

### **Bridging the Gap: Fostering the Positive Impact of Expanding Medical Training Facilities on Rwanda's Rural Healthcare: A review**

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#### ABSTRACT

Rural healthcare disparities in Rwanda remain a critical challenge, driven by insufficient infrastructure, a shortage of trained healthcare professionals, and geographical isolation. This manuscript explores the transformative potential of expanding medical training facilities to address these inequities. With only 0.118 physicians per 1,000 people as of 2019, Rwanda falls far below the World Health Organization (WHO)'s recommended ratio. Current initiatives, such as the "4X4" strategy, aim to scale up the healthcare workforce and address rural challenges, yet gaps persist.

Drawing lessons from successful global models, including India's districtbased medical colleges, Ethiopia's rural health extension programs, and South Africa's rural clinical training programs, the manuscript contextualizes their relevance to Rwanda. Expanding training facilities in rural areas would enhance healthcare access, reduce patient-to-provider ratios, and improve outcomes in maternal and neonatal care, chronic disease management, and preventive health services. The positive impacts extend beyond healthcare delivery, contributing to economic empowerment through job creation and fostering retention of locally trained professionals in underserved areas. By prioritizing strategic investments in rural medical education and supporting measures such as scholarships and career incentives, Rwanda can build a resilient, community-centered healthcare system.

This work advocates for immediate action to expand training facilities, emphasizing their role in bridging rural healthcare gaps, enhancing service quality, and empowering communities. It envisions Rwanda as a place where equitable healthcare access is a reality, uplifting rural regions and ensuring a healthier, more productive population.

#### **INTRODUCTION**

Access to quality healthcare remains a persistent challenge in Rwanda and other low-income countries, particularly in rural areas. Despite global advancements in healthcare, rural communities in Rwanda face significant disparities in accessing essential medical services due to insufficient infrastructure, limited personnel, and geographical isolation [1].

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Cite this article as: Gashugi et al. Bridging the Gap: Fostering the Positive Impact of Expanding Medical Training Facilities on Rwanda's Rural Healthcare: A review. Rw. Public Health Bul. 2025. 6 (1): 43-49. https://dx.doi. org/10.4314/rphb.v611.3 While the country's healthcare system has made strides through initiatives such as communitybased health insurance and decentralization of health services, critical gaps persist in underserved regions. Notably, as of 2019, Rwanda had approximately 0.118 physicians per 1,000 people, equating to one doctor for every 8,475 individuals [2]. This figure falls well below the World Health Organization's (WHO) recommended minimum of one doctor per 1,000 people [3]. In response, Rwanda's Ministry of Health launched the "4X4" initiative, aiming to quadruple the number of medical doctors within four years to achieve a ratio of four doctors per 1,000 patients [4]. However, the scarcity of adequately trained medical professionals in rural areas remains a significant barrier to achieving equitable healthcare outcomes. This scarcity exacerbates challenges such as high patient-to-provider ratios, limited specialized care, and poor health indicators, particularly in rural regions [5,6].

Globally, investments in expanding medical education and training facilities, particularly in rural regions, have proven effective in addressing such disparities. For example, India has established district-based medical colleges, increasing the availability of healthcare professionals in remote areas and significantly reducing maternal and infant mortality rates [7]. Similarly, Ethiopia's rural health extension programs emphasize training and deploying health workers within their communities, leading to substantial gains in preventive care and health education [8]. In South Africa, rural clinical training programs have successfully encouraged healthcare professionals to remain in underserved regions, thereby enhancing service delivery and health outcomes [9].

Here we explored transformative potentials of expanding medical training facilities in Rwanda's rural areas. Analyzing successful global practices and contextualizing their application to Rwanda's unique healthcare challenges advances the discourse on equitable healthcare development and highlights the role of rural empowerment in addressing disparities.

