



# Shortage of Coronavirus RT-PCR Kits Increased the Spread of Infection in Kurdistan Region of Iraq

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## Dear Editor,

In December 2019, cases of unexplained severe respiratory tract infection emerged in Wuhan, Hubei, China (1). A novel bat-origin coronavirus was proposed as a possible causative agent for the infection, and nucleic acid sequencing analysis identified the novel coronavirus (1). On 30 January 2020, the infection was declared as a Public Health Emergency of International Concern by the World Health Organization (WHO). On 11 March 2020, the WHO declared the coronavirus disease (COVID-19) a global pandemic. In February 2020, the first cases of COVID-19 infection were reported in Kurdistan Region, Northern Iraq. With the appearance of the first COVID-19 cases in Iraq, strict control measures were implemented to stop the spread of the infection. Since then, more than 2.5 million people contracted the infection in Iraq, with 25,358 recorded deaths (2).

During the early outbreak period, Iraqi authorities, including Kurdistan Regional government, decided to close the borders on 22 February 2020 and urged all Iraqi citizens to return home (3). In Kurdistan Region, all individuals returned from Iran, Italy, South Korea, and China were examined clinically and classified into two groups including suspected cases and symptom-free individuals. To confirm the suspected cases, swab testing by reverse transcription polymerase chain reaction (RT-PCR) was performed. On the other hand, all symptom-free individuals were quarantined for 14 days (3). People in quarantine were examined twice a day clinically, and if fever and/or symptoms of respiratory tract infection developed, samples were taken and sent to RT-PCR. If these people did not develop fever or symptoms of respiratory tract infection, they were released from the quarantine. PCR test could not be performed for all quarantined subjects before the re-

lease due to the shortage of the supply of PCR testing kits. Although all the released subjects were requested to refer to health centers if they developed symptoms, the number of mild infections was not clear. Then, a sharp increase in morbidity and mortality was recorded in Kurdistan Region (4). To investigate the increase in number of COVID-19 cases, the healthcare authorities decided to survey the released subjects. It was found that 39/1726 (2.26%) of the subjects were positive without having symptoms. Furthermore, the quarantine could not be extended beyond 14 days due to social stigma and lack of required infrastructure to deal with such an outbreak.

RT-PCR was proposed as a diagnostic tool for COVID-19. In this regard, many studies compared different diagnostic tools, such as computed tomography (CT) scan as well (5). It was concluded that RT-PCR is of higher sensitivity and specificity than CT scan, particularly if multiple samples are used (5). In addition, CT scan is more laborious and more expensive than RT-PCR (5). We believe that the shortage in RT-PCR supply and the release of patients from quarantine without diagnosis played a major role in the sharp increase in the number of COVID-19 cases and increased the spread of infection in the region.

To conclude, during the early outbreak period, the shortage of the supply of testing kits increased the spread of COVID-19. The test could not be performed on all subjects before releasing from quarantine, and there was a waiting list for suspected cases. The COVID-19 pandemic spotlights the crucial need for international scientific collaboration to develop diagnostics tools in order to combat health emergencies. The international collaboration must include rapid access to diagnostic tools.

## Footnotes

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**Conflict of Interests:** Both authors are employees at the University of Zakho and have no personal or professional relationship with any commercial medical companies.

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