Notes from the Field

A Nosocomial COVID-19 Outbreak Initiated by an Infected Dockworker at Qingdao City Port — Shandong Province, China, October, 2020

Qun Yuan1; Zengqiang Kou1; Fachun Jiang2; Zhongjie Li3; Lijie Zhang3; Huihui Liu3; Xiang Zhao4; Dianmin Kang1,#; Ruqin Gao2,#; Jie Lei1,#

On October 10, 2020, 3 cases of coronavirus disease 2019 (COVID-19) were detected via routine pre-admission nucleic acid screening of inpatients and their visitors at Qingdao Central Hospital. The 3 cases were all related to the Qingdao Chest Hospital. An additional 9 cases were discovered and confirmed through tracing and testing contacts of the 3 initial cases. Viral isolates from all 12 cases were found to have high degrees of genetic homology with the viral isolate from a dockworker at Qingdao Port, referred to as Patient A in this report. A joint investigation team was formed to determine the source of infection and the scale of the outbreak, and to prevent further spread of the virus.

On October 11, all inpatients, visitors, and hospital staff who had been at Qingdao Chest Hospital after September 1 underwent COVID-19 virus nucleic acid screening; close contacts of the cases were traced and provided medical care in isolation. An additional 9 new confirmed cases of COVID-19 were found, for a total of 12 cases. Among these, 7 were tuberculosis (TB) patients in Qingdao Chest Hospital, 3 were visitors of the tuberculosis patients, and 2 were family members of the tuberculosis patients or visitors. From October 11 to 17, more than 200,000 people from the community where the initial patients resided and residents of the surrounding areas were screened with PCR testing. Subsequently, all Qingdao City residents were tested. In total, 10.92 million people were tested, and no additional cases were found. Close contacts of all cases, close contacts of the close contacts, and all staff of Qingdao Chest Hospital and their visitors underwent a total of 5 nucleic acid tests each; all tests were negative. As of October 20, no new cases have been detected in Qingdao.

This outbreak was likely an in-hospital infection caused by a lack of standardized disinfection of the hospital’s CT room. Recommendations have been...
FIGURE 1. Phylogenetic tree based on the genome sequences of the COVID-19 virus. The genome of the COVID-19 virus from 5 patients infected at Qingdao Chest Hospital and Patient A were highlighted in shades of orange and yellow, respectively.
made to strengthen the prevention and control of nosocomial COVID-19 infections to prevent transmission at these COVID-19-designated medical institutions.

Acknowledgements: The authors would like to thank all the team members in the nation-province-prefecture joint investigation team for their contribution to this article.

doi: 10.46234/ccdcw2020.224

* Corresponding authors: Dianmin Kang, dmkang66@163.com; Ruqin Gao, gaoruqin@sohu.com; Jie Lei, leijieatepi@vip.sina.com.

1 Shandong provincial Center for Disease Control and Prevention, Jinan, Shangdong, China; 2 Qingdao prefecture Center for Disease Control and Prevention, Qingdao, Shangdong, China; 3 Chinese Center for Disease Control and Prevention, Beijing, China; 4 National Institute for Viral Disease Control and Prevention, China CDC, Beijing, China.

3 Joint first authors.

Submitted: October 20, 2020; Accepted: October 22, 2020

REFERENCES