

EXPANDING THE PRIMARY CARE SCHOLARSIP: ADDRESSING PHYSICIAN SHORTAGES BY
INCLUDING EMERGENCY MEDICINE IN RURAL AND UNDERSERVED ARIZONA

by

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ARIZONA

LAND ACKNOWLEDGEMENT

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

Table of Contents

<i>Abstract</i>	4
<i>Graphical Abstract</i>	5
<i>Introduction</i>	8
<i>Defining Primary Care and Primary Care Visits</i>	9
<i>Bridging Healthcare Gaps in Underserved Areas</i>	12
<i>Increasing Reliance on Emergency Departments for Primary Care Services</i>	13
<i>Addressing Primary Care Gaps: The Role of Emergency Medicine Physicians in Underserved Areas</i>	16
<i>Expanding Emergency Medicine's Role in Primary Care</i>	17
<i>Emergency Medicine's Presence in Rural Healthcare: Workforce Data and Implications</i>	20
<i>Impact of Emergency Medicine Physician Shortage in Rural/Underserved Areas on Primary Care Physician Productivity</i>	25
<i>Evaluating Primary Care Classification: Discrepancies in Specialty Designation</i>	27
<i>Aligning Emergency Medicine Residency with Primary Care: A Curriculum Analysis and Rationale for Expanding Primary Care Scholarship Eligibility</i>	29
<i>Training and Support for Emergency Medicine Providers</i>	32
<i>The Impact of Financial Incentives on Addressing Physician Shortages in Underserved Areas</i>	34
<i>Restructuring and Renaming the Primary Care Scholarship</i>	37
<i>Conclusion and Future Directions</i>	38
<i>References</i>	43

Abstract

Arizona is facing an escalating Primary Care Physician shortage, with rural and underserved communities experiencing the most severe impacts. Despite their critical role in providing frontline care, Emergency Medicine physicians are currently excluded from the University of Arizona Primary Care Scholarship—a program designed to incentivize healthcare providers to work in Health Professional Shortage Areas. This thesis advocates for expanding scholarship eligibility to include Emergency Medicine physicians, highlighting their in-practice role as primary care providers in high-need settings. Through a comprehensive analysis, this thesis redefines what constitutes primary care in today’s healthcare landscape and examines the inconsistency in specialty classification across institutions, and further expansion of the scholarship criteria to accommodate and include Emergency Medicine. For instance, while the Association of American Medical Colleges does not classify General Surgery or Psychiatry as primary care, the University of Arizona includes them as eligible under the scholarship—raising questions about the criteria used. Meanwhile, the University of Arizona’s own Primary Care Physician Workforce Report recognizes Emergency Medicine as a primary care specialty and supports rural emergency rotations for Emergency Medicine residents. The thesis also presents original workforce data showing that Emergency Medicine ranks second behind Family Medicine in the number of physicians practicing in rural areas, surpassing Internal Medicine, Pediatrics, and General Surgery. It documents a growing national trend of patients turning to emergency departments for non-emergent, primary care-level services, and details how the Emergency Medicine physician shortage forces Family Medicine doctors to split time between clinics and emergency departments—ultimately reducing primary care productivity. Curriculum

analysis from the University of Arizona South Campus Emergency Medicine residency program reveals that Emergency Medicine residents, especially those on the Rural/Border/Global Health Track, receive substantial primary care-relevant training. Additionally, this report explores how expanded training, integrated systems, and financial incentives—like loan repayment and scholarships—are crucial to supporting Emergency Medicine physicians' dual role. **By making Emergency Medicine physicians eligible for the University of Arizona Primary Care Scholarship, Arizona can better align its workforce strategies with on-the-ground realities,** ultimately strengthening care access and equity in underserved regions.

Graphical Abstract

The graphical abstract (Figure 1) serves as a visual depiction of the thesis' core arguments and data, illustrating the multifaceted case for including Emergency Medicine in Arizona's Primary Care Scholarship. It features a series of maps, bar graphs, and comparative data charts that highlight the overlap between Emergency Medicine and traditional primary care specialties in rural and underserved settings.

One key component is a *color-coded map of Arizona* (Figure 1c), which identifies counties designated as Health Professional Shortage Areas. The map overlays physician-to-population ratios, showcasing areas with the most severe deficits in primary care access. This visual emphasizes that many of the counties most lacking in primary care physicians are also areas where Emergency Medicine providers are already actively delivering care—further

reinforcing the argument that Emergency Medicine is functioning as a de facto primary care provider.

Accompanying the map is a *bar chart comparing rural physician presence by specialty*, drawn from the Arizona Health Workforce Profile. It shows that Emergency Medicine ranks second only to Family Medicine in rural representation, ahead of Internal Medicine, Pediatrics, and General Surgery—all of which are eligible for the University of Arizona Primary Care Scholarship. This side-by-side comparison provides a compelling visual of the current misalignment between policy eligibility and real-world service distribution.

Another graph visualizes *the breakdown of residency training content* (Figure 1a), comparing the percentage of primary care-relevant rotations in Emergency Medicine (particularly in the University of Arizona South Campus program) with those in Family Medicine and Internal Medicine. The data demonstrate that Emergency Medicine residents—especially those in the Rural/Border/Global Health Track—receive training that closely aligns with primary care competencies, including chronic disease management, preventive care, addiction medicine, and women’s health. These visuals support the argument that Emergency Medicine physicians are adequately prepared to address primary care needs in Health Professional Shortage Areas.

The graphical abstract also *includes statistics on non-emergent emergency department visits* (Figure 1b), illustrating the increasing number of patients seeking primary care-level services through emergency departments due to lack of access to traditional outpatient care. A bar graph breaks down common non-emergent emergency department complaints—such as

medication refills, high blood pressure follow-up, and contraception counseling—showing the scope of primary care services EM physicians routinely provide.

Altogether, the graphical abstract visually demonstrate the report’s central thesis: that Emergency Medicine is already functioning as primary care in Arizona’s most vulnerable communities, and that financial and institutional support—like the Primary Care Scholarship—must evolve to reflect this reality.

