

# Reconceptualizing Community Pharmacy Practice in Ghana for Strengthened Primary Healthcare and Public Health

Mark Nortey<sup>1,2\*</sup>, George Felix<sup>1</sup>, Bridget Boahen<sup>3</sup>, Emmanuel Ireland<sup>4</sup>

<sup>1</sup>School of Public Health, University of Ghana, Accra, Ghana. <sup>2</sup>African Institute for Global Health Advocacy and Sustainable Development, Accra, Ghana. <sup>3</sup>Department of Pharmacy, Sunyani Teaching Hospital, Sunyani, Ghana. <sup>4</sup>Community Practice Pharmacy Association, Accra, Ghana.

## Abstract

Ghana faces persistent challenges in achieving equitable access to healthcare due to socio-economic and infrastructural limitations. Community pharmacies, widely distributed across the country and trusted within local communities, represent an underused yet strategic platform for strengthening primary healthcare and advancing public health goals. Within the Ghana Health Service's Network of Practice model, these pharmacies can function as accessible entry points, complementing hospitals and clinics. This paper draws on an integrative literature review and expert insights from hospital practice, community pharmacy, and global health to propose a conceptual framework for repositioning community pharmacy practice in Ghana. By identifying key contextual and enabling factors such as socio-economic, regulatory, technological, and political that influence practice transformation, the framework emphasizes shifting from traditional product-oriented services to expanded roles in preventive care, health promotion, chronic disease management, and collaboration within primary care networks. Positioning community pharmacies in this way has the potential to reduce healthcare access gaps, enhance continuity of care, and accelerate progress toward universal health coverage.

**Keywords:** Community pharmacy, Primary healthcare, Collaborative networks, Health systems strengthening, Ghana

## INTRODUCTION

The public health challenges encountered in Ghana are multidimensional and cover issues such as infectious diseases, non-communicable diseases (NCDs), maternal and child health, access to healthcare services, and health disparities among vulnerable populations such as children, pregnant women, people with disabilities, and the aged [1]. These challenges are exacerbated by factors such as poverty, inadequate healthcare infrastructure, insufficient access to clean water and sanitation, environmental degradation, and emerging health threats like pandemics and antimicrobial resistance [2]. Addressing these challenges requires collaborative efforts at local, national, and global levels, involving governments, non-governmental organizations (NGOs), international agencies, healthcare providers, and community stakeholders [3, 4].

Amidst these challenges, community pharmacies occupy a unique and indispensable position within Ghana's healthcare landscape [5, 6]. Unlike other healthcare facilities, community pharmacies are often the most accessible point of contact for individuals seeking healthcare services. Situated within local communities, they serve as frontline providers, offering a wide range of services beyond medication dispensing [6, 7]. Community pharmacies are staffed by highly trained pharmacists and pharmacy technicians who

play vital roles in medication management, patient education, and health promotion [7, 8]. Their proximity to patients and their expertise in pharmaceutical care make them well-positioned to address various health needs, from minor ailments to chronic disease management [7].

Community pharmacies serve as hubs of healthcare information and support, providing personalized care and counselling to patients. They serve as trusted healthcare advisors, helping individuals navigate complex medication regimens, understand their health conditions, and make

**Address for correspondence:** Mark Nortey, School of Public Health, University of Ghana, Accra, Ghana.  
markanum07@gmail.com

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informed decisions about their healthcare [6, 7]. Community pharmacies often collaborate with other healthcare providers, including physicians, nurses, and public health professionals, to ensure coordinated and comprehensive care for patients [9]. This collaborative approach not only improves health outcomes but also strengthens the overall healthcare system by optimizing resources and expertise.

In the context of public health challenges, community pharmacies represent an essential component of healthcare delivery, particularly in resource-limited settings where access to healthcare services is limited [5, 10]. Their accessibility, expertise, and integration within local communities make them invaluable assets in addressing health disparities and promoting health equity [6, 9]. By leveraging their unique position and expanding their roles, community pharmacies have the potential to significantly contribute to advancing public health goals and improving health outcomes for populations in Ghana and worldwide.

The primary objective of this paper is to conceptualize and shed light on how community pharmacies can serve as significant catalysts for advancing public health initiatives. Through an in-depth exploration of the evolving landscape of community pharmacy practice, this paper aims to illustrate the profound impact these establishments can have on the attainment of key objectives within public health agendas.

