



Coronavirus Disease 2019 (COVID-19): The Role of Pharmacists in the Fight against COVID-19 Pandemic

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Letter to Editor

Coronavirus Disease 2019 (COVID-19) is a viral infection that affects the respiratory system [1,2]. The history of human coronaviruses can be dated to as early as 1965 when scientists were able to isolate the virus from the human respiratory tract who had suffered from colds [3]. COVID-19 is caused by Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) that targets the respiratory system [4]. Clinical manifestations of COVID-19 include fever, dry cough, shortness of breath, sputum production, headache, persistent chest pain or pressure in the chest, sore throat, diarrhoea, vomiting, respiratory failure, septic shock, confusion, and organ failure, but these manifestations may not appear until 2 to 14 days after exposure to SARS-CoV-2 [1,3].

COVID-19 has emerged as a unique global public health problem with a variety of negative impacts on the global economies and public health [5]. Due to the COVID-19 pandemic, the world is expected to lose about 280 billion United States dollars [5]. A loss of this magnitude will indeed negatively affect the global economies and many more impacts will be seen in the post-COVID-19 era. As of the 1st of May 2020, the global COVID-19 confirmed cases are 3,319,423, recoveries 1,048,738, and 234,271 deaths, while in Africa, confirmed cases are 39,736, recoveries 13,078, and deaths 1,638. Hence, this calls for a collaborative "one health" approach to conquer the COVID-19 pandemic.

In using a "one health" approach, pharmacists are part of the "frontline" healthcare workers that have dedicated their lives to saving lives of those infected with SARS-CoV-2 and providing information on preventive measures against COVID-19. The Royal Pharmaceutical Society published that pharmacists are

frontline healthcare workers in the fight against COVID-19 but they need help too. Pharmacists need adequate amounts of personal protective equipment such as face masks, gloves, and aprons, and masks at all times during the COVID-19 pandemic. In the fight against COVID-19, it is very cardinal to stress that pharmacists play vital roles because they are among the most accessible healthcare providers, and they understand the epidemiology, transmission, and prevention of COVID-19 [6].

According to the International Pharmaceutical Federation (FIP), pharmacists play vital roles in the COVID-19 pandemic depending on their scope of practice [7]. Community pharmacists are usually the first point of contact with patients and hence they play the following roles; ensuring that there are adequate storage and supply of appropriate stocks of pharmaceutical products and devices such as gloves, medicines, face masks, etc, informing and educating the public about COVID-19 transmission, prevention, signs, and symptoms, offering counselling to the public and clients on COVID-19, referring suspected COVID-19 cases to relevant health facilities or calling COVID-19 HOTLINE, promoting COVID-19 prevention and control [7]. In the community, pharmacists can act as advisers and increase community awareness by providing appropriate information, advising on precautionary measures, and offering to counsel clients on COVID-19 [6]. They can also maintain the continuity of pharmacy services, including supplies of essential medications and other products such as hand sanitizers and protective masks [8]. Community pharmacists can be empowered to participate in routine screening for covid-19, especially when less invasive methods are in place (like the one being evaluated using saliva as specimen). In addition, National Continuous Professional Development (CPD) Programs for

pharmacists should be enhanced and implemented effectively to enable updating knowledge, skills and competences for pharmacists to play their roles (as recommended by FIP in Good Pharmacy Practice) in the fight against infectious diseases such as COVID-19.

Hospital pharmacists play vital roles in the fight against COVID-19 such as making sure that there are adequate storage and supply of appropriate stocks of medicines and medical products and devices meant to combat COVID-19 [7]. These medicines and medicals products and devices include goggles, face masks, thermometers, and other equipment and materials needed in the fight against COVID-19 [7]. Other vital roles of hospital pharmacists include collaboration with other healthcare professionals in providing patient care and support, promoting prevention and control of COVID-19, offering information and counselling to clients and suspected COVID-19 patients, making sure that pharmaceutical products (face masks, goggles, gloves, etc) are used responsibly, accordingly, and appropriately. Hospital pharmacists also participate in pharmacovigilance and monitoring treatment outcomes in patients suffering from COVID-19 [7]. Clinical pharmacists play a vital role by formulating work instructions, providing frontline medical staff with medicines information, and develop innovative pharmacy services to promote the rational use of medicines with collaborative teamwork and close communication necessary for the fight against COVID-19. It is therefore important to note that pharmacists can also participate in studies to adapt dosage regimens to suit certain COVID-19 patient groups (including pharmacokinetic dosing), and adapting formulations of some medicines to certain COVID-19 patient groups (e.g. where there have been reports of crushing tablets, liquid dosage forms can be prepared as a more appropriate adaptation).

Table 1: Hand sanitizer (hand rub) preparation based on the World Health Organization recommendation (Formulation 1).

Reagents	Final preparation
Ethanol 96%: 8333 ml	Ethanol 80% (v/v)
Hydrogen peroxide 3%: 417 ml	Hydrogen peroxide 1.45% (v/v)
Glycerol 98%: 145 ml	Glycerol 0.125% (v/v)
Sterile distilled or boiled cold water: add enough water to make 10 litres or 10, 000 ml	10 litres of hand rub

Table 2: Hand sanitizer (hand rub) preparation based on the World Health Organization recommendation (Formulation 2).

Reagents	Final preparation
Isopropyl alcohol 99.8%: 7515 ml	Isopropyl alcohol 75% (v/v)
Hydrogen peroxide 3%: 417 ml	Hydrogen peroxide 1.45% (v/v)
Glycerol 98%: 145 ml	Glycerol 0.125% (v/v)
Sterile distilled or boiled cold water: add enough water to make 10 litres or 10, 000 ml	10 litres of hand rub

Pharmacists should continue to promote and recommend the prudent and judicious prescribing of antibiotics even during the fight against the COVID-19 pandemic [1,9-11]. Besides, pharmacists participate in the production of hand sanitizers based on the World Health Organization (WHO) recommendations [7]. Handrub/ hand sanitizers are very important in public health as a means of disease prevention and control approach. **Tables 1 and 2** shows a guide to local production of hand rub based on WHO recommendations.

Table 1 shows an alcohol-based hand rub prepared using Ethanol 96% while **Table 2** shows an alcohol-based hand rub prepared using Isopropyl alcohol 99.8%.

In conclusion, a one health approach and unity are highly recommended so that COVID-19 is defeated. It is therefore recommended that pharmacists continue doing their best in the fight against COVID-19 and the development of medicines effective against SARS-CoV-2. As the cases of COVID-19 continue rising in Zambia, we urge all pharmacists to be dedicated in conducting research that will help control COVID-19.

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Article Info

Received 01 May 2020

Revised 06 May 2020

Published 10 May 2020
