

Providing pharmacy services during the coronavirus pandemic in Saudi Arabia (Review)

Saad Khalaf Alshammari^{1*}, Ahmed Masoud Alqahtani², Ahmed Mazi Alotaibi², Naif Ahmad Alzahrani², Emad Ahmed Alzahrani², Susan Abdulqader Alkhulaf², Waleed Farah Alharbi¹, Salem Ahmad Albraiki¹, Awad Ghalab Almuteiri³, Nawaf Ateya Alzahrani⁴

¹ Faculty of Pharmacy | King Abdelaziz Medical City | KSA

² Faculty of Pharmacy | King Fahad Medical City | KSA

³ Faculty of Pharmacy | General Administration of Health Services(medevac) |KSA

⁴ Faculty of Pharmacy | Riyadh Health cluster one | KSA

Received:

13/11/2022

Revised:

24/11/2023

Accepted:

01/12/2022

Published:

30/03/2023

* Corresponding author:

alshiqe@gmail.com

Citation: Alshammari,

S. K., Alqahtani, A. M., Alotaibi, A. M., Alzahrani, N. A., Alzahrani, E. A., Alkhulaf, S. A., Alharbi, W. F., Albraiki, S. A., Almuteiri, A. G., & Alzahrani, N. A. (2023). Providing pharmacy services during the coronavirus pandemic in Saudi Arabia (Review). *Journal of medical and pharmaceutical sciences*, 7(1), 62 – 71. <https://doi.org/10.26389/AJSRP.M131122> 2023 © AJSRP • National Research Center, Palestine, all rights reserved.

• Open Access



This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC) license

Abstract: On March 2, 2020, the Kingdom of Saudi Arabia confirmed its first case of the emerging coronavirus strain that causes coronavirus disease 2019 (COVID-19). Shortly thereafter, the number of confirmed cases nationwide began to rise. Since the looming outbreak, all healthcare professionals, including pharmacists, began to work at maximum capacity and effort. The Saudi Society of Clinical Pharmacy (SSCP) recognizes the significant impact pharmacists can have during outbreaks. Based on the scientific evidence available during this outbreak, the SSCP set up an expert working group to conceptualize and draft proposed recommendations that highlight the roles and responsibilities of pharmacists during epidemics and pandemics. The SSCP working group made 28 recommendations. In addition to national and institutional guidelines, these recommendations could serve as guidance for affected entities.

Keywords: Pandemic, COVID-19, Pharmacist, Saudi Arabia

تقديم الخدمات الصيدلانية خلال جائحة فيروس كورونا في المملكة العربية السعودية

سعد خلف الشمري^{1*}، احمد مسعود القحطاني²، احمد مازي العتيبي²، نايف احمد الزهراني²، عماد احمد الزهراني²، سوزان عبد القادر الخليف²، وليد فرح الحربي¹، سالم احمد البريكي¹، عوض غلاب المطيري³، نواف عطية الزهراني⁴

¹ كلية الصيدلة | مدينة الملك عبد العزيز الطبية | المملكة العربية السعودية

² كلية الصيدلة | مدينة الملك فهد الطبية | المملكة العربية السعودية

³ كلية الصيدلة | الإدارة العامة للخدمات الصحية (ميديفاك) | المملكة العربية السعودية

⁴ كلية الصيدلة | التجمع الصحي الأول | المملكة العربية السعودية

المستخلص: أكدت المملكة العربية السعودية، في 2 مارس 2020، أول حالة إصابة بفيروس كورونا المستجد المسبب لمرض فيروس كورونا 2019 (COVID-19). بعد ذلك بوقت قصير، بدأ عدد الحالات المؤكدة في جميع أنحاء البلاد في الارتفاع. منذ اندلاع المرض الذي يلوح في الأفق، بدأ جميع المتخصصين في الرعاية الصحية، بما في ذلك الصيادلة، في العمل بأقصى طاقتهم وجهدهم. تدرك الجمعية السعودية للصيدلة السريرية (SSCP) التأثير الكبير الذي يمكن أن يحدثه الصيادلة أثناء تفشي المرض. استنادًا إلى الأدلة العلمية المتاحة خلال هذه الفاشية، أنشأت SSCP مجموعة عمل من الخبراء لوضع تصور وصياغة التوصيات المقترحة التي تسلط الضوء على أدوار ومسؤوليات الصيادلة أثناء الأوبئة والأوبئة. وقدم الفريق العامل SSCP 28 توصية. بالإضافة إلى المبادئ التوجيهية الوطنية والمؤسسية، يمكن أن تكون هذه التوصيات بمثابة إرشادات للكليات المتضررة. الكلمات المفتاحية: جائحة، كوفيد-19، صيدلي، السعودية