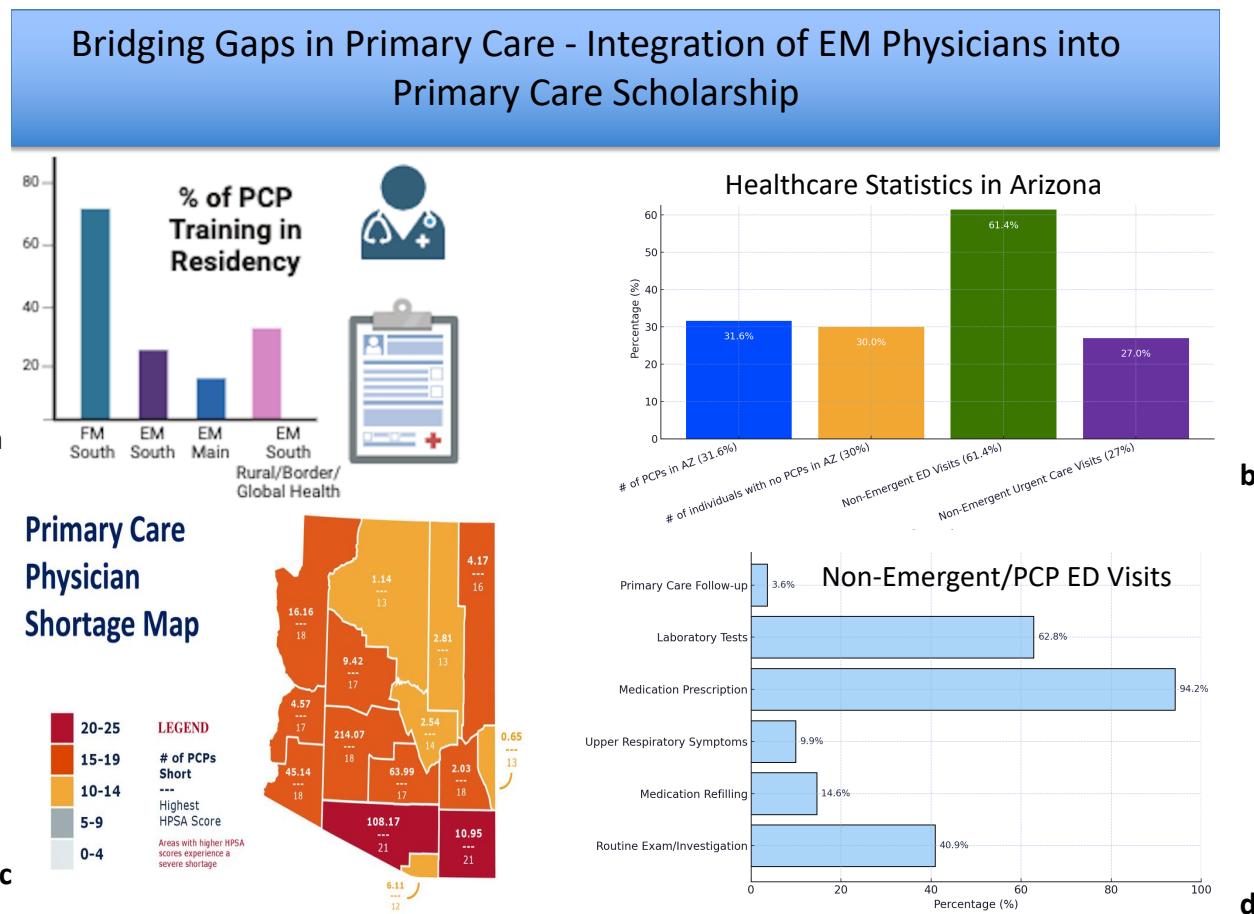


Figure 1.

- a) Percentage of PCP Training in Residency by UofA Emergency Medicine Tracts and UofA Family Medicine South Campus Tract.
- b) Healthcare statistics in Arizona, a breakdown of PCPs in Arizona, individuals with no PCPs and percentage of Non-Emergent ED Visits.
- c) Primary Care Physician Shortage Map, demonstrating areas in Arizona with the greatest impact due to Physician shortage.
- d) Percentage of individual reasons for Non-Emergent ED Visits.

Introduction

Arizona is grappling with a critical shortage of Primary Care Physicians, with a physician-to-patient ratio that is 15% worse than the national average (Brady et al., 2023). This shortage is even more acute in rural and underserved areas, where all counties are designated as Health Professional Shortage Areas (Brady et al., 2023). The challenge of attracting and retaining healthcare professionals in these regions has created significant gaps in access to essential care. By 2030, Arizona is expected to face a deficit of more than 650 Primary Care Physicians, further straining the healthcare system (Berwick et al., 2021).

In the absence of enough Primary Care Physicians, Emergency Medicine physicians often step in to fill the gap. They manage cases that include chronic conditions, preventive care, and non-emergent issues that would typically be addressed by Family Medicine, Pediatrics, or Internal Medicine doctors. For many patients in rural Arizona, emergency departments are the only accessible option for care (“Rural Health Initiative Improves Access to Emergency Care”, 2021).

This increasing reliance on Emergency Departments (EDs) for routine healthcare services is not unique to Arizona but reflects a broader national trend. As barriers to accessing traditional primary care persist—such as long appointment wait times, provider shortages, and lack of insurance—more patients are turning to EDs to meet their ongoing healthcare needs. These visits often include medication refills, blood pressure management, family planning consultations, and even pediatric care. Emergency Medicine physicians are thus routinely performing services aligned with primary care, despite the episodic nature of the ED setting.

This places them on the frontlines of primary care delivery in regions where outpatient infrastructure is insufficient or altogether absent.

Despite the vital role Emergency Medicine physicians play in underserved communities, they are currently excluded from the University of Arizona Primary Care Scholarship. This scholarship is available only to medical students pursuing a career in Family Medicine, Pediatrics, Internal Medicine, General Surgery, Obstetrics and Gynecology and Psychiatry. Excluding Emergency Medicine physicians overlooks their critical contributions, especially in rural areas. Expanding the scholarship to include Emergency Medicine physicians could incentivize more of them to work in these high-need communities, improving healthcare access and addressing the growing crisis.

Expanding the eligibility criteria for the Primary Care Scholarship would align the program more closely with the realities of Arizona's healthcare landscape. It would also serve to strengthen recruitment and retention efforts in rural communities by recognizing and supporting the full range of providers who contribute to primary care services. In doing so, the University of Arizona would not only address the numerical shortage of providers, but also the structural barriers that limit access to care—ultimately promoting a more equitable and sustainable healthcare system statewide.

Defining Primary Care and Primary Care Visits

Primary care encompasses a broad spectrum of services that are crucial to maintaining individual and community health. It is defined by its focus on continuity, prevention, and the

management of chronic conditions, all delivered within the context of an ongoing provider-patient relationship (American Academy of Family Physicians, 2017). A "primary care visit" is not merely an encounter for non-urgent medical concerns; it involves a comprehensive approach to health, addressing acute issues while simultaneously considering the patient's long-term well-being. This includes monitoring chronic conditions, providing preventive screenings, administering vaccinations, and managing medication regimens (American Academy of Family Physicians, 2017). At its core, primary care builds trust over time and relies on a sustained therapeutic relationship that enables providers to deliver personalized, anticipatory, and cost-effective care.

In contrast, non-emergent visits to emergency departments—such as seeking care for a refill of blood pressure medication, assistance with high glucometer readings, or counseling on contraception—often lack these elements of continuity and comprehensive care. These visits typically address immediate needs but may not provide the sustained, holistic management associated with true primary care. Emergency departments are primarily designed to stabilize acute conditions and triage life-threatening emergencies. Their operational model is built around episodic care, which, while vital in urgent situations, is not equipped to consistently support long-term disease monitoring, preventive health planning, or the deep provider-patient rapport that defines high-quality primary care.

However, as access to traditional primary care remains limited—particularly in rural and underserved regions—many individuals have little choice but to rely on emergency departments for their ongoing healthcare needs. This trend has blurred the line between emergent and non-emergent care, placing emergency physicians at the intersection of two

roles: acute care specialists and de facto primary care providers. Distinguishing between non-emergent visits and primary care visits is crucial, especially when evaluating the role of Emergency Medicine providers in filling primary care gaps. While many patients rely on emergency departments as their primary point of care due to limited access to traditional primary care services, the care provided in these settings is often episodic (Uscher-Pines et al., 2013). Without a structured framework for follow-up and preventive interventions, such encounters fall short of the broader goals of primary care.

