

Contributions of Pharmacists in Ghana During The COVID-19 Pandemic and Lessons for Future Pandemic Preparedness

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Abstract: *The COVID-19 pandemic adversely impacted societies and healthcare systems worldwide, including Ghana. These systems faced the challenge of mitigating the spread of the virus while ensuring the continued provision of essential healthcare services. Like other healthcare professionals, pharmacists were at the frontline of this battle. The primary objectives of this study were to provide an overview of the contributions of Ghanaian pharmacists to the COVID-19 pandemic response and to identify lessons for future pandemic preparedness. This study employed a case study design to systematically examine the roles of pharmacists in Ghana's response to the COVID-19 pandemic. Official annual reports of the Pharmaceutical Society of Ghana were obtained from the National Secretariat, and an online search was conducted for media reports, press statements, policy documents, articles, and other relevant documents related to pharmacists and their contributions during the pandemic. The Pharmaceutical Society of Ghana (PSGH) played a pivotal role in the fight against COVID-19, particularly in areas of policy and advocacy. Pharmacists in Ghana responded promptly to the challenges posed by the COVID-19 pandemic, ensuring uninterrupted healthcare delivery.*

Keywords: contributions, pharmacists, Ghana, COVID-19 pandemic, lessons, future pandemic preparedness

INTRODUCTION

The COVID-19 pandemic has had a profoundly adverse impact on societies and healthcare systems worldwide. Like all other nations, Ghana faced the challenge of mitigating the spread of the virus while ensuring the continued provision of essential healthcare services. At the frontline of this battle were pharmacists, like other healthcare professionals. Pharmacists-led interventions proved crucial in protecting the public's health during this turbulent period. While the global and local responses to COVID-19 have been extensively documented [1][2][3], the specific contributions of Ghanaian pharmacists remain underrecognized. This paper attempts to address this gap by providing a comprehensive narration of the role of pharmacists in managing the pandemic in Ghana. Key focus areas will include pharmacists' contributions to public health education, medication supply chain management, testing and diagnosis support, vaccine administration, and patient-centred care. This exploration is critical because it highlights the need for a comprehensive understanding of the roles played by pharmacists and pharmaceutical organizations in informed policy-making and sustainable healthcare practices. Through this article, we aim to contribute to the discourse surrounding pandemic preparedness and response strategies, emphasizing the significance of a collaborative and well-prepared pharmaceutical sector in safeguarding public health. The focus is on Ghana, a country on the West African coast, where healthcare infrastructure can be resource-constrained [4]. The pandemic put pharmacists at the forefront of several interventions related to emergency preparedness, case prevention, screening and testing, vaccination and risk communication.

Aims: This study aims to provide an overview of the contributions of Ghanaian pharmacists to the COVID-19 pandemic response.

METHOD

Study Design and Approach

This study employed a case study design to systematically examine the roles of pharmacists in Ghana's response to the COVID-19 pandemic. It adopted a document review methodology, following the "READ" approach: Ready, Extract, Analyze, and Distil [5]. We used the SRQR reporting guidelines in O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.

Data Collection Methods

Official annual reports of the Pharmaceutical Society of Ghana were collected from the National Secretariat. In addition, we conducted a thorough online search for media reports, press statements, policy documents, articles and other documents related to pharmacists and their contributions during the pandemic. To safeguard data quality, the various documents were evaluated for rigour using the criteria proposed by Scott [5]. Scott suggested that document sources of data should be subject to credibility assessment based on four key aspects: (i) authenticity, to confirm they are original and from a trustworthy source; (ii) credibility, to ensure they are accurate and free from

errors or misrepresentation; (iii) representativeness, to verify they are a true reflection of their category; and (iv) clarity, to confirm the content was well-structured and easy to understand. The documents accessed and analyzed for this study are shown in **Table 1**. All documents are publicly available.

