% were remote non-core areas.
- In 11 states, 30% or greater of rural PCPs were aged 56 or older: North Dakota, Arkansas, Vermont, Nevada, Oregon, Oklahoma, Florida, Connecticut, California, West Virginia, and Massachusetts.

CONCLUSIONS

As the aging PCP population retires, rural provider shortages will be further exacerbated. Identifying states and counties that are at particularly high risk for PCP attrition through retirement can help inform policy and planning decisions in an effort to avoid PCP shortages in these vulnerable locations. Also, periodically updating these analyses with more recent data could be done to determine trends in rural PCP attrition.

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INTRODUCTION

Primary care is the foundation of the rural health care workforce. However, a substantial percentage of primary care providers (PCPs) in the United States are approaching retirement age at the same time that fewer new U.S. medical graduates (USMGs) are opting for primary care specialties.[1-3] Shortages related to retirement will coincide with accelerating demand for health care as the number of Americans aged 65 and older doubles between 2000 and 2030[4] and additional millions receive health insurance coverage through provisions in the Patient Protection and Affordable Care Act (ACA).

This study describes how an aging workforce may exacerbate the problem of rural PCP shortages by identifying rural locations with high proportions of PCPs nearing retirement age. Knowing where near-retirement PCPs work as well as the location of rural populations in greatest need of access to primary care services may help workforce planners avert impending shortages.

METHODOLOGY

This is a national, cross-sectional, descriptive study of PCPs in 2005 and focuses on the population of rural PCPs nearing retirement age. We identified all clinically active allopathic (MD) and osteopathic (DO) primary care physicians in the 2005 American Medical Association (AMA) and American Osteopathic Association (AOA) Physician Masterfiles[5,6] who were aged 74 or younger in 2005. Physicians who were federally employed were excluded from the study because access to them is often limited to defined populations and the ability of federal physicians to choose practice locations can be restricted. Physicians in residency training, who generally work in hospitals, were also excluded, as were those physicians who were inactive or were primarily engaged in teaching, administration, or research. The few cases with missing age, specialty, or county Federal Information Processing Standards (FIPS) codes were also excluded. Physician specialty was determined using the physician's self-designated primary specialty. For the purposes of this study, PCPs included family medicine (family physicians and general practitioners), general internists, and general pediatricians.

Physicians aged 56 or older in 2005 were considered to be "near-retirement" and were the primary focus of the analyses. Analyses included rural counties both with and without PCPs.

For purposes of this study the terms "rural" and "urban" are used to indicate non-metropolitan and metropolitan counties, respectively. ZIP codes identified physician primary practice location as closely as possible. Data were analyzed at the county, state, and national levels by metropolitan status. County was determined using the reported ZIP code, with the county assignment based on the county containing the plurality of the ZIP code population. Urban Influence Codes (UIC) codes[7] were used to categorize counties by metropolitan versus non-metropolitan status. There were 3,141 counties, of which 1,090 were metropolitan and 2,051 were non-metropolitan. For some analyses, non-metropolitan counties (UIC codes 3-12) were further subdivided into the categories non-metropolitan adjacent to metropolitan (UIC codes 3-7), micropolitan non-adjacent (UIC code 8) and remote non-core locations (UIC codes 9-12).

A "near-retirement age" category was created by examining the proportion of PCPs aged 56 years or older. The characteristics of counties in the top decile of near-retirement PCPs and counties having no PCPs were compared to rural counties overall.

Physician-to-population ratios were calculated using Claritas[8] population estimates as the denominators. County-level characteristics were derived from 2004 Claritas data,[8] the 2006 and 2007 Area Resource Files (ARFs),[9,10] and the 2004 Economic Research Service (ERS) policy type taxonomy.[11]

RESULTS

The combined 2005 AMA and AOA Physician Masterfiles contained 782,225 physicians, of which 575,475 were clinically active, non-federal, non-resident, aged 74 or younger, and were working in a practice whose county could be identified. Primary care physicians made up 206,012 of this latter group. Of the PCPs, 178,331 (86.6%) were practicing in metropolitan counties and 27,681 (13.4%) in non-metropolitan counties (Table 1). Among the non-metropolitan counties, PCPs practicing in counties adjacent to metropolitan counties (17,191 PCPs), non-adjacent micropolitan counties (6,220 PCPs), and remote non-core counties (4,270 PCPs) constituted 8.3%, 3.0%, and 2.1%, respectively, of the total number of study PCPs in the United States.

