

# Shenzhen' Experience on Containing 2019 Novel Coronavirus- Infected Pneumonia Transmission

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The first Novel Coronavirus (SARS-CoV-2)-Infected pneumonia (NCIP) patient outside Hubei Province was found in Shenzhen on January 16, 2020. It was an imported case from Wuhan city<sup>[1]</sup>. As the largest migrant city in China, there are 1,030,000 migrants from Hubei Province, with 110,000 from Wuhan<sup>[2]</sup>. At present, the number of infected cases (416 cases) in Shenzhen ranks top three in China outside Hubei. However, before the outbreak of NCIP, Shenzhen municipal government and hospitals had proactively taken forceful measures, which prevented the disease transmission in a powerful way at an early stage. As of February 20, Shenzhen has not seen locally newly confirmed cases. Our hospital—Huazhong University of Science and Technology Union Shenzhen Hospital has not received newly confirmed cases for 30 days till March 11. Meantime, till now, no medical workers have been infected. However, when the epidemic is under control and the number of newly added patients is dropping dramatically in China, the number of affected countries has tripled. There are 118,000 cases in 114 countries and 4,291 people have lost their lives. Many medical workers have been infected and died. WHO made the assessment that COVID-19 can be characterized as a pandemic on March 11, 2020. We think that the epidemic prevention and control in Shenzhen are encouraging is partly because we acted ahead of time and have done a lot of work as below, so we hope to share our experience and help countries to combat the epidemic.

First, with the successful experience of combating SARS in 2003, our hospital attached great importance to NCIP. Since January 3, we have canceled all academic exchange activities with Wuhan. On January 15, 2020, we set up independent fever clinics and precheck clinics. Meanwhile, we designed a special route to access to medical services for fever patients to avoid cross infection in inpatient and outpatient departments. We also developed a dedicated workflow to cope with fever and suspected cases of NCIP. For example, the infected patients are accompanied by specially-appointed staff to go out for check to ensure that they are within the confined area. Therefore, the patients isolation and restrictions on crowd are very important. Many countries and cities have stopped crowd gathering, closed schools, entertainment venues and even ports, as this is crucial to restrict the SARS-CoV-2 transmission. Second, we paid great attention to the protective measures of the medical staff. Even when the medical supplies were insufficient, adequate protection for front-line staff was guaranteed with different protective

articles for different posts to prevent medical staff from infection. Greater emphasis was not only placed on the protection of health-care workers who have direct contact with NICP patients from the departments of infections, respiration, ICU and fever clinic, but also the protection of those from the department of skin and mucous membrane barrier, especially from the departments of stomatology, ophthalmology, digestive tract and endoscopy. We stressed the standards of wearing PPE (personal protective equipment), including protective masks and goggles in order to avoid the tragedy that three ophthalmologists from a hospital in Hubei Province died after being infected inside the hospital. Third, we carried out protection training for all medical workers on a regular basis, including wearing and taking off face masks and protective appliances, hand hygiene, how to enter the potential contaminated area from the contaminated area and then to the clean area, strengthening the training of hospital-acquired infection control knowledge, awareness of prevention and control. Fourth, we placed great importance in the health of medical workers and thus adjusted the working mode during the outbreak, especially when there were a large number of fever patients and a great deal of work. The fever clinic adopted a 4-6 hour shift of rotation so that doctors in the fever clinic can have meals on time, go to the toilet in time and take adequate rest. Meantime, we guaranteed sufficient nutrition for meals so as to avoid decreased resistance due to disordered life pattern and overwork and, reduce the risk of infection. Moreover, we conducted body temperature monitoring and epidemiologic history investigation on all staff. Those with abnormal body temperature will be conducted with oropharyngeal swab and RT-PCR test in time. Since January 24, we have monitored 3,700 staffs every day and reported the body temperature BID, totally 45 days till now. Fifth, once a case in our hospital was confirmed, we carried out an epidemiological investigation on all close contacts, such as medical staff, workers and patients to make clear whether they have been infected. Oropharyngeal swab collection and RT-PCR<sup>[4]</sup> and a two-week mandatory quarantine were also required. Sixth, oropharyngeal RT-PCR were performed on all inpatients and newly admitted patients. We paid special attention to patients screening with epidemiological history, fever and respiratory symptoms. We integrated the ward resources and ensure single-room isolation for all inpatients. Despite the lack of supplies, it was guaranteed that patients wore masks and washed hands thoroughly and carefully. Seventh, suspended general outpatient services such as stomatology, E.N.T. and rescheduled operation to reduce potential risk of virus spread, and only emergency calls and surgery were maintained. Eighth, suspended selective operations and integrate wards. In two days, we established an isolated contagious area which includes a 60-bed fever observation ward and 120-bed inpatient ward. Last, we actively responded to the call of local government by quickly arranging 90 medical staffs to conduct a door-to-door epidemiological survey and throat swab collection for the residents with potential risk history. Totally, we have collected epidemiological data of 9,500 people and 7,732 throat swab specimens, which greatly reduce community transmission of asymptomatic patients.

We believe that routine preparedness, early detection, early diagnosis & treatment, efficient screening and isolation are vigorous and effective measures of containing the outbreak of SARS-CoV-2. Because of this, many companies in Shenzhen have resumed work since Feb. 17. We hope that our experience in combating NICP in Shenzhen will provide assistance in SARS-CoV-2 prevention and control in other places in China and even the world.

## References

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