# CURRENT CHALLENGES IN RWANDA'S RURAL HEALTHCARE

**Physician Shortage**: Rwanda faces a significant shortage of healthcare professionals, a challenge

that disproportionately affects rural areas as approximately 72.1% of the population resides in rural areas [10]. According to the National Institute of Statistics of Rwanda (NISR), the country has only 0.118 physicians per 1,000 people, translating to one doctor for every 8,475 individuals [2; 11]. This figure is far below the World Health Organization's recommended standard of one doctor per 1,000 people [3]. The disparity is further pronounced between urban and rural areas, with most doctors and specialists concentrated in cities such as Kigali. While a disparity in healthcare access between urban and rural areas still exists-with doctors and specialists more commonly concentrated in cities like Kigali-efforts are underway to address this imbalance. Staffing challenges in rural regions, often influenced by limited career development opportunities, infrastructure gaps, and demanding living conditions, are being recognized as priority areas for improvement. Ongoing initiatives aim to create more supportive environments to attract and retain medical professionals across all regions [5].

Infrastructure and Accessibility: The healthcare infrastructure in rural Rwanda remains underdeveloped, with many facilities lacking essential equipment and medical supplies. According to the Ministry of Health, only 60% of rural health centers meet minimum standards for infrastructure and staffing, leaving large segments of the population underserved [12]. Residents in remote areas often have to travel more than 20 kilometers to access basic healthcare services, a challenge exacerbated by inadequate public transport options and poor road networks [1]. Research emphasizes that this geographical isolation delays access to care and deters residents from seeking preventive and emergency services, increasing the burden of untreated conditions [13]. Additionally, the lack of specialized care in rural health centers means patients requiring advanced treatment must rely on referral hospitals, further straining an already overwhelmed urban healthcare system.

**Impact on Rural Communities**: The scarcity of medical professionals and limited access to infrastructure have dire consequences for rural communities. High rates of preventable diseases, such as malaria, diarrheal diseases, and respiratory infections, remain prevalent in these areas. Maternal and child mortality rates are disproportionately higher in rural Rwanda compared to urban areas due to limited access to skilled birth attendants and emergency obstetric care [14]. Rural women often face barriers to accessing timely cesarean sections or antenatal care, contributing to preventable complications during childbirth.

Rwanda has been facing a significant shortage of healthcare professionals, which has contributed to the underdiagnosis and limited treatment of chronic illnesses such as diabetes and hypertension. However, this challenge is being actively addressed through various national initiatives aimed at expanding medical training, increasing recruitment, and improving the distribution of healthcare workers across the country. Rural populations often seek care only when conditions become critical, resulting in poorer outcomes and higher healthcare costs [15]. This persistent gap perpetuates cycles of poverty as families bear the financial burden of traveling long distances for care and managing the consequences of untreated illnesses

## RWANDA'S EXISTING EFFORTS AND OPPORTUNITIES

4X4 Initiative: Scaling the Healthcare Workforce: Rwanda's "4X4 Initiative" aims to quadruple the number of medical doctors within four years to achieve a ratio of four doctors per 1,000 people, addressing the country's significant shortage of healthcare professionals [4]. Achieving this goal requires the expansion of medical training facilities, particularly in rural areas, to increase the number of healthcare workers and ensure their equitable distribution across underserved regions. Aligning infrastructure development with the 4X4 Initiative enables Rwanda to not only boost the number of medical professionals but also prepare them to address the unique challenges of rural healthcare effectively. Notably, Rwanda has taken significant steps toward this objective. For example, the University of Global Health Equity (UGHE), established in partnership with Partners in Health, trains medical students with a strong emphasis on delivering healthcare services to underserved populations, particularly in rural communities

**Community-Based Health Insurance (CBHI): Enhancing Care Delivery**: The CBHI program has enhanced access to affordable healthcare, but its sustainability hinges on a robust healthcare workforce. Expanding medical training facilities is critical to sustaining CBHI by increasing the availability of skilled providers. Contributions to CBHI are structured according to socioeconomic categories, making the scheme inclusive and affordable [16]. Expanding education and integrating it with CBHI-supported centers ensures the growing demand for quality services is met.