### *Ghana's Healthcare System and the Traditional Role of Community Pharmacy*

Ghana's healthcare system operates within a multi-tiered framework, catering to the diverse healthcare needs of its population [11]. At its core, the system encompasses primary healthcare services, which are fundamental in ensuring widespread access to essential health services [11]. These services are delivered through Community-based Health Planning and Services (CHPS) compounds, health centres, and polyclinics, strategically located across the country to provide care at the community level. Secondary and tertiary care facilities cater to more complex medical needs, including district and regional hospitals, as well as teaching hospitals and specialized centres [11]. Funding for Ghana's healthcare system primarily comes from various sources, including government allocations, donor funding, and out-of-pocket payments made by patients [12]. The Ministry of Health oversees policy formulation and strategic direction, while the Ghana Health Service (GHS) implements national health policies, coordinates public health initiatives, and provides healthcare delivery services nationwide [13].

Community pharmacies play an indispensable role in Ghana's healthcare landscape, serving as accessible points of care and sources of essential pharmaceutical services. Regulated by the Pharmacy Council of Ghana and adhering to standards set by the Ministry of Health, these pharmacies are vital components of the healthcare delivery system [13,

14]. Community pharmacies in Ghana offer more than just medication dispensing; they provide a wide range of services aimed at promoting health and well-being within communities [6, 8, 9]. These services include medication counselling, management of minor ailments, health promotion, and disease prevention efforts. Furthermore, community pharmacies play a fundamental role in the pharmaceutical supply chain, ensuring the availability and distribution of medications and health supplies [5-7].

### *The Evolving Role of Community Pharmacy Practice During and Beyond the Pandemic*

As healthcare needs evolve and technologies advance, community pharmacies in Ghana are adapting to meet these challenges [15]. The role of community pharmacists in Ghana underwent significant evolution during the pandemic, and was marked by their adaptation to new challenges and responsibilities [16, 17]. This trend was also observed within the community pharmacy landscape across the globe. Studies from well developed economies and the countries in global south, have highlighted the important roles adopted by community pharmacists during the COVID-19 pandemic, including maintenance of drug-supply chains, delivery of tele-pharmacy and telehealth services, provision of ambulatory pharmacy services, use of digital software to coordinate medication delivery for patients with chronic conditions, dispelling of misinformation, and roles in research and clinical trials [18, 19]. Community pharmacists were actively involved in community testing, vaccination programs, and medication management, showcasing their adaptability and commitment to public health initiatives [16, 18]. The pandemic highlighted the critical role of community pharmacists in delivering priority pandemic responses, including point-of-care testing for vaccinations and COVID-19 testing. Their accessibility and expertise have facilitated the efficient and equitable distribution of vaccines to the public, ensuring that priority groups receive timely vaccinations and promoting vaccination uptake among the general population and marginalized groups [19-21]. This contributed to increasing vaccination rates, offering accessibility and convenience of adapting vaccination services to local needs [21]. Pharmacists globally have played a significant role in the early detection and referral of COVID-19 cases, implementation of preventative measures against SARS-CoV-2 transmission, and COVID-19 vaccination efforts [18, 19]. Their involvement in community testing has been instrumental in expanding access to testing services, ensuring timely identification of cases, and contributing to public health surveillance efforts.

Moreover, community pharmacists were pivotal in medication management during the pandemic, providing essential services for patients with chronic and acute conditions, offering recommendations for over-the-counter medications, and ensuring medication adherence [15]. Their role in medication management has been particularly important during times when access to routine care was limited, highlighting the importance of community

pharmacists as frontline healthcare providers who bridge gaps in healthcare delivery and support patient well-being [19-21]. Their contributions were instrumental in enhancing access to essential healthcare services, promoting preventive measures, and supporting patient care, emphasizing the very important role of community pharmacists in advancing public health initiatives during times of crisis. In addition, community pharmacists have been involved in the management of chronic conditions, offering support, education, and medication management for patients with long-term health issues [15, 18]. Their role enhanced patient access to timely and appropriate healthcare interventions during the critical period of the pandemic.

