Addressing the Primary Care Shortage in the United States

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Honor Statement

On my honor as a student, I have neither given nor received unauthorized aid on this assignment.

Eliana Prober, Master of Public Policy Candidate

Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

Table of Contents

Glossary and Abbreviations

AAMC = Association of American Medical Colleges

ACP = American College of Physicians

CMS = Centers for Medicare and Medicaid Services

HHS = U.S. Department of Health and Human Services

HRSA = The Health Resources and Services Administration, a branch of HHS that provides health care to communities in need.

HPSA = Health Professional Shortage Area, a designation HRSA gives to regions or populations facing a shortage of primary, mental, or dental health care providers.

MGMA = Medical Group Management Association

NHSC = National Health Service Corps, a program that provides scholarships and student debt relief in exchange for a commitment to serve as a physician in an underserved area.

PCP = Primary Care Physician, a health care professional who practices general medicine and helps patients manage all aspects of their health – including internal medicine physicians, pediatricians, family medicine physicians, and geriatricians.

Prior Authorization/PA Requirements = A process used by insurance companies that requires approval of a given treatment or procedure in advance for it to be covered by one's insurance plan. These requirements require communication between physicians, patients, and the patients' insurance companies to complete documentation.

THC GME = Teaching Health Center Graduate Medical Education – a program created by the Affordable Care Act to bring more physicians into underserved areas by training them in teaching health centers, often in rural or underserved areas.

Executive Summary

"Imagine walking into an emergency room in your moment of crisis – in desperate need of a physician's care – and finding no one there to take care of you. That's what we're up against. And so while our current physician shortage is already limiting access to care for millions of people, it's about to get much worse." – Dr. Jesse M. Ehrenfeld (2023), American Medical Association President

As the primary care physician shortage looms over the country and restricts many Americans' access to necessary medical care, this document intends to outline the history of this problem and potential ways that the federal government could act to reduce it. While some existing programs aim to bring more physicians into shortage areas, those programs are insufficient to cover the increased demand for health care, especially in the wake of the COVID-19 pandemic. The potential solutions outlined in this analysis involve expanding and improving existing programs or increasing the longevity of current primary care physicians' careers. As an evidence-based healthcare organization, the American College of Physicians can take advantage of the following data and proposed solutions as options to bring to the attention of Congress or the executive branch.

The Association of American Medical Colleges predicts a shortage of between 20,200 and 40,400 primary care physicians by 2036 due to increasing demand and physicians retiring or quitting (Dall et al., 2024). ***The supply of accessible primary care physicians in the United States does not meet patient demand, leading to insufficient access to primary care in many parts of the United States, reduced life expectancy, and people using emergency room beds for concerns that should be handled by primary care.***

Burnout, barriers to medical school, lower pay than other specialists, and an aging physician population are driving the relatively stagnant supply of primary care physicians, while increased health insurance access, concerns of the COVID-19 pandemic, and an aging population in need of more medical care are increasing the demand for physicians at a rate that supply cannot meet. This leads to HRSA designating a large portion of the country as Health Professional Shortage Areas. As emergency rooms become more normalized for primary care concerns, the beds available for actual emergencies will decrease, leading to delayed care.

To reduce the shortage, I propose the following three policy alternatives based on evidence of past success and room for expansion:

1. A PR Campaign for the National Health Service Corps, a program that helps repay student loans for physicians who agree to serve in shortage areas;

2. Expanding and reauthorizing the Teaching Health Center Graduate Medical Education Program, a program that funds primary care residency spots in underserved areas so that more physicians can train there; or
3. Reducing the administrative burden facing primary care physicians in an effort to reduce burnout and keep existing physicians from retiring early.

These alternatives are evaluated based on four criteria: cost-effectiveness, political feasibility, sustainability, and equity. Based on these criteria, the best policy alternative is **a PR campaign for the National Health Service Corps**. Though it is less sustainable than expanding the THC GME program, the PR campaign option is the most cost-effective – it would be less than $10,000 per one-physician increase – and due to its low cost, it is politically feasible. It is also the most equitable policy option, as it prioritizes bringing physicians to HPSAs and giving career access to underserved groups through student loan relief.

To implement this alternative, ACP will need to bring it to the attention of Congress or the Executive Branch and HRSA, who would oversee implementation. Given the recent gridlock in Congress that has prevented them from passing a new budget, the most likely way to get funding and authorization for this campaign would be to present it as a potential addition to an omnibus bill, which would require connections to legislators who have power over budget bills. Gridlock in Congress makes implementation difficult, but the low-cost nature of this program and bipartisan support for improving rural health access should make this alternative politically feasible for ACP to pass through a lobbying campaign.

Client Overview

Founded in 1915, the American College of Physicians is a medical specialty organization of internal medicine physicians, subspecialists, and medical students. They support more than 161,000 members worldwide and care about improving the effectiveness and quality of healthcare for the sake of their physicians and patients. ACP advocates for and takes stances on several issues affecting internal medicine physicians and their patients, including reducing the administrative burden in medicine, ensuring access to healthcare, strengthening the primary care physician workforce, and protecting the relationship between physicians and their patients.

The primary care shortage poses a threat to many of ACP's priorities, including the strength of the primary care workforce, patients' access to healthcare, and the relationship between patients and their physicians. As an advocacy organization, ACP's role is to push Congress and the federal government toward evidence-based solutions that can bolster the primary care workforce and reduce the shortage's impact on patients' access to healthcare.

Given that AAMC's yearly reports on the primary care physician workforce project the shortage to increase significantly over the next decade, it is crucial to address the shortage now while it is more manageable before it grows in future years. ACP's advocacy to reduce the primary care shortage helps them fulfill their mission of enhancing health care's quality and effectiveness, as the primary care shortage poses a threat to both of those characteristics.