NEAR-RETIREMENT PCPS

Near-retirement PCPs constituted 25.5% of PCPs practicing in urban areas compared to 27.5% in rural places (Figure 1). As degree of rurality increased, so did the percentage of PCPs nearing retirement, reaching 28.9% in remote non-core locations. The same trend held true when family physicians/general practitioners were analyzed. For this group, the percentage of near-retirement physicians overall was higher in rural areas than urban ones, 28.3% versus 27.0% respectively, and was highest in remote non-core locations (31.0%) (Table 2).

At the state level, high proportions of rural, near-retirement PCPs were located in all four census regions, and this was particularly true in New England, the lower Midwest, the South, and along the West Coast (Figure 2). Eleven states had 30% or greater of their rural PCP workforce near retirement age: North Dakota and Arkansas (30.3%), Vermont and Nevada (30.4%), Oregon (30.8%), Oklahoma (32.3%), Florida (32.6%), Connecticut (33.2%), California (34.2%), West Virginia (36.1%), and Massachusetts (42.1%).

Of these 11 states, 4 had rural PCP supply that fell below the overall national-level ratio of 55.4/100,000: Arkansas (52.5/100,000), Oklahoma (49.8/100,000), Florida (45.5/100,000), and Nevada 45.2/100,000) (results not tabled).

Table 1: Number and Percent of 2005 Primary Care Physicians

Physician Type	Metropolitan		Non-Metropolitan Overall		Non-Metropolitan Adjacent to Metro		Micropolitan Not Adjacent		Remote Non-Core	
	n	%	n	%	n	%	n	%	n	%
All physicians	517,859	(90.0)	57,616	(10.0)	35,132	(6.1)	15,357	(2.7)	7,127	(1.2)
Primary care physicians	178,331	(86.6)	27,681	(13.4)	17,191	(8.3)	6,220	(3.0)	4,270	(2.1)
Family physicians/general practitioners	67,037	(79.8)	16,928	(20.2)	10,456	(12.5)	3,421	(4.1)	3,051	(3.6)
General internists	71,560	(90.5)	7,502	(9.5)	4,654	(5.9)	1,921	(2.4)	927	(1.2)
General pediatricians	39,734	(92.4)	3,251	(7.6)	2,081	(4.8)	878	(2.0)	292	(0.7)

Non-Metropolitan Adjacent = UIC 3, 4, 5, 6, 7.
Micropolitan Not Adjacent = UIC 8.
Remote Non-Core = UIC 9, 10, 11, 12

Figure 1: Percentage of Primary Care Physicians Aged 56 and Older by Geographic Location

