



# Xiangya Spirit shines in Wuhan during construction and operation of the cabin hospital for COVID-19 patients

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The alarmingly contagious coronavirus disease 2019 (COVID-19) outbreak occurred in Wuhan in December 2019. In response to the call of China's National Health Commission, the Second Xiangya Hospital (SXYH) of Central South University has sent out 4 teams (with a total of 192 members) to Wuhan to fight directly against the epidemic (1). On February 9, SXYH decided to establish the Front-line Command (FLC) of its National Anti-epidemic Medical Team. During its work in Wuhan, the FLC strictly followed the Xiangya Spirit, or Xiangya Hospital's motto of "Fairness, Bravery, Diligence, Prudence, Honesty, Love, Humbleness, Integrity, Truth, Precision, Profoundness, and Professionalism" and has managed to develop a Xiangya mode for the team's services in the construction and operation of the cabin hospital in Wuchang District of Wuhan.

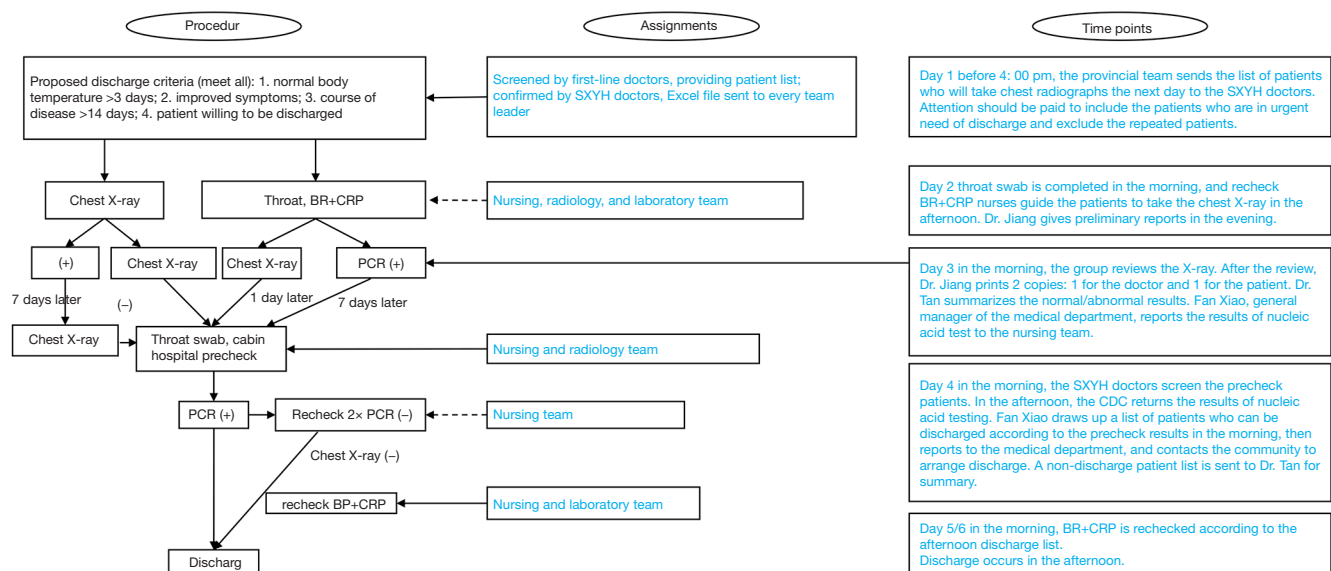
The Central Committee of the Communist Party of China and the Chinese Central government decided to set up cabin hospitals as a solution to overcome the serious bed shortage in Wuhan after the outbreak of COVID-19. However, converting gymnasiums, convention centers, and classrooms/dormitories into infectious disease hospitals posed several challenges in terms of infrastructure, operating rules and policies, teamwork, staff training, and patient diagnosis and rehabilitation (2,3). After receiving orders from the government, SXYH immediately sent its medical team to support the construction of the Wuchang Hongshan Gymnasium Cabin Hospital. The team was the first national medical emergency team outside of Hubei Province that arrived in Wuhan and participated in the construction and

operation of the cabin hospital in Wuchang.

