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EDITORIAL

Preparing pharmacy for the surge of patients with COVID-19: Lessons from China

As the global burden of the coronavirus disease 2019 (COVID-19) pandemic continues to grow, health care and public health systems are bracing for a surge in patients with COVID-19 seeking medical care. Illness severity can range from mild to critical.¹ Those with severe disease require hospitalization for the management of complications from COVID-19. Overburdened hospitals are ill equipped to handle such a surge. Consequently, numerous jurisdictions are establishing alternative care sites either for patients with COVID-19 or for treating patients who have not contracted COVID-19. In addition, isolation and quarantine sites are being established so that patients with COVID-19 can remain for the duration of their isolation or those exposed to the virus can stay for a quarantine period. Whatever the name or format of such alternative care facilities, pharmaceutical services are essential. Pharmacists and other pharmacy staff have critical roles in reducing the burden and suffering from COVID-19.² Ensuring a reliable supply of quality-assured essential medicines and other necessary material and equipment to meet patients' needs is just the beginning.³ Furthermore, pharmacists have demonstrated the importance of their roles as key partners to public health agencies by dispensing critical drugs and other medical products, providing patient care services, administering vaccines, and providing information to the public during pandemics and other emergencies.^{4,5}

In this issue, Hua et al.⁶ describe pharmaceutical services in a large module hospital, that is, an alternative care site, in Wuhan, China, for treating patients with COVID-19. The Jiangnan module hospital was quickly constructed at the Wuhan Convention and Exhibition Center with 1564 beds to receive patients with COVID-19. The pharmaceutical department of Wuhan Union Medical College Hospital established a pharmacy command structure that oversaw the design and implementation of the module hospital's drug supply, drug dispensing, quality control of medicines, and clinical pharmaceutical care.

What are the applicable lessons from the experiences of Hua et al.⁶ to help others better prepare for this crisis? First, they describe using a unified command structure with defined subgroups. A standardized approach to the command, control, and coordination of an emergency response is a time-tested strategy for the management of events. Second, in recognition of the likelihood of an influx of medical products into the site, the team established a quality-control group. Ensuring the quality of purchased and donated drugs during an emergency is an important function. Third, careful attention was paid to the site's drug formulary as well as the packaging of medicines for the

module hospital to promote patients' safety. Proactively defining and acquiring essential medicines for specific health events can help mitigate the common problem of shortages of critical drugs and other supplies during pandemics. Fourth, to reduce the risk of exposure of pharmacy staff to COVID-19 while providing patient services and to maximize social distancing, the team used various technologies to provide patient education and promote medication adherence. For example, they established mechanisms for group and private chats and even set up a mobile radio station. They demonstrated that if normal pharmacy services cannot be provided during an epidemic or disease outbreak, then Internet, phone, or video options for patient education and medication consultation are possible. Liu et al.⁷ also reported promoting the use of remote pharmacy services in China to mitigate disease transmission.

One limitation of the paper by Hua et al.⁶ is the lack of information on personal protective equipment used by their pharmacy staff. Hand sanitizers, gloves, and face masks are vital to ensuring the safety of pharmacy staff. The Chinese Pharmaceutical Association and the International Pharmaceutical Federation have issued guidance on preventive measures for pharmacy staff during COVID-19.^{8,9} Another limitation is the general lack of reported metrics of both the processes and outcomes of pharmacy staff—provided care for patients with COVID-19 treated at this alternative care site. The intent of this particular module hospital was the provision of care for patients with COVID-19 with mild symptoms. More information about staffing patterns for the provision of pharmaceutical services at this alternative care setting would have been useful. Staff shortages during responses to emergencies are commonplace. It is important to recognize and address potential barriers to surge-capacity staffing during public health emergencies.¹⁰ Despite these few limitations, this paper provides the health care and public health communities with information that may be helpful when planning for medication-related services for alternative care settings. As one of the first descriptions of pharmacy services provided during the COVID-19 pandemic, Hua et al.⁶ are to be commended for their efforts and for sharing their experiences.

References

1. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA*. 2020;323(13):1239–1242.

2. Pharmacists as front-line responders for COVID-19 patient care. Available at: https://www.pharmacist.com/sites/default/files/files/APHA%20Meeting%20Update/PHARMACISTS_COVID19-Final-3-20-20.pdf. Accessed April 2, 2020.
3. ASHP COVID-19 Pandemic assessment tool for health-system pharmacy departments. Available at: https://www.ashp.org/-/media/assets/pharmacy-practice/resource-centers/Coronavirus/docs/ASHP_COVID19_AssessmentTool.ashx?la=en&hash=D4222461335FCEAB8DE30F996388232700B9543F&hash=D4222461335FCEAB8DE30F996388232700B9543F. Accessed April 2, 2020.
4. Rubin SE, Schulman RM, Roszak AR, Herrmann J, Patel A, Koonin LM. Leveraging partnerships among community pharmacists, pharmacies, and health departments to improve pandemic influenza response. *Bio-secur Bioterror*. 2014;12(2):76–84.
5. Fitzgerald TJ, Kang Y, Bridges CB, et al. Integrating pharmacies into public health program planning for pandemic influenza vaccine response. *Vaccine*. 2016;34(46):5643–5648.
6. Hua X, Gu M, Zeng F, et al. Pharmacy administration and pharmaceutical care practice in module hospital under COVID-19 epidemic. *J Am Pharm Assoc*. 2020;60(3):431–438.
7. Liu S, Luo P, Tang M, et al. Providing pharmacy services during the coronavirus pandemic. *Int J Clin Pharm*. 2020;42:299–304.
8. The Chinese Pharmaceutical Association. CORONAVIRUS 2019-nCoV INFECTION: Expert Consensus on Guidance and Prevention Strategies for Hospital Pharmacists and the Pharmacy Workforce (1st Edition). Available at: <https://www.fip.org/files/content/priority-areas/coronavirus/CPA-CORONAVIRUS-2019-nCoV-Expert-Consensus-on-Guidance-and-Prevention.pdf>. Accessed April 2, 2020.
9. International Pharmaceutical Federation. FIP Covid-19 information hub. Available at: <https://www.fip.org/coronavirus>. Accessed April 2, 2020.
10. Stergachis A, Garberson L, Lien O, D'Ambrosio L, Sangaré L, Dold C. Health care workers' ability and willingness to report to work during public health emergencies. *Disaster Med Public Health Prep*. 2011;5(4):300–308.

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