1. Introduction

In December 2019, an alarming epidemic of unexplained etiology happened in Wuhan City, Hubei Province, China (Cucinotta and Vanelli, 2020). The World Health Organization (WHO) defined the extreme acute breathing syndrome coronavirus 2 (SARS-CoV- 2) because of the infective agent, inflicting the coronavirus sickness 2019 (COVID-19). The WHO categorized COVID-19 as a virulent disease on the eleventh of March 2020. (Cucinotta and Vanelli, 2020). The Kingdom of Saudi Arabia (KSA) took numerous proactive preemptive measures for restricting of unfold of the outbreak (Yezli and Khan, 2020). For instance, on the twenty-seventh of February 2020, KSA declared that it'd straight away drop access for people wishing to behave in spiritual activities (Barry et al., 2020). Moreover, on the eighth of March, the Saudi Ministry of Education introduced the suspension of the educational 12 months and the closure of colleges and universities. On the 20 th of March, the Ministry of the Interior halted home and global transportation channels and a curfew turned into imposed from 7 pm, which turned into prolonged to be a 24-hour lockdown recently (Barry et al., 2020). Previous proof confirmed that the pharmacist's abilities and information in the network and medical institution settings would possibly permit them to play a substantial function for the duration of the herbal screw-ups and epidemics (Aruru et al., 2020).

The Saudi Society of Clinical Pharmacy (SSCP), set up in 2018, targets to offer medical guidance, recommendation, and insights for medical pharmacists operating in KSA. It works below the umbrella of the Saudi Health Commission for Health Specialties (SCFHS) that's a governmental medical frame based via way of means of distinctive features of a royal decree. The SCFHS is chargeable for governing healthcare practices, supervising expert health-associated programs, and licensing processes. The SSCP believes that the function of pharmacists is vital for the duration of situations inclusive of epidemics and pandemics.

I. Constructing the recommendations

The writing task force was hand-picked by the SSCP to create by mental act the primary draft of the recommendations. These recommendations were written and supported by the presentation on the market proof that highlights the most effective practices concerning pharmacists' roles throughout emergency situations. Following that, these recommendations were shared with pharmacy profession stakeholders via the society's social media platforms. The writing task force issued twenty-eight recommendations when receiving feedback from the stakeholders.

II. The aim of the recommendations

These recommendations aim to produce the pharmacy profession community with many insights regarding the pharmacist's roles and responsibilities in the community, provide chain, and healthcare settings supported existing knowledge base throughout this outbreak. It conjointly reinforces to the

opposite healthcare suppliers and national organizations the importance of pharmacists' participation and role in decisions during these circumstances.

III. Recommendations

1. We have a tendency to urge the Saud Center for Disease Prevention and Control (SCDPC) and therefore the Ministry of Health (MoH) to still utilize pharmacists' experience in prevention and treatment throughout epidemic and pandemic situations. the globe Health Organization (WHO) recommends as well as pharmacists within the infection prevention and control of epidemics and pandemics (Sakeena et al., 2018). Pharmacists receive in-depth education and coaching in evaluative rising evidence, and the Saudi agency and MOH may utilize their expertise in conceptualizing, appraising, and drafting prevention and treatment protocols. Their role is integral in analyzing national and international therapeutic choices for the management of any rising happening because of their quickly advancing clinical experience.
2. We have a tendency to urge all attention establishments to involve pharmacists in emergency state and disaster designing throughout epidemic and pandemic situations. Pharmacists will play an integral role in providing patient-focused services appreciate developing comprehensive care plans, therapeutic drug monitoring, and offering evidence-based recommendations (Song et al., 2020). because of the various nature of the pharmacy profession, pharmacists are operating in several healthcare sectors such as the MoH, Saudi Food and Drug Administration (SFDA), pharmaceutical industry, community pharmacies, primary attention centers associate degreed hospitals. Their involvement in emergency design throughout a rising epidemic or pandemic things is crucial and integral.
3. Pharmacists ought to take a proactive role in the development, implementation, and adherence to institutional and national tips concerning the emerging happening appreciate COVID-19. As explicit previously, pharmacists play an elementary role in the development and implementation of institutional and national guidelines, protocols, and clinical pathways (Thompkins et al., 2019). The previous proof showed that 50% of the printed clinical follow guidelines between Jan 1, 2010, and Dec 31, 2016, had a minimum of one healthcare provider as a member of its writing panel (Thompkins et al., 2019). Pharmacists' interventions and involvement are related to higher rates of adherence to these clinical follow tips (Horning et al., 2007).
4. We urge pharmacy department administrators to make sure that pharmacy observation settings are capable of maintaining full practicality throughout epidemic and pandemic situations. it's the responsibility of pharmacy directors to ensure that each patient is receiving adequate pharmaceutical care services during epidemics and pandemics. This includes setting cost-efficient plans to ensure the standard of care delivered to any or all patients, as well as infected and antiseptic patients. one in every of the recommended modalities to ensure adequate functionality is to vary the working shifts to

