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# Clinical Pharmacist in a COVID-19 Hospital- A Malaysian Experience

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**ABSTRACT**

The coronavirus disease 2019 (COVID-19) pandemic has hugely affected healthcare services, particularly pharmacy services in a COVID-19 hospital. Before the COVID-19 outbreak, clinical pharmacists routinely reviewed patients' medications upon ward admission, actively participated in ward rounds and partook in transitional care activities focusing on medication reconciliation and patient education in the wards. However, in order to limit contact with COVID patients, hospital pharmacy department reacted promptly by establishing remote clinical pharmacy services in order to sustain the quality of inpatient pharmaceutical care. This commentary describes the challenges faced by clinical pharmacists in a Malaysian hospital as we continue to provide clinical pharmacy services amidst the new norm.

## INTRODUCTION

Coronavirus Disease 2019 (COVID-19) was caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and was first identified in December 2019 in Wuhan, China [1]. The virus is thought to have been transmitted by respiratory droplets and contact routes. Droplets transmission can occur when an infected person with symptoms (e.g. coughing or sneezing) is in close contact (less than 1 m) with another person [2]. Infected droplets may also contaminate surfaces and objects and a person may get infected by touching contaminated surfaces or objects and then touching their eyes, nose or mouth [3]. Mild symptoms of COVID-19 includes fever, fatigue, myalgia, cough, sore throat, runny nose, sneezing or gastrointestinal symptoms (nausea, vomiting, abdominal pain, diarrhea). Critically, it can progress to acute respiratory distress syndrome (ARDS) and may result in shock, encephalopathy, myocardial injury, heart failure, coagulation dysfunction and acute kidney injury [4].

According to the World Health Organization (WHO), as of 18 April 2021, the total number of confirmed COVID-19 cases stood approximately 141 million cases with 3 million reported deaths worldwide [5]. In Malaysia, the total number of cases are 375,054 with 1378 reported deaths [6]. In order to reduce the spread of COVID-19, Malaysian government implemented staggered movement control order starting from 18 March 2020 till early 2021 [7]. In addition to that, the Malaysian Ministry of Health and the National Security Council have been actively urging the public to stay at home, practice social distancing, frequent hand hygiene and to wear mask at all times [8].

In combating COVID-19, the Ministry of Health has designated several hospitals and facilities to be COVID-19 referral and screening centres for centralized and standardized inpatient treatment [9]. For the state of Selangor, Hospital Sungai Buloh (HSgB) is the designated hospital to handle COVID-19 cases [10]. HSgB is a 620-bedded hospital serving as the centre of excellence for infectious diseases, emergency and trauma, neurosurgery, maxilla-facial surgery, burn and plastic surgery and also orthopaedic and traumatology. HSgB essentially covers Gombak, Petaling and Kuala Selangor districts where these make up to 40% of the Selangor population or approximately 2.18 million populations [11]. As of 14 April 2021, Selangor has amassed a total of 121358 cases, the highest in Malaysia with 350 deaths [12]. To date, HSgB has treated a total of 44100 cases, with 267 mortalities [13].

HSgB's clinical pharmacy service consists of 19 full time ward pharmacists in the following wards: neonatal intensive care unit, cardiac care unit, intensive care unit, medical wards (male and female), infectious disease wards, orthopedic male ward, surgical male ward, obstetrics and gynecology wards, neurosurgical ward and paediatric wards. Routinely before the COVID-19 pandemic, clinical pharmacists would review the appropriateness of medications by clerking patients' case notes, actively participate in ward rounds with physicians, partake in



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transitional care activities focusing on medication reconciliation, dispense patients' discharge medications at bedside and also handled patients' medication counseling and education in the wards.

***Challenges but now the new norm***

As soon as HSgB was declared as a COVID hospital, we swiftly changed our usual ways of daily duties, to better support the pharmacy department and hospital as a whole. Our routine changed to adapt the "new norm" way of life, to avoid 3Cs (crowded places, confined spaces and close conversation) and to practice 3Ws (wash, wear and warn). Some of the challenges that we faced were staggered working hours to ensure social distancing is practiced, limited assessment of patients in the ward with no participation in clinical rounds with the physicians, inadequate evidence for COVID-19 treatment, medication administration and charting accuracy in the wards, lack of assessment in patients' own medication history and the medication availability during their admission, and the increasing involvement albeit lack of experience, in clinical trials with the physicians.

***Staggered working hours and work from home (WFH) schedule***

In order to promote social distancing and less crowding at our work places, we had to rapidly rearrange our work force, and at the same time ensure adequate support to the entire pharmacy and hospital services. We utilized a pairing system among clinical pharmacists whereby one of the pair will be present at work and the partner will be contactable via phone during WFH hours. Effective communication and proper passing over had ensured that patients continuously received the best possible pharmaceutical care needed.

***Limited assessment in inpatient pharmaceutical care***

In order to limit contact with COVID-19 patients and to prevent unnecessary use of Personal Protective Equipment (PPE), we have resorted to remote inpatient review by clerking patients at pharmacy workstations instead of traditionally in the wards. Medication reviews are done through a local area network via electronic Hospital Information System (eHIS). On the other hand, medication-related interventions identified by clinical pharmacists are communicated to the wards via telephone. In addition, tele-pharmaceutical strategies have also been implemented for patient care [14, 15]. Such strategies include remote communication through phone or video call to obtain patients' medication history and medication counseling. Furthermore, instructional videos for medical device counseling such as insulin pen and inhalers are first sent to patients' smart phones for self-viewing. Once patients have viewed the instructional video, pharmacists will proceed to make a video call to the patient for further assessment and clarification.