Still, many emergency departments are adapting to meet these demands. Some now provide screenings for chronic illnesses, initiate long-term treatments like buprenorphine for opioid use disorder, or offer vaccination and contraceptive services, particularly in rural and tribal health settings. These adaptations reflect the evolving scope of emergency medicine and a growing recognition of its role in broader population health management. However, without institutional and policy-level support—including eligibility for programs like the Primary Care Scholarship—emergency physicians may continue to lack the training infrastructure, financial incentives, and systemic backing required to provide care that aligns with the full definition of primary care.

To ensure that Emergency Medicine providers can effectively address these needs, there must be a clear definition of what constitutes primary care and how it can be delivered within the emergency medicine context. Acknowledging the functional role Emergency Medicine physicians already play in underserved settings is a critical step toward building an integrated and responsive healthcare system—one that meets patients where they are and

redefines primary care not solely by specialty, but by the nature and necessity of the services delivered.

Bridging Healthcare Gaps in Underserved Areas

This proposal aims to address Arizona's persistent healthcare disparities by advocating for the inclusion of Emergency Medicine physicians in the University of Arizona's Primary Care Scholarship program. The underlying objectives are straightforward yet powerful: a) formally recognize EM physicians for the essential role they play in managing primary care-level cases, particularly in rural and underserved areas, and b) incentivize them to continue doing so through financial support. As Arizona's rural counties face some of the nation's most severe physician shortages, expanding scholarship eligibility to include EM would be a strategic step toward ensuring equitable access to healthcare for all residents.

Emergency Medicine physicians are already filling a critical void in the primary care landscape. In many underserved communities, the emergency department serves as the primary—and often only—point of consistent healthcare access. Patients frequently seek care in emergency departments for non-emergent issues such as chronic disease follow-up, medication refills, preventive screenings, and family planning services. These are traditionally managed in outpatient primary care settings, yet in areas where primary care is unavailable or inaccessible, Emergency Medicine physicians step in to fill that gap. This reality, though widely recognized in practice, has yet to be acknowledged in the policies that govern scholarship and incentive eligibility.

By demonstrating the substantial overlap between emergency and primary care services—especially in rural settings—this proposal builds a strong case for expanding the Primary Care Scholarship to include Emergency Medicine. Inclusion would not only recognize the existing contributions of Emergency Medicine physicians but also attract more Emergency Medicine trainees and early-career physicians to practice in underserved areas. Financial incentives are a proven tool in shaping workforce distribution and expanding access to these supports for Emergency Medicine providers would increase retention and recruitment in high-need communities.

The anticipated outcome is multifaceted: improved healthcare access in Arizona’s most medically vulnerable regions, reduced reliance on overburdened family and internal medicine physicians to cover emergency shifts, and a more realistic and inclusive definition of primary care that aligns with the way healthcare is actually delivered in underserved areas. Ultimately, bridging this policy gap is a critical step toward closing the broader healthcare gap that affects thousands of Arizonans across the state.

Increasing Reliance on Emergency Departments for Primary Care

Services

In recent years, emergency departments across the United States have seen a growing influx of patients seeking care for conditions that could be treated in a primary care setting. This trend reflects a broader issue in the American healthcare system: inadequate access to timely, affordable, and consistent primary care, particularly among uninsured, underinsured, or

underserved populations. Patients often turn to emergency departments not because their conditions are emergent, but because they are unable to secure an appointment with a Primary Care Physician, do not have a regular source of care, or face barriers such as lack of transportation, inability to take time off work, or complex insurance restrictions. As a result, emergency departments have become de facto primary care providers for many individuals, especially in rural areas and medically underserved urban communities.

The Emergency Medical Treatment and Labor Act (EMTALA) requires stabilization of life-threatening emergencies; it's not a mandate for primary care, chronic disease management, vaccinations, or other non-emergent services. Therefore, addressing systematic issues like training, financial incentives for long-term care, and the cultural shift within emergency medicine remains crucial, independent of EMTALA's core purpose – preventing patient dumping, like the hypothetical uninsured stroke patient. This makes emergency departments one of the few reliable access points for individuals with limited healthcare options. However, the increasing reliance on emergency departments for non-emergency medical issues has profound implications for the healthcare system. It contributes to overcrowding, longer wait times, and higher healthcare costs. Emergency department visits are significantly more expensive than outpatient primary care visits, and the use of emergency departments for low-acuity conditions diverts resources away from true emergencies. Furthermore, emergency physicians may lack access to a patient's longitudinal medical history, limiting their ability to provide preventive care, manage chronic conditions effectively, or coordinate follow-up.

This trend is especially pronounced in rural communities, where shortages of primary care providers are well documented. In areas designated as Health Professional Shortage Areas,

patients may rely on the emergency department as their only point of contact with the healthcare system. In many rural counties, the local emergency department may be the only healthcare facility that operates 24/7 and is staffed with physicians, making it a vital—though often strained—component of the rural healthcare safety net. Emergency physicians, therefore, must not only manage acute medical conditions but also perform functions typically associated with primary care, such as managing chronic diseases, providing preventive screenings, and offering health education.

The increasing use of emergency departments for primary care services has sparked a policy conversation about how best to address the gap in primary care access. While expanding the primary care workforce is a long-term goal, it is equally important to recognize and support the role of emergency physicians in filling these gaps—especially in rural and underserved areas. Training emergency medicine physicians to manage a wider range of primary care conditions, expanding reimbursement for emergency department-based preventive care, and integrating care coordination programs into emergency departments are all strategies that can improve outcomes and reduce system-wide inefficiencies. Furthermore, allowing emergency physicians—who already provide substantial primary care services in rural areas—to qualify for programs like the University of Arizona Primary Care Scholarship would acknowledge their vital contribution and incentivize their continued service in high-need areas.

Addressing Primary Care Gaps: The Role of Emergency Medicine

Physicians in Underserved Areas

The surge in individuals seeking care in emergency departments for primary care-related issues is a growing trend, particularly in underserved and rural areas where access to dedicated Primary Care Providers is limited. Preliminary data shows that Emergency Medicine physicians frequently manage cases that would traditionally fall under the scope of primary care specialties, such as Family Medicine, Internal Medicine, Pediatrics, and Obstetrics and Gynecology (Uscher-Pines et al., 2013). These cases include non-emergent conditions such as routine follow-up care for chronic diseases (e.g., diabetes, hypertension), preventive care services (e.g., vaccinations, screenings), and acute minor illnesses or injuries that might otherwise be managed in a primary care setting (Uschcer-Pines et al., 2013). In rural areas, where shortages of Primary Care Providers are more evident, emergency departments often serve as the only accessible healthcare resource for these types of non-emergent cases, placing an additional strain on emergency departments that are designed to handle urgent and critical conditions.

This overlap between the responsibilities of Emergency Medicine physicians and those of Primary Care Providers is particularly evident in Health Professional Shortage Areas, where Emergency Medicine physicians play a crucial role in filling gaps in the healthcare system. The difficulty patients face in obtaining timely primary care appointments has contributed to the increased patient load on emergency departments for routine care, a phenomenon often referred to as "patient dumping." (Brody et al., 2015). The increasing volume of patients

seeking primary care-level services in the emergency department highlights the need to recognize the critical role of Emergency Medicine physicians in managing these cases. Extending the University of Arizona Primary Care Scholarship eligibility to include Emergency Medicine physicians would encourage more physicians to practice in settings where they are needed most.