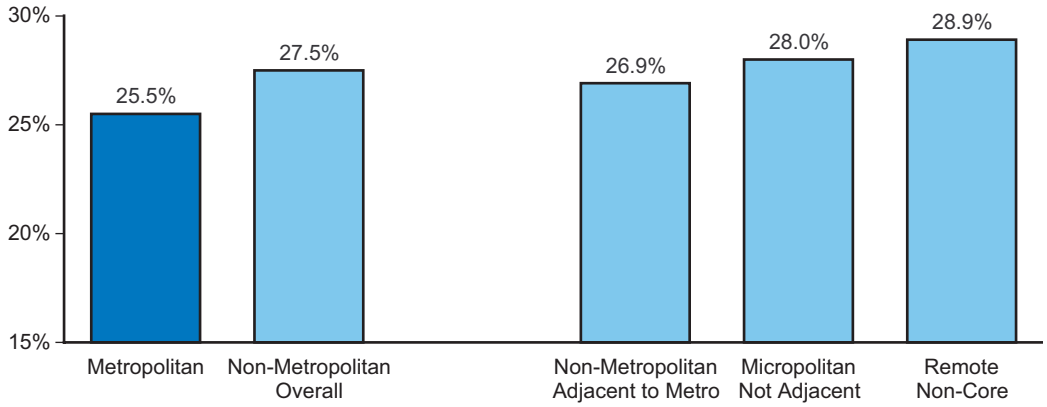


Figure 2: Percentage of Non-Metropolitan Generalists Age 56 and Over, 2005

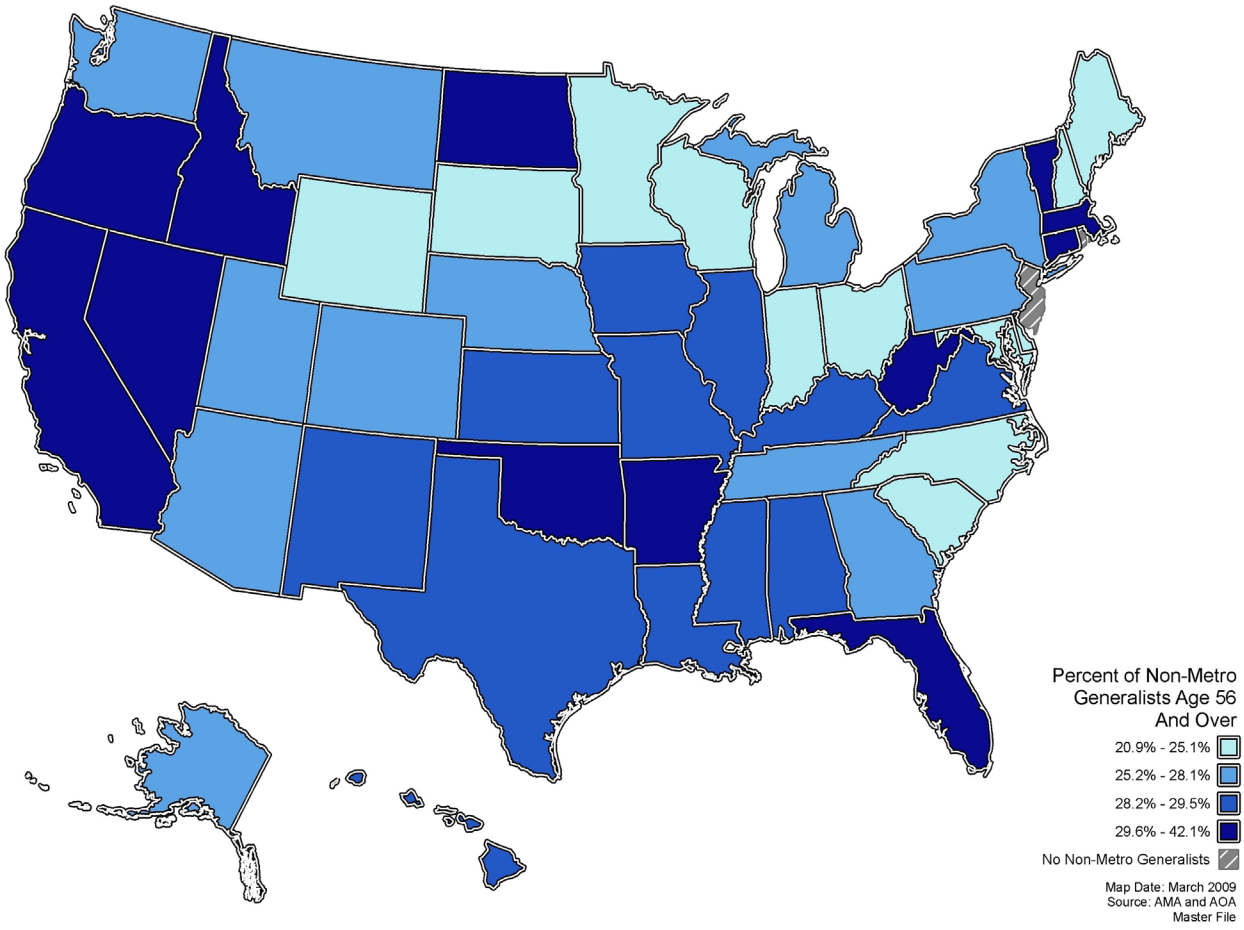


Table 2: Number and Percent of 2005 Physicians Aged 56 Years or Older

Physician Type	Metropolitan		Non-Metropolitan Overall		Non-Metropolitan Adjacent to Metro		Micropolitan Not Adjacent		Remote Non-Core	
	n	%	n	%	n	%	n	%	n	%
All physicians	155,467	(30.0)	18,552	(32.2)	11,203	(31.9)	4,898	(31.9)	2,451	(34.4)
Primary care physicians	45,386	(25.5)	7,602	(27.5)	4,624	(26.9)	1,744	(28.0)	1,234	(28.9)
Family physicians/general practitioners	18,125	(27.0)	4,795	(28.3)	2,895	(27.7)	953	(27.9)	947	(31.0)
General internists	6,832	(23.5)	1,884	(25.1)	1,160	(24.9)	528	(27.5)	196	(21.1)
General pediatricians	10,429	(26.3)	923	(28.4)	569	(27.3)	263	(30.0)	91	(31.2)

Non-Metropolitan Adjacent = UIC 3, 4, 5, 6, 7.
Micropolitan Not Adjacent = UIC 8.
Remote Non-Core = UIC 9, 10, 11, 12.

Compared to all other rural counties, rural counties in the top decile of near-retirement physicians were characterized by lower population density and lower socioeconomic status as measured by persistent poverty, lower education, and lower employment (Table 3). They also had the lowest median household income. Of all rural counties that had PCPs, rural counties in the top decile of near-retirement PCPs also had fewer PCPs per 100,000 population. These counties tended to be located in the mid-section and western portions of the country (Figure 3). In 72 rural counties, all PCPs were aged 56 or older. There were 166 rural counties with no PCPs. These counties were concentrated in the mid-section of the country (Figure 3), and almost 60% of them were categorized as remote non-core areas.