Ghanaian pharmacists have undergone a significant transformation in their roles within the community. Collaborative efforts between organizations such as the Community Practice Pharmacists Association (CPPA), Total Family Health Organization (TFHO), and the Ghana Health Service (GHS), with funding from the United States Agency for International Development (USAID), have resulted in the training of 400 pharmacists to serve as COVID-19 vaccine educators [16, 17]. These pharmacists have been equipped with comprehensive knowledge on vaccine development, efficacy, side effects, and strategies to counter prevalent myths. This initiative has been further strengthened by collaboration with regulatory authorities like the Food and Drug Authority (FDA), ensuring that pharmacists are well-informed about approved vaccines, Adverse Events Following Immunizations (AEFIs), and equipped to address misconceptions effectively [16]. The Ghana College of Pharmacy, through an MOU signed between the College and the Ghana Health Service (GHS), currently rolls out “Pharmacists Vaccinators Training” that equips pharmacists within community practice and other disciplines with the skill set to be able to offer community-based immunization & vaccination services [17].

Parallel to their efforts in vaccination, Ghanaian pharmacists have also recognized the importance of health promotion within their daily practice, offering services that target non-communicable diseases like cardiovascular diseases (CVDs), and mental health support [6, 15]. Concurrently, the rapid expansion of online pharmacies in Ghana, particularly during the pandemic, has prompted the practice to expand their scope into areas of telehealth and telepharmacy, an area that is still in progress [22]. The government’s launch of the National Electronic Pharmacy Platform (NEPP) during the pandemic underscores efforts to provide safe and accessible access to medication [23]. As the digital landscape continues to evolve, pharmacists’ engagement with online pharmacy platforms will likely become increasingly significant. Collaborative efforts between pharmacists, policymakers, and other stakeholders will be essential in navigating the opportunities and challenges presented by the burgeoning e-pharmacy sector in Ghana.

### *Conceptualizing Community Pharmacy Practice in Ghana – for Primary Health & Public Health*

Community Pharmacy practice in Ghana has undergone significant positive and impactful transformation over the years, making it a strategic pillar within the Ghanaian healthcare landscape. These gains have prepared the discipline and shaped it as a key player whose merits could be leveraged for the advancement of public health in Ghana and for addressing the currently worsening health inequities in the country.

#### *Understanding the Influence of Contextual Factors*

As depicted in **Figure 1**, the conceptual framework for understanding the roles of community pharmacy practice in Ghana, both traditional and evolving factors, begins with a strong acknowledgment that this practice is deeply embedded within a complex healthcare ecosystem influenced by numerous contextual factors. These factors encompass socio-economic conditions, political dynamics, environmental considerations (including regulatory and practice standards), legal frameworks, and technological advancements [10, 14, 23]. Each of these elements plays a vital role in shaping the operations, capabilities, and impact of community pharmacies, emphasizing their significance within the broader healthcare landscape.

The framework highlights the influence of the level of economic development, income distribution, and poverty rates, and how they directly affect the purchasing power of individuals and their ability to afford medications and healthcare services. Pharmacies in economically disadvantaged areas may face challenges in maintaining a consistent stock of essential medicines due to lower revenue and higher demand for affordable options [24]. Additionally, socio-economic disparities can lead to health inequities, where marginalized populations have less access to pharmacy services, impacting overall public health outcomes [25, 26].

Other factors like government commitment to healthcare funding, regulatory support, and the implementation of health policies [7, 8, 27] may influence the resources and capacity available to pharmacies and their ability to operate effectively within the health landscape. Political will is critical for the establishment and enforcement of regulations that ensure the quality and safety of pharmaceutical services [28]. Political changes can also impact healthcare priorities, funding allocations, and the introduction of new health initiatives, which can either enhance or hinder the role of community pharmacies. Environmental factors, particularly regulatory and practice standards, are fundamental to the operation of community pharmacies. The Pharmacy Council of Ghana sets the regulatory framework that governs pharmacy practice, ensuring that pharmacies meet specific standards for licensing, operations, and professional conduct [8, 14]. Compliance with these regulations is essential for maintaining the quality of services provided by community pharmacies. Additionally, environmental factors such as the

geographical distribution of pharmacies influence access to healthcare services, particularly in rural and remote areas where pharmacies may be scarce [24-26].

Legal factors impact community pharmacy practice by defining the scope of practice, the responsibilities of pharmacists, and the legal requirements for the distribution and dispensation of medications. Laws governing the pharmaceutical sector, including those related to drug registration, importation, and sale, ensure that pharmacies operate within a safe and controlled environment [8, 14]. Technological advancements have a profound impact on community pharmacy practice in Ghana. The adoption of electronic health records (EHRs), tele-pharmacy services, and other digital health innovations enhances the efficiency and reach of pharmacy services [22, 23]. Technology facilitates better medication management, improved patient counselling, and remote health consultations, making healthcare more accessible, especially in underserved areas. However, the integration of new technologies also requires investment in infrastructure and training, posing challenges for pharmacies with limited resources.