twelve shifts rather than short staffing hours and have all staff solely enter through separate entrances to the facility, separate from the general public entrances. Reducing the frequency of shift changes or staff turnover will limit the spread of infection to a smaller number of people if exposure occurs. Pharmacy managers must ensure the continuity of the pharmaceutical business and consider the following:

- Review annual leave policies and vacancies in key areas and implement conservative policies to require all sick employees to stay home.
 - Reorganize the pharmacist's staff and resources for prep activities.
 - Prepare contingency plans to augment staff in the event of high levels of absenteeism, when staff become ill from anticipated respiratory infections, including COVID-19, or need to stay home to care for others, and family.
 - Replacement of functions or redeployment of personnel with an increased risk of infection. For example, transferring immunocompromised staff to internal functions without direct patient contact. Work from home with remote access to the facility's computer system. Train all pharmacy staff on proposed emergency preparedness actions.
5. All pharmacy and supply chain managers must have a list of alternative suppliers of essential medicines, medical devices contracted services and a strategy to address the associated shortages and ensure an adequate supply of all medicines used for critical illnesses and life-threatening conditions, and implement epidemic and pandemic situations. Proper communication and transparency regarding bottlenecks from supply chain management and regulators related to out-of-stock or scarce medicines and the availability of alternatives are crucial. Create a continuously updated backup list of suppliers and pharmaceutical companies. Can be beneficial. In the event of national emergencies, the SFDA may be required to proactively identify and extend the shelf life of certain critical drugs to avoid unwanted shortages (Badreldin and Atallah, 2020).
 6. Pharmacists should avoid discarding expired medicines related to the direct treatment or treatment of symptoms of the pandemic or epidemic. Instead, they can seize drugs if the SFDA can extend the shelf life of drugs or authorize their use. in the absence of other current stocks. Community pharmacists should be trained to screen pharmacy customers for signs and symptoms of infections such as COVID-19 and provide the most appropriate plan of action based on Saudi CDC guidance in suspected cases.
 7. To reduce the risk of exposure and transmission of infections like COVID-19, community pharmacies need to develop a screening system to screen customers/patients before the pharmacy. We call on policymakers at the Department of Health to hire community pharmacists trained to administer vaccines to the public to reduce the burden on the healthcare system and improve immunization coverage when entering vaccines are needed for a specific epidemic or pandemic, such as COVID-19 become available.

8. Recent evidence has shown that community pharmacists can reduce the time to achieve 80% vaccine coverage with a single dose during pandemics. Therefore, the use of trained community pharmacists to administer vaccines to the public should be integrated into the pandemic vaccine response plan (Schwerzmann et al., 2017). We urge all healthcare institutions to enlist the voluntary help of qualified unemployed or retired but licensed pharmacists and technicians in epidemic and pandemic situations. In these unprecedented times, the pharmaceutical workforce could be negatively impacted as some pharmacists and pharmacy technicians could be impacted by the infection, self-quarantine, or deployment elsewhere.

This can disrupt workflow and therefore seeking help from qualified unemployed or retired pharmacists or pharmacy technicians can help minimize the impact of a pharmacy staff shortage. Maximize your volunteer efforts. We call on all pharmacy policymakers and directors to give more authority to licensed pharmacy technicians in epidemic and pandemic situations. The level of practice of the pharmacist could be maximized during epidemics and pandemics by giving more authority to licensed pharmacy technicians under the pharmacist's supervision.

Free pharmacists from technical duties and make them available to support healthcare teams caring for patients with an emerging infection like COVID-19. Technicians should receive the proper training consistent with their enhanced powers and privileges.

