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Portland State University

A Comparative Examination of Primary Care Physician Shortages in Oregon,
Arizona, and South Carolina

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Professor Ryan Petteway

Abstract

In the midst of the current United States healthcare crisis, the shortage of primary care physicians is becoming increasingly evident. Its prevalence, although seen nationwide, directly affects specific states, creating what are known as Health Professional Shortage Areas, or HPSAs. HPSAs have a substantial lack in primary care providers in comparison to the number of individuals in a specified geographic location. Oregon in particular, is home to 120 HPSAs, with current shortages of approximately 600 physicians: a deficit expected to reach 1,500 by the year 2030 (OHWI, 2011).

While there are multiple elements that contribute to the development of HPSAs, the focus here was to examine potential reasons post-residency doctors with a primary care (PC) specialty leave the states in which they trained. Examining this in Oregon, and comparing the dynamics of Oregon to those of Arizona and South Carolina—states with similar geographic and demographic characteristics--can help us understand and address the growing shortage of primary care physicians.

The work presented here examines potential contributing causes of Oregon PC HPSAs, with a focus on two specific factors: reported decreases in the number of medical students practicing primary care, and misdirection of programs intended to promote primary care physicians to practice within the state. HPSA dynamics in South Carolina and Arizona are discussed for comparative context to inform and guide interpretation of Oregon dynamics, and to help elucidate potentially unique or overlapping factors between demographically and geographically (urban/rural) similar states. This paper closes with some preliminary recommendations to guide efforts to ensuring that all Oregonians have reliable, inclusive, and equitable access to the care they need.

Background

Overview of HPSAs: Main Causes and Solutions Nationwide

Health Professional Shortage Areas can occur in multiple forms including dental, primary care, and mental health. Primary care HPSAs are a nationwide concern defined as a maldistribution between primary care physicians and the general population within a given area. These areas are designated by the Federal Health Resources and Services Administration (HRSA) with a ratio requirement of area population to primary care practitioners greater than 2000:1 (Chou, 2009). As of January 1st, 2017 there are currently 6,626 designated HPSA locations across the United States (Kaiser Family Foundation, 2017). Research by Bodenheimer and colleagues (2010) indicates that the primary causes of HPSAs are: a growing population, an aging population, and maldistribution of current primary care physicians. Approximately 80% of the increase needs in primary care stems from the growing and aging population. The remaining 20% is divided between increased usage of primary care derived from the Affordable Care Act and the uneven distribution of primary care physicians. For example, according to 2010 census data, approximately 21% of the U.S. population lives in rural areas where only 10% of physicians practice. These main causes account for a 29% increase in the need for primary care physicians predicted for 2005-2020. This projection translates to an expected shortage of 35,000-44,000 adult primary care practitioners across the United States (Bodenheimer, 2010).

Both macro-level solutions and micro-level solutions have been proposed to address the growing primary care need. Three main proposals were suggested on the macro level in 2007 (Robertson, Boyd, Keenan & Hedges). The first proposal is to narrow the primary care income gap and to attract potential medical students into the primary care specialty. The second proposal is to improve the burden of primary care physicians' work lives, and the third is to reallocate

graduate medical education funds towards primary care training (Robertson, Boyd, Hedges, & Keenan, 2007). Meanwhile, Smith and Bodenheimer (2013) suggest a micro-level solution: delegating the workload of a primary care physician based on training and qualifications of the said physician's team members. This manner of delegation would utilize health care professionals (including nurse practitioners and physicians' assistants) to the fullest possible extent of their licensing, allowing physicians more room in their schedules for patient consultation (Bodenheimer & Smith, 2013).

In addition to these macro- and micro- proposed solutions there have been several interventional programs and policy recommendations created to assist with the shortage. An example of an interventional program is the National Health Service Corps, which provides scholarships and debt forgiveness to primary care health professionals who are based in low-income areas (Bodenheimer & Hodenfmai, 2013). Though currently underfunded, an increase in funding for this program could potentially contribute to the solution for the primary care shortage. An example of a policy recommendation is acceptance of medical school applicants based on their location. By accepting an increasing number of students from rural areas, the likelihood of medical students staying and practicing in rural areas would increase proportionally. This is because students from such areas are four times more likely to practice in the same (or similar) area from which they came (Bodenheimer & Hodenfmai, 2010). In addition to having a rural background, the likelihood of physicians practicing in rural areas also increases if medical students complete a clinical rotation in a rural location (Rabinowitz & Paynter, 2002). Another policy recommendation is increasing the number of minority practitioners. Similar to rural medical students, minority students are more likely to return and practice in minority communities (Bodenheimer & Hodenfmai, 2010), the majority of which are located in existing

HPSAs. The final policy recommendation is to increase physician exposure to programs receiving federal grants for primary care training. Said programs originate from Title VII of the Public Health Services Act. Physicians who received benefits from these grant programs are more likely to work in underserved areas. Although not always an option, increased funding would help each of these policies/programs to advance their primary care physician capabilities (Bodenheimer & Hodenfmai, 2010).