### *The Unique Role of Community Pharmacies in Primary Healthcare & Network of Practice in Ghana*

Community pharmacies in Ghana play a crucial role in the delivery of primary healthcare, significantly contributing to the country's goal of "Accelerating towards universal health coverage with a strengthened primary health care (PHC) through the network of practice" [29, 30]. Pharmacists and pharmacies in Ghana have expanded roles encompassing a wide range of essential health services such as medicine use reviews, disease prevention, and offering a range of tests such as blood glucose testing, cholesterol testing, malaria testing, pregnancy testing, along with blood pressure monitoring and body mass index (BMI) measurement. This evolving role has gained significant recognition from policymakers and the public [31-33]. This shift in perception is vital, especially given the recent advancements in pharmacy practice that have broadened the scope and impact of their services. Recognizing pharmacies as integral parts of the healthcare system underscores their importance in delivering primary healthcare services throughout Ghana.

The Ghana Health Service (GHS) has recently launched a new strategy to strengthen primary healthcare delivery, which further highlights the critical role of community pharmacies [32, 34]. The rollout of the Network of Practice, following a successful pilot, adopts a hub-and-spoke model where district hospitals serve as hubs connected administratively and clinically to a network of public, private, and faith-based health facilities, including pharmacies [29, 34]. This model aims to offer holistic and essential healthcare services, linking district hospitals to regional hospitals for advanced care. This integration underscores the importance of pharmacies as

spokes in this network, facilitating comprehensive healthcare delivery within local communities.

Primary healthcare is fundamental to achieving universal health coverage and the United Nations Sustainable Development Goals (SDGs) [3, 35]. The 2018 Declaration of Astana reaffirmed global leaders' commitment to strengthening primary healthcare [35], and Ghana is no exception. The International Pharmaceutical Federation (FIP), a signatory to this declaration, has been actively working to enhance the role of pharmacists in primary healthcare globally, including in Ghana [36]. This commitment highlights the critical contribution of pharmacists to the public health agenda and, specifically, to improving healthcare outcomes in Ghana.

Pharmacists in Ghana possess the necessary expertise to serve as primary healthcare providers. Their accessibility within the community allows them to offer immediate and ongoing care, making them crucial players in the healthcare system [15, 30-32]. This accessibility is essential for advancing Sustainable Development Goal 3, which aims to ensure good health and well-being for all [3, 35]. Through a wide array of health services, community pharmacies in Ghana are indispensable to the primary healthcare framework, aiding in disease prevention, management, and overall health promotion [15, 30-32]. As the pharmacy profession continues to evolve and expand, its role in achieving national and public health objectives becomes increasingly significant, ensuring that Ghana moves closer to achieving universal health coverage and improved health outcomes for all its citizens. This paper posits that community pharmacy practice in Ghana, through collaborative networks, can help advance primary healthcare delivery and public health (**Figure 1**).

### *Community Pharmacy Practice and Professional Collaborative Networks*

This paper advances the notion that community pharmacy practice in Ghana can experience significant enhancement through the development and strengthening of professional collaborative networks. These networks serve as platforms for fostering partnerships, sharing knowledge, and coordinating efforts among various stakeholders within the healthcare system [37]. The conceptualization (**Figure 1**) highlights the importance of such networks to prioritize key areas of focus, which include interdisciplinary collaboration, community engagement, public-private partnerships, technology integration, educational and training programs, and global health research.

Interdisciplinary collaboration involves the cooperation of pharmacists with other healthcare professionals, such as doctors, nurses, and allied health workers, to provide comprehensive care. This collaborative approach ensures that patients receive well-rounded healthcare services, with pharmacists contributing their expertise in medication management and counselling [38]. Working together,

healthcare teams can address complex patient needs more effectively, leading to improved health outcomes. Interdisciplinary collaboration also facilitates seamless transitions of care, particularly for patients with chronic conditions who require ongoing management and coordination of multiple treatments.

Community engagement is a critical component of effective pharmacy practice. Community pharmacies, by virtue of their accessibility and familiarity with local populations, are well-positioned to engage with communities to understand their specific health needs and concerns [39]. Engaging with the community helps pharmacists tailor their services to meet local demands, promote health literacy, and encourage healthy behaviours [40, 41]. Community engagement activities can include health education campaigns, wellness programs, and participation in community events, all of which contribute to building trust and improving public health outcomes. Instead of working in silos, collaborative networks can help maximize results, which are always scarce, and amplify public health initiatives to expand reach and impact [40].

