

China's Fight Against COVID-19

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Editor's Note:

This report, the result of an extensive collection of experts' and scholars' opinions as well as a meticulous compilation of authoritative documents, is a public research project by the joint efforts of media groups and scientific research institutions for the express purpose of objective reflection of China's practices and measures to combat the COVID-19 outbreak.

Due to time and authorial limits, the research is not perfect and will need continuous updates and improvements, particularly given the rapid changes in the pandemic situation and new progress in the fight against it.

It is best viewed as an early attempt to summarize China's practices in combating the COVID-19 pandemic, a trailblazer in the hope of clearing the path for better ones later, to continue — in the spirit of respecting science, universal rules and common practices — the chronicling of our experience as human beings in overcoming this major infectious disease.

Editorial Team of "China's Fight Against COVID-19"

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Index

I. Universal consensus and public mobilization | 1

- Timely release of information
- Dissemination of knowledge about prevention and control
- Public opinion guidance and support by mainstream media
- Universal participation with social cohesion

II. Social isolation and traffic control | 5

- City lockdown and transport freeze in hardest-hit areas
- Differentiated traffic controls in less severe areas
- Tactics to prevent social gathering and cross-infections
- Community isolation basic line of defense

III. Screening, testing and dynamic monitoring | 8

- Thorough screening at communities
- Improving virus testing
- Establishing a dynamic management system
- Intensifying epidemiological investigation
- Handling four groups for specific treatment

IV. Treatment plans and scientific research | 14

- Dual goals of containing the source of infection and extension of treatment
- Better treatment plan and better treatment method
- The positive role of TCM in treatment through preemptive prevention, differentiated medication and multi-target intervention

V. Allocation of resources and guarantee of supplies | 18

- Hubei gets national health workforce support
- Tremendous efforts made in medical supplies manufacturing
- Coordinated allocation of daily necessities

VI. Command system and strategic policies | 23

- The top decision-making mechanism and fundamental strategies and policies
- Efficient execution mechanisms and comprehensive countermeasures

Glossary | 29

Experts' view | 32

Acknowledgements | 38

Abstract

After the outbreak of COVID-19, the Chinese government gave top priority to the fight against the virus and put the people's lives and health before everything. President Xi Jinping has led the whole nation in a people's war of prevention and control against the virus. The "wartime-like" command mechanism and the strategies formulated in accordance with the ground reality offered strong leadership.

The Chinese government has upheld the principle of relying on the people and considered keeping them well informed as a key element to build consensus between the government and the public. Thanks to their social responsibility and trust in the government, the people took an active part in fighting the epidemic with a united will. The flexible and humanized social management and non-medical intervention featured by standard quarantine measures became key factors for containing the spread of the virus. The screening, test and supervision measures and epidemiological investigation proved to be crucial in cutting off the chain of virus transmission. By assorting hospitals based on utility, differentiating patients and the treatments they received based on their conditions, and integrating traditional Chinese medicine into therapy, China sharply decreased the infection rate and fatality rate, and at the same time raised the recovery rate. Meanwhile, China made full use of the advantage of its social system, allocated resources with high efficiency across the country and secured much-needed logistics support. With the whole nation's efforts to fight the battle of protecting Hubei and Wuhan, China has made initial achievements in prevention and control of the virus. Based on its own national situation, China has explored a set of practices and methods in the prevention and control of disease as well as the treatment of patients.

China's Fight Against COVID-19

COVID-19, which has spread rapidly and enveloped most of the world, is a global public health crisis the likes of which we have not seen in a century. After the outbreak, the Chinese government adopted the most comprehensive, stringent and thorough prevention and control measures in an attempt to bring the virus under control. With great courage and will, the spread of the virus has almost been tamed, marking an initial triumph for the country.

As most of the world struggles to cope, China — by analyzing its experiences and summarizing its achievements — has been searching for an optimal approach. The country has been trying to explore a set of practices and approaches that can be effective in curbing the spread of the virus and curing the infected.

China Watch Institute, a China Daily think tank, interviewed more than 60 Chinese and international public health experts and scholars in other fields to compile this report in collaboration with the Institute of Contemporary China Studies at Tsinghua University and the School of Health Policy and Management at Peking Union Medical College. This report presents a preliminary summary of what China has achieved in its fight against the virus.

I. Universal consensus and public mobilization

To deal with such a pandemic, it is essential to fully understand the situation and mobilize the general public to do whatever is required of them.

On the one hand, Chinese authorities released timely data in an open, transparent and responsible manner to provide people with dynamic, clear and

important information so that they could fully understand the government's policies, strategies and measures to deal with the epidemic. Making sure "the public is fully informed" is key to establishing strong social consensus.

On the other hand, with a strong sense of social responsibility and trust in the government, people actively participated in the nationwide fight against the virus: a "people's war" powered by a united will. Relying strongly on people is a key component in "winning the war".

1. Timely release of information

— A daily news release mechanism was established to publish vital information. In the two months after the outbreak, the Information Office of the State Council, Hubei province, the hardest hit area in the country, and other departments held nearly 200 press conferences; other provinces and municipalities have also done the same. The live broadcasts updated the public with the latest developments and addressed public concerns at home and abroad.

— A daily report system was launched to provide accurate and comprehensive data. The National Health Commission announced on its websites and other platforms the numbers of new confirmed, suspected,

Table 1: Cumulative cases in China

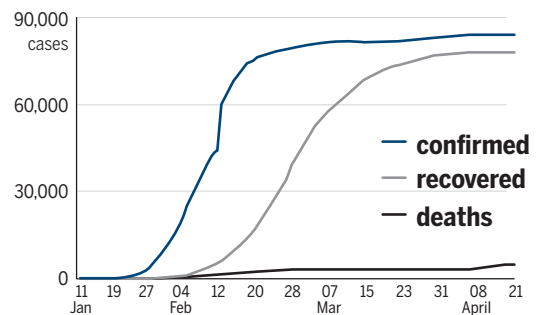


Table 2: New daily cases in China

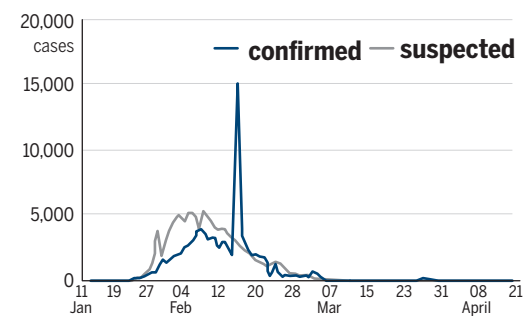
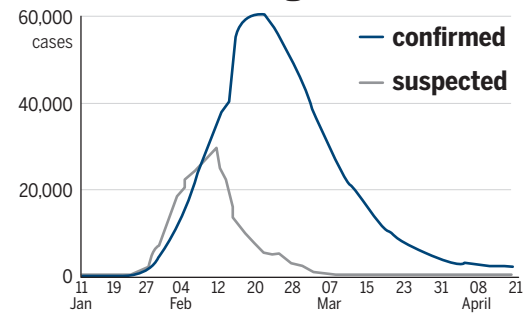


Table 3: Remaining cases in China



recovered, discharged cases and deaths, the number of people who have had close contact with confirmed cases and under medical observation, and the updated number of asymptomatic cases, as well as similar data in Hong Kong, Macao and Taiwan.

— The revision of COVID-19 statistics was made in accordance with law. In the early stages of the outbreak, due to unverified deaths at home as a result of the lack of hospital capacity and incomplete registration, there were late, repetitive, erroneous and missing reports.

