The Pharmacist as a Member of the COVID-19 Public Health Team

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Abstract:
Since the start of the new Coronavirus outbreak in December 2019, pharmacists worldwide are working on the frontlines of health care every day, providing essential health care services during the pandemic, and adopting innovative strategies to minimize the adverse impact of the pandemic. Pharmacists are medication experts, providing patient care in a variety of settings including hospitals, clinics, community pharmacies, long-term care and physician offices, among others. At some point in time during the pandemic, other professionals closed their doors to patients, but community pharmacies remained opened to the general public, no matter the extent of restrictions during lockdowns.

Keywords: COVID-19, Pharmacists, Pandemic, Public Health Team

Introduction

The Coronavirus Disease 2019 (COVID-19) is a viral infection caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). This new coronavirus (SARS-CoV-2) was first reported in China in December, 2019. On the 11th of March 2020, the World Health Organization (WHO) declared this infection (COVID-19) an epidemic (a public health emergency of international concern) (WHO, 2019).

At the time of writing this paper, there were over 187 million cases of COVID-19 globally, with about 4.0 million deaths. Currently, there are nearly 12 million active cases of which 11.9 million (99.3 %) are classified mild and a little over 78 thousand considered serious/critical (0.6%) (Worldometer, 2021).

Pharmacists constitute one of the most trusted professionals worldwide (Black *et al.,* 2021, Song *et al.,* 2020). While many people stayed home in an attempt to reduce the extent of transmission of the infection, pharmacists were readily available to the general public around the clock (Mallhi *et al*., 2020, Visacri *et al*., 2020). They are committed to making sure that the population has access to healthcare services, and by so doing, limit the adverse impact of the pandemic (Mallhi *et al*., 2020, Visacri *et al*., 2020). During the present pandemic, when healthcare systems in most countries are collapsing amid the unprecedented number of COVID-19 cases, pharmacists continue to play a pivotal role in disease prevention, management, and containment (Black *et al.,* 2021, Centers for Disease Control and Prevention 2019, Hedima *et al*., 2020, Singhal 2020). Pharmacists play different roles in several localities and are linked to patients, either directly or indirectly (Singhal 2020, Song *et al.,* 2020). Health authorities across various countries are recognizing the worth of community pharmacists within the healthcare system, thanks to their availability and accessibility to the general public (Hua *et al*., 2020, Mallhi *et al*., 2020, Visacri *et al*., 2020).

Community pharmacies, hospitals, pharmaceutical industries, and drug regulatory authorities were exempted from most lockdowns across the world because of the importance of the services they offer (Arain *et al*., 2020, Bahl *et al.,* 2020, International Pharmaceutical Federation 2021, Ou Kao Yang, 2020). The role of pharmacists is well-appreciated during the outbreaks of vaccine-preventable diseases. The education of patients and the public regarding the importance of vaccines resulted in increased vaccination rates (Miller *et al.,* 2012).

The education of patients and, therefore, the public regarding the importance of vaccines resulted in increased vaccination rates in most countries (Li *et al.,* 2020, Singh, Smith-Ray & Taitel, 2020). The valuable role played by pharmacists in protecting high-risk individuals throughout vaccination programs cannot be overlooked (Arain *et al*., 2020, Song *et al.,* 2020).

Pharmacists are known for reducing the workload of public health professionals during the measles outbreak (Mallhi *et al*., 2020). Pharmacists are easily available, accessible, and trustworthy professionals, and engage in activities that increase vaccine awareness which ultimately results in increased vaccination acceptance rates (Lively, 2020, Singh, Smith-Ray & Taitel, 2020). Community pharmacies are considered the primary entry points in both outbreak-affected and unaffected areas during the COVID-19 pandemic (Elson *et al.,* 2020, Ornell *et al.,* 2020, Zhu *et al.,* 2020). These pharmacists provide public health and clinical pharmacy services during the continued

pandemic to empower people to self-manage their health. The day-to-day roles of community pharmacies evolved to incorporate widespread prescription delivery services, employing virtual services in educating patients/clients, performing COVID-19 testing, preparing and ultimately administering the COVID-19 vaccine (Elbeddini *et al.,* 2020) and many more. Immediately at the beginning of the pandemic, pharmacists showed their agility by drastically changing the standard pharmacy dispensing model. Delivery of prescriptions has been around for many years but has never been as widespread and on-demand until the recent need grew as a result of social distancing, isolation, and quarantining. Community pharmacies are seeing unprecedented numbers of prescriptions faxed and/or emailed directly from physician offices (Elbeddini *et al*., 2020, Hua *et al*., 2020, Meng *et al*., 2020, Mertz 2021, Ying *et al*., 2020, Wickware 2020, Zuckerman *et al*., 2020)

The following are the roles of the pharmacists at the community level within the current circumstances. Community pharmacists employed their expertise in compounding and ensured the supply of hand sanitizers and disinfectants all the time at a reasonable cost. In addition, they supplied reliable information for preventing, detecting, treating, and managing coronavirus infections (Elson *et al.,* 2020, International Pharmaceutical Federation 2020, Song *et al.,* 2020, Ou Kao Yang 2020)

Since the start of the outbreak, many guidelines have been published with recommendations from pharmacists. To summarise, the core services being provided by community pharmacists during the COVID-19 pandemic include drug information for healthcare professionals, patient counselling, suggestions for changes in therapy, monitoring results/reports, drug supply management, and safety measures for infection control (Li *et al.,* 2020, Ou Kao Yang 2020, Wutor 2021). Furthermore, pharmacists provide hospital bedside pharmaceutical care services to patients and other healthcare professionals, clinical pharmacy services in ambulatory settings for patients, and at recipient's homes, suggestions for treatment changes, managing drug supply systems and employing safety measures for infection control (Kretchy *et al*., 2020, Mallhi *et al*., 2020, Visacri *et al*., 2020).