While the most common policy recommendations include a form of reimbursement for primary care, these policies do not protect or ease the workload of current practicing physicians. A popular suggestion for easing the workload without expanding the budget, as referenced above, is delegation of physician tasks to appropriately-licensed staff (Bodenheimer & Smith, 2013). For example, an estimated 60% of preventative care services that account for one fifth of primary care visits can be performed by non-clinicians, which in turn would save an estimated 10% of a physician's time. If chronic and acute care are included in the estimations, an additional 19% of a physician's time schedule can be allocated towards proper primary care activities that require a fully-trained primary care physician (Bodenheimer & Smith, 2013). Although utilizing Nurse Practitioners and Physicians Assistants could ease the projected shortage calculations, it does not entirely resolve the shortage issue.

Figure 1

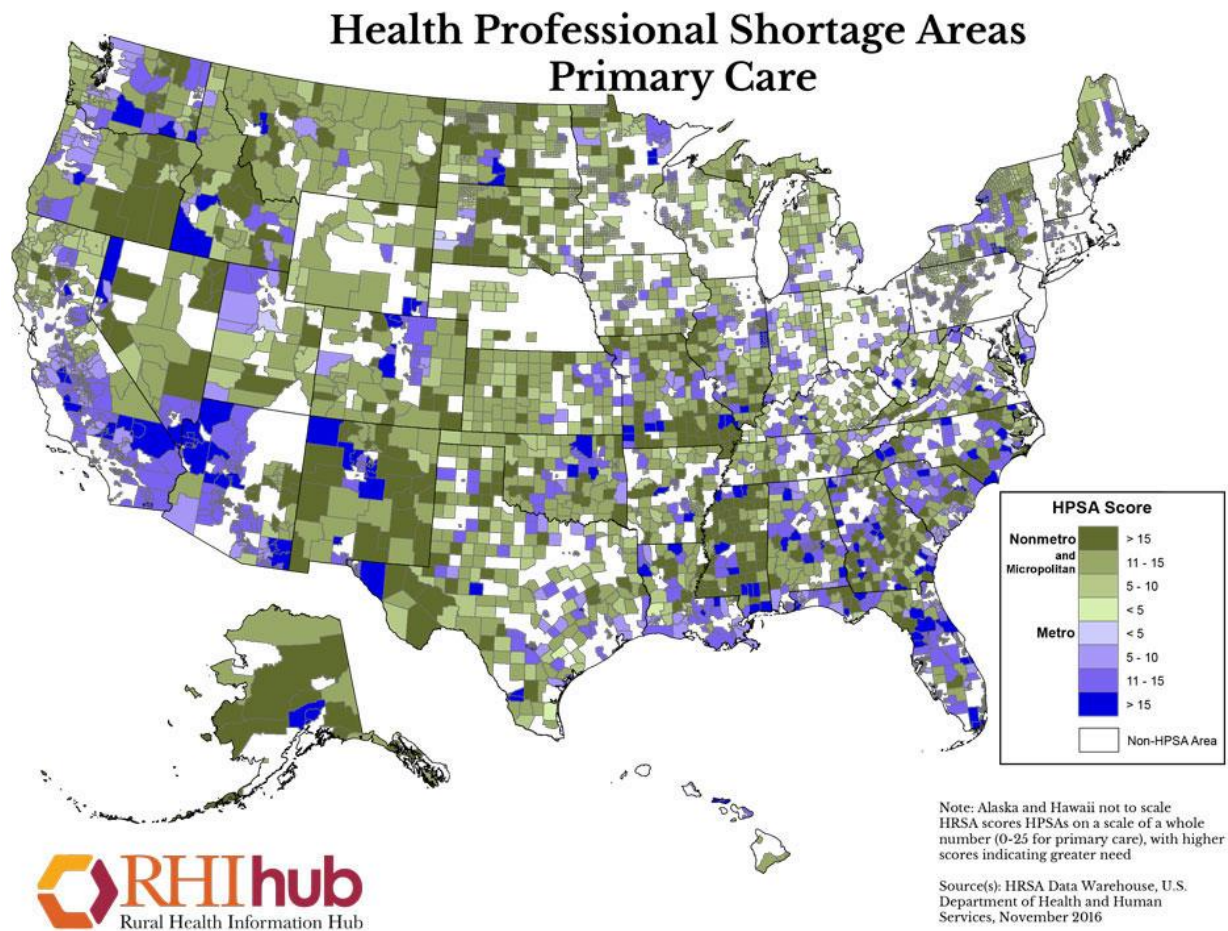


Figure 1 offers a glimpse of the nationwide primary care physician shortage. While a portion of the above causes and solutions are applicable in most states, each state has different demographic, geographic, and political contexts which might better explain HPSAs at the state-level. Looking more closely at individual states could thus allow for a more specific understanding of HPSA causes, and for the development of solutions that are contextualized to the nuances of state-level demographic characteristics, geographic realities, and political trends.

The goal here is to examine PC HPSAs with a narrower scope to better understand the issues in Oregon. In doing so, identifying states with similar demographic and geographic contexts serve to raise points for analytic comparison to help elucidate potential causes of PC HPSAs in Oregon, as well as potential solutions. In other words, this work asks: what have similar states contended with in regard to PC HPSAs? What were their identified causes? And how have they attempted to address the problem? Two states in particular offered promising points of comparison: Arizona and South Carolina.

Examination of HPSAs on a State Level

Oregon

According to HRSA, Oregon currently has 120 HPSA locations, the majority of which are located in the upper portion of the state, surrounding Clackamas and Multnomah County (Health Resources and Services Administration , 2018). In 2010, Oregon had 3,027 practicing primary care physicians. At the time, Oregon had a primary care physician to the current population ratio of 1254:1, which was lower than the national average of 1463:1. According to a 2011 report (Robert Graham Center, 2011), Oregon will need a projected 38% increase in primary care physicians by the year 2030, which translates to an additional 1,174 primary care physicians. In 2015, Oregon had a total of 4,264 primary care physicians practicing within its borders, and 574 medical or osteopathic students.