After the outbreak was basically brought under control, Wuhan organized an epidemiological investigation with the help of big data technology and based on that, the city revised the numbers of confirmed cases and deaths. The number of deaths added was 1,290, bringing the total number to 3,869 in the city.

— The “epidemic map” was updated in real time to display figures on infections and deaths. All regions could refer to the map, which is supported by big data technology, for the precise location and number of infection cases in a specific community to respond in quick time and promptly formulate traffic control and other measures.

2. Dissemination of knowledge about prevention and control

— Key opinion leaders played a major role in raising public awareness of scientific prevention and control. Scientists and research institutions regularly released professional opinions and suggestions via press conferences, interviews and the internet and widely promoted simple but effective self-protection measures such as wearing face masks, washing hands regularly and ventilating rooms.

— Practical and feasible prevention and control guidelines were also issued. The National Health Commission published six public prevention guidelines for general occasions, travel, family, public places, public transport and medical observation at home, as well as a question-and-answer manual specifically for rural residents.

The Chinese Center for Disease Control and Prevention published a “Guideline for Public Prevention of Pneumonia caused by Novel Coronavirus” which helped the public understand prevention methods and answered their questions about individual and family preventive measures, medical observation at home, medical treatment and psychological counseling.

— Psychological intervention was also used to guide the public to get through the trying times. The National Health Commission issued “Guiding Principles for Emergency Psychological Intervention for Pneumonia caused by the Novel Coronavirus” and a notice on psychological assistance requiring all localities to establish a hotline specifically to offer psychological help. Universities, online hospitals and related companies also opened psychological support hotlines and online counseling services.

3. Public opinion guidance and support by mainstream media

— The news media gave full publicity to the government’s major policies and decisions. The mainstream media reported on the achievements in the fight against the virus and updated the public on what was to be done. They covered moving stories of frontline medical workers, community workers, volunteers, police officers and other officials. These stories inspired an increasing number of citizens from all walks of life to participate in prevention and control efforts across the country.

— Mass communication and digital media used their strengths to allay people’s anxiety and fear. In addition to releasing a large amount of authoritative information on multiple channels, they also revealed existing problems, helped find solutions and answered major public concerns in terms of anti-epidemic work, logistic support, development of vaccines and public donations. Many set up special columns on their platforms to interpret the situation, analyze data and research, predict trends and promptly debunk rumors with credible facts and detailed data.

4. Universal participation with social cohesion

— The people's active response to the government's call and their cooperation resulted in the entire society participating in efforts by government organs and social organizations. With solidarity and the experience of fighting the severe acute respiratory syndrome, or SARS, in 2003, government institutions, enterprises, social organizations, communities, volunteer groups, families and individuals all united as one.

— Citizens' self-discipline and their willingness to sacrifice facilitated the smooth implementation of prevention and control measures. Be it lockdowns of key areas, tight management of communities, home isolation or self-quarantine, family and personal hygiene habits or social distancing requirements, people laid a solid foundation for effectively reducing the rate of infection.

— Community-based management has been a key factor for curbing the spread of the virus. As an extension of governance for social management, 4 million community workers, together with volunteers, visited 650,000 urban and rural communities across the country to communicate epidemic prevention knowledge, offered psychological counseling and helped households receive daily necessities. They helped provide dragnet screening of potential virus carriers, made sure every corner was disinfected and helped millions of households with difficulties in making a living.

II. Social isolation and traffic control

China has huge people flows. In the absence of vaccines or treatment protocols, self-isolation, as a standard quarantine measure, proved to be the most effective non-medical means to stop the spread of the virus. China mobilized an unprecedented large-scale public health response, with "upstream interception" in

areas with severe outbreaks to cut off the source of infection and “full prevention and control” in other areas. The exceptional measures of social isolation and the discretionary and humane approach to social control stalled the spread of the virus and proved to be the most critical factor throughout the country.

1. City lockdown and transport freeze in hardest-hit areas

— Outbound travel was suspended and tight restrictions were imposed in Wuhan and Hubei province to cut off the virus’ transmission as much as possible. Ferry, long-distance passenger transport, air and rail links were suspended in Wuhan and Hubei, and all passenger transport to Hubei stopped. A total of 1,501 traffic checkpoints were established in Hubei province, at highway toll gates and road crossings in cities, counties and villages, including 51 in Wuhan and 1,450 in other cities and prefectures, to stop the virus from spreading to the rest of the country and rural areas with relatively poor health infrastructure within the province. Starting January 23, the citywide lockdown of Wuhan, a metropolis of 11 million permanent residents, lasted 76 days.

— Intra-city public transport in Wuhan and many other cities in Hubei was suspended. Wuhan suspended the operation of buses, subways, ferries and long-distance buses. Except for anti-epidemic vehicles, vehicles for transporting daily necessities, and special vehicles used for firefighting, emergency rescue, sanitation and police patrol, all other vehicles were barred from the road. Other areas in Hubei also carried out similar measures depending upon conditions.

2. Differentiated traffic controls in less severe areas

— Differentiated traffic controls were implemented in areas outside Hubei to prevent the outbreak from spilling over. The provinces abutting Hubei built traffic control “isolation zones” around it. Based on risk levels, from low to medium to high, the rest of the country implemented differentiated and region-specific

measures of prevention and control within their jurisdictions to manage local transport services, urban public transport (including rail transit), and taxis (including e-hailing service).

3. Tactics to prevent social gathering and cross-infections

— Public places for entertainment and leisure such as cinemas, theaters, internet cafes and gyms were closed. At public places that had to be open — including stations, airports, docks, agricultural markets, shopping malls, supermarkets, restaurants and hotels, and in transport such as cars, trains and airplanes, measures like sanitation, disinfection, ventilation, inspections and crowd limits were in place. People had to wear face masks and have their temperature checked before entering these facilities.

— Working from home and distance education were promoted. Public gatherings were either canceled or postponed. Government agencies, public institutions and enterprises implemented prevention and control measures to manage employees, adopted more flexibility such as working online, staggered hours and staff rotation. Schools postponed reopening according to the local conditions while training institutions suspended all offline courses and replaced them with online teaching, effectively curbing the flow of 300 million school-related people across the country.

4. Community isolation basic line of defense

— Strict management of residential communities was universally adopted. Wuhan adopted a rigid regimen of community isolation. Entry and exit were forbidden except for medical treatment and epidemic prevention-related activities, while community workers took the responsibility to provide essential goods. Checkpoints were established to screen and register access and temperatures were taken on both entry and exit. Enhanced prevention and control measures were

taken in places such as nursing homes, welfare institutions and mental health institutions.

— People across China stayed at home, following the call for self-isolation. On top of different local requirements like home isolation at the designated time, working from home and online learning, the 14-day home isolation after cross-regional travel was strictly implemented. Non-essential travel was denied even after the end of the isolation period, making an important contribution to cutting off the virus transmission chain.

III. Screening, testing and dynamic monitoring

Screening, testing and monitoring with epidemiological investigation at the core became a key approach to cut virus transmission and provide timely treatment to infected patients.

China laid great stress on epidemic control and prevention at the source, and implemented policies of “early detection, early reporting, early isolation and early treatment” and “testing all who need to be tested, hospitalization of all who need to be hospitalized, isolating and treating all who need to be isolated and treated”. Of the policies, “early detection and early reporting” and “testing and isolating all in need” were a priority, which played an important role in reducing transmission and fatality rates.

