



Strategies to Improve Healthcare Access in Underserved Communities: A Mapping Review

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Background

Patients from a lower socioeconomic status have worse health outcomes (Agarwal, 2014, Agarwall, 2015, Hawes, 2021). Due to a lack of providers, underserved areas also experience poor health outcomes, such as preventable deaths in nonmetro vs. metro areas (CDC, 2021). Despite its immense resources, the United States finds itself positioned in two disparate healthcare groupings: underserved vs. non-underserved areas. Resources appear abundant in metropolitan non-underserved areas. However, they are presently defined by their absence in underserved counties and regions, demonstrated by the percentage of preventable deaths in nonmetro areas. In nonmetro counties, higher rates are reported for comorbidities and mortalities. For example, the deaths reported from heart disease are greater than 15%, cancer is 10% higher, unintentional injury is 18% higher, and chronic lower respiratory disease is 23% higher. Lastly, stroke-related deaths are increased by more than 11% (CDC, 2021). In addition, life expectancy is three years lower for men residing in underserved populations (Singh, 2017).

Medicare caps on funding, recent hospital closures, and 99% of Medicare Graduate Medical Education (GME) funds going to urban areas have contributed to a lack of training in underserved areas (Hawes, 2021). There are multiple attempts to address these disparities through modifications in education admission protocols. These modifications could yield a high proportion of physicians who exhibit interest in working in underserved areas. Furthermore, offering financial incentives can entice more physicians to reside, grow and practice in underserved areas. New technologies bridge specialty care gaps by conserving time and costs while providing remote specialty education for primary care physicians. At a broader level, governmental interventions seek to boost primary care training and medical facilities in underserved communities while redistributing current resources.

Design

A comprehensive systematic search of three databases (Medline, OVID Healthstar, and Journals@OVID) focusing on years 2006 to 2021 was performed using eight search terms (Table 1) performed by two investigators (CCA and TOK) identifying 64 published works for review. A multi-staged strategy was conceived to eliminate articles that were outside the scope of this review following a reproducible guideline for each stage of review. Publications underwent combined review by four reviewers (TOK, SF, JN, CCA), using defined inclusion/exclusion criteria. The expert arbiter (CCA) then reviewed all articles to verify congruence. The articles were then grouped by study design (Figure 1) and by generalized finding (Figure 2) to identify the most common recommendations.

Search Terms
Economics
Economic Impact
Health Professional Shortage Areas
Outcomes
Rural Health
Socioeconomic Status
Underserved Areas
United States

Table 1.

Results

Technology utilization was the most prevalent strategy to address underserved healthcare discrepancies. Both Telemedicine and the Extension for Community Healthcare Outcomes (ECHO) model were the most frequently discussed. The ECHO model was used as a teleconsultation, and specialty care educational mentoring model for primary care physicians, increasing patient access to specialty knowledge (Hagar, 2018, Arora, 2014, Aurora, 2011, Katzman, 2016, Komaromy, 2015). Integrated Systems Using Telemedicine (ISUT) provides cost-effective resources for families to access specialty autism care. ISUT also improves collaboration between the families and specialty autism experts (Reese, 2015).

Telemedicine and telemonitoring techniques can improve outcomes (Minejima, 2021). However, telemedicine does not reduce Medicare costs for health services, and its associated expenditures were inflated compared with programs not utilizing telemedicine (Moreno, 2009). Telemedicine also helps patients with lower socioeconomic status engage in more frequent visits but is contingent upon access to adequate devices and broadband. Often, it costs more to incorporate other technologies than for patients to transport themselves to attend healthcare visits (Minejima, 2021). In addition, Snoswell et al. state that current evidence does not reduce the cost of care delivery.

Golbeck et al. found that in-home telemonitoring reduces the likelihood of acute care hospitalizations and increases discharge to the community. Stroke care in underserved areas is improved by using interactive telecommunication technology programs, such as Telestroke (Kulcsar, 2014). However, Telestroke faces barriers, including strict licensing and credentialing rules, challenges with reimbursement, and liability concerns. Makkar et al. showed that a hybrid of neonatal specialist telemedicine combined with a constant neonatal nurse practitioner was shown to be a safe and effective way of delivering intensive neonatal care in medically underserved areas. Telementoring and telesurgery for minimally invasive procedures have gained popularity due to their lowered costs to provide education and surgical care in underserved areas. However, financial incentives, favorable legislation, and collaboration with cybersecurity remain barriers to telesurgical education and techniques (Hung, 2018).