Assigned by the Wuhan Wuchang District government, SXYH was responsible for the medical work in Wuchang cabin hospitals. The FLC of SXYH immediately coordinated with 4 national medical emergency teams from SXYH, Huashan Hospital of Fudan University, the First Affiliated Hospital of China Medical University, and Fujian Provincial Hospital, as well as the medical teams from Hubei Provincial Cancer Hospital and Hubei Provincial Maternal and Child Health Hospital to develop the joint working mechanism and medical quality control standards. The FLC strictly followed the Xiangya Spirit to guide the construction and operation of Wuchang cabin hospitals for COVID-19 patients (4,5), ensuring the multiple teams from the 6 hospitals had clearly defined responsibilities, mutual trust, and good cooperation. A long-term medical quality management mechanism has also been established in Wuchang cabin hospitals (4,5).

## **"Fairness, Bravery, Diligence, and Prudence": the commitment of SXYH**

"Fairness, Bravery, Diligence, and Prudence" is the motto that is rooted in the mind of every SXYH member and reflects and governs their behaviors and action in normal days and during difficult periods. In response to the call of the Central Government, SXYH immediately sent out 42 staff members and 10 vehicles to form the first national emergency medical team to reinforce the fight in Wuhan.



Notes: 1. Definition of the start of course of disease: from the onset of symptoms, or from the day of contact; 2. Normal chest X-ray criteria: normal X-ray at first exam; or improved X-ray at recheck; 3. First-line doctors: doctors from Provincial Oncology and Maternal and Child Hospital; 4. Second-line doctors: doctors from SXYH; 5. Medical team: Kui Xiao; Nursing team: Huilin Zhang; Radiology team: Zhongbiao Jiang; Laboratory team: Lingjun Wen; Medical department: Xiao Fan, Chongqing Tan.

**Figure 1** Discharge process in the Eastern Ward of Wuchang cabin hospital (Area A) designated by the medical team of the Second Xiangya Hospital of Central South University.

The medical team brought protective equipment, daily supplies, and medicine costing 310,000 yuan. All 42 staff members took the initiative to fight against the disease in the front-line hospitals. All the pharmaceutical, medical, nursing, and logistic staff stood fast in their posts, and many of them worked overtime until late at night. The staff members strictly followed the rules of wearing personal protective equipment and obeyed the admission, discharge, and transfer criteria in the cabin hospitals.