1. Thorough screening at communities

— Considering that more than 80 percent of all infections occurred in communities, authorities in Wuhan dispatched more than 80,000 government employees to conduct a thorough survey of all households in the city, which number more than 4 million. Various means such as personal visits, telephone calls and the internet were used. As a result, all confirmed and suspected cases, and

those who had close contact with confirmed cases in communities were identified and transferred to hospitals or other designated places, which helped ensure the elimination of potential sources of infection in communities.

— Nationwide, comprehensive screening in communities was done in all provinces, autonomous regions and municipalities, and door-to-door visits were combined with voluntary checks and reporting by residents. All confirmed and suspected cases, suspected cases with fever, those who had close contact with confirmed cases and residents who returned from badly-hit epidemic areas were registered. All confirmed cases were hospitalized, and those displaying fever symptoms were sent to designated venues for isolation and medical observation, while those who had close contact with confirmed patients were sent to designated quarantine sites such as hotels for medical observation. Later, all people coming from overseas were subject to isolation at designated quarantine sites.

2. Improving virus testing

— Testing was done on all people in need as soon as possible with improved supply of testing kits. With increased production of testing kits, the initial short supply was overcome in the shortest period of time. Authorities expanded the list of institutes certified to conduct such tests by allowing P2 biosafety labs, qualified major hospitals, centers for disease control and prevention and professional testing institutes that could carry out reverse transcription polymerase chain reaction to provide nucleic acid tests so that all suspected cases could be tested. As a result, the daily testing capacity in Hubei province increased from 300 samples at the beginning of the outbreak to more than 20,000, with certified institutes providing round-the-clock testing services.

— Shortening testing cycle and ensuring quality

Initially, slow nucleic acid testing led to difficulties in patients being diagnosed and admitted to hospitals. Testing procedures were streamlined and more institutes

authorized to give such tests. As a result, cases did not have to be reviewed by the Chinese Center for Disease Control and Prevention for confirmation, except cluster cases, to reduce the time needed to confirm infections. Therefore, the test cycle of the virus reduced from six days at the beginning of the outbreak to between four and six hours, and even shorter, later.

Across the rest of the country too, nucleic acid test labs were set up, training for testing workers and managerial staff was stepped up, and improved quality control systems were set in place to improve virus testing ability and ensure precise results.

As most suspected cases display pneumonia-like computed tomography images, clinically diagnosed cases were temporarily considered as confirmed so that they could receive treatment. The measure raised the cure rate of infected patients and reduced the mortality rate.

3. Establishing a dynamic management system

— China promoted an epidemic control and prevention strategy with tailored measures for different areas, and all county-level areas were categorized as low-risk, medium-risk or high-risk based on their population and degree of epidemic prevalence. Low-risk areas took strict measures to prevent imported cases, while getting ready to resume normal life and economic activity. In medium-risk areas, measures were taken to both prevent imported cases and spread of the virus, with resumption of work and production proceeding in an orderly manner. High-risk areas focused their efforts on control and prevention, preventing cases from being exported to other areas and halting the spread of the virus within its own area.

— The focus of epidemic control and prevention was constantly adjusted to meet new challenges such as preventing imported cases and domestic re-infections. A joint-work mechanism comprising different departments such as aviation, customs, public security, health, foreign affairs, border inspection and airports was established to prevent transmission of the virus at the point of first entry. With an

increasing number of asymptomatic cases, it was decided to place all such cases under medical observation in isolation for 14 days at designated sites, and allow them to be discharged only after they test negative twice consecutively.

— Health QR codes were promoted to ensure convenience for residents. Individuals could download health QR codes from government service network platforms to serve as permits for making trips, going to school or work, daily life and accessing public venues. The codes are in three colors — green, yellow and red — and so restrictions could be imposed accordingly. This way, data on epidemic control could be collected precisely.

4. Intensifying epidemiological investigation

— Epidemiological teams were set up to precisely trace and cut off transmission channels. Big data technology and digitalized systems were used to improve preciseness and efficiency of epidemiological investigations. Tracing those who had close contact with confirmed patients was key so that all cases were detected as early and quickly as possible. All asymptomatic cases and those who had close contact with confirmed cases were put under medical observation. During the peak of the epidemic, 1,800 epidemiological groups were set up with five members in each team to thoroughly investigate the movement history of confirmed cases and their close contacts.

— Surveys were conducted among focus groups of people and in key areas, confirmed cases, suspected cases, asymptomatic cases and cluster cases that were identified at various medical institutions, communities and households could be traced and investigated. Abnormal cases found at enterprises that had resumed production and at schools and kindergartens that reopened as well as in nursing homes for elderly people and facilities for the disabled could also be traced and investigated. During the later stages of the epidemic, confirmed cases and their close contacts, suspected cases and people from overseas displaying symptoms of

fever were also traced and investigated.

— Tailored epidemiological investigations were organized to target asymptomatic cases in Hubei province, including its capital Wuhan, and some other provinces. Epidemiological surveys were completed within 24 hours for every asymptomatic case identified. Evaluation was made on whether asymptomatic cases would transmit the virus to other people and the result was made public; in the latter period of the outbreak, a serum antibody epidemiological survey was initiated to provide scientific evidence for targeted control.

5. Handling four groups for specific treatment

— Confirmed patients were hospitalized for treatment based on their conditions as early as possible. Serious patients were sent to designated hospitals for treatment, while those with mild symptoms were sent to designated facilities, including makeshift hospitals, for treatment under isolation.

— Suspected cases were given treatment based on their condition or placed under observation in quarantine. Suspected cases were sent to hospitals for treatment if they were in serious condition, while those with mild symptoms were sent to designated places for isolation if they could not be admitted to hospitals. Cases that tested negative for the virus twice but exhibited clinical symptoms were treated as suspected cases.

— Those with fever were placed under observation in isolation. Fever patients who could not be ruled out to be COVID-19 cases were treated as suspected cases and put under observation in isolation at designated places, but were separated from suspected cases to prevent possible cross-infection.

— Close contacts of confirmed cases were put under observation in isolation at designated places. Some of them may have been asymptomatic but infected so they were put under observation in isolation at designated places.

Table 4. Screening Criteria for Suspected COVID-19 Cases

	Epidemiological history	Clinical manifestations
Suspected Case Diagnosis	<p>① Within 14 days before the onset of the disease, the patient has a travel or residence history in the high-risk regions or countries;</p> <p>② Within 14 days before the onset of the disease, the patient has a history of contact with those infected with COVID-19 (those with a positive NAT result);</p> <p>③ Within 14 days before the onset of the disease, the patient had direct contact with patients with fever or respiratory symptoms in high-risk regions or countries;</p> <p>④ Disease clustering (2 or more cases with fever and/or respiratory symptoms occur at such places as homes, offices, school classrooms, etc. within 2 weeks).</p>	<p>① The patient has fever and/or respiratory symptoms;</p> <p>② The patient has the following CT imaging features of COVID-19: multiple patchy shadows and interstitial changes, particularly at the lung periphery. The conditions further develop into multiple ground-glass opacities and signs of pulmonary infiltration in both lungs. In severe cases, the patient may have lung consolidation and in some rare cases, pleural effusion;</p> <p>③ The white blood cells count in the early stage of the disease is normal or decreased, or the lymphocyte count decreases over time.</p>
Yes	The patient meets 1 epidemiological history and 2 clinical manifestations.	
Yes	The patient has no epidemiological history but meets 3 clinical manifestations.	
Expert consultation	The patient has no epidemiological history, meets 1-2 clinical manifestations, but medical imaging cannot rule out the possibility of a COVID-19 infection.	