**Opportunities:** Leveraging Technology and Partnerships: Rwanda's leadership in technological innovation offers opportunities to revolutionize medical education through tools like telemedicine, simulation-based training, and virtual reality modules. Additionally, the country's global partnerships with organizations such as the World Bank and African Development Bank can support the establishment of state-of-the-art rural medical schools. Drawing on successful models from countries like Ethiopia and India, Rwanda can use these collaborations to build modern training facilities that address healthcare gaps. enhance workforce retention, and improve rural healthcare outcomes

#### LESSONS FROM OTHER LOW- AND MIDDLE-INCOME COUNTRIES AND RELEVANCE TO RWANDA

Drawing insights from countries like India, Ethiopia, and South Africa provides valuable lessons for addressing rural healthcare disparities. India's establishment of district-based medical colleges has significantly improved access to healthcare by training professionals familiar with rural health challenges [7]. These institutions have been instrumental in reducing maternal and infant mortality rates by ensuring healthcare providers are available in underserved areas. Similarly, Ethiopia's rural health extension programs focus on training community-based health workers in preventive care and basic clinical services, leading to substantial improvements in maternal health and the management of communicable diseases [8]. South Africa's rural clinical training programs immerse medical students in rural settings during their education, fostering long-term service in underserved areas and enhancing healthcare outcomes.

For Rwanda, these models offer actionable strategies. Establishing district-based medical

colleges, similar to India's approach, could train healthcare workers near their communities while emphasizing maternal and neonatal care. Adapting Ethiopia's community-based health worker training programs [8] would help improve preventive care and health education in rural areas. South Africa's immersive rural clinical training aligns with Rwanda's goals of retaining healthcare professionals in underserved regions. By contextualizing these strategies to Rwanda's specific needs, the country can strengthen its healthcare system, improve service delivery, and move closer to achieving equitable healthcare access.

# POSITIVE IMPACTS OF EXPANDING MEDICAL TRAINING FACILITIES

Improved Access to Healthcare to Address the Doctor-Patient Gap: Expanding medical training facilities is crucial for addressing healthcare accessibility in underserved regions, particularly rural areas. Increased training opportunities lead to a larger healthcare workforce, ensuring that rural residents no longer need to travel great distances for basic services. This effort aligns with findings that highlight the importance of decentralizing healthcare education to reduce regional disparities [17]. Countries like Ethiopia and India have demonstrated the effectiveness of increasing training facilities in improving healthcare access [8]. Similarly, in Rwanda, expanding these facilities could serve as a crucial step toward bridging the doctor-patient gap and ensuring equitable access to healthcare services

Enhanced Quality of Care: A larger and bettertrained healthcare workforce results in improved quality of care. Reduced patient-to-provider ratios allow healthcare workers to focus more on individual patients, enhancing diagnostic accuracy and treatment outcomes. Moreover, specialized training programs in areas like maternal health and chronic disease management bring advanced care to underserved regions. Trainees who study and train in rural areas are more likely to gain firsthand experience with the unique challenges these communities face, such as limited infrastructure, cultural barriers, and resource constraints. In countries like South Africa, rural clinical training programs have successfully prepared medical professionals to work in underserved areas by exposing them to rural healthcare settings

during their education [9]. Similarly, in Rwanda, decentralizing training could provide students with the necessary skills to navigate the specific demands of rural healthcare, fostering a deeper understanding of community needs and a greater sense of commitment to addressing them.

Economic Empowerment: The expansion of medical training facilities drives economic empowerment creating employment bv opportunities and improving overall health outcomes. For rural areas, these facilities stimulate local economies through job creation for trainers. administrators, and healthcare workers. Healthier populations contribute to a more productive workforce and reduce financial strains on families [17]. Additionally, these improved health outcomes lead to decreased healthcare expenses, freeing up resources for education and entrepreneurship. For instance, programs in Ethiopia have shown that expanding healthcare infrastructure not only addresses immediate health needs but also fosters long-term economic stability [8].