By analyzing the scope of primary care services already provided by Emergency Medicine physicians, particularly in rural and underserved communities, this aim seeks to demonstrate how Emergency Medicine physicians are effectively fulfilling roles that overlap with traditional Primary Care Providers. Scientific data collection will focus on categorizing the types of primary care-level conditions treated in emergency departments and assessing the volume of such cases compared to emergent care. This evidence will support the hypothesis that Emergency Medicine physicians, particularly in Health Professional Shortage Areas, are already addressing a substantial portion of primary care needs. By recognizing this role and extending the University of Arizona PCP Scholarship to Emergency Medicine physicians, Arizona could ultimately enhance its recruitment and retention of physicians in areas where primary care access is most needed, ultimately improving healthcare delivery and access for underserved populations.

Expanding Emergency Medicine's Role in Primary Care

The evolving landscape of healthcare has prompted Emergency Medicine providers to expand their scope, particularly in underserved areas where emergency departments serve as a

critical safety net for patients lacking access to traditional primary care (“Rural Health Initiative Improves Access to Emergency Care”, 2021). In these settings, the emergency department is often the only accessible medical facility, open 24/7 and equipped to provide care regardless of a patient’s ability to pay. As a result, Emergency Medicine physicians are increasingly encountering—and expected to manage—conditions that fall outside the traditional boundaries of acute care. These include chronic disease management, medication adherence counseling, mental health crises, and preventive screenings, all of which are core components of primary care.

Efforts are already underway to better equip Emergency Medicine providers to address a range of non-emergent issues that overlap with primary care. For example, there is a growing emphasis on training Emergency Medicine physicians to initiate treatment for Opioid Use Disorder with Suboxone directly in the emergency department, providing a vital entry point for patients who may otherwise lack access to addiction treatment (Huecker et al., 2022). This approach not only offers life-saving intervention but also creates a pathway to long-term recovery for individuals in communities where behavioral health services are often unavailable or inaccessible, as was demonstrated by Cindy Parks Thomas in the case study of five-EDs across the United States which were trained and treated Opioid Use Disorder (Thomas et al., 2022). Similarly, programs within the Indian Health Service have successfully integrated routine and seasonal vaccinations into emergency departments, demonstrating how preventive care can be delivered in this setting with minimal disruption to existing emergency department workflows (Christensen, 2024). These models have proven especially effective in areas where

public health infrastructure is under-resourced, and they illustrate how emergency departments can be leveraged to deliver high-impact, community-level health interventions.

Additional efforts have focused on increasing Emergency Medicine provider knowledge and comfort with long-term contraception options, enabling them to address critical family planning needs (Huecker et al., 2022). In communities where OB/GYN providers are scarce or non-existent, Emergency Medicine physicians may be the only point of contact for patients seeking reproductive health services. Training emergency providers to counsel on and initiate contraceptive care helps fill a critical gap, particularly for patients at high risk of unintended pregnancy or with limited follow-up options. These initiatives are part of a broader shift toward viewing the emergency department not just as a site of episodic care, but as a key access point for underserved populations in need of continuity, education, and prevention.

These initiatives highlight the potential for Emergency Medicine providers to extend their role beyond acute care, bridging the gap between emergency services and traditional primary care. However, providing such care consistently requires more than individual efforts; it demands systemic support, including access to resources, protocols for preventive care, and training that emphasizes chronic disease management and continuity of care. Without structural integration and institutional backing, these efforts remain fragmented and heavily dependent on individual provider initiative. Creating sustainable models for primary care delivery within emergency departments means reimagining how emergency services are funded, staffed, and evaluated—not just by acute metrics, but by long-term health outcomes.

By integrating these components into emergency medicine practice, emergency departments could become more effective in addressing the broader healthcare needs of

patients, particularly in regions where traditional primary care is limited. Supporting Emergency Medicine physicians in this expanded role—through training, reimbursement, and policy inclusion such as eligibility for the University of Arizona Primary Care Scholarship—would allow healthcare systems to better respond to the changing demands of the population, especially in areas where resource scarcity leaves emergency departments as the only reliable source of care.

Emergency Medicine’s Presence in Rural Healthcare: Workforce Data and Implications

Emergency Medicine plays a crucial role in providing critical, often life-saving care in rural communities. These areas, where access to healthcare resources is typically more limited, rely on Emergency Medicine physicians to serve as the primary providers of urgent and emergency care. Within the context of healthcare in rural settings, Emergency Medicine is one of the specialties most frequently practiced in underserved areas. According to the *Arizona Health Workforce Profile*, published by the Center for Rural Health at the University of Arizona, Emergency Medicine ranks second in terms of the number of physicians practicing in rural locations, right after Family Medicine. This positions Emergency Medicine ahead of other specialties that qualify for the University of Arizona Primary Care Scholarship, such as Internal Medicine, General Surgery, and Pediatrics. This statistic underscores Emergency Medicine’s critical role in rural healthcare, particularly when it comes to emergency care in areas where primary care resources may be sparse.

The closure of rural emergency departments is an increasingly significant issue, often highlighted in the popular press. Rural hospitals and emergency departments face numerous challenges, including staffing shortages, financial pressures, and population decline, all of which contribute to the increasing frequency of emergency department closures. However, national data tracking of these closures has been relatively sparse, leaving a critical gap in understanding the trends and dynamics of rural emergency department sustainability. In response to this data gap, the *National ED Inventory (NEDI)-USA* undertook original research to assess trends in rural emergency departments openings and closures, aiming to provide a clearer picture of the situation.

Data from the *National ED Inventory (NEDI)-USA* database, which tracks non-federal, non-specialty U.S. emergency departments that are open 24/7, reveals concerning trends. In 2018, there were 1,899 rural emergency departments in operation across the United States, comprising 34% of all U.S. emergency departments. These rural facilities serve as the primary access points for emergency care in many remote communities. Between 2002 and 2018, however, the number of rural emergency departments experienced a net loss: 82 rural emergency departments opened, but 137 rural emergency departments closed, resulting in a net loss of 55 rural emergency departments over this 18-year period. The data in *Figure 2* also shows that rural emergency department closures have been a consistent trend since 2005, with only a brief period of surplus openings in the early 2000s. This trend of emergency department closures poses a significant threat to rural communities, leaving patients with fewer options for emergency care and increasing the burden on remaining facilities. As the closure rate continues

to outpace the opening of new rural emergency departments, there is growing concern over the long-term viability of emergency care in these underserved areas.