Handbook of COVID-19 Prevention and Treatment by The First Affiliated Hospital, Zhejiang University School of Medicine

IV. Treatment plans and scientific research

The sudden outbreak of the epidemic put an overwhelming burden on medical resources and led to treatment delays. The unchecked virus triggered a high mortality rate, posing the biggest challenge in the early fight against the epidemic. In line with the instructions of Chinese leaders to prioritize medical treatment, great efforts were made in Wuhan and the rest of the country to ensure all confirmed cases were hospitalized, early diagnosis made and early treatment provided, concentrated hospitalization implemented and a combination of traditional Chinese and Western medicine used. Hospitals were classified by grades and patients were admitted according to different conditions and symptoms. Treatment was provided free to relieve financial burden, lest the infected who could not afford treatment led to the spread of the virus.

1. Dual goals of containing the source of infection and extension of treatment

— Concentrated hospitalization of patients and increase of hospital beds ensured treatment for all patients who could not be admitted at the beginning of the outbreak. In Wuhan, two hospitals — Huoshenshan and Leishenshan — modeled after the Beijing Xiaotangshan SARS Hospital and each with a capacity of more than 1,000 beds, were constructed in 10 days. Through the construction of makeshift hospitals, the expansion of designated hospitals and the conversion of general hospitals, more than 100,000 beds were added in a short time, and as a result, beds were no longer in short supply. Furthermore, 200 negative pressure ambulances were brought from all over the country to ensure that newly-discovered cases could be treated without delay. All this enabled a large number of patients to be hospitalized and the cure rate was raised.

— Patients with serious and mild symptoms were separated, and a diverse treatment network of makeshift hospitals and designated hospitals was established. Patients with mild and serious symptoms were earlier treated in the same hospitals but later sent to different hospitals for different treatments. Those in serious, or critical, condition were treated in designated hospitals. ECMOs, ventilators and other equipment were supplied to 46 such designated hospitals. At the same time, exhibition centers, gymnasiums and other facilities were converted into makeshift hospitals for patients with mild symptoms. The 16 makeshift hospitals in Wuhan admitted up to 12,000 patients with mild symptoms, accounting for more than a quarter of the infected patients. Through centralized isolation and treatment for patients with mild symptoms, the makeshift hospitals, an important measure designed to cope with infectious diseases, not only facilitated the hospitalization of all confirmed patients but also reduced the chances of cross-infection in communities to a large extent.

2. Better treatment plan and better treatment method

— Treatment plans were tailored according to the severity of symptoms. Inspection teams consisting of academicians and experts were organized to regularly inspect designated hospitals. The experts discussed and evaluated treatment plans for critically ill patients in Wuhan's designated hospitals. Patients with mild conditions were admitted to the makeshift hospitals for comprehensive treatment such as antiviral therapy, oxygen inhalation, and traditional Chinese herbal medication to prevent their condition turning worse. For the more than 80% of severe cases with serious complications, a case-by-case treatment was prescribed after consultation with a multidisciplinary team consisting of experts on infections, respiratory, intensive care, heart, and kidneys and others. In addition, an array of standards was formulated for nursing patients in critical condition, and such measures as inhalation of large amount of oxygen, non-invasive and invasive

mechanical ventilation, and prone posture for better ventilation as well as review of death cases, were adopted to ensure scientific treatment so that the fatality rate was reduced and the cure rate increased.

— Learning from treatment and constantly improving methods for diagnosis and treatment characterized the fight against the virus. On the basis of detailed analysis of preliminary treatment, the second edition of a manual for the management of cases with mild conditions, the third edition of a manual for the diagnosis and treatment of patients in severe and critical condition were formulated, and the fifth, sixth and seventh editions of the protocol for the diagnosis and treatment of COVID-19 were published.

Among them, a chapter on pathological changes was added to the revised version of the seventh edition, supplementing revision to clinical symptoms, diagnostic standards, treatment methods, and discharge standards. Such revisions were conducive to more accurate diagnosis and treatment according to the symptoms of different patients. At the same time, the latest edition added that asymptomatic cases may also be infectious and that recovered patients' plasma could be used in treatment. The seventh edition of the protocol for diagnosis and treatment has been adopted by many countries.

— Clinical treatment and scientific research were combined to strengthen the selection of effective drugs and the research and development of vaccines. Such drugs as favipiravir, chloroquine phosphate and plasma from those who recovered from infections went into clinical trials and timely feedback was obtained. Given there is no effective medicine yet, selected traditional Chinese herbal medicines (including Jinhua Qinggan Granule, Lianhua Qingwen Capsule, Xuebijing Injection, Qingfei Paidu Decoction, Huashi Baidu Decoction, Xuanfei Baidu Decoction) proved to be effective. Breakthroughs were made in the clinical trials of vaccines for COVID-19, plasma therapy and stem cell therapy. The improved treatment plan has significantly reduced the proportion of cases with mild symptoms developing into serious ones, and raised the recovery from 14 to 93 percent.

Table 5. Treatment Venues and Methods Determined by the Severity of the Disease in Wuhan

Clinical Classification	Treatment and Quarantine Venue	Diagnosis and Treatment Methods
Suspected cases	<p>All suspected cases should be treated in isolated rooms or wards in designated hospitals or quarantine zones.</p> <p>Facilities like hotels, guesthouses, and unused factory space can be renovated into backup quarantine areas, supported with essential living, sanitation, and medical infrastructures.</p>	<p>Collected samples should be promptly analyzed.</p> <p>The suspected patient can be ruled out of infection if two consecutive NAT tests, taken with over 24-hours apart, returned negative, and also if the IgM and IgG antibody tests returned negative seven days after the onset of illness.</p>
Mild cases Moderate cases	<p>Confirmed mild and moderate cases were treated at makeshift hospitals or designated hospitals with effective isolation, protection and prevention conditions in place. Multiple confirmed cases can be treated in the same room.</p>	<p>General treatment</p> <ol style="list-style-type: none"> 1. Bed rest and support therapy 2. Closely monitoring vital signs and blood oxygen saturation level 3. Provide timely and effective oxygen therapy 4. Antiviral therapy 5. Antibacterial treatment 6. Traditional Chinese medicine treatment
Severe cases	<p>Severe cases were treated at temporary specialized hospitals or designated hospitals.</p>	<p>For severe and critical cases</p> <ol style="list-style-type: none"> 1. Respiratory support 2. Circulatory support 3. Renal failure and renal replacement therapy 4. Convalescent plasma treatment 5. Blood purification treatment 6. Immunotherapy 7. Other therapeutic measures 8. Traditional Chinese medicine treatment
Critical cases	<p>Critical cases were treated at temporary specialized hospitals or designated hospitals and admitted to ICU as soon as possible.</p>	

3. The positive role of TCM in treatment through preemptive prevention, differentiated medication and multi-target intervention

— The participation of TCM hospitals and teams paved the way for early intervention with traditional Chinese herbal medicines. Some designated and makeshift hospitals were holistically run by TCM teams. TCM doctors were also sent to other makeshift hospitals to help with treatment. Early use of traditional Chinese medicines for patients with mild symptoms was promoted; traditional Chinese and Western medicines were both used in patients with severe symptoms. TCM physicians participated in the holistic process of treatment and prescribed traditional medicines for those who had fever and those who had close contact with confirmed cases to improve their immunity. TCM medicines were also used for those who had recovered to strengthen their constitution.

— The wide use and effectiveness of the combination of TCM and Western medicine has proved to be a major feature of China's clinical treatment. Statistics show that the rate of TCM use and effectiveness in treating patients both in Hubei and the rest of the country was more than 90 percent. Clinical observation indicated that traditional Chinese medicine can effectively relieve symptoms, prevent mild and moderate cases from getting worse, improve the cure rate, reduce the mortality rate and speed up recovery.