In the Oregon context, several reasons have been identified to be causing the increasing number of HPSAs. The Robert Graham Center (2011) analyzed three main reasons behind the deficit of physicians: increased utilization of primary care due to aging (24%), general population growth (64%), and a greater insured population due to the affordable care act (11%).

Moreover, according to the Association of American Medical Colleges (AAMC), the majority of the shortage can be attributed to retention issues inside the state. In 2014, 45.1% of medical students who completed their undergraduate medical education in Oregon, remained in Oregon for graduate medical education. In the same year, among graduate students completing their graduate medical education in Oregon, 52.6% stayed in the state. 68.9% of individuals who completed both undergraduate medical education and graduate medical education in Oregon stay in the state to practice. (AAMC, 2015).

In light of these challenges, Robert Graham Center recommends bolstering the “primary care pipeline” with three main points of improvement: 1) a reform in physician reimbursement, 2) separate dedicated funding for primary care graduate medical education and increased funding for primary care training, and 3) medical school student debt relief¹. The Oregon Healthcare Workforce Institute (OWHI), however, focuses on the geographical maldistributions of primary care creating HPSAs, which for Oregon, are largely located in rural areas. As of 2010 (OWHI, 2011), 38% of Oregon’s population resides in rural areas, where only 19.9% of the state’s physicians have a rural practice. Oregon currently has 10,500 practicing physicians, 36.1% of which have a primary care specialty. This means only 7.17% of Oregon’s practicing primary care physicians are located in a rural setting. This also means over 90% of primary care physicians practice in Oregon are in an urban location. OWHI attributed this maldistribution to age, personal preference and generational differences. According to a different study conducted by OWHI (2013), only 36.1% of medical trainees had a primary care specialty, leaving 63.8% with a non-primary care specialty. The institute predicted 85% of physicians practicing in Oregon in 2015 would have a non-Oregon medical school degree and 72% of would have a non-Oregon

¹ These were similar for all three states analyzed during research.

residency on their resume. Thus, it appears a core cause of the physician shortage in Oregon is a growing and aging population without the additional growth of the number of primary care medical school graduates who stay and practice in the state. While these number are not directly related to the primary care specialty, it is reasonable to assume the situation is similar.

Oregon has had multiple efforts put forth to counteract its current physician shortage. Starting in 2001, Oregon Health and Science University (OHSU) with its School of Medicine (SOM) initiated a four-phase plan to increase medical student enrollment, subsequently increasing the number of graduate medical students practicing in rural areas with low medical personnel (Robertson, Boyd, Hedges, & Keenan, 2007). Phase 1 added four students per entering class, a 20% increase in class size from 101 students in 2001 to 120 students in 2006. During this process, only OHSU's capital budget was used to maintain sustainability of the initiative. Phase 2 of the plan created community partnerships with providers, health systems, and universities throughout the state to develop regional sites using pre-existing buildings to expand available medical care. Phase 3 expanded phase 2 to create additional regional sites and continue those partnerships previously established. The fourth and final stage of the plan was a long-term step beginning with the gifted Schnitzer campus on the Portland South Waterfront. The new medical facility allowed for expansion of programs and residency numbers for OHSU and their SOM. While OHSU offers scholarships to medical students based on merit and some specialties such as geriatrics and cardiology, it is unclear if they incentivize their primary care physician program in their SOM by offering scholarships for incoming medical students declaring to be primary care-oriented at the beginning of their medical school training (OHSU, 2018).

South Carolina

According to the AAMC, South Carolina currently has 3,856 primary care physicians and 1,944 medical and osteopathic students (AAMC, 2015). As of 2016, there are 97 HPSAs in South Carolina. In 2015, 48.5% of students who completed their undergraduate medical education in South Carolina were retained in the state. At the graduate level, 45.5% of students remain in state. The total retainment for South Carolina from undergraduate and graduate medical education is 76.9%, which is an 8 percentage points higher when compared to Oregon's retainment. According to the Robert Graham Center (2011), South Carolina's primary care physician needs are less than those of Oregon. Instead of a 38% increase, South Carolina will need an estimated 29% increase of workforce, or 2,732 primary care physicians. The ratio of primary care physicians to current population is above the national average at 1627:1 (national average is 1436:1). The Robert Graham Center also suggests similar causes of the shortage for South Carolina as it did for Oregon. In South Carolina, 32% of the increased need in physicians comes from increased utilization due to aging, 52% from population growth, and 14% to greater numbers of insured due to the Affordable Care Act. Potential solutions were the same as described above (Robert Graham Center, 2011).

In 2015, South Carolina's Office for Healthcare Workforce Analysis and Planning (OHWAP) released a report analyzing previous and upcoming trends in healthcare (OHWAP, 2011). The report highlighted the lack of individuals filling available placement slots in their graduate-level residency training sites, as well as difficulty retaining medical students within their state for residency training. It concluded there is a need to establish "recruitment and retention policies and programs that will increase the number of physicians coming into the state to practice." (Pg. 31). Overall, OHWAP suggests the major causes for the shortage in South

Carolina are related to the lack of medical students to fill their programs, which is not aided by the fast pace of their population is growth. Moreover, South Carolina also has a large number (by comparison) of physicians over the age of 60—at 19% in 2009. (OHWAP, 2011). In relation to these challenges proposed solutions have thus far been limited to the following: developing task forces and new policies for recruiting new medical graduates, creating incentive policies like that of Oregon for physicians, and to attempt to more-evenly redistribute currently-practicing or newly-practicing physicians. (OHWAP, 2011).

