



Letter to the Editor

China empowers Internet hospital to fight against COVID-19

Dear editors,

We read with interest the recent review by Han in this Journal,¹ which described the nature, characteristics, and therapeutics of coronavirus disease 2019 (COVID-19). The article summarized the latest data and found that the virus caused higher mortality in patients with comorbidities. Thus, more effective measures in addition to quarantine to prevent those patients getting infected also need to be considered.

The ongoing COVID-19 outbreak in China has a foothold in more than 100 countries and regions, spiraling into a worldwide health emergency. The COVID-19 outbreak has become the fastest spreading, the most extensive infection and the hardest to contain in China over the past 70 years.² WHO assesses COVID-19 as a pandemic, which is the first pandemic sparked by a coronavirus.³ The virus is rapidly transmitting from human to human, with a total of 16,7515 confirmed cases and 6606 deaths worldwide as of March 16 2020, fueling public's health-related fears.⁴ Unfortunately, there is no "magic bullet" or vaccines till now, and there are still lots of uncertainties such as the virus' origins, course, and detail.

To halt the amplification of viral transmission, China activated the highest level of public health emergency and took the so-called "wartime control" measures from the very beginning of the outbreak, including cities lockdown, traffic control, and home quarantine.⁵ These measures are in operation in some of the hardest-hit countries besides China, such as Italy and Spain.

During the anti-epidemic fight, Chinese government has set top priorities for COVID-19. However, the mandated restrictions and the widespread lockdown inevitably disrupt the routine treatments of patients with other diseases. Without constant medical services, tens of millions of patients with various chronic diseases are suffering from an potential worsening of their health conditions. Most of them are susceptible populations. Brick-and-mortar hospitals are regarded as places where much wider spread of the virus happens. Front-line medical staff infected without any symptoms may become the inadvertent carriers to patients who are seeking medical care for other diseases.⁶ Furthermore, to avoid cross-infection, plenty of hospitals have cancelled outpatient clinics.⁷

While pooling the most of resources to combat COVID-19, how to ensure the constant medical services for the public has become an enormous challenge.

China encourages the innovative treatment model to embrace Internet hospitals which offer official endorsement for remote medical services, avoiding cross-infection and relieving the burden on offline clinics. Compared with physical hospitals, Internet hos-

pitals have the advantages of higher efficiency at lower costs, optimized resource distribution and non-contact treatment.

Internet hospitals play a significant role amid the epidemic. There were reports of physical hospitals flooded with well-worried patients who mistook their benign fevers or coughs as indicators of coronavirus.⁸ It is likely to happen currently in other countries worldwide, causing cross-contamination between both patients and doctors. Luckily, many Internet hospitals such as WeDoctor and haodf.com, have offered free online consultation of COVID-19 and guidance for home quarantine during the epidemic, which account for nearly 20% of their online medical services.⁹ Online mental counseling is also accessible to the public around the clock. For patients with chronic diseases who are being delayed, Internet hospitals are their gospel as Internet hospitals provide medical services including regular follow-up, medication instructions and contactless medicine delivery. Internet hospitals also improve the efficiency and the treatment for seriously ill patients in Wuhan city by multidisciplinary experts' real-time telemedicine consultation.

Internet hospitals sprung up, gaining considerable traction among the public. Most of them had geometric growth of visitors. According to Haodf.com, the very popular internet hospital in China, over 20,000 physicians offer online medical services to 200,000 visitors daily. Simultaneously, the total number of online consultations exceeded 4.26 million from January 22 to February 25, which increased by 278% compared with that of last month.⁹

Internet hospitals are running smoothly in China thanks to the following aspects. Firstly, Chinese government has issued a series of policies to integrate online medical services and long-term prescription into medical insurance.¹⁰ Secondly, efficient express service makes for contactless drug delivery. What's more, innovative technologies, such as AI, 5G, and big data have been applied. Last but not least, efficient supervision from public helps to guard the bottom line of safety and improve the quality of online medical services.

Internet hospitals, a necessity during the epidemic in China, offer public constant medical services by preventing nosocomial spread of the virus. It will be indispensable not only for COVID-19, but also for future outbreaks of infection.

Declaration of Competing Interest

All authors declare that there are no conflicts of interest.

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References

1. Han Q, Lin Q, Jin S, You L. Coronavirus 2019-nCoV: A brief perspective from the front line. *J Infect* 2020;**80**(4):373–7.
2. Xinhua News Agency. Xi Focus: PROTECT: Can-do China curbs COVID-19. March 11, 2020. http://www.xinhuanet.com/english/2020-03/11/c_138866618.htm (accessed March 11, 2020).
3. WHO. WHO characterizes COVID-19 as a pandemic. March 11, 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen> (accessed March 11, 2020).
4. WHO. Coronavirus disease 2019 (COVID-19) Situation Report – 56. March 16, 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200316-sitrep-56-covid-19.pdf?sfvrsn=9fda7db2_6 (accessed March 16, 2020).
5. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. *Lancet (Lond Engl)* 2020;**395**(10224):e37–ee8.
6. Heymann DL. Data sharing and outbreaks: best practice exemplified. *Lancet (Lond Engl)* 2020;**395**(10223):469–70.
7. Zhang H. Early lessons from the frontline of the 2019-nCoV outbreak. *Lancet (Lond Engl)* 2020;**395**(10225):687.
8. Asmundson GJG, Taylor S. Coronaphobia: Fear and the 2019-nCoV outbreak. *J Anx Disord* 2020;**70**:102196.
9. China Central Television. The spring of telemedicine consultation in the epidemic. March 9, 2020. <http://tv.cctv.com/2020/03/09/VIDEfrEpGWHxgfj3vmXmSyS200309.shtml?spm=C22284.P6OnL3OV4Xww.E54cFPC2MK9C.1> (accessed March 10, 2020).
10. China NHC. Guidance of the National Medical Insurance Bureau and National Health Commission of China on the promotion of "Internet plus" medical insurance services amid the epidemic. February 28, 2020. http://www.gov.cn/zhengce/zhengceku/2020-03/03/content_5486256.htm (accessed March 1, 2020).

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