V. Allocation of resources and guarantee of supplies

China leveraged its institutional strength of mobilizing resources for major undertakings, establishing a nationwide mechanism against the pandemic. On the one hand, it promoted the national spirit of “When disasters strike, help comes from all sides”, harnessed the strength of the whole country to support severely affected areas, prioritized the national effort to aid Hubei province and its capital Wuhan to win the “war to safeguard Hubei” and “war to safeguard Wuhan”,

coordinated and pooled resources from the country and the army to ensure timely and reliable supply to “the main battlefield”.

On the other hand, China effectively allocated domestic resources, streamlined organizational structures and manufacturing, enhanced the emergency-response provision of medical supplies and daily necessities, strictly investigated and severely punished illegal acts such as price gouging and making and selling of fake products, ensured logistics support and laid a solid foundation for fighting the pandemic.

1. Hubei gets national health workforce support

— The largest allocation of medical resources since the founding of New China was made. Professional medical workers from across the nation were dispatched to alleviate the stress and adversity caused by depletion of medical resources in severely affected areas. More than 42,000 health workers in 340 medical aid teams gathered from across the country, including 30 provinces/autonomous regions/municipalities, the Xinjiang Production and Construction Corps, and the People's Liberation Army (PLA), treating patients along with local colleagues. This was a key measure to increase the cure rate and reduce the mortality rate in severely affected areas.

— The experience from relief efforts during the 2008 Wenchuan earthquake was duplicated, among which were “pairing assistance” and “military assistance”. All-out support to Wuhan was provided by coordinating the country's resources, which were allocated to cities in Hubei, in the organizational pattern of “a province paired to a city” to aid prefectural-level cities of Hubei province. Specific organizational patterns including “province/autonomous region/municipality paired to a designated hospital”, “hospital paired to a designated department”, and “taking over special wards (for patients with severe symptoms) of designated hospitals with a complete structural system” were implemented. All these measures effectively resolved the local imbalance between medical supplies and treatment requirements. The PLA, apart from sending over 4,000 medical staff to Wuhan,

also dispatched cargo aircraft to urgently deliver support goods. In addition, the PLA undertook medical treatment in Huoshenshan Hospital — one of the newly-built special facilities in Wuhan. More than 10,000 medical personnel from 63 designated hospitals in the army were sent to frontline.

— National experts were pooled to give comprehensive instructions on prevention and control, diagnosis and treatment. The nation's top experts in respiratory diseases and critical care medicine gathered in Wuhan, and intervened in the diagnosis and treatment at the early stages of the outbreak. Under the coordination of the guidance group sent by the central government, expert teams led by leading scientists arrived in Wuhan, conducted epidemiological inspections in designated hospitals, prescribed diagnosis and treatment procedures, assisted Hubei province including Wuhan and the nation at large to improve consultation and treatment of complex and critical cases. The experts also worked on new drugs and therapies, and included efficacious remedies in the protocol for nationwide promotion. A national expert group in nosocomial infection control was sent to guide prevention and control, conduct training, and enhance the safety of medical workers.

2. Tremendous efforts made in medical supplies manufacturing

— The production capacity of medical supplies and equipment rose rapidly with the promotion of “production resumption” and “switch of production” models. Thanks to the comprehensive industrial production system, enterprises in medical equipment and materials, overcame difficulties including shortage of manpower, resumed production rapidly and vastly expanded production scale. Other enterprises with flexibility promptly changed their lines of production to produce medical materials. Thousands of them switched to produce medical supplies, including face masks, protective suits, disinfectants, digital thermometers and medical instruments, and expanded the manufacturing and provision of essential supplies. Within a short time, the daily production capacity of face masks

Table 6. COVID-19 Related Personal Protection Management

Protection Level	Protective Equipment	Scope of Application
Level I protection	<ul style="list-style-type: none"> • Disposable surgical cap • Disposable surgical mask • Work uniform • Disposable latex gloves or/and disposable isolation clothing if necessary 	<ul style="list-style-type: none"> • Pre-examination triage, general outpatient department
Level II protection	<ul style="list-style-type: none"> • Disposable surgical cap • Medical protective mask (KN95) • Work uniform • Disposable medical protective uniform • Disposable latex gloves • Goggles 	<ul style="list-style-type: none"> • Fever outpatient department • Isolation ward area (including isolated intensive ICU) • Non-respiratory example examination of suspected/confirmed patients • Imaging examination of suspected/confirmed patients • Cleaning of surgical instruments used on suspected/confirmed patients
Level III protection	<ul style="list-style-type: none"> • Disposable surgical cap • Medical protective mask (KN95) • Work uniform • Disposable medical protective uniform • Disposable latex gloves • Full-face respiratory protective devices or positive pressure headgear 	<ul style="list-style-type: none"> • When the staff performs operations such as tracheal intubation, tracheotomy, bronchoscopy, gastroenterological endoscope, etc., during which, the suspected/confirmed patients may discharge respiratory secretions or body fluids/blood • When the staff performs surgery and autopsy for confirmed/suspected patients • When the staff carries out NAT for COVID-19

Handbook of COVID-19 Prevention and Treatment by The First Affiliated Hospital, Zhejiang University School of Medicine

Notes:

1. All staff at the healthcare facilities must wear medical surgical masks;
2. All staff working in the emergency department, outpatient department of infectious diseases, outpatient department of respiratory care, department of stomatology or endoscopic examination room (such as gastrointestinal endoscopy, bronchoscopy, laryngoscopy, etc.) must upgrade their surgical masks to medical protective masks (KN95) based on Level I protection;
3. Staff must wear a protective face shield based on Level II protection while collecting respiratory samples from suspected/confirmed patients.

— including disposable masks, surgical masks and medical protective masks (KN95) — exceeded 110 million; more than 1.5 million disposable medical protective suits were made, and 400,000 hand-held infrared thermometers manufactured. The daily supply of test kits reached nearly 350,000 by the beginning of March. Meanwhile, the supply chains and logistic conduits were smooth. Supplies from every corner of the country were continuously delivered to Hubei. In just a month, the daily allocation of medical protective suits jumped from 21,000 to 270,000, and KN95 masks from 72,000 to 562,000.

— Technological support was strengthened to provide services to the public. Services including online consultation, live streaming of expert lectures, and medical training were provided. Making full use of the remote visual medical treatment system and widely adopting AI-assisted surgical equipment based on the 5G network not only partially met medical care needs of other patients amid the COVID-19 pandemic, but also prevented hospital-acquired infections. The National Health Commission issued a series of technical guidance and regulations to standardize the use of protective equipment and protective procedures to significantly minimize the infection rate among medical personnel. Finally, a zero-infection rate was achieved for more than 40,000 medical staff aiding Hubei.

3. Coordinated allocation of daily necessities

— The central government's coordination and joint efforts ensured ample supplies of major daily necessities. Various departments of the State Council worked together to ensure the production, storage and stable prices of daily necessities in the whole country, especially Hubei province. Frozen pork was released from the central reserve and a “special-offer vegetable package” was made available. Major agricultural provinces transported vegetables from the south to the north of the country, while production of “vegetable basket” items was increased. The action plan of “ensuring price, quality and supply” was launched,

and emergency delivery teams were formed to ease the long-term homebound isolation measures in Wuhan and the rest of Hubei province.

