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Role of the pharmacist during the COVID-19 pandemic: a time to rethink strategies

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Dear Sir,

Since the end of 2019, global healthcare systems have gone into overdrive as a result of the unexpected coronavirus disease 2019 (COVID-19) outbreak. Caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), COVID-19 was first described in Wuhan, China, but has since spread to become an international healthcare disaster.⁽¹⁾ As healthcare systems try to cope with the overwhelming patient load, the role of the pharmacist has never been more important. Changes need to be made to the pharmacist's work as we adapt to the unique challenges of this pandemic.

The most apparent change in the pharmacist's roles and duties is seen in acute hospitals, which are now considered the battleground for the treatment of COVID-19 patients. Many hospital pharmacy units have been divided into two or more separate yet independently functional units to avoid uncontrolled spread of the virus, should a member of the team contract the disease. Individual pharmacists thus experience an increased workload and novel strategies will need to be developed to keep them safe but effective as key members of the hospital team. These include pharmacists in various roles: (a) essential inpatient services; (b) important ancillary services; (c) outpatient dispensing; (d) drug inventory; and (e) development of new therapeutic interventions.

The key roles of a hospital pharmacist, especially in this climate, include:

- Medication reconciliation
- Providing evidence-based, safe and appropriate therapeutic recommendations during inpatient rounds
- Anticipating side effects from evolving treatment options
- Timely and effective delivery of drug administration advice to the nursing team

- Advising drug use in extracorporeal devices (e.g. extracorporeal membrane oxygenation)
- Ensuring medication safety and medication delivery safety (minimising aerosolisation)

For pharmacists taking care of admitted COVID-19 patients, new modes of delivering such important services can be explored to provide optimal patient care while minimising unnecessary interpersonal contact.⁽²⁾ The usage of robots has previously been studied as a tool for surgical ward rounds when the surgeon cannot be physically present in the ward, showing high degrees of staff and patient acceptance.⁽³⁾ This strategy can be utilised in the pandemic situation to keep members of the care team away from patients and still provide adequate medical care. Robots allow the care team to see and listen to the patient from a remote location, while enabling two-way communication. The pharmacist can participate in the ward round remotely and remain actively involved in clinical decision-making despite not being at the bedside. When necessary, patients' medications can be delivered using the robot to the pharmacist doing medication reconciliation, without the pharmacist entering the patient's room. This avoids unnecessary risk of infection for the pharmacist and, at the same time, reduces the need for the use of personal protective equipment. Medication reconciliation can also be done remotely with video conferencing over dedicated patient terminals or via mobile phones instead of bedside patient contact. During the patient's discharge, the same tools can be utilised to perform medication education. Patient knowledge tests and surveys can be developed on the same platform, as an add-on service.

In the work of supporting the nursing staff, the visibility of drug labels and drug administration charts can be improved, to facilitate easy referencing for nurses in protective eyewear. Restrategising automated drug dispensing machine inventories in COVID-19 nursing

units according to new drug usage trends would also help to minimise logistic flow into these units.

Healthcare systems may see high numbers of imported cases with language barriers that prove challenging in care provision. Singapore experienced this in two waves of foreign patients, the first from inbound tourists prior to closure of international borders, then from foreign migrant workers living in workers' quarters. Websites providing dedicated translation for the prevalent foreign language can be developed to aid healthcare communication.⁽⁴⁾ Patient information and drug labels translated into relevant languages will also be extremely important for patient care in such situations.

Pharmacists also play important ancillary roles in the patients' hospital journey, independent of physicians. These services include the antibiotic stewardship programme (ASP), anticoagulation clinic (ACC) and medication titration and management clinic (MTM-C), which traditionally require face-to-face patient contact. While the use of remote monitoring and telecommunication were previously trialled, this pandemic has provided us with the opportunity to transition them into fully remote services.

ASP can be performed through remote chart reviews in institutions where notes and charts are digitalised. This removes the need for the pharmacist to approach patients' bedside. Queries and recommendations can be either entered into electronic medical records or communicated through a telephone call to the managing physician. ACC patients should be considered for transition to direct oral anticoagulants as indicated, to reduce the ACC load.⁽⁵⁾ Those who truly require warfarin can have coagulation checks performed off-site without needing to attend a clinic. Recommendations of warfarin dose adjustments can then be conveyed via electronic means such as personalised health applications or telephone consultation. Point-of-care testing kits can also be issued to patients on warfarin for home-based prothrombin time/international normalised ratio checking, with subsequent phone

consultations by the managing ACC pharmacist. MTM-C programmes, which are traditionally utilised by heart failure, diabetes mellitus and organ transplant programmes, require a check of patients' blood tests or parameters, followed by a face-to-face medication compliance check, medication education and subsequent dosage titration. Similar to the ACC, laboratory tests and parameter checks can be performed remotely, without having a pharmacist present. Video conferencing can be utilised thereafter.