Community pharmacies in Ghana predominantly operate as privately owned entities, encompassing both chain stores and individual facilities. However, the landscape of healthcare delivery in the country could benefit significantly from public-private partnerships (PPPs) [42], which entail collaboration between government entities and private sector stakeholders, including the community. Through the establishment of a robust community pharmacy practice collaborative network, these partnerships can harness the strengths of both sectors, blending public health objectives with private sector efficiency and innovation [38, 41, 42].

An effective collaborative network may have to be sensitive and respond to the dynamic space of technology, especially within the healthcare space in Ghana. The integration of technology into community pharmacy is transforming healthcare delivery, improving how research is efficiently managed and conducted, fostering communication amongst professionals and with their patient populations. Technology is shaping how public health initiatives are being implemented globally [8, 23, 38]. Technologies such as electronic health records (EHRs), tele-pharmacy services, and digital health platforms enable pharmacists to provide more efficient and comprehensive care [23]. EHRs allow for better documentation and sharing of patient information, facilitating coordinated care across different healthcare providers. Tele-pharmacy services extend the reach of pharmacists, allowing them to provide consultations and support to patients in remote or underserved areas [18]. Technology also enhances medication management, improves patient adherence, and supports data-driven decision-making in healthcare [5, 18, 23].

As an additional focus for professional collaborative networks, ongoing education & health research are essential

for community pharmacists to stay current with advancements in the field and to enhance their skills [38, 41]. Professional development programs, continuing education courses, and specialized training workshops help pharmacists expand their knowledge and competencies [31, 32]. Collaboration with academic institutions and professional organizations can provide access to the latest research, best practices, and emerging trends in pharmacy practice [17, 25, 32]. Collaborative research projects can address pressing health issues, such as infectious diseases, chronic conditions, and health disparities [5, 7, 15]. Through research, community pharmacies can also evaluate the effectiveness of their services, identify areas for improvement, and implement evidence-based interventions to enhance patient care [38, 40].

### *Focusing on Public Health*

Public health encompasses the health of populations and focuses on improving health and achieving equity in health for people [5, 26, 40]. It involves understanding and addressing health issues that transcend national boundaries, considering the social, economic, political, and environmental factors that influence health [5, 7]. Public health efforts aim to prevent diseases, promote health, and strengthen health systems through coordinated actions and partnerships across countries. Key areas of focus in public health include health systems strengthening, disease prevention and control, health promotion, and public health governance, each playing a crucial role in achieving better health outcomes.

Health systems strengthening involves comprehensive efforts to improve a country's health system, including its infrastructure, workforce, and policies [5, 43]. This process aims to enhance the quality, accessibility, and sustainability of healthcare services. Service delivery improvements are also essential, integrating care, enhancing patient safety, and adopting best practices in clinical care [43]. Community-based facilities and service providers, such as community pharmacies, are well-positioned as a prominent anchor node that connects other actors and players to implement initiatives that can improve health system strengthening efforts [25, 31, 39]. Enhancing the capacity and capabilities of community pharmacies through professional networks can improve opportunities to ensure that the overall health system is strengthened. These networks can promote best practices, standardize care, and ensure consistent quality across different regions [25, 38, 44].

Disease prevention and control are essential aspects of public health, aiming to reduce the incidence, spread, and impact of diseases through various strategies. Vaccination programs, robust disease surveillance systems, health education and awareness campaigns, and managing antimicrobial resistance (AMR) through the rational use of antibiotics and developing comprehensive strategies are vital [45]. Collaborative professional community practice networks can effectively engage in disease prevention and control through the sharing of information, resources, and strategies for managing both

chronic and infectious diseases [38, 41, 45]. Coordinated health education campaigns, workshops, and community outreach programs through these networks are additional ways that individuals and communities can be empowered to take control of their health and improve their quality of life [45]. This involves providing education and raising awareness about healthy lifestyles, nutrition, physical activity, and mental health to encourage informed health choices [45].

Effective public health governance is essential for coordinating responses to health threats, ensuring equitable access to healthcare, and promoting health equity worldwide [43, 46]. International organizations like the World Health Organization (WHO), UNICEF, and the Global Fund play crucial roles in coordinating public health initiatives and setting international health standards [46]. Strengthening public health security through international cooperation is essential for preparing for and responding to health emergencies, including pandemics and bioterrorism threats [45]. A network of community pharmacy professionals (**Figure 1**) can contribute to public health governance by advocating for policies that support access to essential medicines, promoting patient safety and quality of care, and advocating for health equity [41, 45]. They can influence decision-making processes and contribute to shaping the health agenda, as well as facilitate information sharing and capacity building, enabling community pharmacies to align their practices with public health priorities and standards [38, 39, 41].