Table 1: Documents and reports on COVID-19

Document Type	Documents	Date
Reports	Governing Board Report of the Pharmaceutical Society of Ghana`	September 2021
	Governing Board Report of the Pharmaceutical Society of Ghana`	September 2022
	Governing Board Report of the Pharmaceutical Society of Ghana`	September 2023
	The global response of pharmacy to the pandemic: the contribution of the profession to COVID-19; Copyright 2022 International Pharmaceutical Federation (FIP)	October 2022
	The role of Pharmacists in Public Health Emergencies in Ghana: A case study of Contributions during the COVID-19 Pandemic. An unpublished Student dissertation report by Ekua Trebea Aikins (2023) was submitted to the University of Ghana School of Pharmacy as part of the requirements for a Doctor of Pharmacy degree award.	July 2023
Policy documents	Ghana COVID-19 Emergency Response on Vaccines second additional financing (p176485): Environmental and Social Management Framework (ESMF)	July 2021
	Guidelines for vaccination against COVID-19 and other vaccine-preventable diseases in community Pharmacies	December 2022
	Ghana National Test & Treat Guidelines for COVID-19	December 2023
	Guidelines and Standard Operating Procedures (SOPS) for COVID-19 antigen rapid diagnostic testing in community pharmacies in Ghana	September 2022
News items	<ol style="list-style-type: none"> https://ghanapharmaceuticaljournal.com/news/launch-of-guidelines-on-vaccination-and-covid-19-antigen-testing-in-pharmacies-another-historic-advocacy-feat-of-the-psgh/ https://ghanapharmaceuticaljournal.com/items/guidelines-for-vaccination-in-pharmacies-against-covid-19-and-other-vaccine-preventable-diseases/ https://gna.org.gh/2022/07/400-pharmacists-trained-as-covid-19-vaccine-educators/ https://www.myjoyonline.com/moh-launches-guidelines-for-covid-19-vaccination-in-community-pharmacies/ https://ghanaiantimes.com.gh/100-pharmacists-undergo-covid-19-vaccination-training-nationwide/ https://ghanapharmaceuticaljournal.com/news/fda-trains-pharmacists-on-covid-19-screening-and-testing/ https://thebftonline.com/2021/02/09/psgh-warns-against-false-covid-19-medications-panic-buying/ https://dailyguidenetwork.com/covid-19-vaccines-are-safe-psgh/ https://www.ghanaweb.com/GhanaHomePage/NewsArchive/PSGH-calls-on-government-to-provide-PPEs-for-community-pharmacy-practitioners-899341 https://dailyguidenetwork.com/psgh-pledges-support-for-covid-19-vaccine-deployment/ 	

Data Analysis

The study employed a **document review methodology** guided by the **READ approach** (Ready, Extract, Analyze, and Distil). The **Ready** phase involved identifying and selecting relevant documents, including policies, guidelines, reports, and publications. In the **Extract** phase, key data were systematically retrieved, focusing on pharmacists' roles in public health education, medication supply chain management, testing, vaccination, and patient-centred care. The **Analyze** phase involved thematic coding and synthesis to identify recurring patterns, challenges, and best practices in pharmacy-led interventions. Finally, key insights were summarized in the Distil phase to highlight the impact of pharmacists and lessons for future pandemic preparedness.

RESULTS

Policy directions and advocacy

The Pharmaceutical Society of Ghana (PSGH) is the umbrella professional association for pharmacists registered in Ghana. The PSGH was an instrumental force in the fight against COVID-19, particularly in areas of policy and advocacy. In the early days of the pandemic, when knowledge about COVID-19 was evolving rapidly, the International Pharmaceutical Federation (FIP) released the first edition of its COVID-19 Clinical Information and Treatment Guidelines [6]. The PSGH assembled a team of experts to review the guidelines and submit a white paper to the National Technical Working Group (TWG), which was working on Ghana's Standard Treatment Guidelines (STG) for COVID-19.

Through strong representation at the national level, the PSGH advocated for policies that recognize and harness pharmacists' expertise in pandemic response. The PSGH had long advocated for pharmacists' legal scope of practice to be expanded to include vaccination. This advocacy was intensified during the pandemic. The successful advocacy for pharmacists to serve as vaccinators expanded the vaccination workforce and facilitated the rapid deployment of COVID-19 vaccines in Ghana. In addition, the PSGH worked with the Ministry of Health and other stakeholders to develop and launch the first edition of the National Guidelines for Vaccination against COVID-19 and other Vaccine Preventable Diseases in Community Pharmacies.