9. All pharmacists must proactively maximize the usage of digital and online structures which will train the public concerning contamination prevention measures throughout epidemic and pandemic conditions. Pharmacists are ready with abilities throughout their education to offer affected person training associated with public fitness matters. There are numerous approaches pharmacists can assist in instructing the public during epidemics and pandemics. This will be performed via way of means of collaborating in digital focus campaigns, writing digital newsletters, or blogs. Developing virtual brochures, booklets concerning critical contamination prevention measures, and beneficial sources that may be shared via social media and different virtual structures. Launching online academic classes and recorded movies also are examples of proactive public fitness training modalities (Strand and Miller, 2014). Also, pharmacists can shape neighborhood or local message forums among every different to percentage level in and ask questions of others too are seeking answers to not unusual place and repetitive issues encountered throughout the remedy of the pandemic or deal with drug shortages problems and opportunity treatments.
10. Pharmacists must offer proof primarily totally based on suggestions to sufferers and healthcare carriers in step with the MOH, Saudi CDC, and institutional hints throughout epidemic and pandemic conditions. Implementation of proof-primarily based totally on medicinal drugs has been proven to offer high-quality medical care at the bottom cost. Providing proof-primarily based suggestions to sufferers and healthcare carriers is one of the pharmacist's key responsibilities. These suggestions

must be in alignment with the maximum present-day MOH, Saudi CDC, and institutional hints (Lewis and Orland, 2004).

11. All pharmacists must use their information throughout epidemic and pandemic conditions to proactively make clear misconceptions and rumors to the general public and direct them to dependable sources. Using social media structures, pharmacists must train the sufferers and the general public via way of means of going returned to official, dependable sources which include the Saudi CDC steering and MoH hints and websites.
12. We suggest that everyone healthcare establishment put into effect an easy-to-replenish option to reduce capability and pointless publicity for the duration of epidemic and pandemic situations. Strategies have to be applied to take away or lessen the threat of publicity for the duration of the refilling process, such as through drive-through and domestic shipping of medications, encouraging digital prescriptions, and lengthening the refilling length for sufferers with continual disorders. This has to know no longer affect the counseling service, that's necessary for stopping hospitalization because of the affected person's loss of enough statistics concerning their medications. We urge all pharmacists to apply digital structures to behavior-affected person counseling and medication reconciliation.
13. Pharmacy administrators need to broaden steering for workforce tracking for any capability symptoms and symptoms of contamination at some stage in epidemics and pandemics. Pharmacy administrators need to make certain which includes regulations that contain complying with self-reporting and self-quarantine for all pharmacy workforces. They additionally need to enforce mechanisms for reporting each contamination and absenteeism at some stage in epidemic and pandemic situations.
14. Pharmacy administrators need to broaden regulations and approaches for personnel returning to paintings after improving from the rising contamination at some stage in epidemic and pandemic situations. These regulations and approaches need to contain steering for any returning worker to make certain the protection of his or her colleagues, which includes the range of allowed commercial enterprise days that might be neglected and the modality of slow incorporation of returning workforce in everyday schedules.
15. We suggest limiting the presence of any useless workforce at some stage in epidemic and pandemic situations. Social distancing is a widespread determinant in proscribing the unfolding of any rising contamination including COVID-19 and different viruses.
16. We urge all pharmacy policymakers and administrators to enforce regulations to display the provision of surgical masks, N95 respirators/powered air-purifying respirators (PAPRs), alcohol-primarily based totally on hand disinfectants and gloves at some stage in epidemic and pandemic situations. Policymakers and administrators ought to make certain the protection of the personnel via way of means of growing regulations and approaches that deal with the ordering, storage, utilization, and

delivery tracking of surgical masks, N95 respirators/powered air-purifying respirators (PAPRs), and different materials which include alcohol-primarily based totally hand disinfectants and gloves at some stage in epidemic and pandemic situations. The regulations need to additionally encompass the significance of masks suit checking out for individuals who are available in direct touch with droplet/airborne precaution sufferers, i.e., pharmacists attending codes.