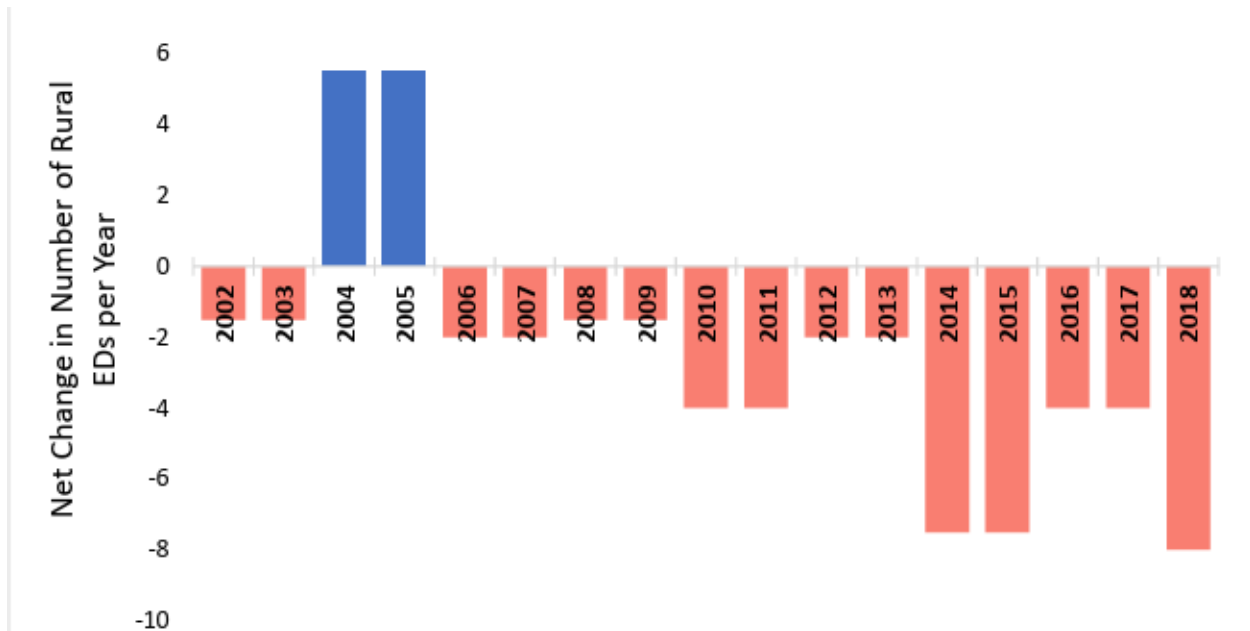


Figure 2, Annual net change in the number of rural emergency departments (EDs) in the United States from 2002 to 2018, showing brief increases in 2004–2005 followed by consistent declines, with the largest losses occurring after 2013.

A primary factor contributing to the vulnerability of rural emergency departments, is the shortage of qualified Emergency Medicine physicians, particularly in rural and low-volume emergency departments. Although the overall number of Emergency Medicine physicians in the U.S. has increased from 39,061 in 2008 to 48,835 in 2020, the distribution of these physicians remains uneven, with rural areas disproportionately affected. The 2008 workforce data indicated that 69% of physicians working in U.S. emergency departments were either Emergency Medicine board-certified or had completed Emergency Medicine residency training,

with a national density of 8.8 Emergency Medicine-trained physicians per 100,000 population. However, the density of Emergency Medicine-trained physicians is much lower in rural areas. In urban areas, there were 10.3 Emergency Medicine-trained physicians per 100,000 population, but this figure dropped dramatically in rural areas, with 5.3 per 100,000 in large rural areas and just 2.5 per 100,000 in small rural areas. This stark disparity highlights the challenge of providing adequate emergency care in rural regions, where physician shortages are most acute.

The issue of staffing rural emergency departments with Emergency Medicine-trained physicians is compounded by the reliance on non-Emergency Medicine-trained physicians to fill the gaps. Family Medicine physicians and Internal Medicine physicians make up a significant portion of rural emergency department staff, with Family Medicine accounting for 33% and Internal Medicine for 24%, according to a 2019 workforce study. While these physicians are often skilled and experienced, they lack the specialized training of Emergency Medicine physicians, which can impact the quality of care, particularly in more complex or high-acuity cases. Non-Emergency Medicine-trained physicians may struggle to manage the broad range of emergencies typically seen in emergency departments, and their ability to respond quickly and effectively to critical situations may be limited compared to their Emergency Medicine-trained counterparts.

The shortage of Emergency Medicine-trained physicians in rural areas is expected to continue for several decades, exacerbated by factors such as physician burnout, limited training opportunities in rural areas, and financial disincentives to practice in these regions. Without sufficient Emergency Medicine staffing, rural hospitals and emergency departments will

continue to face challenges in providing timely and effective emergency care, ultimately threatening the health and safety of rural populations.

Addressing the shortage of Emergency Medicine-trained physicians in rural areas requires a multifaceted approach, including targeted recruitment and retention strategies. Expanding financial incentives, such as the University of Arizona Primary Care Scholarship, to include Emergency Medicine physicians is one potential solution. This scholarship could provide critical support to Emergency Medicine physicians who are willing to practice in rural areas, helping to bridge the gap in emergency care access. The increase in the number of Emergency Medicine-trained physicians is promising: the percentage of Emergency Medicine physicians with board certification or Emergency Medicine residency training has grown from 69% in 2008 to 81% in 2020. This increase in Emergency Medicine-trained physicians represents a positive trend for the profession, but the distribution of these physicians remains a significant challenge. The 2019 workforce study found that, while the overall number of Emergency Medicine physicians has risen, the rural-urban divide persists, with rural areas continuing to face physician shortages.

To improve rural healthcare systems and address the ongoing shortage of Emergency Medicine physicians, it is essential to focus on strategies that encourage Emergency Medicine physicians to practice in these underserved areas. One approach is to increase the availability of training opportunities in rural settings, allowing Emergency Medicine residents to gain experience in rural emergency departments and increasing the likelihood that they will remain in these communities after completing their training. Additionally, financial incentives such as loan repayment programs, relocation bonuses, and scholarships like the University of Arizona

Primary Care Scholarship could further entice Emergency Medicine-trained physicians to practice in rural areas, ensuring that rural emergency departments are adequately staffed and capable of meeting the emergency care needs of their communities.

By strengthening the rural Emergency Medicine workforce, we can ensure that rural communities continue to have access to high-quality emergency care. This is especially critical as rural populations age, and the demand for emergency services continues to grow.

Supporting Emergency Medicine physicians to practice in rural areas is not just about filling staffing gaps—it's about ensuring that all patients, regardless of where they live, have access to timely and appropriate emergency care when they need it most.

Impact of Emergency Medicine Physician Shortage in Rural/Underserved Areas on Primary Care Physician Productivity

The shortage of board-certified Emergency Medicine physicians in rural and underserved areas has far-reaching implications, not only for the delivery of emergency care itself but also for the productivity and sustainability of the primary care workforce. In communities where, emergency departments are chronically understaffed or rely heavily on non-Emergency Medicine-trained clinicians, Primary Care Physicians—particularly those trained in Family Medicine or Internal Medicine—are often called upon to fill the gap. These added responsibilities stretch the already limited capacity of the primary care system in these regions, impacting physician availability, increasing burnout, and reducing the time available for preventive care, chronic disease management, and health maintenance.

Many rural Primary Care Physicians are tasked with staffing emergency departments in addition to running their outpatient clinics. This dual role can lead to unpredictable schedules, longer work hours, and increased clinical burdens that detract from their primary care responsibilities. The result is diminished patient access to routine care, delayed follow-ups, and a reactive rather than proactive approach to health management. A correlation exists between the allocation of Primary Care Providers to emergency department settings and a reduction in the quality of continuity of care and chronic disease control within the community served by those PCPs, especially within rural communities (Kierzek et al, 2010). This not only affects health outcomes but also drives patients back into emergency care for issues that could have been managed earlier in an outpatient setting—further perpetuating the cycle of strain on the healthcare system.