Background

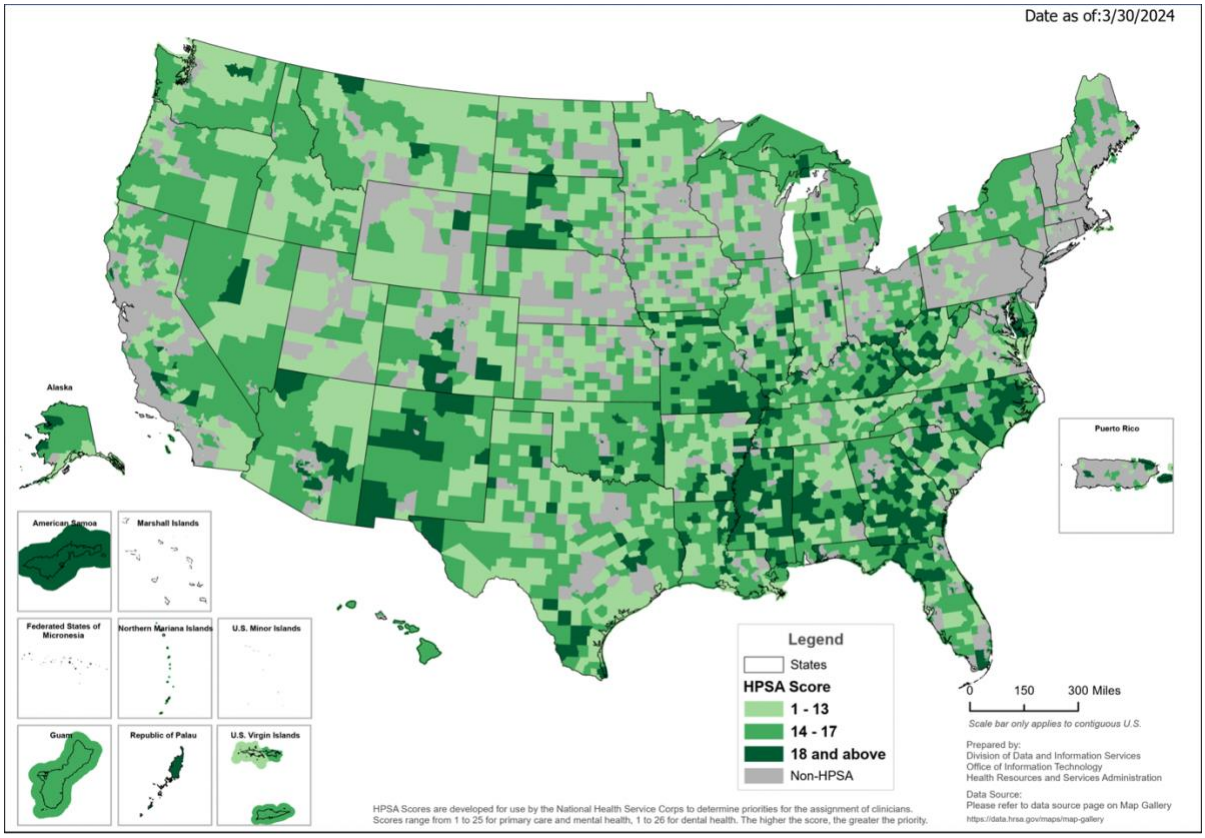
Problem Statement

The Association of American Medical Colleges predicts a shortage of between 20,200 and 40,400 primary care physicians by 2036 due to increasing demand and physicians retiring or quitting — a number which could be even higher if underserved communities used healthcare as much as populations with access do (Dall et al., 2024). ***The supply of accessible primary care physicians in the United States does not meet patient demand, leading to insufficient access to primary care in many parts of the United States, reduced life expectancy, and people using emergency room beds for concerns that should be handled by primary care.***

History and Future Projections

As of September 2021, approximately 83.7 million Americans live in Health Professional Shortage Areas, mostly in the Western and Southern regions of the United States (Howley, 2022). The map below shows the location of HPSAs throughout the United States where people have limited access to primary care:

Figure 1: HPSAs in the United States



(Health Resources & Services Administration, 2024)

In Figure 1, HPSAs are mapped by their score, a designation HRSA gives. This score considers the population-to-provider ratio, the infant health index, the percent of the population in poverty, and the travel time to the closest source of care. Higher numbers represent areas with more need and can score up to 25 (Health Resources & Services Administration, 2024). Apart from the northeast and some major cities in California and the Midwest, most of the country is covered in HPSAs, with the southeast facing the greatest need. This shortage is a nationwide problem, though rural areas face the greatest need comparatively.

Though this problem has existed for a long time, there has been limited improvement. In 2011, only about 66 percent of U.S. adults reported having access to a primary care physician. Even among those who could access their physicians, many had trouble getting advice or appointments regularly (K. Davis et al., 2011). The Affordable Care Act tried to improve access to primary care through loan relief programs and financial bonuses – but those improvements were met by increased access to healthcare through affordable insurance, thereby increasing demand simultaneously (K. Davis et al., 2011; Howley, 2022; Jacobson & Jazowski, 2011).

Outside of increased access to insurance, several other factors drive this mismatch between supply and demand. Medical school is expensive and takes time. If students choose to attend medical school and anticipate graduating with student debt, they would likely want to select a higher-paying specialization than primary care to ensure that they will be able to repay their loans (Howley, 2022). Students also see primary care as requiring more paperwork, knowledge, and work hours than other specializations, while earning less income and being less satisfied by one's career. Regardless of whether that reputation is accurate, the perception of primary care among medical students prevents many from selecting that field while in medical school (Hauer et al., 2008). There are also limited spots in medical schools and residency programs, further reducing the pool of potential future physicians. Other than a recent increase in funding for Graduate Medical Education as part of COVID-19 relief, the Centers for Medicare and Medicaid Services have not significantly expanded funding for residency spots since 1997 (Howley, 2022). Thus, without increased funding or program expansion, the supply of physicians remains fairly consistent year-to-year due to size limitations on medical student classes.

Additionally, the population of the U.S. is shifting heavily toward an older demographic as the baby boomer generation reaches retirement age. This means that a large portion of the physician population will retire soon, and the patient population will require more care and appointments in their old age – a simultaneous increase in demand and decrease in supply (Howley, 2022). Health in the United States is also worsening – more people than ever suffer from chronic conditions or diseases that require treatment from physicians (Howley, 2022).

Burnout among primary care physicians also contributes to decreasing supply. Working through the COVID-19 pandemic burnt out a lot of physicians, leading many near retirement age

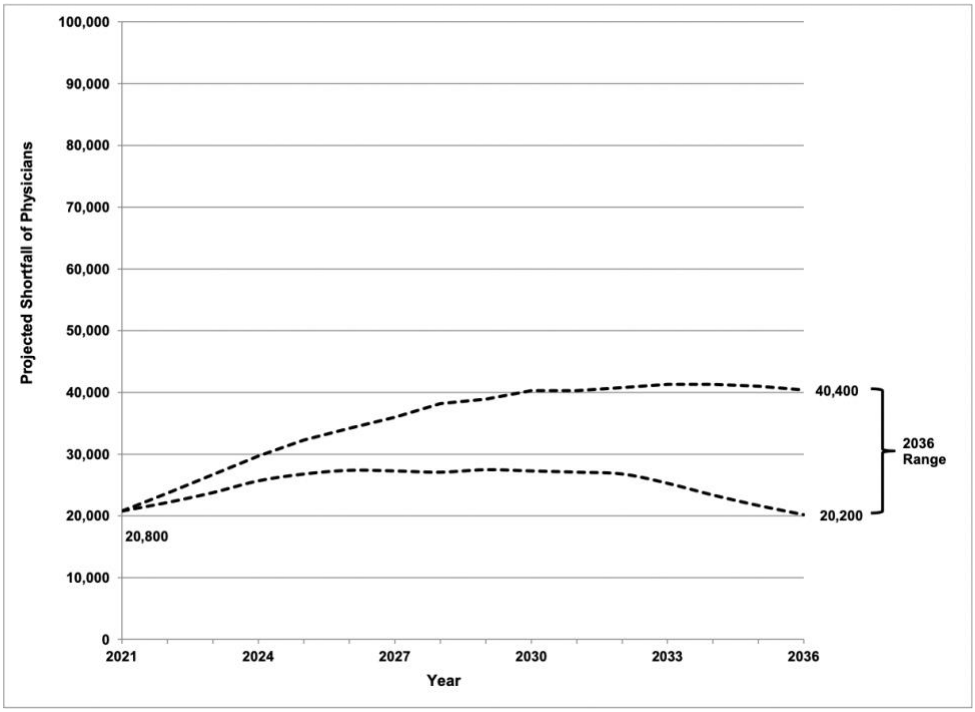
to consider retiring earlier (Howley, 2022). According to survey data analyzed by the Mayo Clinic from July to December 2020, 47.9 percent of physicians exhibited symptoms of burnout in the wake of the pandemic. As a result, 23.8 percent of respondents indicated intent to leave their positions and 31.4 percent said they would reduce their work hours within the next two years (Henry, 2022; Sinsky et al., 2021). This survey was administered nationwide with a very high response rate, but the results are based on self-reported symptoms and intentions, so there may be some variation between what people say and their actual feelings and actions.

Burnout was a problem for physicians even before the pandemic due to other factors like administrative burden – a 2002 survey indicated that 25 to 60 percent of physicians were experiencing burnout at the time, and felt that the high demands and stress of their position were leading them to those feelings (Deckard et al., 1994; Shanafelt et al., 2002). Physicians experiencing burnout sometimes report exhibiting problematic care practices, including discharging patients early, not fully discussing treatment options, making errors, and ignoring questions (Shanafelt et al., 2002). Thus, even if physicians stay through burnout, they may create worse experiences for their patients.

One of the drivers of burnout among physicians is the administrative burden they face outside of their patient care role, as detailed later in this paper. Based on 2014 survey data, administrative work accounts for about one-sixth of physicians' work week. Physicians who experience more administrative burden in their work report less satisfaction with their careers (Woolhandler & Himmelstein, 2014). Many physicians also report that their administrative burden has increased each year, meaning that physicians today spend even more time on paperwork than those surveyed in 2014 (Medical Group Management Association, 2022). However, the 2014 survey had a small sample size, so it may not be representative. Additionally, because physicians would like a reduced administrative burden, they may over-report the hours they spend on paperwork. This bias should be kept in mind when considering this survey data.

Due to all the factors outlined above, AAMC predicts that the primary care shortage is likely to worsen over the next decade (Dall et al., 2024). The graph below depicts AAMC's projections for the shortage from now through 2036, based on estimated changes in demand, physician retirement, and changing hours, among other factors.