Retention of Healthcare Workers: Locally trained medical professionals are more likely to remain in and serve the communities where they were educated. Studies in low-income countries consistently show that medical professionals trained in rural areas are more likely to work in those areas after completing their education compared to those trained in urban centers [18]. For Rwanda, this means that expanding medical training facilities to rural regions could ensure a steady supply of healthcare workers committed to long-term service in these underserved areas. In addition, retaining healthcare workers in rural regions helps build trust between communities and medical professionals, improving healthcare outcomes through consistent, culturally sensitive care. By creating incentives for rural training and professional development, Rwanda can foster healthcare stability and sustainability in its most vulnerable regions.

**Preventive Care and Community Outreach**: Training healthcare workers to focus on preventive care and community outreach further reduces the burden of preventable diseases. Health professionals trained in public health education can lead vaccination campaigns, sanitation programs, and nutrition counseling in rural areas. Integrating preventive care into medical training ensures that healthcare systems are equipped to address root causes rather than just symptoms [19]. Proactive community engagement by healthcare workers has a lasting impact on reducing disease prevalence in rural communities [13].

For Rwanda, expanding rural-focused medical training facilities offers а transformative opportunity to address the healthcare challenges in underserved areas. Rural regions disproportionately bear the brunt of healthcare disparities, with residents often traveling long distances to access limited services, compounded by socioeconomic constraints [20]. Establishing and strengthening medical training facilities in rural areas can help foster locally trained professionals who are more likely to remain in and serve their communities. This approach not only meets immediate healthcare needs but also builds long-term capacity and resilience within the rural healthcare system.

By combining insights from multiple scholars, these points underscore the transformative impact of expanding medical training facilities. Such efforts improve healthcare access and quality, drive socio-economic development, and foster sustainable healthcare systems, particularly in regions like rural Rwanda.

### CALL TO ACTION

Education and training are transformative forces essential for improving rural healthcare. By equipping individuals with the knowledge and skills to address healthcare challenges, education serves as a powerful catalyst for change, fostering resilience and ensuring sustainable solutions developed from within communities.

Rwanda has made commendable strides in this direction, particularly through its collaboration with Partners in Health to establish the UGHE. This institution exemplifies a commitment to equitable healthcare delivery, especially in rural areas. Building on this success, Rwanda has the opportunity to expand community-oriented training programs in additional medical schools. Integrating education for paramedic and mid-level healthcare professionals would cultivate a diverse and skilled workforce capable of addressing a wide spectrum of medical needs in underserved regions. Now is the time for immediate and strategic investment in expanding medical training facilities to bridge rural healthcare disparities. Establishing more medical schools and training centers in rural areas, coupled with community-based training models and paramedic education, would produce healthcare workers with a deep understanding of the unique challenges these communities face. To attract and retain talent in these regions, supportive measures such as scholarships, housing, and career advancement opportunities must also be prioritized.

The vision is clear: a Rwanda where rural communities have equitable access to quality healthcare. In the future, no one will need to travel long distances for basic medical services, and preventable health challenges will be drastically reduced. By building a well-trained and widely distributed healthcare workforce supported by enhanced training facilities, even the most remote regions will benefit from exceptional medical care. This transformation will not only improve health outcomes but also empower communities, fostering a healthier and more productive population.

### CONCLUSION

Expanding medical training facilities in Rwanda represents a transformative solution to bridging healthcare disparities in rural areas. By addressing critical challenges such as the shortage of skilled healthcare professionals, underdeveloped infrastructure, and limited accessibility, these efforts can significantly enhance healthcare access, quality, and outcomes. Building on initiatives like the "4X4" strategy and leveraging successes such as the UGHE, Rwanda has a unique opportunity to empower rural communities through education and training. This approach not only improves health outcomes but also drives economic growth, fosters workforce retention, and ensures a more equitable healthcare system. A coordinated investment in rural medical education and infrastructure will pave the way for a healthier, more resilient Rwanda, where no community is left behind.

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