

Tiered diagnosis and treatment: the key to control the epidemic of COVID-19**Yinghua Chen , Guanhua Xiao, Shaoxi Cai, Yingchun Dai, Guodong Hu**

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Citation: Tiered diagnosis and treatment: the key to control the epidemic of COVID-19. Am J of Viro and Dis. 2020; 2(2): 01-02.

Submitted: 08 July 2020; **Approved:** 14 July 2020; **Published:** 16 July 2020

Since the outbreak of COVID-19 in China in December 2019, this had spread to more than 100 countries worldwide, with 785,428 confirmed cases and 48,591 deaths, and more than 50,000 new cases confirmed each day. Determining how to control this epidemic has become a very urgent issue. From China's experience in effectively controlling this epidemic, tiered diagnosis and treatment was the key to controlling this epidemic.

The first case with SARS-COV-2 pneumonia was recognized in China on December 8, 2019, and the number of cases rapidly increased. By January 23, 23,835 cases were confirmed and 25 patients were deceased in Wuhan. The central government of China realized its seriousness, and closed the city, stopped all kinds of transportation, and forbid people from going in and out of Wuhan. However, the cases in Wuhan still exhibited a rapidly increasing trend. Since January 24, the central government of China mobilized medical staffs from different provinces and cities to Wuhan, in order to support designated hospitals to fight against the COVID-19. As of January 26, more than 6,097 medical workers, who were mostly from the departments of respiratory and critical care medicine, have reached Wuhan, and were allotted to these designated hospitals. However, even with the aid of a large number of medical

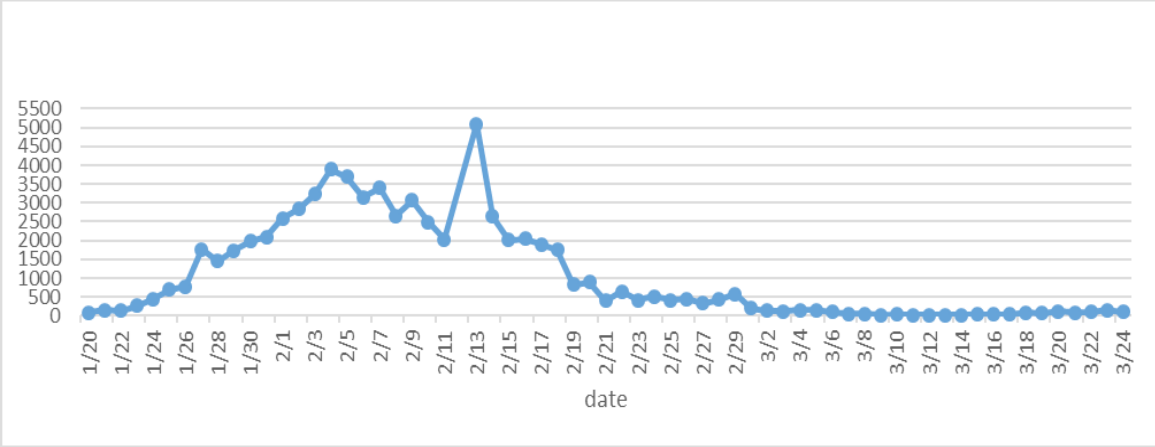
professionals, the number of patients continued to rapidly increase, with a total of 24,363 confirmed cases and 491 deaths as of February 4.

On February 4, Wuhan Vulcan-Mountain Hospital was set up and began to accept critically ill patients who needed to be admitted to the intensive care unit (ICU). Subsequently, on February 5, the first mobile cabin hospital in Wuhan-Jiangnan began to accept mild patients with SARS-COV-2 infection, and several other large mobile cabin hospitals began to follow and be utilized. Thereafter, the tiered diagnosis and treatment organized by the government began to run efficiently, and a large number of mild and asymptomatic patients with SARS-COV-2 positive were allocated to mobile cabin hospitals to avoid family cluster infections due to home-isolation, and the asymptomatic suspected individuals were quarantined in designated hotels. Patients with typical symptoms in need of oxygen support, can be treated in medium-sized district designated hospitals, while patients in critical condition can be treated in Vulcan-Mountain Hospital and other large hospitals. In this manner, the condition of a large number of patients crowding to hospitals was significantly reduced, the hospitals were able to resume the normal working order and status, the pressure on medical staffs was significantly

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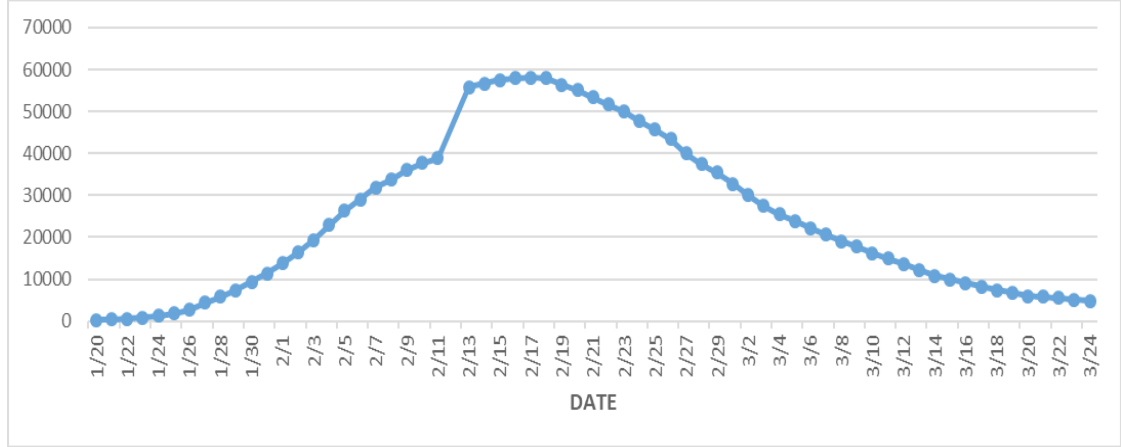
relieved, and the survival rate was further improved. As a result, the number of new patients began to decline, and the number of discharged patients began to increase since February 5. By February 13, the total number of existing patients began to decline. At present, the outbreak has basically become under control. Therefore, tiered diagnosis and treatment was the key to control the epidemic situation in Wuhan, the local government of countries in the crisis of COVID-19 should provide more efforts in its organization and coordination.

Table 1. Trend of the number of newly confirmed cases per day in Mainland China



After February 4, the number of new patients significantly decreased on a daily basis. On February 13, due to the adjustment in diagnostic criteria for confirmed cases, a large number of suspected patients were counted as confirmed patients. Therefore, the number of patients rapidly increased, which should be considered as an exception.

Table 2. Trends for the number of total confirmed cases per day in Mainland China



After a period of time, on February 14, the number of existing diagnoses began to decline, and there was a convergence throughout the outbreak.