Figure 2: Projected Primary Care Shortage Range, 2021-2036



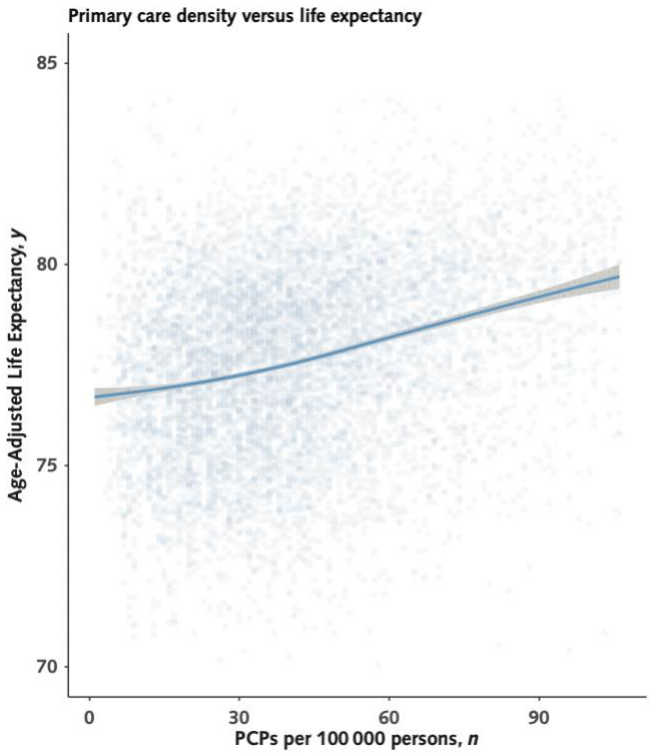
(Dall et al., 2024)

Based on the 2021 shortage of 20,800 primary care physicians, Figure 2 shows that AAMC estimates the shortage in 2036 will be between 20,200 and 40,400 primary care physicians – an improvement from their previous report's projection. However, these estimates assume that funding for graduate medical education will increase in the future, allowing for more residency spots for medical students. If that condition is not met, AAMC predicts a worse shortage. Additionally, these projections are based on low demand for physicians in underserved communities based on barriers to access – if underserved communities had a higher, more average demand for physicians, the physician shortage would be far worse (Dall et al., 2024).

Consequences of the Problem

The main consequence of the primary care shortage is the lack of access to primary care for all Americans. With insufficient physicians to meet patient needs, people will have to wait longer to make their appointments, delaying their access to important care. Because primary care improves the health of communities, areas with limited primary care access tend to be less healthy than areas with sufficient PCPs. Recent estimates suggest that increasing the density of primary care physicians in counties that are currently facing a shortage could significantly improve life expectancy, depending on how large the shortage is and how many more physicians are added to the population (Basu et al., 2021). The graph below depicts the relationship between the density of primary care physicians (physicians per 100,000 people) and life expectancy.

Figure 3: Relationship Between PCP Density and Life Expectancy



(Basu et al., 2021)

Figure 3 demonstrates that HPSAs generally have a lower life expectancy than areas not facing a primary care shortage. There is a strong association between having a higher density of PCPs in an area and having a greater life expectancy. However, there may be other factors confounding this, such as the environment, socioeconomic status, or demographics in the area, which also improve or worsen life expectancy.

When people cannot access a primary care physician, they take their health problems to emergency departments instead – leaving fewer beds available for real emergencies. A 2022 review of patient chart data at a hospital in San Antonio indicated that over 56 percent of emergency department visitors could have had their needs handled by primary care. Emergency department overcrowding is associated with more negative health outcomes and delayed patient care (Tapia et al., 2022). Because this analysis was limited to one hospital, it may not be representative of the country, although the large sample size improves this study's validity.

People also may delay seeing a physician until the problem becomes critical and needs emergency care. In addition to the increased health risk this poses for individuals who delay their care, this increases the cost of health care for Americans as a whole. Less healthy people need more health care, and emergency care is more costly than primary care (Howley, 2022).

Evaluative Criteria

To decrease healthcare costs and improve health outcomes nationwide, reducing the primary care shortage is crucial. I propose three alternatives to reduce the shortage and will evaluate them based on four criteria: cost-effectiveness, sustainability, equity, and political feasibility. These criteria were selected because they matter to ACP or are important to implementation. All these policy alternatives rely on regulatory changes from the federal government, so political feasibility is important, and the government cares deeply about cost-effectiveness. ACP values health equity as well, so any alternative should prioritize that value. Lastly, sustainability is crucial to ACP — an alternative must generate long-lasting change, not be a temporary band-aid. Each alternative's score will be evaluated in an outcomes matrix that demonstrates which alternative best meets the criteria.

Cost-Effectiveness

Cost-effectiveness measures the effectiveness of a given alternative in reducing the primary care shortage compared to the cost of implementation to the federal government. After calculating the net present cost (in 2024 USD with a 3 percent discount rate) of a given alternative over 10 years of implementation, I would compare that cost to the estimated number of primary care physicians added to the economy. Dividing the cost by the number of physicians added to the economy through a given alternative generates a cost per one-physician increase, which is the cost-effectiveness of the policy. The outcomes matrix includes rounded numbers, but more exact calculations can be found in the Appendix.

While the first two policy alternatives have a fairly straightforward cost-effectiveness analysis based on the cost of physicians added to the economy and expanding existing programs, the third alternative is less straightforward and based on assumptions of costs saved and physician retention. This puts the cost-effectiveness of the third policy alternative on a different scale than the other two and generates a higher-end assumption. This distinction should be kept in mind when examining the third alternative and the outcomes matrix that follow.

Sustainability

Sustainability measures the anticipated duration for which a policy will likely make an impact. With any intervention, there is a chance that the immediate effect dies down later, or that the program gets repealed by new political forces. For example, while some programs might incentivize physicians to move to shortage areas, those physicians might leave after reaping the benefits. Sustainability will be measured as high, medium, or low based on how long the alternative would help retain physicians compared to the status quo.

A highly sustainable alternative would be one with evidence showing that it will increase the number of physicians in Health Professional Shortage Areas (HPSAs) significantly beyond the

percentage who would ordinarily serve there without intervention. It also would be one with growth potential for the future without further expansion and costs. A moderately sustainable alternative would increase the number of physicians in HPSAs at the same percent or slightly more than the amount who would otherwise serve in HPSAs without incentive or intervention. Alternatives that would require some future expansion or major costs to grow in the future would also be moderately sustainable. An alternative that scores low on sustainability would not increase the number of physicians in HPSAs any more than the percentage who would otherwise work there without intervention. It also is an alternative that lacks growth potential for the future.

Equity

Equity measures how much a given alternative prioritizes the communities with the greatest need. To measure this, I plan to use a rating system from 0-5 based on the answers to the following questions, where "yes" is worth 1-2 points and "no" is worth 0. The first question is worth 2 points because it is most important to equity in this policy problem.

1. Does this alternative target HPSAs? (0 or 2)
2. Does this alternative create opportunities for minority physicians and physicians of color? (0 or 1)
3. Does this alternative allow patients to see physicians who look like them/share a similar background? (0 or 1)
4. Does this alternative try to reduce the emotional and physical burden on minority physicians? (0 or 1)

Political Feasibility

Political feasibility measures how feasible it would be to pass a given alternative into law and implement it under current circumstances. This will use a rating system from 0-10 based on the answers to the following questions:

1. How organized are those who will benefit from the policy? (0 = dispersed, 1 = concentrated)
2. How organized are those who will absorb the costs of the policy? (0 = concentrated, 1 = dispersed)
3. Is there a history of the federal government (or state governments) taking similar action to this alternative? (0 = no, 1 = yes)
4. Is the current presidential administration amenable to making policy changes on this issue? (0 = no, 1 = yes)
5. Is there a majority in both chambers of Congress willing to support this alternative? (0 = no, 1 = only in one chamber, 2 = yes)
6. Is there public support for this alternative? (0 = no, 1 = yes)
7. How expensive would this program be for the federal budget? (0 = more than $5 billion, 1 = $2-5 billion, 2 = $1-2 billion, 3 = less than $1 billion)

Potential Policy Alternatives

To reduce the primary care shortage, I am evaluating three potential alternatives using the criteria outlined above, culminating with an outcomes matrix that directly compares each alternative. The alternatives are a PR campaign to advertise the National Health Service Corps, increased funding for the Teaching Health Center Graduate Medical Education (THC GME) program, or decreased administrative burden for physicians. The first two alternatives rely on expanding the capacity of existing programs that attempt to reduce the primary care shortage but currently fall short of what is necessary to meet this growing problem. The last alternative relies on surveyed physicians who said that administrative burden leads them to burn out and want to leave the profession (Oakman & Smith-Ramakrishnan, 2023; Reinhart, 2023).