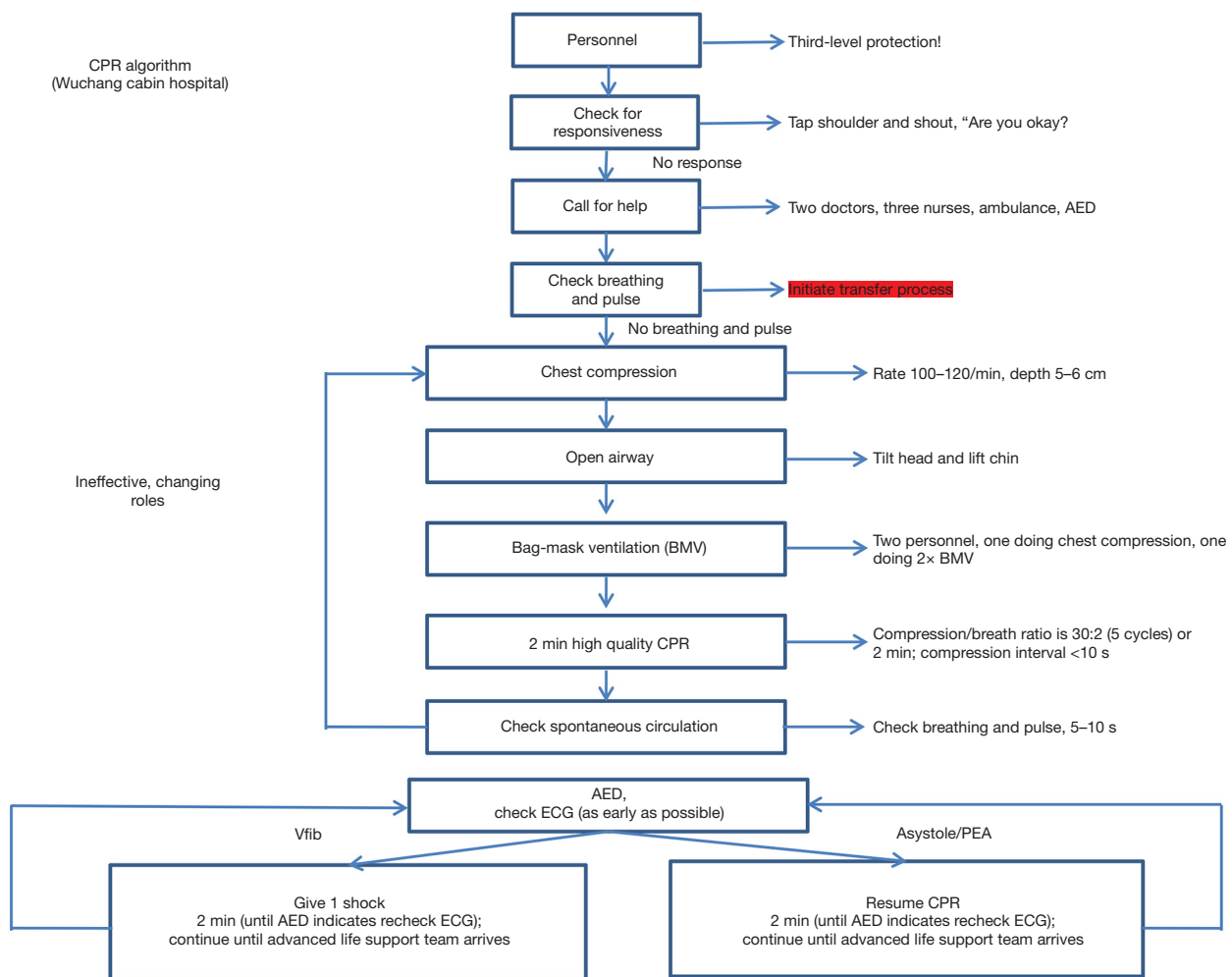
### **“Honesty, Love, Humbleness, and Integrity”: the humanistic feelings of SXYH**

“Honesty, Love, Humbleness, and Integrity” are the principles guiding the behavior of medical practitioners in Xiangya, reflecting the noble qualities of medicine that are different from other disciplines. After internalization with mind and externalization with practice, these words urge every medical practitioner to follow high moral standards that are “even close to the Buddha”. Medical staff from SXYH sincerely managed patients in the cabin hospitals by meeting their medical demands and living needs. A series of psychological counseling manuals including *Into the Cabin* and *Out of the Cabin* were developed and distributed to the patients and medical staff, which have dramatically

eased the anxiety and panic of the target readers (5). The nursing team has completed 14 training sessions on throat swab collection for over 450 nurses in the cabin hospitals via lectures, simulation operations, and on-site teaching. The Department of Infectious Diseases carried out training on nosocomial infection for 15 groups of over 350 medical staff in cabin hospitals (6,7). The staff from SXYH kept an open mind to all knowledge and techniques that could be conducive to epidemic prevention and control. The team strictly followed all the rules and discipline measures during disease control, especially the “Nine Do-nots” released by the National Health Commission of China.