Arizona

Arizona has the highest number of HPSAs of the three states discussed here, with 171 in 2015 according to HRSA (AMAC, 2015). In 2013, the Robert Graham Center predicted that Arizona would need a 50% increase in the state's current number of primary care physicians in order to maintain current rates of utilization. At the time, a 50% increase meant an extra 1,941 primary care physicians in addition to the [then] current 3,808 primary care physician workforce. In 2015 (AAMC), 5,306 physicians were practicing in Arizona alongside 2,240 medical or osteopathic students. The AAMC calculated the percent of physicians retained in state after completion of undergraduate medical education at 42.5% and after graduate medical education at 48.6%, A total of 74.3% of students who completed both undergraduate medical education and graduate medical education in Arizona stayed in the state after graduation (Association of American Medical Colleges, 2015).

Robert Graham Center identified the same major shortage causes for Arizona as for Oregon and South Carolina. However, in Arizona, 18% of the increase in need for primary care physicians is from increased utilization due to aging, 75% due to population growth, and 5% due to a greater insured population following the Affordable Care Act (Robert Graham Center,

2010). Similar to both Oregon and South Carolina, Arizona has also experienced a decline in the number of medical students available to fill programs, although in Arizona, there are less program seats to fill overall. By expanding both the number of residency program seats and/or the number of residency programs themselves, Arizona can begin to lessen their physician need.

For example, as proposed by the state in a 2010 rural health report (Dorian, 2010), current residency programs and the four medical schools inside Arizona would benefit from adequate and stable Graduate Medical Education funding. The report highlights the long-term benefits of the funding by stating, “this level of funding tied to a reward system, giving recognition to medical training programs producing a proportionate supply of urban and rural practitioners is recommended to stimulate partnerships and create a strong primary care practice base within the state.” (Pg. 35) Here, it is important to note that Arizona’s physicians practicing in rural areas also experience a significant wage-gap compared to their metropolitan peers. For example, compared to the urban areas of Phoenix-Mesa-Scottsdale, physicians in the urban areas of Apache, Gila, La Paz and Navajo counties make almost \$7,500 less annually (W.P. Carey Research , 2005). Thus, by establishing these partnerships, incentivizing programs and closing the wage gap, Arizona is positioned to counteract the shortage effectively with sustainability in mind.

Table 1: State by State View of HPSAs²

<i>Location</i>	<i>Total Primary Care HPSA Designations</i>	<i>Percent of Need Met</i>	<i>Practitioners Needed to Remove HPSA Designation</i>
<i>Oregon</i>	120	56.47%	141
<i>Arizona</i>	163	52.47%	422
<i>South Carolina</i>	93	69.40%	156

² Data retrieved from Kaiser Family Foundation as of 1/2017

Table 2: Primary Care Physician Workforce by State Summary ³

	Numbers	Causes	Solutions
Oregon	Additional PCPs Required by 2030: 1,174 (38% of workforce) Current Physician Workforce: 3,027 PCP to General Population Ratio 1254:1 ⁴	Increased utilization due to aging (24%) Population growth (64%) Greater insured population following the Affordable Care Act (11%)	Primary care reimbursement reform Increased funding for primary care Medical School Debt Relief
Arizona	Additional PCPs required by 2030: 1,941 (50% of current workforce) Current Physician Workforce: 3,808 PCP to General Population Ratio 1678:1	Increased Utilization due to aging (18%) Population Growth (75%) Greater insured population following the Affordable Care Act (5%)	Same as above
South Carolina	Additional PCPs required by 2030: 815 (29% of current workforce) Current Physician Workforce: 2,732 PCP to General Population Ratio 1627:1	Increased Utilization due to aging (32%) Population Growth (64%) Greater insured population following the Affordable Care Act (14%)	Same as above

Additional Areas of Concern for Understanding HPSAs

The previous sections describe a few core factors that seem to drive the distribution of HPSAs, however there are additional factors that might warrant consideration going forward. The impact of the Affordable Care Act and the effect of the aging population are more policy driven and demographic related, but research shows physician preference is important when it comes to deciding where to practice (Chou, 2009), and this preference can accordingly shape HPSA dynamics. For example, according to a survey of exiting medical residents in New York State from 1998 to 2003, shortage area designations attract primary care physicians without

³ Data compiled from Robert Graham Center Analysis of each separate state

⁴ National Average for Ratio of Primary Care Physicians to General Population 1463:1

significant educational debt and deter primary care physicians with significant debt. The results of the survey suggested that physicians with significant amounts of debt do not perceive the potential benefits from subsidy programs to make up for other aspects of working in a HPSA (Chou, 2009). Chou also mentioned other aspects influencing physicians beyond these designations such as insurance premiums and caps on malpractice damage awards.