Because ACP cannot change the law or implement these programs by themselves, these alternatives are policies to advocate when speaking to Congress or HRSA. Thus, all cost considerations include the cost incurred by the federal government and HRSA if they implement this program, not the cost to ACP.

Alternative #1: PR Campaign for the National Health Service Corps

The National Health Service Corps is a government program that offers up to $25,000 in loan repayment annually for recent medical school graduates working in Health Professional Shortage Areas. A 2019 study of graduating osteopathic students showed that those who used a loan forgiveness program like NHSC were more likely to go into primary care practices than graduates who did not take advantage of such programs (Smith, 2019). However, osteopathic medical students are already more likely to go into primary care than other types of medical students, generating some potential bias in these results. Even so, some analyses show that the NHSC generates a 2:1 return on investment through the economic output of physicians using it, making the program well worth its cost (C. S. Davis et al., 2023).

The NHSC currently attracts 9,000 to 10,000 participants yearly — with nearly 5,000 unfilled spots annually (Kamerow, 2018). Thus, I propose a PR campaign from HRSA for medical students and residents to increase awareness of loan forgiveness programs like the NHSC so that more individuals might take advantage of them and practice in HPSAs. It can be tested through a short-term (3-5 year) pilot study with the potential for extension if successful.

In March, HRSA began a limited marketing campaign for the National Health Service Corps, where individuals can find and use shareable social media posts, posters, newsletters, and a video testimonial from a participant (HRSA, 2024). The results of this campaign remain to be seen, but targeted social media campaigns and testimonial videos are a crucial part of this alternative that should continue. However, the current marketing campaign relies on algorithms and individuals choosing to share materials with their peers or students, which is not guaranteed.

My alternative includes more visible advertising through personalized presentations and hand-delivered materials, rather than people opting to share things that may only appear to people with a certain social media algorithm. There may also be people interested in hearing more about NHSC who do not have internet/social media access that would bring them to see these advertisements.

This PR campaign would involve a few individuals (current/former NHSC participants, regional HHS staff, and prospective employers from HPSAs) traveling to medical schools and speaking to students about the NHSC to advertise it. Additionally, the campaign would support continued targeted online promotion of the NHSC, and printed materials distributed to medical students and residents in targeted locations. Through the random selection of different methods to use at each school, this pilot study could experiment to discover which method of advertising is most effective (if any) and implement that method for the future.

Evaluating Alternative #1

Cost-Effectiveness

For cost-effectiveness, this program would cost under $10,000 annually for each new physician recruited to the program over the next 10 years. To calculate effectiveness, I examined the effectiveness of PR campaigns in studies of marketing and public health campaigns. After weighting the effectiveness of three marketing campaigns at 0.3 and the effectiveness of a vaccine campaign at 0.1 given how applicable those studies feel to this situation (vaccines encounter more resistance due to safety concerns that do not apply to this policy alternative, and vaccine-related campaigns cater to a different audience), it appears that PR campaigns can increase participation in a program by about 17.5 percent. Given that an average of 6,303 people participate in the NHSC annually, a PR campaign would likely bring 1,103 more physicians each year. According to a 2022 CRS report, about 80 percent of NHSC participants remain at the same site or in an HPSA for at least one year after their commitment ends. Assuming a high-end estimate of 20 percent of each NHSC cohort leaves each year, this alternative would bring about 28,678 new physicians to HPSAs over 10 years.

To calculate costs, I used the high-end estimate that PR campaigns cost about $1 million and added that to the cost of each new physician's $25,000 scholarship each year. After using a 3 percent discount rate on future costs, the net present cost of implementing this alternative for 10 years is just over $250 million. Dividing that by the estimated physician recruitment of 28,678 generates a cost-effectiveness of under $10,000 per new physician. This is very cost-effective, as most of that cost is the annual loan repayment for each new participant. See Tables 1a, 1b, and 1c in the Appendix for more detailed calculations. Assuming that the primary care shortage will reach 20,200 to 40,400 by 2036 (Dall et al., 2024), by placing about 28,678 physicians in shortage areas over a decade, this alternative could reduce the shortage by 70 percent or more. Using the average of the potential shortage (30,300), this could reduce the shortage by 94 percent.

Sustainability

For sustainability, this scores medium-high. NHSC has strong short-term retainment, though the years of sustainability vary between studies. About 80 percent of participants remain at the same site or in an HPSA for at least one year after their commitment ends, and 85 percent of participants from 2012-2018 remained in 2019 (Heisler, 2022). Up to half of NHSC scholarship recipients remain in HPSAs 10 years after their commitment has ended (Kamerow, 2018). According to 2009 data from the American Medical Association, only about 20 percent of family medicine physicians stay within 5 miles of their residency site (Fagan et al., 2013). The Association of American Medical Colleges (2017) also reported that 54.2 percent of physicians who completed residency from 2008 to 2017 remained in the state where they completed their residency — though retention varies between states. Generally, this shows that the retainment of physicians is much stronger among NHSC participants compared to the general population of physicians — making it a sustainable option to improve healthcare in HPSAs. However, the NHSC program has a limited capacity based on its funding for scholarships, so this alternative would need to eventually expand to meet demand if it were to score higher on sustainability.

Equity

For equity, this scores 3/5. The policy targets HPSAs — over 80 percent of NHSC participants serve in Health Professional Shortage Areas (C. S. Davis et al., 2023). NHSC also creates opportunities for minority physicians who might otherwise not be able to afford to work in an HPSA or as a Primary Care Physician due to student loans. Additionally, as the program currently stands, participants are more likely to identify as Black and/or female than the overall population (C. S. Davis et al., 2023). However, this alternative does not ensure that applicants will be from groups that look like residents of the HPSA. Given that this program offers student loan relief to individuals who work in underserved areas, it may be saddling an additional burden onto minority physicians who could not afford to serve without loan relief. People who can afford to work without guarantees of student loan relief have more choices and therefore can put themselves in lower-stress situations.

Political Feasibility

Lastly, for political feasibility, this scores 5/10. See Table 1d in the Appendix for details of how this score was generated. This policy will benefit physicians, medical students, and people in medically underserved areas — groups that are not very well-organized on this issue. Many groups advocate on behalf of physician interests, but they are not all focused on this issue. People in HPSAs and medical students are not very organized. Because this is a federal program, the government (specifically HRSA) will absorb most of the costs. HRSA is well-organized, and Congress has recently been unable to pass an updated budget due to partisan gridlock. Thus, interests appear to be well-organized against Congress approving this alternative, which would require appropriating more funds to HRSA to implement it and authorizing the PR campaign. While there is a recently formed bipartisan caucus supporting rural health access, legislation on the subject has not made it out of committee in either chamber (Dietel, 2023).

The Affordable Care Act and the Medicare Access and CHIP Reauthorization Act of 2015 both increased funds to NHSC, so there is a recent precedent for increased funds (Reyes-Akinbileje, 2017). The Biden administration also announced plans to increase rural access to healthcare in 2023, including bolstering the rural health workforce (Assistant Secretary for Public Affairs, 2023). They would be amenable to policy changes that would bring more physicians to rural areas. Rural Americans generally support efforts to repeal the ACA and do not list healthcare concerns as among their chief priorities — so public support and support among beneficiaries of the policy may not be high (Hamel et al., 2017). PR campaigns are relatively inexpensive policy options, and this policy alternative would cost less than $1 billion, according to the analysis in Tables 1b and 1c of the Appendix.