Moreover, the lack of dedicated emergency physicians in rural areas reduces the efficiency of care coordination between emergency departments and outpatient clinics. In urban settings, where Emergency Medicine physicians typically handle all acute care needs, primary care providers can focus more fully on managing longitudinal patient relationships and preventing disease escalation. In contrast, in many rural communities, the absence of a stable Emergency Medicine workforce means that Primary Care Providers must frequently transition between care settings, increasing the risk of provider fatigue, errors in communication, and fragmented care delivery. These disruptions hinder efforts to improve population health metrics and may reduce physician satisfaction, driving further attrition from the rural healthcare workforce.

The burden on Primary Care Providers caused by the shortage of Emergency Medicine-trained physicians also has policy and workforce planning implications. Current scholarship and loan forgiveness programs designed to bolster the primary care workforce in underserved areas often do not account for the fact that a significant portion of the primary care workload in these areas includes emergency care coverage. This misalignment overlooks the reality that many Primary Care Providers in rural regions are effectively practicing a hybrid of primary and emergency care. Addressing this issue by expanding the definition of eligible providers for primary care support programs—such as the University of Arizona Primary Care Scholarship—to include emergency physicians could help stabilize the workforce, reduce pressure on Primary Care Providers, and improve overall care delivery in high-need areas.

Evaluating Primary Care Classification: Discrepancies in Specialty

Designation

The classification of primary care specialties varies among different organizations, leading to inconsistencies in eligibility for financial incentives and workforce programs. The Association of American Medical Colleges does not recognize Psychiatry or General Surgery as primary care specialties, yet the University of Arizona includes them among the eligible disciplines for the Primary Care Scholarship. This discrepancy raises questions about the criteria used to define primary care and suggests a degree of flexibility in classification that could extend to Emergency Medicine as well.

Moreover, the Arizona Primary Care Physician Workforce Report, authored by the University of Arizona Center for Rural Health, explicitly acknowledges Emergency Medicine as a primary care specialty. This recognition aligns with the reality that Emergency Medicine physicians frequently provide frontline primary care services in rural and underserved communities, where access to traditional Primary Care Physicians is severely limited. Their role in managing acute illnesses, stabilizing chronic disease patients, and addressing preventive care needs reflects many of the same responsibilities fulfilled by Family Medicine, Internal Medicine, and Pediatrics.

Additionally, the University of Arizona facilitates rural training rotations through the Rural Health Professions Program for all primary care specialties included in the Primary Care Scholarship. Notably, the Rural Health Professions Program also offers rural rotations for Emergency Medicine due to the significant shortage of Emergency Medicine physicians in these areas. This inclusion highlights the critical role Emergency Medicine physicians play in delivering care to populations with limited healthcare access, further reinforcing the argument for their classification as primary care providers.

The presence of Emergency Medicine in these rural training programs underscores the broader reality of workforce shortages in Arizona's underserved areas. Emergency physicians frequently fill gaps in primary care availability, yet they remain excluded from the financial incentives that encourage healthcare professionals to serve in these settings. Given the inconsistencies in specialty designation and the established contributions of Emergency Medicine to primary care delivery, this proposal argues for a re-evaluation of the University of Arizona Primary Care Scholarship criteria to include Emergency Medicine physicians. Doing so

would not only align financial support with actual workforce needs but also enhance healthcare access for Arizona’s most vulnerable populations.

Aligning Emergency Medicine Residency with Primary Care: A

Curriculum Analysis and Rationale for Expanding Primary Care

Scholarship Eligibility

This residency curriculum analysis is based on the University of Arizona South Campus Emergency Medicine Residency program, which aims to develop outstanding leaders in emergency medicine. The program offers a rigorous academic structure, combining clinical and didactic teaching with clinical research. A key aspect of the program is its exposure to diverse practice settings, including academic hospitals, rural clinics, Indian Health Service facilities, and border health sites. This variety prepares residents for careers not only in urban trauma centers but also in underserved, low-resource environments—many of which are designated Health Professional Shortage Areas. Additionally, the program includes a comprehensive medical Spanish immersion program to better serve the Hispanic patient population, a feature that is especially relevant in Arizona, where a large percentage of patients are Spanish-speaking (College of Medicine Tucson – Emergency Medicine, 2017). The program’s emphasis on diversity, equity, and inclusion aligns closely with the values of primary care, particularly its focus on serving medically underserved populations and improving access for marginalized communities.

To assess the alignment of the Emergency Medicine residency program with primary care services, we first identified specific rotations that involve training in specialties typically categorized as primary care, such as Family Medicine, Internal Medicine, Pediatrics, Obstetrics and Gynecology, Addiction Medicine, General Surgery, Psychiatry and Rural Medicine. These disciplines represent the core training areas for physicians traditionally considered eligible for the University of Arizona Primary Care Scholarship. By calculating the percentage of primary care-focused rotations relative to the total number of rotations, it was determined that approximately 23% of rotations across the entire residency program align with primary care services (Residency Experience | Department of Emergency Medicine, 2017). This proportion is notable considering Emergency Medicine is not traditionally classified as a primary care specialty, yet the residency structure demonstrates clear overlap with primary care competencies and service delivery.

Notably, for residents enrolled in the Rural/Border/Global Health Track, this exposure is even more pronounced, with approximately 28.2% of their rotations dedicated to primary care-oriented specialties (Residency Experience | Department of Emergency Medicine, 2017). This track was specifically developed to address healthcare disparities in underserved populations by offering in-depth experiences in rural hospitals, tribal health systems, and global health settings. Clinical training sites such as Tuba City Regional Health Care Corporation, Holy Cross Hospital in Nogales, and the White River IHS facility provide residents with real-world experience managing chronic diseases, conducting well-child and prenatal visits, performing preventive screenings, and navigating limited referral networks—hallmarks of primary care delivery. Through these hands-on clinical rotations, residents gain skills that mirror those of

their Family Medicine and Internal Medicine counterparts, and in many cases, care for the very same patient populations served by physicians supported through the University of Arizona Primary Care Scholarship.

Additionally, the track includes a global health elective and a capstone quality improvement project that allows residents to explore systemic issues affecting underserved populations. These projects often focus on public health education, chronic disease burden, or access to preventive services—further aligning the Emergency Medicine curriculum with primary care values and objectives. This emphasis on systems-based care, public health integration, and continuity of care is not only appropriate for Health Professional Shortage Areas settings but is essential for physicians practicing in any community with complex health equity challenges.

The comprehensive nature of the training offered through this Emergency Medicine residency program—particularly the Rural/Border/Global Health track—demonstrates that Emergency Medicine residents are not just trained in resuscitation and trauma care, but also in the nuanced delivery of care for chronic, preventive, and reproductive health needs in underserved populations. These are the same competencies expected of recipients of the University of Arizona Primary Care Scholarship, whose goal is to strengthen the pipeline of physicians equipped to serve in Arizona’s rural and low-resource areas.