17. We urge all pharmacy policymakers and administrators to make certain that sufficient Personal Protective equipment (PPE) is furnished to all pharmacists and pharmacy workforce vulnerable to publicity at some stage in epidemic and pandemic situations. Due to the anticipated excessive call for PPE at some stage in epidemics and pandemics, we urge policymakers and healthcare executives to make certain that every workforce which includes pharmacy employees is geared up with suitable PPE, particularly if they may be operating to an excessive extent setting excessive, which can also additionally boom their hazard of publicity to doubtlessly inflamed individuals. There needs to be a consistent assessment of the hazard associated with pharmacist-associated sports to make certain of the dynamics of presenting them with PPE. Evaluations need to encompass a system for PPE conservation that could encompass the re-use of PPE, which includes face masks after decontamination processes. Gloves, long-sleeved gowns, and face masks need to be granted for any pharmacy workforce operating with an inflamed individual.
18. Pharmacy administrators need to prioritize essential offerings primarily based totally on crucial institution-wide operations at some stage in epidemic and pandemic situations. A stepwise method needs to be applied in every pharmacy so as to prioritize pharmacy-furnished essential offerings. This method needs to be applied to assist offer crucial offerings in a well-timed manner.
19. Pharmacy workforces need to be taught critical pharmacy workflow approaches. Many pharmacy's workforces can also additionally emerge as inflamed or quarantined at some stage in epidemics and pandemics. In the meantime, the workflow needs to know no longer be impacted. For this reason, an education plan with the operation and reference manuals need to be in the vicinity for the workforce taking on the jobs and obligations of different workforce members, which includes administrative, clinical, distribution, and stock control features at some stage in epidemic and pandemic situations.
20. We urge all quarantined pharmacy workforce to offer technical guidance and supply telehealth offerings while ever feasible to decrease burnout on-obligation workforce at some stage in epidemic and pandemic situations. It is crucial to make use of telehealth to pro- vide pharmaceutical offerings to boom affected persons get admission to care. This consists of activating telehealth in pharmacist-run clinics and counseling offerings.
21. Given the overpowering nature of everyday sufferers' rounds at some stage in the epidemic, we urge pharmacists to stay more vigilant via way of means of ensuring that their sufferers are receiving the maximum rational and suitable medicinal drug control which includes dosing adjustment, drug remedy tracking, unfavorable drug reactions, pills compatibilities, and drug interactions control.

During pandemics including COVID-19, sure sufferers can be required to be removed and dealt with as inpatients even as others can also additionally be admitted into the in-depth care unit (ICU) because of its complications. Pharmacists are entreated to follow up on the sufferers' status, adjust the remedy plan, alter the medicines, and carry out the right healing drug tracking while deemed necessary. In addition, and because of the improvement of numerous countrywide and global hints for the control of sure epidemics or pandemics, warning need to be suggested concerning drug-drug interactions at some stage in the initiation of recent medicines.

22. We urge pharmacy career leaders to create communicate channels that are characteristic efficient at some stage in epidemic and pandemic situations. It is crucial to create a channel of communicate thru pharmacy career leaders via way of means of setting up a machine for sharing facts with companions and stakeholders to keep away from medicinal drug shortages and to conquer the unavailability of drugs in any of the affected institutions. This communicate is essential at some stage in this time, and its miles specifically the duty of the drugstore leaders. It needs to be completed mostly via way of means of developing a complete touch listing to perceive all of us withinside the chain of communicate (e.g., the Medication delivery chain in every institution), keeping an up-to-date number one and secondary listing for all of us withinside the chain of communicate, figuring out while and what sort of facts may be shared with the complete touch listing and figuring out the right communicate platforms, including a hotline, automatic textual content messaging, email, social media, online and organization messaging applications, and a website, to assist disseminate facts to inner and outside companions.
23. We advocate editing all pharmacy conference modalities and making use of digital and digital modalities at some point in epidemic and pandemic situations. Regular and status conferences need to hold to transport ahead at some point of epidemics and pandemics to save you any put off in selection making. Virtual plat- paperwork is every other manner to continue with conferences as it's miles and clean and handy modality, and it enforces the idea of social distancing.
24. We urge all pharmacy departments to percentage their revel and file it to the MOH and the Saudi CDC at some point in epidemic and pandemic situations. It is essential to create a portal wherein pharmacy departments can percentage their reports and concerns. Therefore, with the hobby of the general public fitness in mind, we inspire all healthcare establishments to file their experience to the MoH and Saudi CDC. The MoH and the Saudi CDC need to streamline and generate the essential policies and guidelines primarily based totally on those reports.
25. Pharmacists are endorsed to initiate/ take part in constructing registries and correctly make contributions to analyzing and scientific trials in epidemic and pandemic situations. Pharmacists can play a huge position in constructing registries. Creating sickness registries may be a useful manner to recognize the character of the sickness throughout distinct geographic places as they can resource in

spotting chance elements and diagnosis of illnesses and pick out the effect of healing control on various affected person populations (Akazawa et al., 2018).