Alternative #2: Expanding and Reauthorizing the Teaching Health Center Graduate Medical Education Program

THC GME is a government program created by the Affordable Care Act to fund primary care residency programs in underserved areas that otherwise could not provide the personnel and resources needed to train medical residents. Currently, this program requires funding reauthorizations every three years from Congress. Because funds are unreliable, centers that receive them cannot plan — leading to unnecessary layoffs, fewer patient services, fewer open hours, and more struggles that could be solved by financial security (Philips & Adashi, 2023).

This policy alternative would reauthorize THC GME for 10 years at a time instead of three. It would also expand the program to annually fund more teaching health centers. THC GME currently funds an average of 42 residency programs annually, though the annual number has increased yearly to a total of 81 in the 2023-24 academic year. An average of 530 residents receive training annually through the program, though this has also increased annually to over 1,096 residents in 2023-24. My alternative would expand the program to support about 1,200 residents and 90 THC GME residency programs annually.

Evaluating Alternative #2

Cost-Effectiveness

For cost-effectiveness, this alternative would cost about $265,575 per one-physician increase in an HPSA. To calculate effectiveness, I averaged the percentage of THC GME participants who remain in HPSAs after their commitment has concluded as reported by the Congressional Research Service — 55.25 percent. Given that 1,200 residents would participate annually, about 663 from each cohort would remain after they complete their residencies. After 10 years, this would mean that 1,200 residents and 5,967 physicians would still serve in HPSAs, for a total effectiveness of 7,167 medical professionals after 10 years.

To calculate costs, I used the approximate cost of training a resident ($180,000) according to HHS and the average cost of starting a new Graduate Medical Education program ($620,000). As policy currently stands, HHS pays for primary care residency through Medicare funding, so one could argue that the cost of training new physicians is negligible here – if HRSA does not pay for physician training through THC GME, then CMS would pay for the residency spot (Medicare Learning Network, 2023). However, adding additional physicians to the economy incurs a cost regardless of which agency pays it, and therefore the cost of training new physicians annually is included in cost-effectiveness calculations.

If this alternative would train 1,200 residents annually and start nine new GME programs, using a 3 percent discount rate, the net present cost of this alternative for 10 years is nearly $2 billion. Dividing the cost by 7,167 medical professionals added to HPSAs generates a cost-effectiveness of $265,575 per one-physician increase in an HPSA. This is expensive, but still fairly cost-effective. See Tables 2a, 2b, and 2c in the Appendix for the detailed calculations. If the primary care shortage reaches 20,200 to 40,400 physicians by 2036, and this alternative would result in about 7,167 new physicians, it would reduce the shortage by 17 to 35 percent in 10 years. Using the average of the potential shortage (30,300), this alternative has the potential to reduce the shortage by 23 percent.

Sustainability

For sustainability, this scores high. Graduates of the THC GME program are significantly more likely than other graduates to practice in rural or underserved areas, and to stay within 5 miles of their residency location (C. S. Davis et al., 2022). Over half of THC GME graduates annually remain in medically underserved areas after completing their residencies, as shown in Table 2a in the Appendix. Opening new THC GME programs will also help sustain the program for longer by expanding its locational capacity. Additionally, many of the aforementioned problems with regular re-authorization (layoffs, reduced patient services, and unreliable hours) would be resolved by the financial security of 10-year reauthorizations, making each center a more sustainable, long-lasting program.

Equity

For equity, this scores 2/5. This program specifically targets underserved areas (Heisler et al., 2018). However, this alternative does not specifically target minority groups more than other physicians in reducing burden or creating opportunities. It also does not guarantee that patients will see a physician with a similar background to them. As of 2022, survey data from THC GME graduates showed that about 75 percent of THC GME graduates were white, and less than 5 percent were Black. There are more female participants than male, but not by a large margin (C. S. Davis et al., 2022). If patients are seeing THC GME graduates as their physicians, they are most likely seeing white, non-Hispanic women, which is not a representative demographic.

Political Feasibility

Lastly, for political feasibility, this scores 7/10. See Table 2d in the Appendix for more details about how this score was generated. Physicians are well-organized in their support for THC GME through many lobbying groups and associations that take a positive stance on the program, such as the American Academy of Family Physicians and the Health Center Advocacy Network (American Academy of Family Physicians, 2024; Health Center Advocacy Network, 2024). Because this is a federal program, the government (specifically HRSA) will absorb most of the costs. HRSA is well organized, and Congress has recently been unable to pass an updated budget due to partisan gridlock. Thus, interests appear to be well organized against increased costs and an increased budget in Congress as a whole.

However, the House of Representatives passed the Lower Costs, More Transparency Act in December 2023 to reauthorize the THC GME program for seven more years, demonstrating that there is majority support in the House for expanding and providing long-term funding to the program (AOA Staff, 2023). Since passing, that bill has made no progress in the Senate. Given that gridlock has prevented passage of an updated budget, a bill like this which increases costs seems unlikely to pass before the 2024 elections, especially given the other concerns the government currently faces. Even so, there is bipartisan support in the Senate for reauthorizing THC GME – in January 2024, a bipartisan group of Senators wrote a letter to Senate leadership supporting the reauthorization of THC GME. This group included Sens. Joe Manchin (D-WV), Mark Kelly (D-AZ), Cindy Hyde-Smith (R-MS), Tommy Tuberville (R-AL), Tammy Duckworth (D-IL), and many others (Hyde-Smith, 2024).

As previously mentioned, the Biden administration proposed plans to bolster the rural health workforce (Assistant Secretary for Public Affairs, 2023). However, rural Americans generally oppose the Affordable Care Act and do not list healthcare concerns as among their chief priorities — so support among beneficiaries of the policy may not be high (Hamel et al., 2017). The program's funding has been reauthorized repeatedly since its initial creation through the annual budgeting process, and the Bipartisan Budget Act of 2018 expanded the program to increase the number of THC GME programs and the number of trainees at existing sites (Heisler et al., 2018). The recent history of program expansion and reauthorization is promising for political feasibility. However, program expansion at this scale would likely cost just under $2 billion, as shown in Table 2b in the Appendix, which reduces its feasibility.

Alternative #3: Reducing Physicians' Administrative Burden

Physicians say their administrative burden has been increasing each year, requiring them to take time away from patients and hire more staff to cover the paperwork (American Medical Association, 2023; Medical Group Management Association, 2022). Low work control and pressures on physicians have been associated with intent to leave and burnout (Linzer et al., 2009; Sinsky et al., 2021). Advocacy groups like MGMA have been advocating for Congress to

reduce the regulatory burden on medical practices because of the way those requirements divert resources from patient care (Medical Group Management Association, 2022).

Evidence from denied claims in Medicare Advantage plans demonstrates that some administrative burdens like prior authorization requirements may be in place mostly for insurance companies to profit — Medicare Advantage plans overturn most denied claims after an appeal, but do not give policyholders the resources to easily file appeals, allowing companies to profit off their improper denials (Gondi et al., 2024; Herd & Moynihan, 2021). A denial is a refusal to pay for a given service, and an appeal would ask them to reconsider.

In 2023, physicians reported that they completed an average of 45 prior authorization requests each week, taking up about 14 hours of their time – nearly two business days (American Medical Association, 2023). Physicians also reported that prior authorization requirements sometimes require them to divert their patients to ineffective treatments first to save costs, thereby ensuring that patients will require more appointments and care to eventually get a more effective treatment (American Medical Association, 2023). The administrative burden of prior authorization requirements fuels burnout for many physicians, making them want to retire early or reduce their hours (Sinsky et al., 2021; Woolhandler & Himmelstein, 2014).

The Biden administration recently instituted prior authorization reform to require a streamlined, electronic option for paperwork and more transparency and speed in the approval process. Insurers must explain the reason that they deny a prior authorization request. However, these reforms only apply to federal health insurance policies. Most Americans have private insurance through their jobs – leaving them with a heavy administrative burden (Sausser, 2024).

This policy alternative would involve reforming prior authorization so that forms are standardized, and PA requirements would target only high-risk treatments or drugs. It also would apply the Biden administration's prior authorization reforms to all insurance plans. This would reduce the number of prior authorization requests that physicians must complete and expedite the process for necessary requests.