DISCUSSION

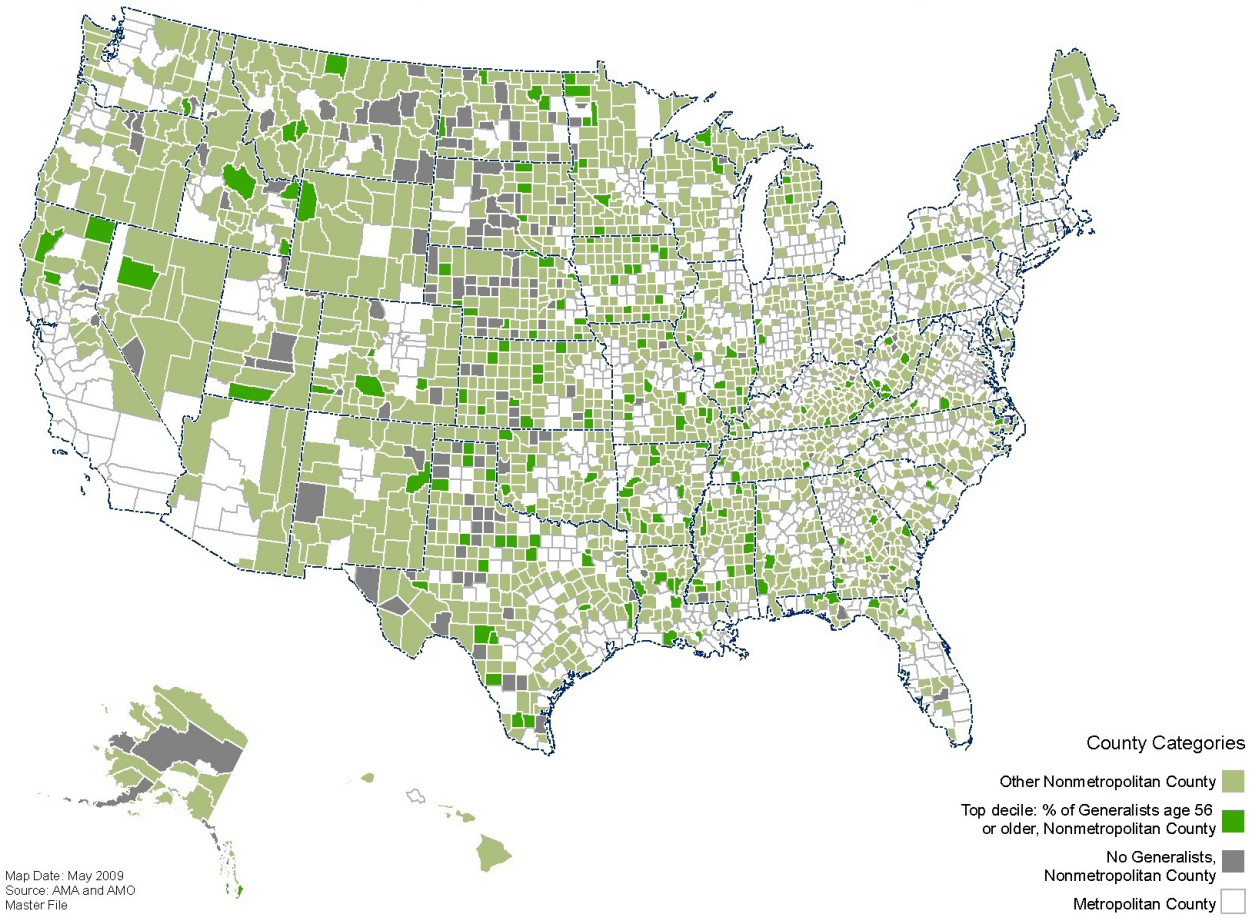
This national study reveals that PCP retirement over the coming years may exacerbate PCP shortages. Many of the locations with high proportions of near-retirement PCPs had low overall PCP supply, and in many better-supplied locations, impending PCP retirement will likely create new locations with low PCP supply. Furthermore, the impact of PCP retirement is likely to come just as demand for primary care services in rural areas spikes due to overall population growth, the "graying" of rural America, and expanded insurance uptake through ACA provisions. Compounding this situation is the fact that compared to the 1990s, fewer medical students have chosen family medicine, the largest contributor to rural PCP supply, for residency training. For example, the number of first-year family medicine residency slots declined from 3,293 positions nationally in 1998[12] to 2,730 in 2011.[13] Furthermore, on an annual basis, rural PCPs see more patients than do urban ones, but as physicians approach retirement they tend to work part time and see fewer patients.[14] Given these factors, understanding the additional impact of physician age distribution on the rural PCP workforce becomes especially important, so research factoring in provider age, productivity, and practice location is warranted.