Physicians also look at annual wages, projected competition in their field, the rigor of state medical boards, the number of medical residents retained and hospitals per capita located in the state when deciding where to practice (Kiernan, 2018). Preference of these physicians can also lead them to urban versus rural environments (Rabinowitz & Paynter, 2002). Rural locations are attractive based on the physicians' desire to raise a family, lower crime rates, less traffic, or available outdoor activities. Urban locations, on the other hand, are more attractive based on their variety of restaurants, cultural or ethnic diversity, and entertainment. Paynter and Rabinowitz (2002) highlight the difference between the general practitioner and specialists, and the higher likelihood of generalists to work in rural areas. The imbalance of urban versus rural physician concentrations seen in the study are attributed to the decreasing number of medical students training in generalist specialties.

LGBTQ Communities and Access to Care

With the understanding that personal preference plays a role in a role in deciding where to practice, there appears to be little research done on the extent to which political climate and social values influences this decision. Given the current political context and the ongoing politicization of healthcare provision, we might expect national and state-level politics to play an increasing role in practice location decisions--which might consequently impact HPSA

dynamics. The question remains: to what extent do *political* practices factor in to where a physician practices and is the concern enough to shape HPSAs (Chou, 2009)? Given the significant social and policy developments in recent years, one area of consideration here is the politics surrounding the rights and treatment of LGBTQ communities. Based on one estimate, 3.8% of the U.S. population are self-identified LGBTQ adults, many of which are deterred from seeking healthcare or other services out of fear stemming from discriminatory policies and practices (Bogart, Whitfield, Revenson, & France, 2013)—policies and practices that have been shown to “impact physiological responses to stress as well as tobacco use” (Pg. 2). As suggested by Radley and colleagues (2014), physicians tend to choose healthier states to practice in, yet lack of anti-discrimination laws leads to poorer health outcomes of LGBT individuals and less frequent doctor’s visits (Bogart, Whitfield, Revenson, & France, 2013), which might suppress health indicators for the overall population, and perhaps lead physicians to choose “healthier” practice locations. On the other hand, as discussed by Levy and Levy (2016) state policies introduced in the twenty-first century supporting gay rights (specifically relating to gay and lesbian individuals) have had lasting impacts, including reduced reporting of psychiatric disorders and comorbidities. Furthermore, the passing of employment nondiscrimination and hate crime laws has led to a reduction in hate crimes incidence experienced by LGBT communities (Levy & Levy, 2016). Similarly, partner-recognition laws for LGBT couples have been shown to increase the *reporting* of hate crimes, but not necessarily hate crimes incidence—which may suggest a greater sense of empowerment or awareness of legal recourse among LGBT communities in such states

If the absence of LGBT protections has the indirect effect of deterring physicians from practicing in certain areas (e.g. by negatively impacting population health profiles), and the

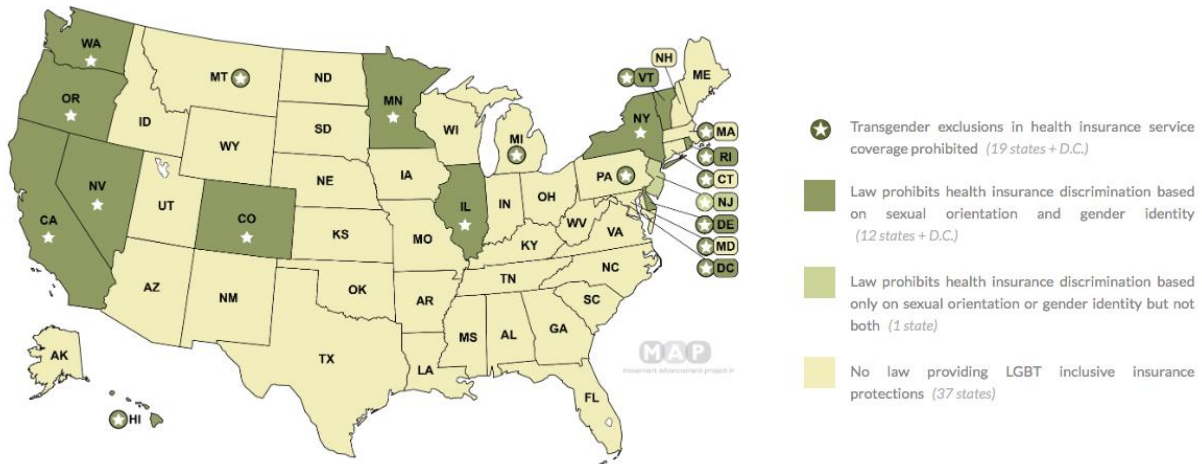
presence of LGBT protections can directly improve LGBT community health (and thus community health as a whole), then it appears that equity for and within LGBT communities can influence the number of physicians a state can attract and retain. As shown in Table 4 (see appendix), some states afford more social, political and economic rights and protections. An example of a state that tried to restrict such protections for LGBT communities is Arizona. To preface, the AMA states a physician who offers their services to the public cannot decline the treatment of an individual on the basis of sexual orientation or identity. (Michon, 2018)

Regardless, January of 2014, Arizona policy makers introduced Bill 1063. Also known as the “Anti-Gay” bill, Senate Bill 1063 allowed physicians the freedom to “not be forced to act in a manner inconsistent with his or her religious beliefs,” which can be interpreted in a few different manners. The major concern of this bill was its unfair bias towards the LGBTQ community, whereby if a patient were to disclose sexual orientation or identification to his or her primary care physician, the physician could then legally withhold care, claiming being a member of the LGBTQ community to be against their own personal religion. The proposed bill brought up political concerns in itself and echoed further anxieties of a different popular debate topic called “Conscientious Objection,” a separate, but related movement that denied patients assistance with dying, contraceptives and abortions based on location or surrounding physicians’ availability (Bohan, 2010). While the bill was not passed, the wake it created in its proposal surfaced questions on other laws with discriminatory components active in Arizona.