Evaluating Alternative #3

Cost-Effectiveness

For cost-effectiveness, this alternative looks a bit different from the other two, as the cost is based on some assumptions of physician retention. It could cost about $120 million per physician-equivalent increase when including the increased prescription drug costs incurred. The effectiveness calculation here combines the physicians "added" by allowing existing physicians to spend more work hours seeing patients with the estimated number of physicians who would decide not to retire early when their administrative burden is reduced.

I assumed that this alternative would reduce time spent on prior authorization requirements by 25 percent, giving back 3.5 hours per day and saving about 8.75 percent of the 40-hour work week. For about 256,220 physicians in the workforce, this time saved would be the equivalent of 4,480 full-time physicians. Survey data also showed that about 47.9 percent of physicians are experiencing burnout, and 23.8 percent of physicians plan to leave their jobs (Henry, 2022; Sinsky et al., 2021). Based on those percentages, about 61,000 primary care physicians are planning to leave their jobs, and about 30,000 of those who are planning to leave are likely experiencing burnout (23.8 percent of 256,220 physicians plan to leave, and 47.9 percent of that group are likely suffering from burnout). If about 25 percent of those 30,000 physicians stayed because their burnout would decrease with reduced prior authorization requirements, about 7,302 physicians would stay a few years longer. This number combined with the 4,480 physicians gained through saved time generates a total effectiveness of 11,782 more physicians available due to reduced requirements.

To calculate costs, I looked at how much money prior authorization requirements save on prescriptions, as those who use federal insurance may incur more costs on the government with this alternative by using more expensive prescriptions. Patients who face PA requirements spend about $350 annually on their prescriptions, while the average American spends about $1,432 annually (Dillender, 2018; Shepherd & Lofgren, 2023). As a high-end estimate, that difference means that prescriptions can cost up to $1,082 more for the 147 million Americans on a federal health insurance plan such as Medicare or Medicaid (Rosso, 2024). Over 10 years with a 3 percent future discounting rate, this policy would lead to about $1.3 quadrillion in costs.

Dividing that cost by 11,782 physicians saved generates a cost-effectiveness of just under $120 million per one-physician increase. See Tables 3a and 3b in the Appendix for detailed calculations. Assuming that the primary care shortage will reach 20,200 to 40,400 physicians by 2034 and this alternative would result in the equivalent of 11,782 new physicians through a combination of increased clinical time and a reduction in early retirements, this alternative would reduce the shortage by 29 to 58 percent in 10 years. Using the average of the potential shortage (30,300), this alternative could reduce the shortage by 38 percent.

Sustainability

For sustainability, this scores Medium-Low. Amid pushes on the state and federal level for reforms of prior authorization requirements, physicians still say in surveys that their administrative burden has increased each year (Andrews, 2022; Medical Group Management Association, 2022). This means a one-time policy change may not be enough, and even after reforms the administrative burden could increase again. Additionally, other stressors motivate physicians to leave their practices — burnout (which is spurred by many factors), pandemic-related stress or trauma, and feelings of value (Sinsky et al., 2021). Removing or reducing one of these factors does not guarantee the other factors will go away, nor does it ensure that more

physicians will remain in their practice. However, it would likely help retain physicians who would otherwise leave due to burnout — slightly improving sustainability.

Equity

For equity, this scores 1/5. It does not specifically target HPSAs or any one region more than another and does not explicitly generate more opportunities for minority physicians. Many of the states that have recently instituted some form of prior authorization reform, such as "gold carding," where some physicians become exempt from always needing to fulfill PA requirements, are the states facing the worst shortages like Texas and Louisiana (Sable-Smith, 2024). While some states with more shortage areas and fewer reforms would be helped more by this alternative (such as Georgia and Alabama), it does not put states with a greater shortage above others. This alternative also does not change the demographics of physicians in any one area, so patients will not necessarily see physicians who share their background. While this alternative applies to all physicians regardless of their background/demographic, reducing paperwork requirements reduces everyone's emotional burden, so this would reduce the burden on minority physicians by allowing them to spend more time with their patients and less on paperwork. Additionally, administrative burden is borne more by disabled, lower-income, and less-educated individuals compared to the general population, so reducing the burden will help them more (Herd & Moynihan, 2021).

Political Feasibility

Lastly, for political feasibility, this scores 5/10. See Table 3c in the Appendix for details. Physicians are the primary beneficiaries of this alternative, and they are well-organized into many advocacy groups like MGMA that are focused on reducing administrative burden and prior authorization requirements. However, the cost of reducing requirements will mostly impact insurance companies, who are also very well organized. Survey data shows that the public supports reducing prior authorization requirements over concerns about delayed or ineffective treatment, though the sample size is limited (Bendix, 2023). Physicians support reduced prior authorization requirements due to the administrative burden they cause and the adverse patient outcomes they lead to (Heine, 2023). In the long run, however, this alternative is very expensive when accounting for potentially increased prescription drug costs (Hellman, 2024).

In Congress, a few recent pieces of legislation have been devoted to reducing prior authorization requirements and administrative burden, including the Safe Step Act and the Improving Seniors' Timely Access to Care Act. While the latter bill has passed the House in 2022, the former has never left committee in the Senate or House. Thus, there may be sufficient support for this alternative in the House, but not the Senate. However, the Biden Administration's recent reforms of prior authorization requirements described above show promise for his agreement with this alternative (Sausser, 2024). Despite momentum for prior authorization reform among physicians, concentrated lobbying efforts from the pharmaceutical and insurance

industry who wish to continue PA requirements as a means to decrease their costs have been a barrier to action for some time (Garriga, 2023).

Outcomes Matrix

	National Health Service Corps	**THC GME**	**Administrative Burden**
Cost Effectiveness*	~$10,000	~$265,000	~$120,000,000
Sustainability (high/medium/low)	Medium-High	High	Medium-Low
Equity (out of 5)	3	2	1
Political Feasibility (out of 10)	5	7	5
% of Shortage Potentially Reduced	*94%*	*23%*	*38%*

*rounded numbers used here, see tables in Appendix for exact amounts and detailed calculations

Recommendation

Ideally, it would be best if all these policies could be implemented, as they are complementary and target the primary care shortage from different angles. Reducing the administrative burden focuses on physician retention, expanding the THC GME program focuses on bringing medical residents to underserved areas where they may decide to stay after completing their residencies, and a PR campaign for the NHSC tries to incentivize physicians to practice in shortage areas after completing their residencies by taking advantage of an existing program. There are also trade-offs between the three alternatives, as detailed below.

Expanding the THC GME program could lead to more sustainable growth, as it would create new programs that can take in more residents each year. However, establishing new programs is expensive, so this would cost over 10 times more per one-physician increase than the PR campaign would cost. Additionally, the cost of the program makes it less politically feasible — HRSA would likely not reallocate funds from its existing programs to expand THC GME, and gridlock in Congress increases the difficulty of passing legislation to authorize and fund a new program. This program is also slightly less equitable than a PR campaign for the NHSC — it does not specifically target underserved physicians in the way that the National Health Service Corps does, despite both programs prioritizing service to HPSAs. Of the alternatives, it also would likely reduce the primary care shortage by the smallest margin – an average of a 23 percent reduction over the upcoming decade.

Given how the Biden administration recently acted on prior authorization reform and physicians are well-organized against the increased administrative burden they have been facing, reducing the administrative burden may be as politically feasible as the PR campaign, although the prescription drug cost increase associated with reduced prior authorization requirements might make this alternative very expensive and therefore less feasible and cost-effective than THC GME expansion. The insurance lobby is also very well-organized against this alternative, which would combat physicians' organization. This alternative would reduce the primary care physician shortage by an average of 38 percent over the upcoming decade, which is substantial and a greater reduction than what might be achieved by the THC GME expansion. However, reducing prior authorization requirements is the least equitable option, as it would not specifically target underserved areas in the way the other two alternatives do. Additionally, it is not as sustainable as the other alternatives — rather than focusing on increasing incoming physicians, this alternative focuses on the longevity of the existing workforce, which is less renewable.