Federal interventions intended to improve underserved care were the second most prevalent topic in addressing underserved disparities. New funding for Teaching Hospital Center Graduate Medical Education helps address underserved health disparities by increasing the funding to train physicians within these communities (Chen, 2012). Reductions in ED visits for non-emergent conditions are attributed to the creation and utilization of Federally Qualified Health Centers (FQHC) by patients close to these new facilities (Myong, 2020). The Centers for Medicare and Medicaid Services (CMS) developed the Accountable Care Organization (ACO) Investment Model (AIM) to encourage the growth of Medicare Shared Savings Program (MSSP) ACOs in rural and underserved areas. These programs show evident cost savings, but participating physicians must invest in information technologies that necessitate upfront monthly costs. Consequently, they often have difficulty maintaining the utilization of this method to deliver care in underserved areas (Trombley, 2019).

Sometimes, government intervention works contrary to the goal of achieving health equity in underserved areas. For example, Field et al. found that effective care integration may hasten provider consolidation and impair access in Health Professional Shortage Areas (HPSA), resulting in the concentration of resources in larger facilities promoting the closure of smaller ones. Funding of a National Health Service Corps (NHSC) has also helped expand professional health coverage. Still, Pathman et al. caution that "NHSC should now set targets and be more deliberate in managing its growth across disciplines where its clinicians serve."

Expanding underserved community access to care through educational strategies was the third most predominant article type identified. Positive exposure to community or HPSA rotations during medical school and training in social determinants of health or global health fields positively impact the selection of primary care specialties (Freeman, 2007, Hunter, 2019, Sandhu, 2020, Roy, 2015). Roy et al. also mentions designing Urban Underserved Programs (UUP), and rural-specific rotations are viable recruitment strategies. Since recruiting medical students from rural populations promotes a diverse physician workforce more inclined to provide care in rural areas, helping them succeed on the Medical College Admissions Test (MCAT) could lead to a higher percentage of rural students being accepted into medical school (Shipley, 2019).

Other strategies bolstering team-based care by utilizing behavioral health specialists, primary care providers, medical assistants, and nurses show reduced diabetic complications, ED visits, and improved quality of care for underserved areas in the northern midwest (Zurovac, 2019). Improving staff education is also suggested to aid in better chronic disease management (Alicea-Planas, 2016). Overall, the lack of health providers in underserved areas makes the Accountable Care Organization model difficult to execute despite providing greater satisfaction for patients and reduced healthcare costs (Wan, 2018). Finally, the existing medical graduates with unrealized potential could work at or above the level of a mid-level provider (Olubajo, 2021). However, the graduates experience career stagnancy and unfulfillment following their medical education. They are left unable to apply for licensure despite their qualifications of being highly educated and having netted published research works (Titilayo, 2021).

Inclusion criteria were as follows:
(1) Discussion of rural, underserved, or health professional shortage area
(2) Outcomes discussed
(3) Discussed healthcare access expansion techniques
Exclusion criteria were as follows:
(1) Article language other than English
(2) All patient cohorts reside in designated rural, underserved or health professional shortage area
(3) Article focus was not on physician led care
(4) If the article failed to meet any of the specified inclusion criteria

Table 2.

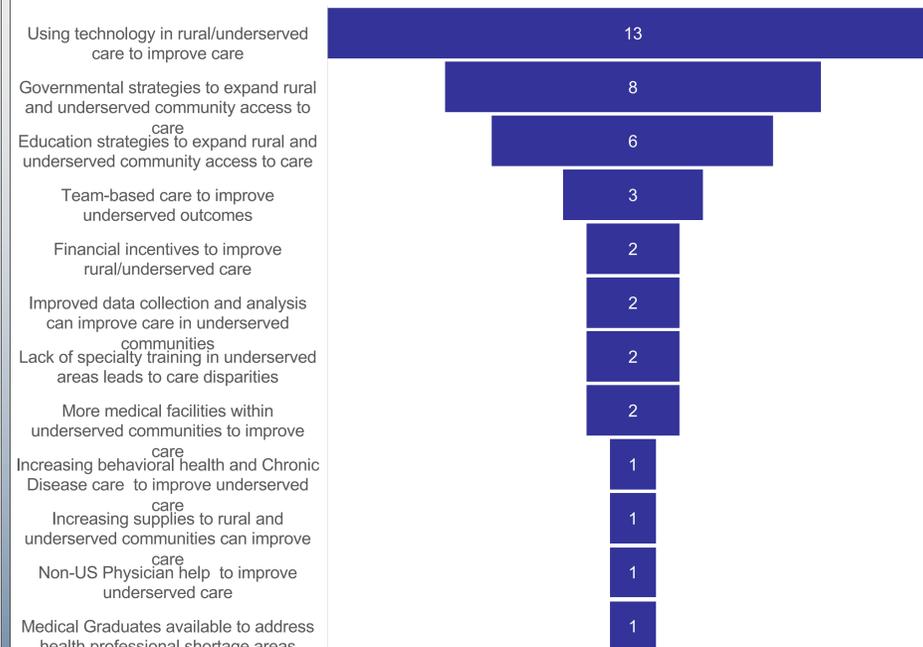


Figure 1.