Unfortunately, Arizona is not the only state that appears not to actively protect LGBTQ rights. Below is a map of states with current discriminatory laws related to the medical care of LGBTQ individuals (see *Figure 2*). This *Figure* shows nationally which states allow multiple forms of discrimination against treating LGBTQ patients. States such as Arkansas, California,

Colorado, Florida, Georgia, Idaho and Illinois, Washington, and South Dakota have all enacted conscience clause laws similar to that attempted by Arizona (Marshall, 2018). As of January 18th, 2018 this is no longer a state by state issue, as the New Conscience and Religious Freedom Division of the Department of Health and Human Services was announced (Department of Health & Human Services, 2018). The Division was established to restore and enforce laws that protect the rights of conscience and religious freedoms of health care professionals. Office of Civil Rights Director Roger Severino gave several examples of the types of “unethical” care that his new department could exempt physicians from performing. While his primary examples included abortion or assisted suicide, these new laws extend further. Professionals are encouraged to file complaints if “coerced into performing procedures against religious or moral beliefs”, which raises the question—what happens if patients identifying as part of LGBTQ communities is against a physician’s beliefs? In the event a physician decides to practice in a state because of its rated LGBTQ-friendliness, having the legal freedom to choose who—or who not—to give care to could affect which states recruit the most physicians. Discriminatory laws upheld by the government could understandably dissuade members of the population affected. This includes spouses of the physicians, as spousal influence is another determining factor listed (Rabinowtiz & Paynter, 2002). And it remains unknown the extent to which unsupportive social, political, and care contexts might influence students’ decisions about where to attend medical school and complete residency, whether or not they themselves identify as part of the LGBT community.

Figure 2⁵



Immigration, Visas, and International Medical Graduates

Current political issues could also be affecting the number of foreign medical graduates the United States uses to fill positions in HPSA designations. The Conrad 30 J-1 Visa waiver program is a critical way through which HPSA needs are met, yet there has been a relative silence regarding the extent to which recent political events affect the ability of the program to meet each state's needs. The program was first introduced in 1994. It began by giving each state thirty J-1 Visa waivers to place foreign medical graduates inside their HPSAs. Admission into the waiver program bypassed the two years of required residency in the home country of applicants. Although not a program for actual citizenship, it allowed for immediate medical graduate research, immediate placement into a setting to give medical care, and relief of

⁵ Information taken from the MAP, Movement Advancement Project on Health Care Laws and Policies. Accessed 4/9/2108

shortages. For states like Arizona, where 23.3% of current practicing physicians fall under the category of “foreign,” these waiver programs are in need of expansion (Services, 2014). Bohan (2010) proposed raising the allotment of physicians under the Conrad 30 J-1 Visa Program as a solution to the HPSA crisis in Arizona, a solution further applicable to each state in need.

In February of 2017, the current President released an executive order that contained a 90-day travel ban on seven Muslim-majority countries entering the United States. The countries included used J-1 Visas to send foreign trained doctors to the states to help cushion the current shortage. Doctors entering the United States under these circumstances are more likely to practice in areas facing shortages than their “born and raised” counterparts (Yasmin, 2017). There are 280,000 foreign medical graduates working within the United States, which translates to approximately one in four doctors being foreign born. While the largest foreign doctor contributor, India, was not included in the ban, the bill was not designed to calm tensions across Asia and the Middle East. Of those 280,00 medical graduates, 50,000 come from India and upwards of 8,400 come from countries included in the ban: Syria and Iran (Barry-Jester, 2017). While these doctors serve in rural populations to help relieve shortages, they are also integrated into teaching hospitals to assist in training new physicians inside the United States. States such as Oregon, South Carolina, and Arizona rely on foreign trained physicians to assist with HPSA relief (see Table 3). While the ban is not long term, it does raise questions of the future of foreign doctors inside the United States and whether or not their services can be used to help alleviate the nationwide shortage of primary care physicians as well as the shortage inside the state of Oregon (See Table 1). This also jeopardizes the solution proposed to raise the allotment of physicians allowed in the Visa program (Bohan, 2010). If the country’s foreign medical

graduates immigrate from are banned from travel into the United States how are the J-1 visa waiver supposed to be filled?

Table 3: Percentage of Active Physicians who are International Medical Graduates, 2014

STATE	PERCENTAGE
OREGON	10.0%
ARIZONA	23.3%
SOUTH CAROLINA	14.4%

Discussion

All three states, Oregon, Arizona and South Carolina, are experiencing HPSAs due to the Affordable Care Act and an aging population. With an increasing insured and aging population, these states in theory should also be increasing their enrollment for primary care medical students. Oregon is slightly different from South Carolina in that it has established expansion programs for annual enrollment. Its four-phase south waterfront plan was designed to familiarize current medical students with HPSA areas while adding seats to each incoming class. South Carolina lacks these established recruitment programs to help entice medical graduates to practice within their state, which in turn can affect the number of physicians they can convince to stay. It is unclear if Arizona has developed task forces for recruitment like those South Carolina is researching and Oregon is implementing. Arizona's prevailing priorities for assisting the shortage are: adequate graduate medical education funding and closing the wages gaps for current rural physicians. The first priority has also been researched by Oregon and is mainly based on each individual state budget. Fortunately, the second priority, the closing of the wage gap, can be improved in all three states on the federal level through reimbursement. The NHSC Loan Repayment Program rewards physicians for practicing in an HPSA site. If these physicians

practice in the designated area for a full two years, they can be awarded up to fifty thousand dollars in loan repayment. (Oregon Health Authority, 2017). This program can be promoted by each medical school as an incentive for primary care physicians to practice in designated areas.

