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Letter to the Editor

A joint infection control system is needed in mental health institutions during outbreaks of major respiratory infectious diseases

Faced with the novel coronavirus disease (COVID-19) pandemic, vulnerable populations including the aged, children, pregnant women, and psychiatric patients have been widely concerned.^{1–3} To protect psychiatric patients, mental health institutions in China have established measures to prevent and control nosocomial infections. However, the capacity of one institution in the combat against such a pandemic is limited. Effective prevention and treatment of COVID-19 for psychiatric patients demand cooperation between multiple institutions within a region. Here, we take, for example, the cooperative practice of COVID-19 infection control in the regional mental health union in Chengdu, China, to address the initiation of a joint infection control system across mental health institutions during outbreaks of major respiratory infectious diseases.

During the COVID-19 outbreak, effective protection for psychiatric patients in Chengdu has been realized based on cooperation between member institutions of the Chengdu mental health union. Firstly, a system of COVID-19 prevention and control measures was established by Chengdu Mental Health Center (CMHC), an A-category psychiatric hospital in China with the annual outpatient number of more than 350,000 and annual inpatient number of more than 10,000. Based on this strategic system, CMHC has prevented its patients and staff from nosocomial infection and meanwhile provided instructions for member units, including 15 primary-level mental health institutions, 3 comprehensive hospitals with psychiatric inpatient wards, and 395 community health service centers/township hospitals, leading to effective infection control in the union with no suspected or confirmed cases of COVID-19 infection due to hospital transmission. On the other hand, as a hospital designated for suspected and mild cases of COVID-19-infected psychiatric patients in Chengdu, CMHC has cooperated with member units and comprehensive hospitals designated for COVID-19 treatment, covering procedures for consultation, referral, and joint treatment to achieve seamless connectivity and optimal and quickest control of both COVID-19 and psychiatric symptoms.

Furthermore, under the guidance of CMHC, primary-level mental health institutions have advised and supported community health service centers/township hospitals on scattered management of home-based psychiatric patients to prevent clustered infection and social instability. While ensuring effective prevention and control of COVID-19 transmission, CMHC and primary-level mental health institutions have provided onsite and online psychological intervention services for preclassified hospitals and populations in different districts of their community to develop a facilitative environment in the fight against the pandemic.

The cooperative practice in the Chengdu mental health union during the COVID-19 outbreak has an important implication for regularization of joint infection control for major respiratory infectious diseases across mental health institutions. In a city or an equivalent administrative region, there should be a joint infection control network of three levels of institutions (Fig. 1). The top level is a large-scale psychiatric hospital, such as CMHC, integrating medical treatment, education, research, and prevention. The second level consists of small- and medium-sized psychiatric hospitals or comprehensive hospitals with psychiatric inpatient wards. The third level includes community or township health service centers.

The first level plays the central role in the structure, with its strong specialty and a certain degree of comprehensiveness. It should be a hospital designated for suspected and confirmed cases of infected psychiatric patients in the region. Therefore, an independent department of infectious diseases is necessary. The building layout and facilities of this department meet national requirements, e.g. *Requirements of Environmental Control for Hospital Negative Pressure Isolation Ward* (GB/T 35428-2017)⁴ and *Technique Standard for Isolation in Hospital* (WS/T 311-2009).⁵ Medical staff in the department is mainly composed of specialists in epidemiology and psychiatry and also includes a multidisciplinary team of severe medicine, clinical pharmacist, nutrition, and so on. In non-epidemic periods, it admits hospital or community acquired infection patients with mental disorders. During outbreaks of major respiratory infectious diseases, it immediately functions as specialized area for suspected or infected cases of psychiatric patients. The establishment of such a department in the psychiatric hospital promotes 'one-stop' service for psychiatric infections.

The second level is the intermediate hub connecting the top and bottom levels. In non-epidemic periods, institutions at this level admit or transfer patients mainly regarding their psychiatric phases. During epidemic outbreaks, they screen suspected cases in psychiatric patients to keep patients in hospital for observation or transfer them to designated treatment hospitals. These institutions also support and advise the third level on epidemic prevention under the guidance of the top level.