### **“Truth and Precision”: the academic rigor of SXYH**

Pursuing the truth, seeking its roots, and confirming it with real-world data, has long been the academic style in SXYH. When the medical team arrived in Wuchang cabin hospital, it immediately established the pre-screening triage and ward-rounding procedures and chaired the development of a series of hospital rules and policies including regular medical meetings, consultations for difficult cases, total duty system, admission/discharge/transfer policies, duty/shift policy (Figure 1), electronic medical record writing,



**Figure 2** Cardiopulmonary resuscitation (CPR) procedure in Wuchang cabin hospital designated by the medical team of the Second Xiangya Hospital of Central South University.

and throat swab specimen collection and delivery processes for coronavirus test (5-7). The medical team was the first to offer the radiology and laboratory test services in the cabin hospital. Up to now, 320 X-ray scans and 234 computed tomography (CT) scans have been completed, and routine blood tests and C-reactive protein tests have been performed for 486 person-times. These services have effectively enabled disease assessment and discharge evaluation. Since most of the confirmed mild cases in the cabin hospital were middle-aged and elderly individuals with some underlying conditions, the medical team formulated a rescue and referral plan for patients who had become critically ill due to abnormal blood pressure/blood glucose, arrhythmia, acute myocardial infarction, and cardiac arrest/respiratory arrest, so as to ensure patient safety (Figure 2).

At present, the SXYH medical team in the Wuchang cabin hospital is responsible for 249 inpatient beds. A total of 408 patients with mild COVID-19 have been diagnosed and treated, 60 critically ill patients have been transferred, and 196 patients have been cured, yielding a cure rate of 48%, which was the highest among all the medical teams working in different cabin hospitals.

### **“Profoundness and Professionalism”: maintaining responsibility**

SXYH staff steadfastly advance their profession. They continuously inherit and refresh the traditional spirit, being more innovative and creative in daily work. The SXYH staff are determined to treat difficult and complex

cases and alleviate the disease and pain of patients. With cutting-edge medical science and technology, medical staff members in SXYH have striven to reveal the unknown and break any bottleneck, ensuring the core competitiveness of SXYH in the global arena. After beginning its work in the management of mild COVID-19 patients in the cabin hospital, the FLC of SXYH has been focusing on psychological counseling for medical staff and patients, with an attempt to achieve more active and effective doctor-patient cooperation. The nursing team set up a “counseling bar” in the cabin hospital, offering person-centered counseling to the patients. Patients were encouraged to carry out a variety of physical exercises, along with singing patriotic songs and reading books. The SXYH medical team is constantly carrying out policy innovations and scientific research by making the most of the equipment and medical records in the cabin hospitals and cooperating with other national medical emergency teams.

### **Xiangya Spirit rooted in its hundred-year history**

The Xiangya Spirit is a magnificent medical epic that was written over a century ago. It also embodies the unique thinking and wisdom of the Xiangya people in different periods. In 1910, when Dr. Yen Fu-Ch'ing graduated from Yale University, Dr. Edward Hicks Hume founded the Yale Hospital in Changsha. Four years later, the Hunan-Yale Medical College was founded, marking the beginning of its century-long legend. The college enrolled students based on the principle of Three Strict, laying a solid foundation for the Xiangya Spirit. After the outbreak of the War of Resistance (1937-45), President Zhang Xiaoqian and all the teachers and students of Xiangya were forced to leave Changsha and relocate to different cities and villages; however, they never changed their commitments to developing modern medicine and training medical talents. Xiangya Spirit was fundamentally reshaped during the hard years of war. Finally, a 16-character college motto of “Fairness, Bravery, Diligence, Prudence, Honesty, Love, Humbleness, Integrity, Truth, Precision, Profoundness, and Professionalism,” was adopted. As the spiritual core of the Xiangya people, the motto is a constant reminder to all the staff at Xiangya College and hospitals to behave with a personality of fairness, courage, diligence, prudence, integrity, fraternity, humility, and honesty; when practicing medicine, each Xiangyanese person must keep exploring, innovating, and striving for truth and triumph. After the founding of the People's Republic of China, the Xiangya

Spirit has been revitalized after the efforts of several generations of Xiangya people under the leadership of the Communist Party of China and the Chinese government.