Along with its recruitment programs, Oregon has made an attempt to build lasting relationships between HPSA sites and medical students. In 2017, it created House Bill 3261, an effort to establish a collaboration between the local medical school Oregon Health and Science University (OHSU) medical school and the State of Oregon to keep incentives, scholarships, and loan forgiveness and expand the health care workforce in medically underserved areas (King, 2017). Funding for this includes: \$4 million for loan repayment, \$1 million for loan forgiveness and \$6 million for scholarships (79th Oregon Legislative Assembly- 2017 Regular Session). The building of these relationships appeared to be lacking when analyzing South Carolina's and Arizona's tactics for introducing and guiding medical students towards labeled HPSA sites in their state.

Beyond the recruitment programs and closing of wage gaps potentially effecting these state's ability to attract/retain physicians is their LGBTQ friendliness, which varies significantly. For example, while Arizona is experiencing difficulty with LGBTQ friendly practices, specifically the lack of laws providing LGBT inclusive medical insurance protections, Oregon in April of 2017 opened its first LGBTQ primary health care clinic (Woodstock, 2017). This is not to say there are not LGTBQ friendly practices in each state examined, however. As assessed by GLMA (Gay and Lesbian Medical Alliance), there are currently 75 medical practices in Oregon partnered with professionals in support of the LGBTQ spectrum. There are 53 of these locations in Arizona and 27 locations in South Carolina (Health Professionals Advancing LGBTQ Equality, 2017). Each state also affords different levels of social, economic, legal, and political

support/protection for the LGBTQ population. Marriage equality, as a matter of federal law, is supported in all three states, but nondiscriminatory protections based on sexual orientation and gender identity are not--these are supported in Oregon, but not in South Carolina or Arizona.⁶ The situation is the same for prohibiting health insurance discrimination based on sexual orientation and gender identity, as this is only active in Oregon.⁷ This being said, there is still more research needed to assess the correlation between the number of LGBTQ friendly practices and the number of physicians practicing in a specific state, and specifically within HPSAs.

Despite LGBTQ friendliness differences, Oregon is similar to both Arizona and South Carolina in that all three states use the J-1 Conrad Visa Waiver Program. That being said, each state differs slightly in how the program is enacted. In Arizona, 22 of the 30 available slots are saved for Primary Care, 7 are saved for specialists and 1 is reserved for the discretion of the Arizona Health Administration (U.S Immigration Website for Physicians). In South Carolina, up to 30 slots are allotted in a fiscal year, and while specialists can apply, slots for primary care physicians are prioritized (South Carolina Department of Health and Environmental Control, 2017). In Oregon, 6 of the 30 slots are used for specialists and there is a \$2,000 application fee that helps to fund the program. During the past program year 19 of the physicians were primary care, and 11 were specialists; 22 were placed in urban environments and 8 of those who applied to the program were rural (Oregon Health Authority , 2017). All three states were presumably effected by the travel ban as all three states actively use this visa program.

⁶ See Table in Appendix

⁷ See Figure 2

Conclusion and Recommendations

The goal of this paper was to examine potential reasons post-residency doctors with a primary care (PC) specialty leave the states in which they trained. Based on current contexts in Oregon, and in consideration of HPSA dynamics in similar states elsewhere, the following recommendations are responsive to HPSA concerns and may prove valuable in pursuit of meeting the primary care needs for all Oregonians.

1. Create scholarship incentives in Oregon for primary care medical students and maintain loan repayment programs for recent medical graduates practicing in primary care shortage areas.

It is unclear from research if OHSU offers specific scholarships for primary care specific medical students like they do for geriatric and cardiovascular medical students. The creation of such scholarships may help give debt relief to medical students that can help with primary care specific HPSAs. Paired with the NHSC loan repayment program and recommendation 5, this may help primary care HPSAs even more.

2. Require a clinical rotation in a rural setting for primary care medical students

Not only do more physicians from rural backgrounds decide to practice in rural areas, they are also more likely to practice in HPSAs if they complete a clinical rotation in a rural setting (see Overview of HPSAs: Main Causes and Solutions Nationwide). If OHSU were to require a rotation for all medical students, specifically primary care students, they might be able to convince more students not to leave the state after graduation, but instead remain in Oregon to practice.