### Driving Population Outcomes in Public Health

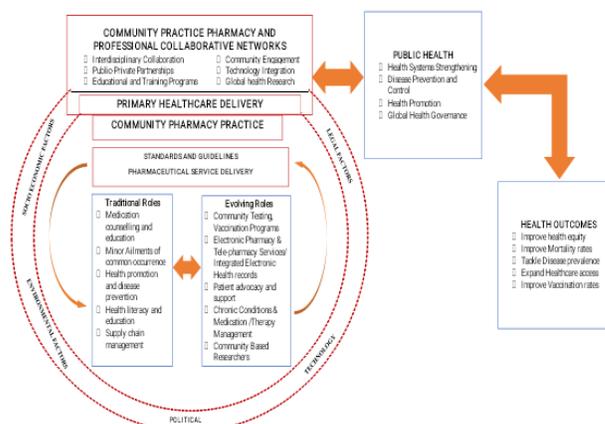
Health equity is a fundamental principle of public health, emphasizing the need to address disparities in health outcomes and access to healthcare services [5, 7, 25]. Community pharmacies, by reaching underserved communities in Ghana and providing culturally sensitive care, play a valuable role in promoting health equity [25, 32, 39]. Through collaborative networks, community pharmacies can share best practices and implement initiatives to reduce barriers to healthcare access, ultimately contributing to more equitable health outcomes.

High mortality rates, particularly from preventable and treatable conditions, remain a significant public health challenge. Community pharmacies, through a focus on preventive care and patient education, are well-positioned to address this challenge. Collaborating with healthcare providers and public health agencies, community pharmacies can implement interventions to reduce mortality rates, particularly in vulnerable populations [47, 48]. Through initiatives such as vaccination campaigns and chronic disease management programs, community pharmacies can help reduce mortality rates and improve overall health outcomes [48].

Disease prevalence, both communicable and non-communicable, is a significant determinant of population

health worldwide. Community pharmacies, as accessible healthcare providers, play a crucial role in addressing disease prevalence by promoting preventive measures and providing early detection and management of diseases [49]. Vaccination is considered one of the most cost-effective ways to prevent infectious diseases and reduce morbidity and mortality [21, 50]. Collaborative networks enable community pharmacies to participate in vaccination campaigns, provide vaccine education, and administer vaccines, thereby contributing to improving vaccination rates and reducing the burden of vaccine-preventable diseases globally.

Access to healthcare services is a fundamental determinant of health outcomes and is essential for achieving health goals [3, 5, 49]. With their widespread presence and extended hours of operation, community pharmacies in Ghana play indispensable roles in expanding healthcare access, particularly in rural and underserved areas [6, 15, 39]. Collaborative networks facilitate the development and implementation of innovative approaches to healthcare delivery, ensuring that all individuals have access to essential services.



**Figure 1.** A Conceptual Framework on Community Pharmacy Practice in Ghana Advancing Public Health

### CONCLUSION

This paper highlights the critical role of community pharmacy practice within the Ghanaian healthcare landscape and its potential to drive positive primary healthcare delivery and public health outcomes. Ghana, like many other countries, faces multifaceted health challenges exacerbated by socio-economic disparities, inadequate infrastructure, and emerging health threats. Amidst these challenges, community pharmacies emerge as accessible hubs of healthcare, providing essential services and bridging gaps in healthcare delivery. Leveraging collaborative professional networks, community pharmacies can enhance their impact across various domains of public health, including health systems strengthening, disease prevention and control, health promotion, and public health governance. Addressing

contextual factors, such as socio-economic conditions, regulatory frameworks, and technological advancements, community pharmacies can optimize their role in advancing public health agendas. Through interdisciplinary collaboration, community engagement, public-private partnerships, technology integration, educational programs, and public health research, community pharmacy practice in Ghana can contribute significantly to improving health equity, reducing mortality rates, tackling disease prevalence, expanding healthcare access, and enhancing vaccination rates. With a robust collaborative network in place, community pharmacies have the potential to transform healthcare delivery, drive population outcomes, and foster a healthier future for individuals and communities both locally and globally.

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