— Supply delivery was integrated into residential community services to ensure safe and timely delivery of daily necessities to people's homes. Wuhan adopted a grid-pattern management of residential communities, through which the “last mile” of daily supply delivery from supermarkets to residential communities was opened up. Goods were directly distributed to households and contactless distribution and delivery enabled vegetables and meat that had met pandemic prevention standards to reach residential communities, relieving residents' worries while they were under home isolation.

— Internet technologies to extensively popularize “contactless consumption” were made full use of. Advanced “internet + logistics” distribution and e-commerce platforms ensured the entire process from order placement and distribution to payments nationwide. Parcels were delivered through various ways including being deposited at the property management service provider, dropped off at an agreed location or stored in delivery lockers. Potential risks of infection at supermarkets, shops and farmers' markets were thus minimized. The complete industrial supply chain of funds, transportation and delivery operated smoothly.

VI. Command system and strategic policies

Immediately after the COVID-19 outbreak, the central authorities led by President Xi Jinping put people's life and health first. Under Xi's personal leadership, command and deployment, the whole Party, armed forces and all Chinese people launched a “people's war” of disease prevention and control and fought to block the spread of the virus. With a centralized, unified and efficient “wartime pandemic command system” as well as strategies formulated in accordance with the situation, the top leadership offered key instructions and scientific guidance.

1. The top decision-making mechanism and fundamental strategies and policies

— Under the command of the top leader, China strengthened the centralized and unified leadership for the fight against the pandemic, which was put on top of the agenda for the Party, the country and the armed forces. In the course of more than two months, Xi, general secretary of the CPC Central Committee, president of China, and chairman of the Central Military Commission, presided over 10 meetings of the Standing Committee of the Political Bureau of the CPC Central Committee, three meetings of the Political Bureau and many other meetings at the central leadership level. The president gave clear instructions on pandemic prevention and control from different perspectives. China established the Leading Group for Novel Coronavirus Prevention and Control led by Premier Li Keqiang, working under the top Party leadership. A central government team was sent to guide epidemic control work in severely-hit regions. Xi was briefed by the Leading Group and the Guiding Group, and presided over a video conference to give direct instructions to more than 100,000 officials nationwide. He also inspected medical treatment and scientific research efforts in Beijing, traveled to Wuhan to inspect and instruct those at the forefront, made major decisions and gave instructions every day for comprehensive, systematic and strategic deployment.

— By defining overall principles and setting the general goal, China set up a strategic mechanism. The top leadership made a comprehensive judgment of the situation and put forward the overall principles of shoring up confidence, strengthening unity, ensuring science-based control and treatment, and implementing targeted measures. It set the general goal of stemming the spread of the virus and securing a victory. Taking the situation in the whole country into account and making overall plan, it focused on controlling the source of infection and cutting off the routes of transmission, set Wuhan city and Hubei province as the main battlefield of the country and gave differentiated instructions to other

areas to secure victory in the people's war. A strategic framework was set up to mobilize, deploy and strengthen prevention and control work in a comprehensive manner. At the same time, the leadership regarded the control of epidemic as a major test for the country's government system and governance capacity. By sorting out and overcoming shortcomings, the state's public health emergency management system would be improved.

— By tracking and analyzing the situation, the top leadership identified new challenges and gave targeted instructions at each critical point. At the beginning of the outbreak, it made a resolute decision to impose strict restrictions on the flow of people from Hubei province to halt the spread of the virus as much as possible. Preventing the virus from spreading within Wuhan and Hubei, and elsewhere, were the goal of the battle. It was pointed out that “Hubei will not win unless Wuhan prevails, and China will not prevail unless Hubei wins”. Early detection, early reporting, early quarantine and early treatment were emphasized. And so were the concentration of the infected, the concentration of experts, the concentration of resources and concentration of treatment. All confirmed patients were required to be hospitalized, all suspected cases were required to be tested and all cases of close contact to be quarantined in a timely manner. Racing against the time was imperative. Medical treatment was the top priority, and efforts were focused on targeted therapies to save as many lives as possible. Painstaking efforts were required to prevent the virus from being transmitted to as many people as possible. Hospitalization and the cure rate were required to be raised and the infection and fatality rate reduced substantially. Hospitals and residential communities were considered the two battlefields — both were critical for the fight against the epidemic.

Coordinated efforts are required for both the prevention and control, and scientific research and material production. Scientific research was set as a major and urgent task and solutions were sought from science. As the control

and prevention situation changed, strong efforts are required to continue the painstaking efforts for the final triumph.

Facing the rapid spread of the virus overseas, the focus should shift to guarding against imported cases and preventing a resurgence of another outbreak at home so that the hard-won positive trend will not be reverted.

2. Efficient execution mechanisms and comprehensive countermeasures

— The joint prevention and control mechanism of the State Council fully implemented the instructions of the CPC Central Committee and General Secretary Xi. Having followed the instructions of the Leading Group of the CPC Central Committee for Novel Coronavirus Prevention and Control, it made coordinated efforts to resolve urgent problems and timely, overall and detailed arrangements were made. On the one hand, it administered 32 government departments and coordinated the complex relationship among epidemic control and prevention, economic development and people's lives. It pooled the country's resources to support the seriously-hit region, involving expenditure, infrastructure, medical human resources, scientists, protective equipment and materials, transportation, electricity and natural gas supply, disposal of medical waste and the supply of food and daily necessities in urban areas.

On the other hand, it coordinated prevention and control in other regions, initiated the first-level response to public health events, and strengthened support to provinces with a heavy flow of people. It postponed the new semester for schools, allowed flexible resumption of work, staggered work hours, and expanded production capacity. Concrete measures were adopted to “guard against imported cases from abroad and prevent the spread of virus at home” and resumption of work and production was encouraged with strict safeguards. At the same time, people were encouraged to provide suggestions on problems in control and

prevention through the State Council's "Internet + Supervision" platform so that problems could be resolved in a timely manner. Any covering-up of epidemic information was investigated and punished.

— The central government guiding group supervised epidemic control work in Wuhan and Hubei province. The group is headed by Sun Chunlan, a member of the Political Bureau of the CPC Central Committee and vice-premier of the State Council. Consisting of 11 ministerial-level officials as well as academicians and experts, the group arrived in Wuhan on January 27. The group conducted investigations on the lack of information, foot-dragging in hospitalization of the infected and slack management which bogged down prevention and control in the initial stages. The group organized 35 themed studies on therapies for treatment, and made 23 fact-finding trips to hospitals. Based on its investigations, the group put forward the concept of "control and prevention measures being shifted further to the immediate source of infections, coordinating the treatment of the infected with severe and mild conditions, and scientific and targeted treatment". The group proposed that efforts be made in the prevention of the virus from the very source, treatment of the infected and adequate supply of necessary materials. The group emphasized the importance of full-coverage screening, hospitalization of all the infected for treatment and a final round of screening. The group made the decision to establish a network of designated hospitals, makeshift hospitals and quarantine venues to ensure quarantine, hospitalization, transfer of the infected, material transport and logistics services. The group forwarded more than 20,000 pointers to the provincial and city level governments for further investigation and solutions. The group made appropriate allocation of medical resources to raise work efficiency and boosted the confidence and solidarity of those working at the frontline.

— Local governments set up their own leading groups headed by leading officials to ensure the full implementation of the central government's arrangements. They set and adjusted the level of emergency response in

accordance with local developments. They organized specific measures to have people from severely-hit regions quarantined at home or in designated venues. They collected the necessary information and statistics, and forwarded them to higher level authorities. Meanwhile, the provincial governors and city mayors were obliged to ensure the production and supply of daily necessities.