Despite the pandemic, many patients will still need to attend specialist clinics in hospitals and collect medication at the end of the consultation. In this situation, the dispensary plays a key role in ensuring patient medication safety and social safety. Excessive wait time for patients at the pharmacy should be avoided, as this puts them at risk of interpersonal spread of COVID-19. Home delivery services should be utilised as much as possible. These are especially useful for clinically stable patients who do not require initiation of new medications after the consultation but can also be utilised for patients who have significant changes in their medication regime, as long as they do not require immediate initiation of the new medications. After identifying the patients who will utilise the home delivery service, the pharmacist can perform initial medication reconciliation with video conferencing tools, after which the required medications are dispatched via a courier service.

Another option is decentralised dispensing. Even in healthcare systems heavily dependent on hospital pharmacies for dispensing of inpatient discharge medications, or medications following specialist clinic consultation, flexibility can be exercised in the pandemic situation to allow prescribed medications to be collected from community pharmacies instead. This would also reduce crowding and waiting time at hospital pharmacies.

Ensuring adequate inpatient and outpatient drug supply is an unseen yet important role of hospital pharmacy units. Workgroups should be set up to anticipate drug supply issues. Close collaboration is needed between the pharmacy team and the intensive care units and infectious

disease team to anticipate potential surges in patient load and, therefore, drug demand. The increased demand can either be secondary to usage of uncommon drugs in the management of COVID-19 (e.g. experimental treatment with lopinavir/ritonavir or remdesivir) and increased usage of common drugs due to increased patient load (e.g. sedative agents in intensive care units) or disruption of supply chains due to unexpected production shutdowns or movement control orders.

Multiple clinical trials are being conducted for treatment of COVID-19. Pharmacists in many parts of the world are crucial in the development of clinical trial designs, ensuring regulatory compliance and patient safety in these studies. At individual study sites, pharmacists play important roles in providing inventory and logistics management of clinical trial medications studied in COVID-19 patients. They are also important members of the study team when it comes to data collection and analysis, with the eventual aim of developing safe and efficacious therapeutic options for this new disease.

While hospitals are viewed as the main battleground for the fight against COVID-19, they should rightly be seen as the last line of defence for the healthcare system against the pandemic. The true front line is the community, where irresponsible actions by individual citizens can set off a chain of events leading to uncontrolled community spread of COVID-19. Community pharmacies and pharmacists are key members of this front line, performing roles that include: (a) safeguarding of assets; (b) guarding against treatment with unsubstantiated remedies; and (c) strengthening provision of primary healthcare.

The scale of COVID-19 community spread has triggered irrational fear, resulting in stockpiling of items deemed as essential healthcare items, such as masks and hand sanitisers. Stockpiling of such items can deprive those who are truly in need, even promoting unlawful price hikes. A system of safeguarding of assets can be practised, such as that reported in Taiwan.⁽⁶⁾ National agencies can work with community pharmacists to limit the sales of these

items through a national registry, ensuring that residents only receive their fair share of personal protective equipment. Community pharmacists can also safeguard against irrational buying of hospital-grade equipment (such as N95 respirators), which can then be reserved for healthcare workers.

Pharmacists can help to guard against treatment with unsubstantiated remedies. With information technology enabling the spread of fictitious information, it can be potentially harmful to individuals and communities, especially recommendations of unsubstantiated therapies. Community pharmacists have the role of education to prevent the layman from falling prey to fictitious news reports and consuming remedies with no scientific basis.

In terms of strengthening the provision of primary healthcare, pharmacists also have an important part to play. Community pharmacists have the advantage of being on the ground and seeing patients who obtain over-the-counter remedies. Patients may do so when they deem their symptoms not severe enough to warrant a physician visit or if they have irrational fears of physician contact in a pandemic climate. Community pharmacists can exercise their clinical judgement in triaging patients who require a higher level of care, based on simple history-taking (e.g. contact history with a COVID-19 patient) or basic health parameters (e.g. oxygen saturation). Health education, neglected in times of crisis, can be reinforced by community pharmacists as well.⁽⁷⁾ Individuals visiting community pharmacies should be strongly encouraged to receive influenza and pneumococcal vaccinations. Routine health education advice, such as smoking cessation, physical activity advice and cardiovascular risk factor screening should be mentioned by the community pharmacist, with consideration of the unique pandemic and healthcare situation of each region.

In unique situations when hospitals are unable to cope with screening of COVID-19 in symptomatic patients, selected community pharmacies that meet stringent training, equipment

and facility requirements can be tasked to perform nasal swabs for COVID-19 testing in high-risk patients.

Lastly, pharmacists can play important roles in monitoring patients who are deemed to have recovered from the infection. Many questions still remain, regarding the long-term sequelae of COVID-19, including the risks of permanent pulmonary damage or future thromboembolic risks. Pharmacists attending to recovered COVID-19 patients need to remain vigilant to suggestions of long-term complications through evaluation of patients' symptoms and timely referral for further medical evaluation.

In summary, pharmacists are highly trained, extremely valuable assets to the healthcare system in its fight against the COVID-19 pandemic, which poses unprecedented challenges to our healthcare systems. They are crucial to the integration of the ever-changing COVID-19 therapeutic landscape, providing reliable, timely medication advice to the medical team and members of the public while supporting many aspects of hospital and community patient care. Healthcare systems need to develop new strategies to optimise the effectiveness of pharmacists without compromising their physical and mental well-being.

Yours sincerely,

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