Because of these trade-offs, the best policy alternative of these three is a **PR campaign for the National Health Service Corps.** If HRSA approves this option, it would be very cost-effective – less than $10,000 per one-physician increase – and as politically feasible as reducing

administrative burden given how low-cost this alternative is for the federal government. However, this alternative is limited in its capacity to remedy the primary care shortage, as it does not expand the capacity of NHSC from its current state, so it is less sustainable than expanding the THC GME program. Expanding THC GME is also more politically feasible than this option, as physicians are more organized for THC GME and there is more Congressional support. There is room for improving sustainability by coupling this option with an expansion of the NHSC to have more spots, although that would increase the cost of this alternative.

Given how successful PR campaigns are at increasing consumer buy-in, this option has the potential to reduce the shortage by 70 percent or more – an extremely high percentage at a very low cost. This alternative also specifically targets Health Professional Shortage Areas and prioritizes equity the most of the three options. However, by providing loan relief in exchange for service, the program may saddle lower-income physicians with a greater burden than physicians with more economic privilege. The other policy alternatives offer other effective ways to expand the physician workforce with different strengths, but running a PR campaign to support the National Health Service Corps has the most all-around strength as a policy option based on the four criteria selected.

Implementation

Although a PR campaign for the National Health Service Corps may be the best policy alternative to help reduce the primary care shortage due to its sustainable, low-cost, politically feasible, and equitable nature, implementing this alternative will require lots of organization and coordination among stakeholders. Additionally, because HRSA would likely not be able to divert funds from existing programs, Congress would have to authorize this campaign and appropriate funds to HRSA for it. The current gridlock in Congress has made it difficult to pass a new budget, as Congress has repeatedly passed continuing resolutions to maintain existing funding levels and prevent the government from shutting down (Desilver, 2023).

To implement this campaign, ACP would first need to advocate to Congress and HRSA for both authorization and funding, given that this would be part of a program that has been permanently reauthorized by the federal government as of 2010 (Heisler, 2022). HRSA is unlikely to divert funds from other programs to this PR campaign – so Congress must appropriate if this alternative is to succeed. Congress would likely also need to pass a bill that authorizes the program, unless the authorization and appropriations were both included in an omnibus spending package. Congress has recently been legislating mostly through omnibus bills, so advocating for the PR campaign's inclusion in that package may be the best option. It may be best to time the advocacy work for funding around the creation of an omnibus spending package, which typically happens in the fall. Generally, party and committee leaders are the only people with enough power to include things in omnibus packages.

As a member of the Bipartisan Rural Health Caucus and the Republican Conference Chair, Rep. Elise Stefanik (R-NY-21) may be an effective champion who could push to include this alternative in an omnibus package (LegiStorm, 2024). The caucus cares about improving access to healthcare in rural areas and would likely support an effort like the PR campaign, thereby mitigating the Congressional gridlock that could otherwise prevent funding and authorizing this initiative. Otherwise, the leaders of the House Appropriations Committee's Subcommittee on Labor, Health and Human Services, and Education are Reps. Robert Aderholt (R-AL-4) and Rosa DeLauro (D-CT-3). During the appropriations process, they have a lot of influence on what is included. Once the PR campaign has been authorized and is funded, HRSA can focus on implementing it based on previous experience.

While I believe that all stakeholders could be supportive of this program, I imagine that Congress and HRSA may be somewhat resistant to this campaign if it is an ineffective use of resources or if HRSA would need to divert funds from other programs to fund the PR campaign. HRSA's funding is limited and their other programs are also crucial in bringing healthcare to underserved communities (HRSA, 2023). Because physicians apply for NHSC to help people, they might resist a program that would require them to leave their communities or take time

away from patient care (Taraborelli, 2017). To mitigate this resistance, HRSA could rely mostly on program alumni or allow voluntary signups from physicians interested in participating — allowing those who are less supportive to not participate.

HRSA's experience communicating with minority and underserved communities about vaccines will help them successfully implement this PR campaign. During the COVID-19 pandemic, HRSA used funding from the American Rescue Plan to support Community Health Workers across the country who educated people about COVID-19 vaccination options. They worked mostly with underserved and minority areas in implementing this program (HRSA, 2021). Overall, this program involved 14,000 community outreach workers who administered about 22 million COVID-19 vaccine doses at HRSA health centers (HRSA, 2023). They effectively did this by distributing grants to local organizations operating near HPSAs so those organizations could speak to their neighbors about vaccine safety and distribute doses.

It would be ideal for HRSA to apply a similar strategy and distribute their resources to locals who can speak to students and residents. Current or former participants in the National Health Service Corps could be recruited by HRSA to travel to a few medical schools nearby and speak to them about the program. After paying for those individuals' travel, HRSA should contract with a marketing firm to design more content for their visual campaign, including emails, posters, and video advertisements for the NHSC program. While some visual content was recently released, it is still limited (HRSA, 2024). This will require some coordination, as the testimonies and experiences of NHSC participants should be incorporated into the campaign, so marketers need to work with participants to understand the program and their stories. Lastly, because this is a pilot study, HRSA would need to evaluate the program after 3-5 years by speaking to those who worked on the campaign and new NHSC participants to see how the campaign impacted their decision to apply to the program.

Conclusion

The United States is facing a rapidly growing primary care shortage that could reach 40,400 physicians below anticipated demand by 2036 (Dall et al., 2024). That means that many parts of the country have insufficient access to primary care, which is associated with reduced life expectancy, and people using emergency room beds for concerns that should be handled by primary care. As emergency rooms become more normalized for concerns that should be handled by primary care, the beds available for actual emergencies will decrease, potentially leading to delayed care and worse health outcomes for all Americans.

I proposed three potential alternatives to reduce this problem: a PR campaign for the National Health Service Corps, an expansion of the Teaching Health Center Graduate Medical Education program, or reducing the prior authorization requirements that currently burden physicians. Based on the cost-effectiveness, political feasibility, equity, and sustainability of these alternatives, the best option is a PR campaign for the National Health Service Corps, as it could reduce the shortage significantly if it is effective, and it does not impose a high cost on the federal government. It also is fairly sustainable and would keep many physicians serving in HPSAs even after their commitment to the NHSC is complete. To implement this alternative, ACP would need to advocate to Congress and the federal government for increased funding to HRSA and authorization of this PR campaign. If it proves successful during a 3-5 year pilot study, a permanent reauthorization and funding of the PR campaign would be an ideal outcome.

If this policy is as effective as I predict, it could reduce the shortage by 70 percent or more in a decade, thereby improving health outcomes for many Americans – especially those who currently live in HPSAs. This equitable and effective outcome is ideal to ensure that all Americans can access primary care with limited barriers if they want to.

Appendix

Table 1a: Effectiveness of PR Campaigns

Paper citation	Measuring?	Outcomes	Multiplier*
(Shabbir et al., 2010)	Success of cause-related marketing campaigns in increasing purchase intentions	Brand awareness is associated with a **0.93 percent** increase in purchasing intention	.3
(Randolph & Viswanath, 2004)	Increased vaccinations after community engagement and PR campaign with Vietnamese Americans	A media PR campaign was associated with a 38.2 percent increase in vaccinations, a community engagement campaign was associated with a 45.86 percent increase in vaccinations → average of **42 percent** increase in participation following a campaign	.05
(Patel et al., 2017)	Responses to cause-related marking campaigns	A cause-related marketing campaign is associated with a **36.12 percent** increase in intent to purchase a product	.3
(Bawm & Nath, 2014)	Clicks and engagement with email marketing	An email marketing campaign over 7 months was associated with an average increase in purchasing of **7.29 percent**	.3
Average increase:	With weighting, PR campaigns increase participation in a program by about **17.5 percent**		

*Multiplier based on how applicable the study is to this alternative — vaccine campaigns deal with a fundamentally different audience from the National Health Service Corps and have other barriers that do not apply to this situation, such as safety concerns.