Furthermore, Emergency Medicine physicians, upon graduation, are uniquely positioned to deliver this care with flexibility across settings—clinics, hospitals, and community health centers. Their diverse clinical background enables them to adapt to the unpredictable and varied needs of underserved areas, especially where physician shortages require providers to

wear multiple hats. Thus, their inclusion in the University of Arizona Primary Care Scholarship is not just warranted by their training—it is essential for building a sustainable, flexible workforce capable of meeting the multifaceted needs of Arizona’s most vulnerable communities.

The residency program’s strong primary care exposure, particularly through its Rural/Border/Global Health Track, demonstrates that Emergency Medicine residents are well-prepared to address primary care needs, especially in Health Professional Shortage Areas. These findings support the case for expanding the University of Arizona Primary Care Scholarship eligibility to Emergency Medicine physicians, recognizing their critical role in improving access to healthcare in Health Professional Shortage Areas. The inclusion of Emergency Medicine physicians in the scholarship aligns with the spirit of the program—to incentivize and retain competent, compassionate, and community-focused physicians in regions with the greatest need.

Training and Support for Emergency Medicine Providers

For Emergency Medicine physicians to “genuinely” function as Primary Care Providers, they must be equipped with the skills, training, and resources to deliver comprehensive care from the emergency department. To fully meet the expectations of primary care, Emergency Medicine providers must be able to manage chronic conditions, prescribe and adjust medications, administer preventive care, and provide referrals for follow-up services when necessary (Irvin et al., 2008). For example, a patient presenting to the emergency department with elevated blood pressure may need immediate intervention, but the care should not stop

there. The Emergency Medicine provider should ideally initiate or adjust long-term antihypertensive therapy, educate the patient on lifestyle modifications, and provide clear instructions for follow-up care (Irvin et al., 2008). Similarly, a patient seeking contraception after unprotected sex in the emergency department should receive both emergency contraception and information on follow-up reproductive health services, including counseling on consistent contraception use, STI testing and prevention, and resources for ongoing sexual and reproductive healthcare.

However, without external support, such care delivery is often not viable. Many emergency departments lack the staffing, time, or protocols necessary for preventive interventions or chronic disease management, leading to gaps in care (Sartini et al., 2022). Expanding training programs for Emergency Medicine providers to include these aspects of primary care and integrating supportive systems, such as electronic health record templates for chronic disease management or partnerships with community health resources, would be critical steps in bridging this divide. Additionally, a cultural shift within emergency medicine toward embracing these responsibilities as part of their broader role in the healthcare system is essential.

Ultimately, by expanding the scope of services provided in emergency departments and equipping Emergency Medicine providers with the tools and training necessary to deliver true primary care, the healthcare system can address critical access gaps in Health Professional Shortage Areas. Recognizing and supporting this expanded role through financial incentives or eligibility for primary care-focused scholarships would further incentivize Emergency Medicine

providers to embrace these responsibilities, ensuring that patients in underserved and rural areas receive the comprehensive care they need.

The Impact of Financial Incentives on Addressing Physician Shortages in Underserved Areas

Research has consistently demonstrated that financial incentives, such as scholarships and loan repayment programs, play a significant role in influencing healthcare providers' decisions on where to practice, especially in underserved and rural areas (*Arizona Center for Rural Health Receives \$4.4 Million in HRSA Grants to Bolster Health Services in Outlying Communities, 2024*). These incentives not only reduce the financial burden of medical education—which can exceed \$200,000 for many students—but also serve as a powerful motivator for providers to enter practice in locations where clinical need is greatest but recruitment is historically most challenging. In rural and Health Professional Shortage Areas, where provider burnout, isolation, and lack of infrastructure often deter long-term retention, such financial support serves as both a recruitment and retention tool.

The University of Arizona College of Medicine—Phoenix has been particularly proactive in expanding and coordinating primary care and rural training tracks for medical students. A notable investment of \$3,930,144 was recently directed at addressing physician shortages in these regions (*Training and Keeping Primary Care Physicians in Arizona, 2023*). These efforts aim to train and incentivize medical graduates to remain in the state and serve high-need communities. While these investments mark critical progress, their effectiveness is ultimately limited by how narrowly the programs define "primary care." Despite Emergency Medicine

physicians playing an increasingly central role in care delivery—especially in rural Arizona—they remain ineligible for key incentive programs like the University of Arizona Primary Care Scholarship, which is currently limited to Family Medicine, Internal Medicine, Pediatrics, General Surgery, Obstetrics and Gynecology and Psychiatry.

These incentives are not limited to education alone. Employer-sponsored loan repayment programs have also become a widespread recruitment strategy in rural healthcare systems. For example, Banner Health offers a \$100,000 loan repayment incentive over five years to attract physicians to underserved locations. Programs like the National Health Service Corps and state-level rural physician support initiatives provide similar financial assistance in exchange for multi-year commitments to Health Professional Shortage Areas. These programs have been associated with improved recruitment and longer retention of physicians in rural and underserved communities, and they reflect a growing consensus that financial support is a key lever for workforce development (Arredondo et al, 2023).

The existing data emphasizes the importance of these financial incentives in improving healthcare access in underserved areas, where the shortage of Primary Care Providers is most acute (American College of Emergency Physicians, 2024). However, the continued exclusion of Emergency Medicine from many of these programs fails to account for the reality on the ground. Emergency Medicine physicians, particularly those working in rural hospitals, critical access facilities, and Indian Health Service sites, are routinely delivering services that align with the definition of primary care. In many rural communities, Emergency Medicine physicians are the only available providers for such care. This is especially significant when considering the

high volume of non-emergent cases seen in Emergency Departments—many of which would otherwise fall within the scope of a primary care office visit.

Emergency Medicine physicians, especially in rural and Health Professional Shortage Areas, regularly provide primary care-level services, managing a variety of non-emergent cases that Primary Care Providers would otherwise handle (Brody et al., 2015). Despite fulfilling this essential role, they are systematically excluded from the very programs designed to support clinicians providing such services. This disconnect between service delivery and financial incentive eligibility undermines both equity and efficiency in workforce distribution. It also discourages Emergency Medicine residents—many of whom are exposed to rural and underserved care through tracks such as the Rural/Border/Global Health program—from pursuing long-term practice in these regions.

Expanding the University of Arizona Primary Care Scholarship to include Emergency Medicine physicians would align financial incentives with their critical role in providing primary care services in these regions. Such an expansion would recognize the reality that healthcare delivery in rural Arizona often does not fit neatly into traditional specialty categories. By offering financial support tailored to the unique contributions of Emergency Medicine physicians, this policy shift could encourage more Emergency Medicine graduates to remain in Arizona, choose underserved practice settings, and reduce the strain on traditional primary care providers who are increasingly overburdened. It would also reflect a more nuanced, accurate, and inclusive understanding of what primary care looks like in the context of modern, rural healthcare delivery.

Restructuring and Renaming the Primary Care Scholarship

The current eligibility criteria for the University of Arizona Primary Care Scholarship are based on a traditional definition of primary care, which emphasizes longitudinal, comprehensive care for chronic and preventive health conditions. However, the scholarship's inclusion of General Surgery and Psychiatry—specialties not recognized as primary care by the Association of American Medical Colleges (AAMC)—suggests that the program has already evolved beyond a strict primary care framework. Rather than focusing solely on traditional primary care, the scholarship has become a tool to support essential rural health providers across a variety of specialties. This reality presents an opportunity to re-evaluate the scholarship's focus and better align it with the healthcare needs of Arizona's rural and underserved populations.