President Xi pointed that the facts have once again proved that mankind is a community with a shared future, and the international community should boost confidence and make joint efforts to win the fight against the pandemic. Since the COVID-19 outbreak, China has always upheld the concept of building a community with a shared future for mankind and released information about the virus in an open, transparent and responsible manner. From early January, China started to report information about the epidemic, and prevention and control measures to the World Health Organization, the United States and other countries as well as China's Hong Kong, Macao and Taiwan regions. China shared its experience without reservation with the World Health Organization and the international community, strengthened scientific research, and offered assistance to other countries. China has set up bilateral joint prevention and control mechanisms with other countries, pushed forward international cooperation, worked together with the international community, fulfilled its duty to safeguard global public health security and made contributions to preventing the spread of the virus worldwide by doing a good job in its own prevention and control of the virus at home. According to the joint research group of China and the World Health Organization, the WHO director-general, the WHO chief scientist, and many others, the unprecedented "most ambitious, agile and aggressive" measures taken by China in response to this public health event achieved a great deal in blocking the transmission of the virus among humans and provided useful experience for the scientific world and the international community.

Glossary

Information release mechanism

Information, including daily updates of confirmed cases, suspected cases and response policies, has been revealed to the public in a timely, transparent and accurate manner through various means such as press conferences held by the State Council Information Office, the Joint Prevention and Control Mechanism of the State Council and local governments.

Avoid stigmatization

Viruses are a common challenge faced by the entire human race. The novel coronavirus was named SARS-CoV-2 and the relevant disease was named as COVID-19 according to international guidelines of avoiding association between viruses or infectious diseases with any geographic locations, cultures or groups of people.

Community-based epidemic prevention and control

Communities are on the front lines in prevention and control of the epidemic. Empowering communities to implement prevention and control measures is key to victory over COVID-19.

Report of the WHO-China Joint Mission on COVID-19

Twenty-five experts from eight countries and the World Health Organization started a nine-day mission in China on Feb 16. On Feb 29, the team released a report, which concluded China has rolled out “perhaps the most ambitious, agile and aggressive disease containment effort in history”.

Lockdown of a city

Since there are not yet vaccines or targeted medications for the novel coronavirus, the lockdown of a region might be the most efficient way to prevent the virus from spreading.

High-, medium- and low-risk areas

Cities, counties and districts with no active cases or with no new infections in the past 14 days are categorized as low-risk regions; those with new infections in the past 14 days and fewer than 50 cumulative confirmed cases, or with over 50 cumulative confirmed cases but without a concentrated outbreak in the past 14 days are categorized as medium-risk regions; those with over 50 cumulative confirmed cases and a concentrated outbreak in the past 14 days are categorized as high-risk regions.

Self-quarantine

Since the outbreak, Chinese people have carried out self-quarantine, cut non-essential travel and stayed at home as much as possible to prevent cross-infection. Close contacts of confirmed cases should observe strict centralized quarantine or home quarantine for at least 14 days to see if there is any infection.

Social distancing

In public places, people should keep about 2 meters away from each other to protect themselves from possible infection. People are encouraged to wear a mask in public and avoid crowds or meal gatherings.

Health QR code

Based on information people voluntarily offer, a mobile app could generate a health QR code with different colors: Green code means little chance of having been infected, while holders of yellow and red codes must be put under quarantine for a few days and report their health information daily before they are cleared for travel again. The health QR code system was first adopted in Hangzhou city of Zhejiang province, then expanded to other Chinese cities.

Admitting all suspected and confirmed cases for treatment

President Xi Jinping stressed that all-out efforts should be made to admit all suspected and confirmed cases for treatment, raise the hospital admission rate and the recovery rate, and lower the infection rate and the fatality rate.

Massive screening of potential virus carriers

With the principle of saving every life, community-based screening was carried out in key regions such as Wuhan to identify all confirmed infections, suspected cases and close contacts. Patients and people at high risk would be sent to proper medical institutions for timely treatment and to reduce the risk of further spread of the virus.

Epidemiological investigation

Epidemiological investigations are key to identifying chain of epidemic transmission, which is the basis of defining close contacts, adopting appropriate isolation measures and defining the sterilization scope.

Declaration of health information

Inbound passengers flying from high-risk regions to the Chinese mainland are required to submit their health information truthfully.

Asymptomatic patients

People who display no relevant symptoms such as fever, cough or sore throat, but test positive for the novel coronavirus. A very small number of asymptomatic cases develop into confirmed infections, but most recover on their own.

Early detection, early reporting, early isolation and early diagnosis

The four principles proven to be best practices in China's fight against the COVID-19.

Emphasis is needed on both prevention and treatment

Equal importance should be attached to prevention and treatment. The prevention and control system at the community level should also be enhanced.

Combined use of traditional Chinese medicine (TCM) and western medicine

Clinical treatment found the combined use of traditional Chinese medicine and western medicine can relieve fever, cough, fatigue and other symptoms, shorten hospitalization days and reduce the rate of deterioration.

Fangcang shelter hospitals

Also known as mobile cabin hospitals. Under the principle of leaving no one untreated, sports stadiums and convention centers were quickly converted to mobile cabin hospitals to treat patients with mild symptoms.

Psychological counseling

Care for the psychological wellbeing of COVID-19 patients, their families, families of fallen patients, vulnerable groups, health workers and those fighting the virus on the front line, including police officers and community workers.

Online diagnosis and treatment

About 200 public hospitals and 100 online hospitals provide online diagnosis and treatment guidance to mitigate pressure on hospitals which have a large number of inpatients.

Ensure a coordinated national response

Ensuring the whole country works together is key to stimulate enthusiasm and mobilize resources for fighting COVID-19. Under the leadership of the Communist Party of China, various regions and departments in China are able to efficiently carry out decisions made by the central government and synchronize policies and mobilize resources to form a united force to fight the epidemic.

Pairing assistance

A Chinese practice under which a specific province or major city provides assistance to a designated region in need of help. In the novel coronavirus outbreak, 19 provincial-level regions were paired with 16 cities in Hubei excluding Wuhan to offer dedicated point-to-point help to fight COVID-19. For Wuhan, resources were mobilized from across the country to help the city battle the epidemic.

First-level public health emergency response

Since the epidemic outbreak, all 31 provincial-level regions on the Chinese mainland initiated a first-level response to the public health emergency, the highest in the four-level public health emergencies classification.

Experts' view

China has carried out effective prevention and control measures against COVID-19. In the early stage of the outbreak, we locked down Wuhan to control the epidemic, and mobilized the public to prevent and contain the spread of the virus, an arrangement that was later turned into a joint prevention and control mechanism. It can be summarized as “four early's” — early detection, early reporting, early isolation and early treatment, which proves successful. While treating patients, Chinese health workers also paid attention to summarizing their experiences such as the clinical features of the disease and the medicines found effective in treating it, which can help the rest of the world in its fight against the virus. And thanks to its arduous efforts, China has now largely brought the epidemic under control, which is a hard-won achievement.

Zhong Nanshan, an academician with the Chinese Academy of Engineering, and an expert in respiratory diseases

A joint prevention and control system involving different government departments was launched and first-level emergency response initiated at the provincial level to curb the spread of the virus. The novel coronavirus pneumonia has been controlled as a category-A infectious disease, and virus transmission routes more or less cut off. The decision to lock down Wuhan was wise, as it prevented the disease from spreading rapidly to other parts of the country. In an unprecedented move, the central authorities sent more than 40,000 medics from across the country to Wuhan and its parent province of Hubei to treat COVID-19 patients, which helped contain the outbreak. The joint prevention and control mechanism ensured the supply of medical equipment, materials, reagent test kits and medicines. Thus, China has set an example in collective prevention and control, and centralized treatment of patients.