Community or township health service centers, the basic level in the network, are responsible for supervising rehabilitation and home management of non-acute psychiatric patients. During epidemic outbreaks, they take care of severe psychiatric patients at home and provide medicine delivery service and online treatment for those living in closed management areas. They conduct preliminary screening for psychiatric patients having a common fever and those having a fever caused by major respiratory infectious

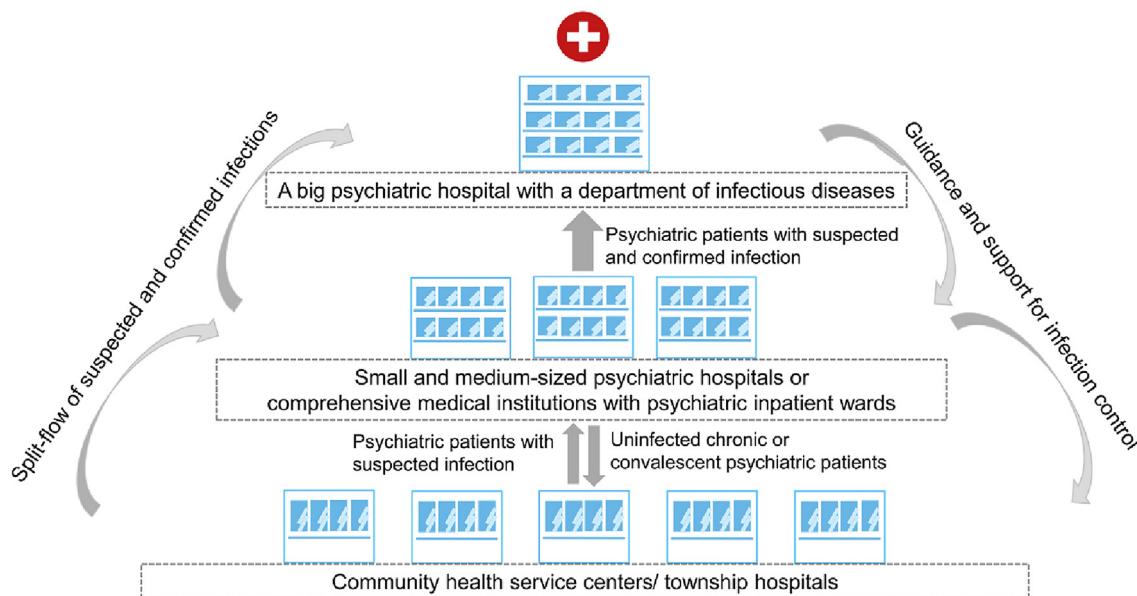


Fig. 1. The joint infection control network and functions of different levels.

diseases and transfer patients with a common fever to the second level and suspected cases of the infectious diseases to the first level.

To sum up, infection control practices in the COVID pandemic provides mental health institutions a new insight in effective protection of vulnerable patients. In the future, professional experience can be combined with data modeling and machine learning to initiate a joint infection control system with high effectiveness and responsiveness.

Author statements

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References

1. Kuwahara K, Kuroda A, Fukuda Y. COVID-19: active measures to support community-dwelling older adults. *Trav Med Infect Dis* 2020. <https://doi.org/10.1016/j.tmaid.2020.101638>. 101638.
2. Liu H, Liu F, Li J, Zhang T, Wang D, Lan W. Clinical and CT imaging features of the COVID-19 pneumonia: focus on pregnant women and children. *J Infect* 2020;**80**: e7–13. <https://doi.org/10.1016/j.jinf.2020.03.007>.

3. Zhu YH, Chen LL, Ji HF, Xi MM, Fang YR, Li Y. The risk and prevention of novel coronavirus pneumonia infections among inpatients in psychiatric hospitals. *Neurosci Bull* 2020;**36**:299–302. <https://doi.org/10.1007/s12264-020-00476-9>.
4. *Requirements of Environmental Control for Hospital Negative Pressure Isolation Ward: GB/T 35428-2017. General administration of quality supervision, inspection and quarantine of the people's Republic of China. Standardization Administration of the People's Republic of China; 2017.*
5. *Technique standard for isolation in hospitals: WS/T 311-2009. Ministry of Health of the People's Republic of China; 2009.*

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