These categories of service are basically the responsibilities that International Pharmaceutical Federation (FIP) has recommended that pharmacists should gravitate towards, in both medical care context (i.e., community pharmacies and at healthcare facilities) and in hospital settings (International Pharmaceutical Federation 2021, Song *et al.,* 2020, Tan *et al*., 2020, Ou Kao Yang 2020). As trusted healthcare professionals, community pharmacists assist in closing the gaps that are worsened by the extra strain on healthcare systems and reduced access to healthcare providers. For low- to middle-income countries like Ghana, community pharmacies offer the advantage of medical advice without cost to patients who might not have the financial muscle to afford physician fees (Elson *et al.,* 2020, Li *et al.,* 2020, Tan *et al*., 2020).

Despite the initial shortage of protective equipment, pharmacy staff continued to supply direct patient care at the expense of their lives, their spouses, families and loved ones. Through their triaging, community pharmacists are maximizing the efficiency of the healthcare system during such difficult times of limited resources. Pharmacist-provided interventions are known to enhance patient outcomes and contribute to substantial healthcare savings (Brewster *et al.,* 2020, Gross & MacDougall, 2020, Singh, Smith-Ray & Taitel, 2020). Some Community Pharmacies deliver medications to patients free of charge, educate patients on telehealth services, assess patients that need renewal of chronic medications, perform consultations on minor ailments, clarify misconceptions about COVID-19 treatments, and contribute to COVID-19 screening (Black *et al.,* 2021, Hua *et al*., 2020, Zheng SQ *et al*., 2020).

The role of hospital pharmacists during this pandemic cannot be overlooked. Hospital pharmacists contribute to COVID-19 management protocols by participating in in-patient rounds, ensuring sufficient medication supply to support intensive care unit (ICU) beds whilst managing critical drug shortages through innovative strategies and sourcing for alternative drugs/medicines (Li *et al.,* 2020, Singhal 2020, Song *et al.,* 2020). Hospital pharmacists are directly involved in antimicrobial stewardship programmes, thus, play a vital role in planning and responding to pathogen outbreaks, which is of paramount importance during times like this (Kretchy *et al*., 2020, Mallhi *et al*., 2020, Visacri *et al*., 2020).

As a part of antimicrobial stewardship programmes, hospital pharmacists are involved in developing local treatment protocols that repurpose antivirals and monitoring the utilization of antibiotics in cases of bacterial co-infections in COVID-19 patients (Centers for Disease Control and Prevention 2019, Song *et al.,* 2020). In addition, hospital pharmacists help interpret test results for COVID-19, explore new drug therapies or uses and provide medication management recommendations to their colleague health professionals (Ornell *et al.,* 2020, Singh, Smith-Ray & Taitel, 2020). Hospital pharmacists were involved within the enrolment of infected patients for studies targeting the evaluation of hydroxychloroquine, methylprednisolone, and remdesivir in clinical trials (Ornell *et al.,* 2020, Song *et al.,* 2020, Tan *et al*., 2020, Zeng *et al*., 2020).

As a result of the varied roles played by pharmacists in their effort against COVID-19, they are constantly exposed to the virus. However, they manage to carry out their responsibilities just like their co-healthcare professionals but without an equivalent recognition as frontline workers. In most countries, pharmacists' medication expertise is being leveraged in vaccine development and clinical trials. Governments have relied on pharmacists in the rollout of COVID-19 vaccines (Wutor, 2021).

Community pharmacists have a track record of being successful with increasing annual seasonal influenza accessibility and uptake, thus, they are being counted upon in administering COVID-19 vaccines for rapid population-wide coverage (Wickware, 2020). In the Province of Alberta, Canada, over 1,300 pharmacies across the province are providing COVID-19 immunizations with either Pfizer, Moderna or AstraZeneca vaccines. As of July 11, 2021, a total of 4,777,367 COVID-19 vaccines had been administered in the Province of Alberta. Of these, pharmacies administered 2,008,770 (Alberta Government, 2021)

The Government of Alberta has also hired pharmacists as casual staff of the Alberta Health Services to provide vaccinations and also as resource persons. Importantly, screening and testing patients for COVID-19 are both crucial interventions to flatten the curve. Pharmacists in Alberta are screening patients daily and referring them to the nearest testing facilities. Some pharmacies even perform COVID-19 tests on their premises (Song *et al.,* 2020). In the United States of America, pharmacists may order and administer FDA-approved tests (Strand *et al.,* 2020).

The expanding roles of pharmacists is beyond comprehension and the future of the pharmacy profession is unimaginable.

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