The problem of PCP loss through retirement will affect both urban and rural areas, but rural locations will be at the greatest disadvantage.[15] Nationally, rural counties already have lower PCP-to-population ratios and higher proportions of PCPs nearing retirement age than urban counties, with the proportion nearing retirement age being highest in non-core (remote) locations. Rural counties characterized by poverty, low education, and low employment are at an especially great risk of losing their PCP workforce through physician retirement.

Table 3: 2005 Rural Primary Care Physician County Characteristics: National

County Characteristics	Counties in Top Decile of Proportion of PCPs Aged 56 and Above (n = 184)	Counties with No PCPs (n = 166)	Rural Counties Overall (n = 2,051)
ERS policy types (not mutually exclusive)			
% Low education	34.2	20.5	24.3
% Low employment	26.1	19.9	19.3
% Persistent poverty	25.5	15.7	16.6
% Population loss	38.6	48.2	25.9
% White	81.7	83.9	84.7
PCPs/100,000	36.4	N/A	55.4
Population density	22.2	34.5	43.6
Median household income	$32,981	$33,628	$35,457

Figure 3: 2005 County-Level Non-Metropolitan Generalist Categories



Given these findings, broad efforts to increase the overall rural PCP workforce as well as local, targeted efforts are needed to forestall impending shortages. Programs that prepare and encourage physicians for practicing in physician shortage areas may require an effective, large-scale strategy to mitigate shortages due to PCP retirement, as our analyses indicate that many rural locations with low PCP-to-population ratios also have high proportions of near-retirement PCPs. This observation underscores the importance of supporting programs that place newly trained PCPs in rural shortage locations, such as the National Health Service Corps (NHSC)[16-19] and the J-1 visa waiver program.[20,21]

Other potential solutions include:

- Bolstering the overall number of graduates entering rural primary care programs in schools of medicine. In particular, medical schools that focus on admitting students from rural backgrounds and providing longitudinal experiences in rural community settings have proven effective.[15,22-27]
- Parallel efforts within nurse practitioner (NP) and physician assistant (PA) programs to train students for rural primary care careers could help alleviate physician shortages.[28-33]
- To be effective, such strategies would benefit from pre-health professions matriculation programs to bolster the rural pipeline, such as better K-12 and college student preparation for rural health care careers,[34,35] promotion of admissions policies that serve rural health,[25,36] expansion of rural health care training opportunities as part of core educational curricula,[27,37-39] and the availability of financial and lifestyle support for providers in rural primary care practice.[19,40,41]

Local, targeted efforts can also be implemented to help rural communities manage PCP retirement. Rosenblatt and colleagues[19] have recommended various strategies to better prepare rural communities for local physician attrition, such as the following scenarios:

- Recruiting a new physician, NP, or PA before the retirement of an existing provider occurs will prevent gaps in service delivery.
- Supporting transitional work arrangements for near-retirement PCPs could help postpone full retirement. Examples of this approach could include locum tenens arrangements (i.e., temporary physician coverage), after-hours call coverage, and shared practice arrangements.
- Determining the future primary care needs of the community and prioritizing options for addressing those needs would allow effective proactive planning to be implemented. For example, younger PCPs, all of whom have completed residency training in the current era of work hour restrictions and many of whom have spouses or partners with career obligations, may work fewer hours and take less after-hours and weekend call than their predecessors. Thus, replacing a retiring PCP may require hiring more than one new PCP, an interprofessional team, or individual NPs or PAs.
- Communities losing physicians to retirement could also consider outsourcing after-hours telephone triage, emergency department, and inpatient services to larger systems of health care, or join forces with a nearby community to work out a mutually beneficial arrangement.

In anticipation of the added strain millions of newly insured Americans will place on PCP supply, ACA provisions attempt to address this problem. ACA's Title VII rural physician training grants are intended to assist medical schools in recruiting those students most likely to practice in underserved areas, increase the number of physicians practicing in underserved areas, and provide rural-focused training and experience (ACA, Section 5606/Section 749B).[42] ACA also expands NHSC funding for scholarships and loan-payment awards for NHSC PCPs practicing in underserved areas. Furthermore, many rural PCPs will receive a Medicare incentive 10% bonus payment to help narrow the income gap between PCPs and other specialists, a plan that is currently being implemented.[43] However, to meet the needs of their patients, some rural PCPs treat conditions and perform surgical procedures falling outside of the definition used by the Centers for Medicare and Medicaid Services to determine who qualifies for the bonus payment. This broad scope of practice may paradoxically restrict some rural PCPs from qualifying for these primary care bonus payments.[44] Overall though, these ACA efforts could help entice younger physicians into locations in which PCP retirement is a serious issue.

Also, to prepare for the anticipated increasing demand for rural PCPs, ACA will allow pre-existing, unused Medicare-funded residencies to be reallocated to teaching hospitals in underserved areas, with 75% of slots reassigned to either primary care or general surgery (ACA Section 5503).[42] It also allows for the creation of new primary care residencies at teaching health centers, 11 of which have already been established.[43] However, making more primary care residencies available does not necessarily ensure they will be filled, and given the current reluctance of U.S. medical graduates to choose primary care specialties, the possibility that these measures may not be enough to influence student specialty choice must be entertained.

This study has several limitations. Specialty and practice ZIP code information was self-reported by

physicians but is the best information available for these variables. Physician supply estimates can be affected by lag time in updating AMA information.[45] These data are more than five years old, so while this study represents an initial analysis of the effect of an aging physician population on rural health care workforce supply, a follow-up study using current data would further add to the literature on this subject. In particular, analyses using more recent data would be required to determine if the impact of an aging rural PCP workforce is growing. We believe, however, that it is highly unlikely that newer data would materially alter the primary conclusions of this report.

CONCLUSIONS

This study informs the debate around rural physician workforce shortages by identifying states and counties that are particularly vulnerable to physician attrition through retirement over the coming decade. Given that these data are from 2005, this study serves as a baseline analysis that would benefit from a follow-up study using more current information. Yet, despite the age of these data, findings can be used to guide public and private efforts to forestall physician shortages in high-risk rural locations, an issue that is becoming more pressing in an era of increasing demand for primary care in rural locations.

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