### **Practicing the Xiangya Spirit in the fight against COVID-19 outbreak**

The Xiangya Spirit was applied in guiding the services in Wuchang cabin hospitals including the infrastructure construction, establishment of rules and policies, cooperation among medical and nursing teams, staff training, and diagnosis and rehabilitation of patients, with outstanding achievements.

According to the FLC, each person from Xiangya must actively obey the central government's COVID-19 prevention and control strategy with a “fair and open” mind. The establishment and operation of the cabin hospital requires the close cooperation of multiple departments and teams, and being “fair” is particularly important. When our country encounters difficulties, each Xiangyanese person, especially the Communist Party members and hospital managers, must come forward to take up responsibilities and duties. With a high sense of responsibility during the fight against the COVID-19 epidemic, we must remain diligent and dedicated as any detail can determine the success of disease prevention and control. During the pre-screening triage and cabin rounds, medical staff must be fully protected and work with reasonable caution. Medical staff should treat patients sincerely and cordially, and any promise must be fulfilled. Patients should be served with humane care, while care and tolerance should also be given to colleagues from SXYH and other hospitals. It is important to learn from others, even from the new coronavirus, because adequate knowledge about the disease must be learned before the virus could eventually be defeated (8-10). Integrity and self-discipline, regardless of time and place, must be strictly obeyed by each Xiangyanese person. All the equipment, supplies, and donations must be utilized in an open and reasonable manner.

According to the FLC, COVID-19 is an unprecedented challenge for the whole world. It requires the joint efforts from medical staff on the front line and scientific researchers in the rear to unveil the mystery of this elusive virus. The “truth-seeking” approach against the epidemic roach to treating COVID-19 will be helpful to identify the transmission routes, pathogenic mechanism, clinical manifestations, and diagnostic methods of this virus and find effective treatments for COVID-19. Furthermore, we

must recognize that the fight against the epidemic might last a long period of time and require arduous endurance. “Profoundness and Professionalism” has long been rooted in the mind of every Xiangya person. We must enhance scientific research to learn the nature of this fatal virus. Facing this novel coronavirus, we need to summarize our experiences in treating COVID-19 and propose treatment protocols with Xiangya characteristics (11,12).

Guided by the Xiangya Spirit of “Fairness, Bravery, Diligence, Prudence, Honesty, Love, Humbleness, Integrity, Truth, Precision, Profoundness, and Professionalism”, the medical teams of the SXYH in Wuchang cabin hospital have made great contributions in venue renovation, ward construction, policy development, and staff training. An effective working mode focusing on prevention of nosocomial infection, integration of traditional Chinese medicine with western medicine, psychological counseling, adoption of both medical and surgical treatments for both adult and pediatric patients, establishment of medication policies, and improvement of the participation of the Communist Party in clinical services has been established (13). At present, the policies and work flow of Wuchang cabin hospital, which were developed under the leadership of SXYH, have been recognized by Wuhan City as the templates for all cabin hospitals.

## Conclusions

In summary, the Xiangya Spirit has inspired generations of Xiangya people, whether in relieving earthquake disasters or fighting against epidemics such as SARS and COVID-19, the Xiangya Spirit plays a key role and is refreshed in the management of COVID-19 patients in Wuchang cabin hospitals. The establishment and operation of the cabin hospitals has played an important role in the rescue of numerous patients during the large-scale COVID-19 outbreak, which was also a great initiative of the Chinese government in the field of prevention and control of major infectious diseases.

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## Footnote

*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/jxym.2020.03.03>).

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*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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