Another challenge faced by clinical pharmacists was verification of medication administration in the wards. Prior to the COVID-19 pandemic, most of the wards in HSgB fully utilized the electronic medication administration charting system. With this system, clinical pharmacists would normally verify that medication administrations were done properly and accurately in the ward. However during the pandemic, the wards employed a hybrid medication administration system of both electronic as well as manual charting. The addition of manual charting has been implemented as there has been extra nursing staff employed from other health facilities to cater to the large volume of patients and unfortunately, these nurses are unfamiliar with the hospital's electronic system. The clinical pharmacists thus have an added role to ensure that manual charting of medication administration is done properly and accurately in the wards. Moreover, patients are warded in isolation rooms and staffs entering these rooms are restricted to preserve PPE supplies. Hence, for patients who are well and independent, medications for the day are dispensed to patient's bedside and then self-administered by patients. With this new change in practice, clinical pharmacists face difficulties by ensuring that medications are indeed delivered to patients and the manual charting are recorded accurately by the nurses.

***Availability of patient's own medication***

During the COVID-19 season, we see heterogeneity of patients being admitted to the wards. Some patients have their underlying co-morbidities followed up in private health facilities and some of their prescribed medications are not readily available under the public hospital medication formulary. These patients will therefore need their home medications delivered to them directly during their inpatient stay for self-administration. With this challenging logistic issue in hand, clinical pharmacists have to liaise with patients' family members to ensure that complete patients' home medications are brought to the hospital soonest possible.

***Antiviral stewardship, use of novel experimental agents and involvement in clinical trials***

Most of the drugs which are currently being prescribed such as Favipiravir, Remdesivir, Tocilizumab and interferon, are either prescribed for experimental, compassionate or off-labelled use. As an infectious disease (ID) hospital, clinical pharmacists were actively practicing antimicrobial stewardship to ensure effective and judicial use of antimicrobials. However, at the start of COVID-19 outbreak in Malaysia in February 2020, we had to quickly adjust our direction to antiviral stewardship due

to the increased usage of antivirals in COVID-19 treatment. Antiviral stewardship has thus far helped in the development of local treatment protocol on repurposed antivirals, which currently guides practitioners in the best recommended doses and treatment regimes. On the other hand, this stewardship also helps to monitor and manage drug shortages due to supply chain interruptions.

The use of novel experimental agents proved to be an unprecedented and arduous decision based on their lack of clinical evidence in treating COVID-19, which is to be expected. For the ease of all health practitioners in HSgB, the clinical pharmacists have been working hand-in-hand with pharmacy resources and information unit and the ID physicians in creating a local, quick and comprehensive COVID-19 treatment guide. In addition, medications used for COVID-19 is not readily available in our local setting hence challenging us to race against time in providing the most efficient treatment, especially to the critically ill patients. Up until this moment in facing this adversity, clinical pharmacists have been working together closely with inpatient and procurement pharmacists to ensure the availability and timely supply of COVID-19 drugs are sustained.

The pandemic also created opportunities for clinical pharmacists to be involved in esteemed and renowned clinical trials such as the Solidarity Trial initiated by WHO and STORM Study initiated by the Malaysian Ministry of Health.

## DISCUSSION

Clinical pharmacist contributed to a great extent in current pandemic, from administrative tasks to pharmaceutical interventions by optimizing medication therapy in severe and critically ill COVID-19 patients. Overall, with the help of technology and collaboration from all other healthcare givers, clinical pharmacists were able to carry out our tasks the best we possibly could in these unprecedented times. We were able to carry out our basic core duties of patient clerking remotely and giving patient education and counseling virtually. However, in term of inpatient medication reconciliation, this effort was largely limited due to the instability of COVID-19 patients particularly in patients with category 4 and above. We also encountered some difficulties when contacting family member or caregivers for medication reconciliation. Clinical pharmacists' involvement in the antimicrobial stewardship could have been further enhanced to ensure judicious use of antibiotic with the increased use of antibiotic in COVID-19 patients. This effort would require extended collaboration with other healthcare givers who are pre-occupied with patient-care now.

This commentary describes the main activities and challenges faced by clinical pharmacists during the first wave of the COVID-19 pandemic. Considering the lessons learnt, future effort should look into efficacy and safety of virtual patient care, the impact of COVID-19 on patient pharmaceutical care as well as healthcare-related cost-saving in middle income country.

## CONCLUSION

In summary, we as clinical pharmacists in a COVID-19 hospital faced an unprecedented and challenging situation since the pandemic began globally. We needed to act swiftly and proactively in response to the Covid-19 outbreak in order to sustain the quality of patient care and continue to adapt the new norm as a way of work and life. We learnt the importance of a contingency plan to cater for sudden changes in usual practice, such as a pandemic of a novel virus. We need to be versatile and ever ready to accept and adapt to new changes. Last but not least, teamwork is important to achieve a greater good for the best patient care during the COVID-19 pandemic.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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