It must also be mentioned that Pharmacists were strongly represented on the National COVID-19 Coordinating Committee, the Risk Communication Committee, the TWG for the development of STG for COVID-19, and the Governing Board of the National Vaccine Institute (NVI), whose mandate is to coordinate and supervise vaccine and serum research, development, and manufacturing, as well as other related matters.

Additionally, PSGH's national resource mobilization efforts played a key role in securing vital resources, including Personal Protective Equipment (PPE) and medical supplies, ensuring that healthcare professionals, including pharmacists, can continue their frontline work effectively. The PSGH procured over 200,000 Personal Protective Equipment (PPE) items, including face shields,

face masks, aprons, gloves, and sanitizers, for distribution to treatment centers and community pharmacies.

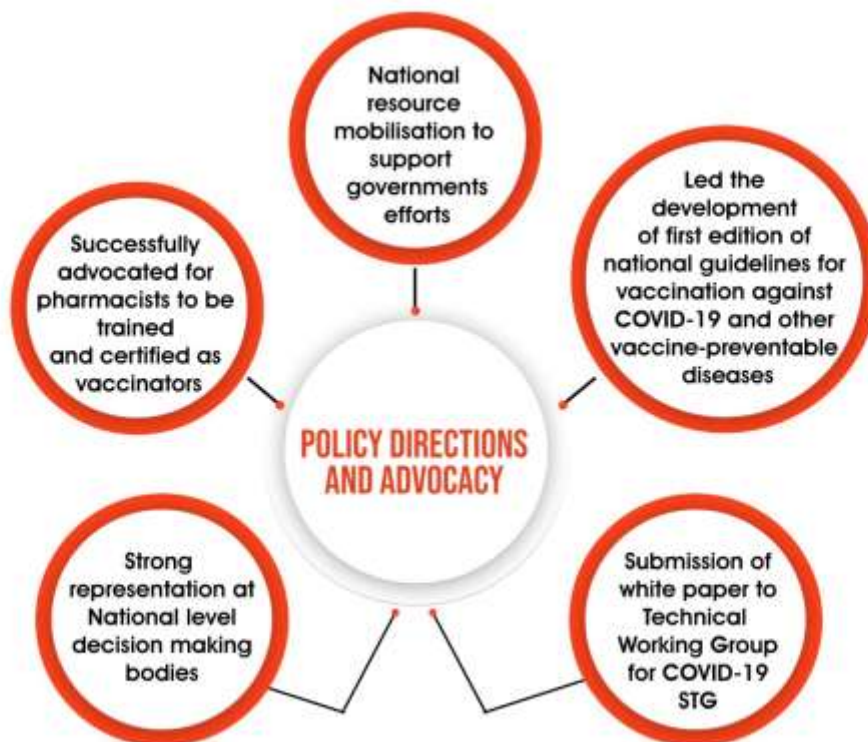


Figure 1 Policy directions and advocacy

Risk communication strategies

The public's trust in pharmacists was harnessed as a powerful tool to combat infodemics. Pharmacists, known for their expertise and accessibility, emerged as credible sources of information. They leveraged this trust to disseminate accurate and timely information about the virus, prevention measures, and vaccination. Through various channels such as community engagements in churches, schools, community durbars, mosques, bus stations, among many other places, social media campaigns, and authoritative TV/radio programs, pharmacists addressed public concerns, clarified misconceptions, and promoted evidence-based practices. This trust facilitated a direct line of communication between healthcare professionals and the public, helping to mitigate the spread of misinformation and ensuring that individuals made informed decisions about their health during the pandemic.

The Society actively engages with the public and media through press releases and engagements to address specific misinformation and misconceptions, ensuring the dissemination of accurate

information. PSGH facilitated the capacity building of community pharmacists, transforming them into COVID-19 ambassadors who played pivotal roles in community engagements and the social media risk communication drive. A highlight was the organization of a 3-day webinar on COVID-19, which drew participation from over 2,000 pharmacists, thereby reinforcing knowledge dissemination. Medicine outlets served as distribution centers for more than 50,000 COVID-19 flyers and posters, while three video skits and two animations on COVID-19 protocols, testing, and vaccination helped amplify public awareness.