3. Recruit primary care students from current HPSAs in Oregon into primary care incentive programs for both undergraduate and graduate medical education

The ongoing relationship between enrolled medical students and the shortage areas are bolstered by House Bill 3261 and the four phase OHSU South Waterfront plan. Upholding this relationship while Oregon continues to help align its new medical graduates with locations in need is crucial to the future of its primary care. This alignment can reach back as far as undergraduate education for Oregon residents, and if OHSU can move its recruitment tactics to high school educated individuals inside current HPSAs within Oregon, it could improve the number of graduated medical students that stay in practice in Oregon. Currently 68.9% of medical students who completed both their undergraduate medical education and graduate medical education in Oregon stay and practice as physicians in the state (AAMC, 2015). Thus the solution to the shortage in primary care physicians and keeping graduated medical students in Oregon may lie further down the pipeline. Starting recruiting for future medical students early (before undergraduate education) increases the likelihood a medical student would stay and practice in the state. If these prospective students were recruited from current Oregon HPSAs, theoretically they would be more likely to return and practice in the same area they were raised, compared to a medical student who transferred into the program from out-of-state. This likelihood would also theoretically increase if Oregon gave priority funding for medical school to applicants who completed both undergraduate and graduate medical education inside the state.

4. Continue the promotion of facilities such as Prism Health for the LGBTQ population and to continue to redact discriminatory laws against LGBTQ patient treatment.

This recommendation could attract LGBTQ-friendly physicians to practice in Oregon. The LGBTQ friendliness of a state reduces reported rates of hate crimes, the rates of reported

psychological disorders among the LGBT population (Levy & Levy, 2016) and gives a physician a healthier state to choose to practice in (Radley, Lippa, McCarthy, Hayes, & Schoen, 2014). As spousal support is also a consideration to be made in a “where-to-practice” decision, living and working in a state that supports the well-being of its population by not having discriminatory laws related to healthcare and its access could bolster the supportive environment of the state.

5. Reduce the application fee for the Conrad J-1 Visa waiver program if the physician agrees to work in an HPSA designated area, or of the applicant is a primary care physician.

Lowering the application fee for the Conrad 30 program will allow more individuals to apply to the program. If the cost reduction is specific for primary care applications, it would presumably allow more HPSA positions to be filled. This will hopefully help with the specific primary care need in Oregon.

6. Prioritize 20 of the current 30 slots in the Oregon J-1 Visa waiver program for primary care.

Designating the majority of the slots for primary care may bolster the primary care solution. In South Carolina, these slots are prioritized for primary care. In Arizona, 22 of the 30 slots are saved for primary care. If Oregon followed suit and gave priority to its applicants specifically in primary care and also gave incentives for those willing to work in a rural environment, there is a possibility for more rural HPSAs to be filled and a lesser need for primary care.

The work presented here examines potential contributing causes of Oregon PC HPSAs. It identifies increases in the aging and insured populations as basic contributing factors for the shortage. Additionally, it identifies recent supplementary factors that possibly affect the state’s

ability to retain trained PC physicians. These factors include LGBTQ friendliness of a state as well as political issues arising from the President's travel bans that inhibit the international help Oregon has come to rely on through the Conrad J-1 Visa waiver program. Compared to South Carolina and Arizona, Oregon's efforts appear to put itself ahead of the curve. Even with Oregon's progress, there are still further steps available which can be taken to curb the development of additional shortage areas and alleviate existing ones. The recommendations presented here are intended to outline prospective next steps in reducing the shortage. While not all may be viable/feasible, each warrants careful consideration, and through their implementation, could help to ensure that all Oregonians have reliable, inclusive, and equitable access to the care they need.

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APPENDIX

	RELIGIOUS FREEDOM LAWS	MARRIAGE EQUALITY	STATES WITH NONDISCRIMINATORY PROTECTIONS BASED ON SEXUAL ORIENTATION	STATES WITH NONDISCRIMINATORY PROTECTION BASED ON GENDER IDENTITY	STATES WITH JOINT OR SECOND-PARENT ADOPTION FOR LGTBQ FAMILIES	STATES WITH ABOVE 50% SUPPORT FOR MARRIAGE EQUALITY
ALABAMA	X					
ALASKA	X	X			X	
ARIZONA		X			X	
ARKANSAS						
CALIFORNIA	X	X	X	X	X	X
COLORADO		X	X	X	X	X
CONNECTICUT	X	X	X	X	X	X
DELAWARE		X	X	X	X	
NEW MEXICO	X	X	X	X	X	
FLORIDA	X	X				
GEORGIA						
HAWAII	X	X		X		
IDAHO	X	X				
ILLINOIS		X	X	X	X	
INDIANA		X			X	
IOWA	X	X	X	X	X	
KANSAS		X				
KENTUCKY	X					
LOUISIANA						
MAINE		X	X	X	X	X
MARYLAND		X	X	X	X	
MASSACHUSETTS		X	X	X	X	X
MICHIGAN						
MINNESOTA	X	X	X	X	X	
MISSISSIPPI	X					
MISSOURI						
MONTANA		X			X	
NEBRASKA						
NEVADA		X	X	X	X	
NEW HAMPSHIRE		X	X			
NEW JERSEY	X	X	X	X	X	X
NEW YORK		X	X		X	X
NORTH CAROLINA	X	X				
NORTH DAKOTA						
OHIO						
OKLAHOMA	X	X			X	
OREGON		X	X	X	X	X
PENNSYLVANIA	X	X			X	
RHODE ISLAND	X	X	X		X	X
SOUTH CAROLINA	X	X				
SOUTH DAKOTA						
TENNESSEE	X					
TEXAS	X					
UTAH		X				
VERMONT		X	X	X	X	X
VIRGINIA	X	X			X	
WASHINGTON	X	X	X	X	X	X
WEST VIRGINIA	X	X			X	
WISCONSON	X	X	X		X	
WYOMING	X	X			X	

*Information based on Author analysis of MSNBC News Report on LGBT Friendly States Date

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