Table 1b: Annual participation in the NHSC

Fiscal Year	Number of Awards	Total Participants
2020	9,441	16,229
2019	7,547	13,053
2018	6,662	10,939
2017	5,801	10,179
2016	6,129	10,493
2015	5,698	9,683
2014	5,620	9,242
2013	5,226	8,899
2012	4,839	9,908
2011	6,074	10,279
Annual Average	**6,303**	**10,890**

(Heisler, 2022)

Table 1c: Costs of NHSC and PR campaign

Item	**Annual Cost**	**Source**
Annual loan repayment for NHSC participant	$25,000	(Heisler, 2022)
Marketing campaign (labor, materials, travel, and targeting)	~$1,000,000 (high-end estimate)	(Randolph & Viswanath, 2004)
Total Annual Effectiveness (1a x 1b)	6,303 awards x 17.5 percent increase = **1,103 more participants annually** Assuming 80 percent of people stay a year after their commitment ends: 10 years = **28,678 physicians**	
Total Annual Cost	$25,000 x 1,103 participants = $27,575,000 Net present cost for 10 years ($28,575,000 annually) with 3 percent annual discount rate: **$251,063,062.44**	
Cost Effectiveness	$251,063,062.44 / 28,678 physicians = **~$8,754.55 per one-physician increase**	

Table 1d: Political feasibility of a PR campaign for the National Health Service Corps

Question	**Score**
How organized are those who will benefit from the policy? (0 = dispersed, 1 = concentrated)	0
How organized are those who will absorb the costs of the policy? (0 = concentrated, 1 = dispersed)	0
Is there history of the federal government (or state governments) taking similar action to this alternative? (0 = no, 1 = yes)	1
Is the current presidential administration amenable to making policy changes on this issue? (0 = no, 1 = yes)	1
Is there a majority in both chambers of Congress who would be willing to support this sort of alternative? (0 = no, 1 = only in one chamber, 2 = yes)	0
Is there public support for this alternative? (0 = no, 1 = yes)	0
How expensive would this program be for the federal budget? (0 = more than $5 billion, 1 = $2-5 billion, 2 = $1-2 billion, 3 = less than $1 billion)	3
Total	**5**

Table 2a: Effectiveness of the THC GME program

Paper citation	**Measuring?**	**Outcomes**
(Bureau of Health Workforce, 2024)	How many THC GME residents remain in medically underserved areas	56 percent
(Bureau of Health Workforce, 2021)	How many THC GME residents remain in medically underserved areas	56 percent
(Bureau of Health Workforce, 2020)	How many THC GME residents remain in medically underserved areas	59 percent
(Bureau of Health Workforce, 2019)	How many THC GME residents remain in medically underserved areas	50 percent
Average percent of participants who annually remain in medically underserved areas:		**55.25 percent**

Table 2b: Annual participation in THC GME

Academic Year	**Residents funded**	**Residency Programs Funded**	**Number of Residents Trained**	**Residents per program average** (column 4/column 3, rounded)
2021-2022		59	932	16
2016-2017	742	59	771	13
2015-2016	660	60	758	13
2014-2015	556	60	600	10
2013-2014	327	44	361	8
2012-2013	143	22	158	7
2011-2012	63	11		
TOTALS*	**2,491**	**256**	**2,648**	
Averages*	**415.167**	**42.67**	**529.6**	**10**

*excludes missing data and 2021-22

(Bureau of Health Workforce, 2024; Heisler et al., 2018)

Table 2c: Cost of expanding THC GME

Item	**Annual Cost**	**Source**
Training per resident	~$180,000	(Heisler et al., 2018; U.S. Department of Health and Human Services Health

		Resources and Services Administration, 2019)
Cost of starting new GME program	~$620,000 (average)	(Chen et al., 2021; Hulstein et al., 2020; Nuss et al., 2015)
Total annual effectiveness	1,200 residents x 55.25 percent who remain in medically underserved areas = **663 physicians post-residency**	
Total cost	$180,000 x 1,200 residents = $216,000,000 annually* $620,000 x (90-81 new programs) = $5,580,000 10-year re-authorization = $216,000,000 annually with discount rate + $5,580,000 initial cost **Net Present Cost for 10 years with 3 percent discount rate = $1,903,379,527.13**	
Cost effectiveness	1,903,379,527.13/(1,200 residents + (663 x 9 physicians who remain)) = **$265,575.49 per one-physician increase**	

*Although CMS would pay for residency if THC GME does not, the cost of training additional physicians must be allocated to the federal government regardless of which agency incurs it.

Table 2d: Political feasibility of expanding the THC GME program

Question	**Score**
How organized are those who will benefit from the policy? (0 = dispersed, 1 = concentrated)	1
How organized are those who will absorb the costs of the policy? (0 = concentrated, 1 = dispersed)	0
Is there history of the federal government (or state governments) taking similar action to this alternative? (0 = no, 1 = yes)	1
Is the current presidential administration amenable to making policy changes on this issue? (0 = no, 1 = yes)	1
Is there a majority in both chambers of Congress who would be willing to support this sort of alternative? (0 = no, 1 = only in one chamber, 2 = yes)	2
Is there public support for this alternative? (0 = no, 1 = yes)	0
How expensive would this program be for the federal budget? (0 = more than $5 billion, 1 = $2-5 billion, 2 = $1-2 billion, 3 = less than $1 billion)	2
Total	**7**

Table 3a: Effectiveness of Reducing Administrative Burden

Paper Citation	Measuring?	Outcomes
(Dillender, 2018)	Hours spent on prior authorization requirements	~20 hours per week spent by offices on PA requests
(American Medical Association, 2023)	Number of PAs completed	45 PAs per physician per week
	Hours spent on PAs	14 hours per week for physicians and their staff
(Henry, 2022; Sinsky et al., 2021)	Physicians planning to exit or reduce work hours	23.8 percent plan to leave
	Physicians experiencing burnout	47.9 percent experiencing burnout
(HRSA, 2018)	Number of primary care physicians in workforce	256,220 full-time equivalent (FTE) physicians
(Reeves, 2002)	Number of physicians in an office	About 5 staff members per physician
Number of physicians who choose to stay due to reduced burnout	23.8 percent of 256,220 = 60,980.36 physicians plan to leave Assuming about 47.9 percent of that group is experiencing burnout: 47.9 percent of 60,980.36 = 29,209.59244 Assuming about 25 percent of physicians experiencing burnout would stay with reduced PA requirements: **~7,302 physicians would stay longer**	
Hours saved equivalent to new physicians	Assuming this intervention reduces time spent on PA requirements by 25 percent: 14/4 = 3.5 hours per week spent on PA requirements = 8.75 percent of 40-hour work week 8.75 percent of week x (256,220 physicians / 5 staff members each) = **4,483.85 physicians (~4,480) worth of hours saved**	
Total effectiveness	7,302+4,480 = **11,782 physician equivalents retained/added** This calculation combines the physicians "added" by allowing existing physicians to spend more work hours seeing patients with the estimated number of physicians who would decide not to retire early when their administrative burden is reduced.	

Table 3b: Cost of Reducing Administrative Burden

Item	Annual Cost	Source
Prescription drug costs to individuals with prior authorization requirements	Under $350 annually	(Dillender, 2018)
Prescription drug spending annually	Average $1,432 per American	(Shepherd & Lofgren, 2023)

Primary care physician salary	Average $265,000	(Redfield, 2023)
Number of Americans with government health insurance (Medicare, Medicaid, etc.)	9 million TRICARE users 7 million VA Care users 61 million Medicare users 70 million Medicaid/CHIP users Total: 147 million federal health insurance users	(Keisler-Starkey et al., 2023; Rosso, 2024)
Average drug costs saved by PA requirements (high-end estimate)	**(**$1,432-$350) x 147 million Americans = **$159,054,000,000**	
Net present cost for 10 years with 3 percent discount rate	**$1,397,465,768,460.56**	
Cost-effectiveness	**$118,610,233.28 per one-physician increase**	

Table 3c: Political Feasibility of Reducing Administrative Burden

Question	**Score**
How organized are those who will benefit from the policy? (0 = dispersed, 1 = concentrated)	1
How organized are those who will absorb the costs of the policy? (0 = concentrated, 1 = dispersed)	0
Is there history of the federal government (or state governments) taking similar action to this alternative? (0 = no, 1 = yes)	1
Is the current presidential administration amenable to making policy changes on this issue? (0 = no, 1 = yes)	1
Is there a majority in both chambers of Congress who would be willing to support this sort of alternative? (0 = no, 1 = only in one chamber, 2 = yes)	1
Is there public support for this alternative? (0 = no, 1 = yes)	1
How expensive would this program be for the federal budget? (0 = more than $5 billion, 1 = $2-5 billion, 2 = $1-2 billion, 3 = less than $1 billion)	0
Total	**5**

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