State	One Family Physician	Total
Alabama	\$776,585	\$779,691,000
Iowa	\$931,341	\$837,275,000
Texas	\$1,114,000	\$5,370,000,000
California	\$985,881	\$8,286,000,000
Florida	\$940,606	\$3,530,000,000
Massachusetts	\$959,812	\$900,300,000

Financial Impact on Community of Family Physicians Per Year
Merritt Hawkins, White Paper Series, 2019
Table 3.

Discussion

The roughly 16 billion dollars in current GME funding is well-intended but is being distributed unevenly. Many graduate medical education programs advertise that they offer exposure to medicine in the community and opportunities in underserved metropolitan areas for their learners. The typical locations of these programs are in the heart of the underserved metropolitan zones where people have little to no access to healthcare outside of receiving care at a local university or community hospital facilities for acute, chronic, and procedural care. We should recognize the challenges of the people residing in nonmetropolitan areas because they do not have access to these large academic centers. If they need to access these centers, they must contend with costly, time-consuming, and frequently unfeasible journeys. These persons often delay seeking care until they reach irreversible stages of terminal illnesses (Wang, 2012). In addition, patients with functional impairments in rural areas often go without receiving attention for their medical needs. Therefore, it may be worthwhile to channel a portion of the existing graduate medical education reserve into nonmetropolitan areas. When graduate medical students practice in nonmetropolitan areas and have the resources needed to care for them, there is more of an opportunity to retain their talent, skills and engage in the provision of uninterrupted health services (Surbhi, 2020). These physicians have considerable potential to build lives in these areas after observing how impactful their actions and interventions can be (Surbhi, 2020). Furthermore, patients with a dedicated provider tend to participate more in their own healthcare needs. In addition, their improved quality of life allows them to devote more time to cultivating their livelihood and have a greater interest in contributing to their local economy.

A gap in the literature identified is associated with the economic impact health professional shortage areas have on communities. For example, primary care, specialty medicine, and surgical care physicians generate between 2.1 and 3.7 million dollars annually in Relative Value Units (RVU) for the healthcare industry. In addition, each physician supports up to 17 jobs and pays approximately 1.4 million dollars in salary annually (Miller, 2019).

The most straightforward solution is understudied. We found one piece of published research suggesting the use of the US Citizen International Medical Graduates (US IMG) currently residing in the United States, a potential workforce (Olubajo, 2021). With only 61% of US IMGs entering a residency training program in 2021 (Olubajo, 2021), these physicians remain an untapped resource. Roughly 100,000 US IMGs have been left without residency training since 2000 (Orr, 2021). In addition, many physicians who immigrate to the United States are not allowed to practice without repeating residency training. Thus, a gap in the literature pertains to how we may incorporate these physicians into our underserved communities.

Recent collaborative practice legislation provides one path forward for these US IMGs. There are 598 registered Assistant Physicians in Missouri since the bill passed in 2017 utilizing this limited license (pr.mo.gov, 9/23/21). Other states with large percentages of health professional shortage areas have identified these physicians as a resource and have passed collaborative practice legislation (Arizona and Washington) or are in the process of passing legislation (Georgia, Texas, Pennsylvania, and Massachusetts). Thus, many states recognize how opening a door to these physicians can improve the health of underserved populations. The lack of analysis of limited licensure outcomes needs to be studied. Evidence of license utility will shed light on this underutilized resource for underserved areas.

Conclusion

Decentralizing Graduate Medical Education from urban areas improves healthcare access. Technology will continue to bridge gaps provided patients socioeconomic status and access to broadband internet does not preclude them. Well intentioned governmental programs expanding training opportunities, like THCGME, represent a fraction of the funds allocated to addressing care disparities. A larger percentage of funding directed to THCGME would be an improvement. Novel approaches to utilize available physician pools residing in the country provides the fastest route to increasing healthcare access in underserved areas. Evidence assessing collaborative limited license practice will help validate this unique solution.

Additionally, evidence shows that limitations in access to primary care visits leads to deteriorating short- and long-term health outcomes, poorly-managed acute and chronic conditions, and reduced mobility to perform day-to-day activities. Having greater access to primary care physicians and preventative specialists reduces chronic disease complications and lowers the risks for morbidity and mortality. These measures can reflexively increase the possibility of recuperating financial losses, reduce absences from work, prevent property seizures and foreclosures, and housing instability.

Negative financial impacts resulting from reducing healthcare professionals in communities needs further study. Despite the growing potential for the substantial economic gains through increased access in these underserved areas, they remain predisposed to few or fixed economic improvements without improved healthcare infrastructure. We seek to highlight the need for further studies on how the expansion of healthcare in health professional shortage areas may impact workforce, health outcomes, risk of impoverishment, and impact on economic gains within underserved communities.

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