As demonstrated throughout this thesis, Emergency Medicine (EM) physicians provide vital services in rural Arizona, addressing many of the same healthcare gaps that the scholarship aims to fill. EM ranks second only to Family Medicine in the number of physicians practicing in rural areas, surpassing Internal Medicine, Pediatrics, and General Surgery (Koch et al., 2022). In many of these communities, EM physicians are the only available providers for chronic condition management, preventive screenings, family planning, and mental health stabilization—functions that overlap significantly with the work of traditional Primary Care Physicians. The Rural Health Professions Program (RHPP) at the University of Arizona recognizes this by offering rural training opportunities for EM residents, underscoring the critical role that EM plays in delivering healthcare in low-resource settings.

Given these realities, it may no longer be appropriate to define the scholarship solely around a narrow understanding of primary care. Instead, the scholarship could be reframed to reflect its broader purpose: supporting the placement of essential healthcare professionals in rural and underserved communities. Renaming the program as the “Rural and Underserved Health Professions Scholarship” would align its mission with the actual composition of Arizona’s rural healthcare workforce, which includes not only Family Medicine, Internal Medicine, and Pediatrics, but also General Surgery, Psychiatry, Obstetrics and Gynecology, and Emergency Medicine.

This reframing would eliminate the need to debate whether EM is or is not “primary care” in a strict sense, and instead focus on the scholarship’s true goal: to ensure that Arizona’s rural and underserved communities have access to the healthcare services they need. By recognizing Emergency Medicine physicians as eligible for the scholarship, the program would reflect the practical realities of rural healthcare delivery in Arizona—where EM physicians are often the first and only point of contact for patients in need of care. This adjustment would allow the scholarship to more effectively support the full spectrum of essential providers in high-need areas, ultimately strengthening the rural healthcare safety net and improving access to care for Arizona’s most vulnerable populations.

Conclusion and Future Directions

The Arizona Primary Care Scholarship was created with a clear and urgent goal: to address physician shortages in Health Professional Shortage Areas by offering full-tuition scholarships to medical students who commit to practicing in primary care fields within

underserved communities. Its purpose is not only to ease the financial burden of medical education but also to incentivize long-term service in areas where access to care is critically limited. However, the current design of the scholarship excludes Emergency Medicine—a specialty that, in practice, delivers essential primary care services in precisely the communities the scholarship aims to serve.

This thesis has demonstrated that Emergency Medicine physicians are indispensable providers in rural and underserved areas, where they manage non-emergent conditions, chronic diseases, and preventive health services—tasks traditionally associated with primary care. In fact, the Arizona Health Workforce Profile identifies Emergency Medicine as the second most common specialty practicing in rural Arizona, ahead of several specialties already included in the Primary Care Scholarship, such as Pediatrics and Internal Medicine. This alone provides compelling justification for their inclusion, as it demonstrates a direct alignment between Emergency Medicine workforce distribution and the geographic focus of the scholarship.

Further, the University of Arizona’s own infrastructure and policy frameworks already acknowledge Emergency Medicine’s primary care contributions. The Arizona Center for Rural Health includes Emergency Medicine in its workforce reports as a primary care specialty. The Rural Health Professions Program offers rural clinical rotations for Emergency Medicine residents and medical students, precisely because their presence is essential in those communities. These institutional acknowledgments reinforce that Emergency Medicine is already being treated as a de facto primary care specialty in rural Arizona—and therefore, Emergency Medicine providers should qualify for the same incentives.

Additionally, the growing reliance on emergency departments for routine care reflects systemic gaps in primary care access that Emergency Medicine is already filling. Many Arizonans—particularly those who are uninsured, underinsured, or live in geographically isolated regions—turn to the emergency department for everything from hypertension management to contraception counseling. Emergency physicians are required under Emergency Medical Treatment and Labor Act to treat all patients, regardless of ability to pay, and often provide the only consistent point of care in these settings. This evolving role, though not officially recognized in policy, mirrors the mission of the University of Arizona Primary Care Scholarship: to ensure consistent, accessible, community-based care in Health Professional Shortage Areas.

The scholarship also aims to prevent burnout and improve retention among providers in rural areas. Yet, as this thesis outlines, the shortage of Emergency Medicine-trained physicians often forces family medicine and internal medicine doctors—already overwhelmed in their outpatient clinics—to staff emergency departments as well. This dual burden reduces their productivity and threatens sustainability in the long term. Including Emergency Medicine physicians in the University of Arizona Primary Care Scholarship would help alleviate this burden, allowing each specialty to focus on their core responsibilities while maintaining comprehensive care delivery across both emergency and outpatient settings.

The curriculum analysis of the University of Arizona South Campus Emergency Medicine Residency further supports Emergency Medicine’s compatibility with the goals of the scholarship. Emergency Medicine residents, particularly those in the Rural/Border/Global Health Track, spend nearly one-third of their time in primary care-relevant rotations and are

exposed to the social, cultural, and clinical challenges of practicing in underserved communities. These residents are already being trained with the values and skills aligned with primary care service in Health Professional Shortage Areas, reinforcing the logical and ethical rationale for their inclusion in the program.

Future directions should include a critical re-evaluation of the scholarship's eligibility criteria—moving beyond traditional specialty labels and toward a model that recognizes actual service delivery, population impact, and workforce need in Arizona's rural and underserved communities. The current definition of primary care, while historically important, no longer fully captures the realities of healthcare delivery in Health Professional Shortage Areas. Administration should consider restructuring and renaming the scholarship to reflect its broader purpose: supporting essential rural and underserved health professions. A name such as the "Rural and Underserved Health Professions Scholarship" would better align the program with its true mission—recruiting and retaining healthcare providers who deliver critical services, regardless of whether their specialty is classified as primary care in the traditional sense.

Emergency Medicine should be explicitly included within this redefined framework. In Arizona, Emergency Medicine physicians are a critical part of the healthcare infrastructure in underserved areas, frequently providing care for chronic conditions, preventive services, and non-emergent cases that would otherwise be managed by traditional primary care providers. Their inclusion would ensure that the scholarship reflects the actual distribution of the rural and underserved healthcare workforce, not just theoretical definitions of specialty practice.

Furthermore, there should be additional support that encourages longitudinal studies to evaluate patient outcomes in rural and underserved communities served by Emergency Medicine physicians and quantify the volume and types of primary care-equivalent services provided in emergency departments. These data would provide a stronger evidence base for the expanded eligibility criteria and help refine the scholarship's focus over time. Pilot programs that expand the University of Arizona Primary Care Scholarship to include Emergency Medicine physicians could be implemented and assessed, providing practical data to inform permanent policy changes and guide future workforce development strategies.

Ultimately, expanding and renaming the University of Arizona Primary Care Scholarship is not just justified—it is necessary. By recognizing and supporting the essential work of Emergency Medicine physicians and other critical providers through scholarship inclusion, the program would more effectively strengthen Arizona's rural health workforce, reduce disparities, and bring the scholarship's mission into better alignment with the state's actual healthcare needs. This shift would ensure that the scholarship continues to serve as a vital tool for building a more equitable, accessible, and sustainable healthcare system for all Arizonans.

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