Figure 2 Risk communication strategies

Community Pharmacists as Frontline Healthcare Professionals

Community pharmacists in Ghana reemphasized their role as frontline health professionals during the COVID-19 pandemic, playing an essential role in responding to the crisis. They remained accessible throughout lockdowns, bridging gaps exacerbated by the pandemic's strain on the healthcare system and ensuring continued access to essential healthcare services for their communities [7][8].

They provided consultations for common ailments, offering accessible healthcare resources to the public. Pharmacists were also involved in COVID-19 screening and referral services, contributing to surveillance. They also served as COVID-19 ambassadors by clarifying misconceptions about the virus, championing vaccine acceptance, and advocating for strict adherence to COVID-19 protocols. Furthermore, they stepped up by supplying essential PPES and disinfectants in high demand.

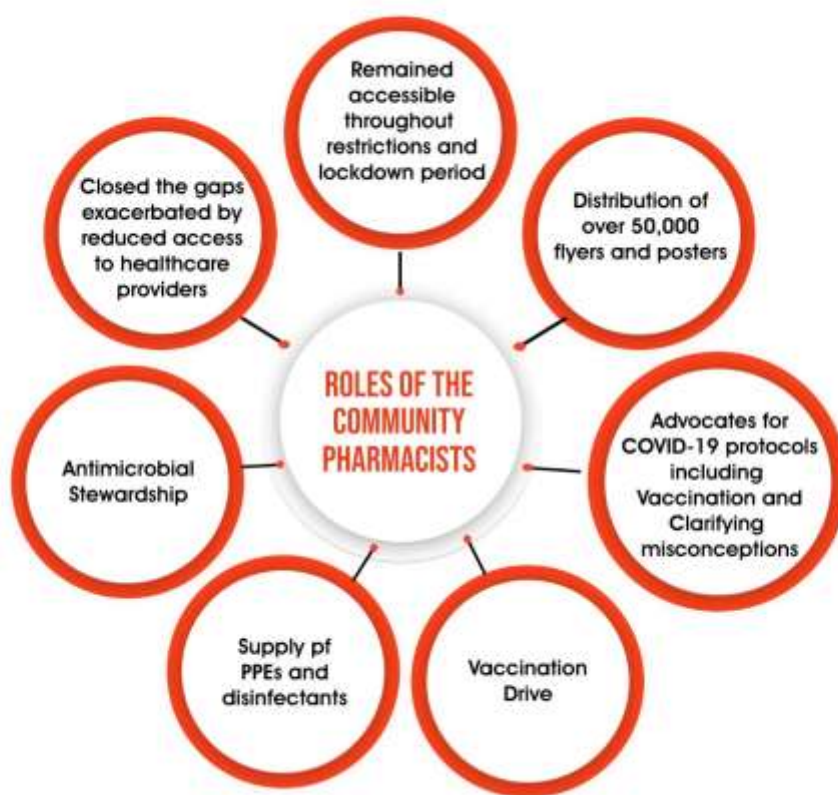


Figure 3 Community pharmacists as frontline healthcare professionals

Hospital Pharmacists as Frontline

Hospital pharmacists actively participated in inpatient rounds, collaborating with healthcare teams to optimize medication regimens for COVID-19 patients [7][8]. Amid supply chain disruptions, they worked to ensure a sufficient medication supply, managing critical drug shortages to safeguard patient care. Hospital pharmacists were integral in developing local treatment protocols and adapting to evolving medical knowledge and guidelines. Additionally, they served as antimicrobial stewards, ensuring the rational prescribing and utilization of antimicrobials. Their expertise and dedication were indispensable in providing comprehensive pharmaceutical care within the challenging context of the pandemic.



Figure 4: Hospital pharmacists as frontline healthcare professionals

Lessons from the COVID-19 pandemic

The COVID-19 pandemic has served as a stark reminder of the complex interplay between global health threats and national vulnerabilities. In the case of Ghana, a nation heavily reliant on imported pharmaceuticals and with pre-existing challenges in its healthcare system, the pandemic exposed several critical areas that require immediate and long-term attention. The pandemic highlighted the fragility of global supply chains for essential medical supplies, including pharmaceuticals. Ghana, importing roughly 70% of its medicine, faced critical shortages of some crucial health commodities during the pandemic. This underscores the need for diversifying pharmaceutical sources, potentially through local manufacturing initiatives and regional collaborations, to mitigate the impact of future disruptions [9].