Conclusion

These 25 recommendations establish safety goals for pharmacists and protect the integrity of the healthcare system. They direct pharmacists to the best optimal use of resources, time, and sharing information with the ultimate goal of ensuring optimal access to and quality of care for everyone living in Saudi Arabia.

Acknowledgment

The authors would like to thank the SSCP board members and all pharmacists and policymakers who provided feedback regarding these recommendations prior to drafting the final manuscript.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Akazawa, M., Mikami, A., Tamura, Y., Yanagi, N., Yamamura, S., Ogata, H., 2018. Establishing a Pharmacy-Based Patient Registry System: A Pilot Study for Evaluating Pharmacist Intervention for Patients with Long-Term Medication Use. *Pharmacy* 6, 12. <https://doi.org/10.3390/pharmacy6010012>.
- Aruru, M., Truong, H.-A., Clark, S., 2020. Pharmacy Emergency Preparedness and Response (PEPR): a proposed framework for expanding pharmacy professionals' roles and contributions to emergency preparedness and response during the COVID-19 pandemic and beyond. *Res. Social Adm. Pharm.* <https://doi.org/10.1016/j.sapharm.2020.04.002>.
- Badreldin, H.A., Atallah, B., 2020. Global drug shortages due to COVID-19: Impact on patient care and mitigation strategies. *Res. Soc. Adm. Pharm.* <https://doi.org/10.1016/j.sapharm.2020.05.017>.
- Barry, M., Al Amri, M., Memish, Z.A., 2020. COVID-19 in the Shadows of MERS-CoV in the Kingdom of Saudi Arabia. *J. Epidemiol. Glob. Health* 10, 1–3. <https://doi.org/10.2991/jegh.k.200218.003>.
- Cucinotta, D., Vanelli, M., 2020. WHO Declares COVID-19 a Pandemic. *Acta Biomed.* 91, 157–160. <https://doi.org/10.23750/abm.v91i1.9397>.
- Horning, K.K., Hoehns, J.D., Doucette, W.R., 2007. Adherence to clinical practice guidelines for 7 chronic conditions in long-term-care patients who received pharmacist disease management services versus traditional drug regimen review. *J. Manag. Care Pharm.* 13, 28–36. <https://doi.org/10.18553/jmcp.2007.13.1.28>.
- Lewis, S.J., Orland, B.I., 2004. The Importance and Impact of Evidence-Based medicine. *J. Manag. Care Pharm.* 10, S3–S5. <https://doi.org/10.18553/jmcp.2004.10.S5-A.S3>.
- Sakeena, M.H.F., Bennett, A.A., McLachlan, A.J., 2018. Enhancing pharmacists' role in developing countries to overcome the challenge of antimicrobial resistance: a narrative review. *Antimicrob. Resist. Infect. Control* 7, 63. <https://doi.org/10.1186/s13756-018-0351-z>.

- Schwerzmann, J., Graitcer, S.B., Jester, B., Krahl, D., Jernigan, D., Bridges, C.B., Miller, J., 2017. Evaluating the Impact of Pharmacies on Pandemic Influenza Vaccine Administration. *Disaster Med. Public Health Prep.* 11, 587–593. <https://doi.org/10.1017/dmp.2017.1>.
- Song, Z., Hu, Y., Zheng, S., Yang, L., Zhao, R., 2020. Hospital pharmacists' pharmaceutical care for hospitalized patients with COVID- 19: Recommendations and guidance from clinical experience. *Res. Social Adm. Pharm.* <https://doi.org/10.1016/j.sapharm.2020.03.027>.
- Strand, M.A., Miller, D.R., 2014. Pharmacy and public health: A pathway forward. *J. Am. Pharm. Assoc.* 54, 193–197. <https://doi.org/10.1331/JAPhA.2014.13145>.
- Thompkins, A.W., Norman, B.F., Hill, B.K., Antosz, K.S., Bookstaver, P.B., 2019. Pharmacist authorship on clinical practice guidelines. *J. Am. Coll. Clin. Pharm.* 2, 150–154. <https://doi.org/10.1002/jac5.1056>.
- Yezli, S., Khan, A., 2020. COVID-19 social distancing in the Kingdom of Saudi Arabia: Bold measures in the face of political, economic, social and religious challenges. *Travel Med. Infect. Dis.*, 101692 <https://doi.org/10.1016/j.tmaid.2020.101692>