In addition, the initial stages of the pandemic witnessed significant vaccine nationalism, hindering equitable vaccine access for low- and middle-income countries (LMICS) like Ghana [4][10][11]. This experience emphasizes the importance of strengthening international cooperation for vaccine research, development, and manufacturing. Investing in local vaccine production capabilities can offer greater autonomy and resilience in future pandemics. The pandemic exposed pre-existing

weaknesses in Ghana's healthcare system, including inadequate infrastructure and underfunding [4]. Addressing these issues requires increased investment in healthcare infrastructure, workforce development, and robust public health surveillance systems. Investing in local research and development capabilities can further enhance preparedness for future pandemics.

The COVID-19 pandemic also unleashed a wave of misinformation, impacting public health adherence. This was compounded by a section of the populace politicizing government-led risk communication [12]. This necessitates the development of evidence-based public health communication strategies tailored to diverse communities. Leveraging trusted local voices, fostering media literacy, and investing in fact-checking initiatives can effectively combat misinformation and ensure informed public participation in future public health crises.

The pharmacy is preparing for the next pandemic.

The COVID-19 pandemic has served as a crucial wake-up call for Ghana and the broader sub-Saharan African region, prompting a recognition of the imperative to establish robust manufacturing capabilities for vaccines, therapeutics, and diagnostics [6]. Against the backdrop of the African Continental Free Trade Area (AfCFTA), the local production of vaccines and therapeutics will yield multifaceted benefits. It promises enhanced public health resilience during crises and empowers the region to promptly address Africa-specific diseases, fostering heightened preparedness for future epidemics or pandemics. On the economic front, local vaccine manufacturing holds the potential to alleviate strain on trade balances, bolster the skilled labour pool, and reduce foreign exchange requirements, thereby contributing to sustainable and self-reliant healthcare solutions for the continent [11].

The integration of technology into pharmacy practice is paramount for pandemic preparedness. Leveraging advancements such as telepharmacy, electronic health records, and artificial intelligence can enhance the efficiency and effectiveness of pharmacy services. Telepharmacy facilitates remote patient consultations, prescription monitoring, and medication adherence support, reducing physical contact during pandemics. Additionally, using electronic health records enables seamless information exchange between healthcare providers, enhancing the continuity of care. Incorporating artificial intelligence for predictive modelling and data analysis can aid in anticipating and managing medication shortages, optimizing pharmaceutical supply chains, and informing evidence-based decision-making during pandemics [3][12][13].

Capacity building is fundamental to strengthening the resilience of pharmacy systems in the face of pandemics. Investment in workforce development, infrastructure, and research capabilities is essential. Training programs should address emerging infectious diseases, crisis management, and public health principles to equip pharmacists with the knowledge and skills necessary for an effective pandemic response. Collaborative efforts between pharmacy associations, such as the PSGH, academic institutions, and public health agencies can establish robust professional development and knowledge dissemination frameworks [14][15]. Strengthening the capacity of

pharmacy networks ensures a coordinated and agile response to pandemics, contributing to overall public health resilience [16].

Limitations

Interpretive Bias is one potential limitation in this study. Also, the “READ” approach may not capture subtle nuances, contextual meanings, or implied information within the documents relied upon for the study.

CONCLUSION

Pharmacists in Ghana promptly responded to the challenges posed by the COVID-19 pandemic, ensuring uninterrupted healthcare delivery. Collaborating with various stakeholders, they worked to sustain the availability of medications and essential supplies, fought against infodemics, provided screening and testing services and influenced policies. The accessibility of pharmacists to the public proved invaluable during the early phases of the COVID-19 pandemic, emphasizing their crucial role in protecting public health, particularly in times of public health emergencies. The COVID-19 pandemic exposed the strengths and vulnerabilities of Ghana's healthcare infrastructure. The Pharmaceutical Society of Ghana's unwavering leadership and its pharmacists' adaptability and resourcefulness demonstrated the pharmaceutical sector's crucial role in public health. We must draw valuable lessons from these experiences to make the health systems more resilient against future pandemics.

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