Li Lanjuan, an academician with the Chinese Academy of Engineering, and an expert in infectious diseases

The first batch of makeshift hospitals, known as *fangcang* shelter hospitals, provided more than 4,000 beds in a couple of days, which later increased to over 10,000, admitting all those COVID-19 patients who could not be hospitalized initially. The shelter hospitals admitted only patients with mild symptoms, which, apart from quarantining the patients, also created room for regular hospitals to treat severely ill patients.

Wang Chen, an academician with the Chinese Academy of Engineering, an expert in respiratory diseases, and president of Chinese Academy of Medical Sciences

The lockdown of Wuhan curbed the spread of COVID-19. The strict community control and home quarantine measures nationwide prevented the epidemic from spreading. The social governance mechanism, including public security, transport restrictions, and supply of daily necessities, has successfully responded to the health emergency.

Dong Jiahong, an academican with the Chinese Academy of Engineering, and the president of the Clinical Medicine School of Tsinghua University

China's growing strength in basic scientific research in recent years has contributed greatly to the prevention and control of COVID-19. The robust basic research capacity enabled China to rapidly identify the virus at the initial stage of the outbreak, start manufacturing testing kits, and share information about the virus and the testing kits with the rest of the world to help other countries prepare for the epidemic.

Chen Jianguo, vice-president of the Huazhong University of Science and Technology, and president of Tongji Medical College

Transparency of information is crucial. Transparency and openness are among the best tools to fight the epidemic. Every day, we held one news conference on the epidemic situation in Hubei province and one on the national joint prevention and control response. The regular news conferences may not have helped scotch all the rumors immediately, but we must continue the daily news briefings to counter rumors and speculations. We insist on holding the news conference regardless of the difficulties we meet with.

Dong Guanpeng, a member of the National Health Commission's expert panel investigating on COVID-19, and dean of the School of Government and Public Affairs at the Communication University of China

China established a quasi-wartime work mechanism led by the country's top leader after the epidemic broke out. The Standing Committee of the Political Bureau of the CPC Central Committee decided to establish a leading group for epidemic response. And a guiding working group was dispatched to Hubei province, the hardest-hit area in China, to guide epidemic control work, which played a key role in containing the virus.

Hu Angang, president of the Institute of Contemporary China Studies at Tsinghua University

Isolation and lockdown implemented through a vertical management system is pivotal to China's battle against COVID-19. It has become a public consensus that isolation is the most effective measure to prevent the spread of the virus before a vaccine is developed.

Huang Yiping, deputy dean of the National School of Development at Peking University

It is critical to implement the policy to admit, treat and isolate every infected person, and test every suspected one. Thanks to the construction of a batch of *fangcang* shelter hospitals for patients with mild symptoms, and existing hospitals designated or re-purposed to treat the severely ill in a short time, the shortage of beds in Wuhan was addressed, and all the patients needing treatment were admitted to these hospitals, cutting the sources of infection.

Tang Zhouping, vice-president of the Tongji Hospital of Tongji Medical College (Guanggu) at Huazhong University of Science and Technology

Traditional Chinese medicine has played a big role in treating COVID-19 patients. The combination of TCM and Western medicine speeded up the recovery of patients, reduced the number of patients turning into severe cases, and shortened the time for the patients to be declared free of the virus after undergoing the nucleic acid test. The combined treatment proved to be both economical and effective.

Wang Yang, head of the national emergency medical team at the Second Xiangya Hospital of the Central South University

We offered special treatment to critically ill patients, such as tracheotomy, ECMO support, transfer of critically ill patients relying on ECMO and CRRT, which reduced the mortality rate of the patients. Targeted therapies were designed for asymptomatic patients, patients with mild or moderate symptoms, and a platform integrating information including doctor's advice, case history, and diagnosis and treatment of patients was set up. The medical team also conducted remote consultation with experts at the headquarters to promote tiered and targeted treatment.

Wang Yansen, head of the national emergency medical team at the China-Japan Friendship Hospital

Dissemination of scientific knowledge about COVID-19 has played a key role in the fight against the disease. Professional science popularization platforms, mainstream media outlets and commercial news organizations have done a lot in raising public awareness about the disease and ease public panic. Experts such as Zhong Nanshan, Li Lanjuan and Zhang Wenhong analyzed in detail the epidemic situation to dispel rumors and raise public awareness about how to prevent and control the virus. People have learned that they can protect themselves by maintaining good hygiene habits, such as wearing a face mask, frequently washing their hands, and airing their rooms.

Wang Ting, director of the China Research Institute for Science Popularization and vice-president of the China Science Writers Association

Social organizations have played a positive role in combating the infectious disease. Leaders of social organizations, volunteers, and social workers have all supported the government in curbing the spread of the disease. And mainstream media outlets have released epidemic-related information in a transparent and open manner, alleviating people's anxiety and boosting their confidence.

Huang Haoming, acting dean and professor at the China Global Philanthropy Institute

China has a strong social mobilization capacity. Under the strong leadership of the Communist Party of China, residents stayed at home to prevent the spread of the virus, and won acclaim from the international community.

Lai Xianjin, a professor with the Department of Public Management at the National Academy of Governance

The Chinese government quickly mobilized national resources and played the role of the “visible hand”, including marshalling enterprises to manufacture products needed to contain the epidemic. The government organized and coordinated the production of enterprises, and distributed goods based on different public security risk levels, thus preventing hoarding and speculation of goods.

Li Yiping, a professor with the School of Economics at the Renmin University of China

China's efforts to improve community management in recent years have paid off, as communities were on the front line of the fight against the novel coronavirus. Some regions built on their past successes in community management and made innovations in their measures to fight the virus. Also, successful experiences, such as a green health code and community interaction, have been promoted across the country,

Liu Jinlong, a professor of agriculture and rural area development at Renmin University of China

According to the findings of our study, it is vital to stop the spread of a virus within one month. If China had not imposed the lockdown on Wuhan and some other cities, the number of infections might have been 10 times bigger. Considering the lack of effective treatment method for COVID-19, therefore, cutting off the source of infection by locking down Wuhan and some other cities as soon as possible was the right measure.

Zhou Weisheng, a professor with the College of Policy Science at Ritsumeikan University in Japan

China boasts a strong manufacturing industry, which allows it to make timely adjustments and mobilize various sectors to produce urgently needed medical equipment, particularly face masks and shields, sanitizers, ventilators, and personal protective equipment. China has the most complete industrial structure in the world, which has played a key role in the emergency response.

Wang Lei, an associate professor with the School of Government and director of the research center for BRICS cooperation at the Beijing Normal University

China's early identification and effective lockdown of its epicenter stands out as the most effective part of China's response.

Swaran Singh, a professor at Jawaharlal Nehru University, New Delhi, and adjunct senior fellow at the Charhar Institute, Beijing

China's ability to address the severity of the coronavirus epidemic was enhanced by the sharing of key data and information to ensure the appropriate decisions were made.

Denis Simon, executive vice-chancellor of Duke Kunshan University

Three important steps have been taken: to continue monitoring the situation extensively; use big data, artificial intelligence and information technology, including QR codes, to determine where infections may be occurring; and provide simple and clear instructions to the public as to how they should act until the crisis is under control.

Asit K. Biswas, an academician and visiting professor at University of Glasgow in the UK

I believe at the core of this success was every household's commitment to stay at home, to isolate and to practice personal hygiene habits with greater self-awareness.

Mario Cavolo, an Italian-American freelance writer and commentator

The Chinese government disseminated public awareness and people stood up to the task to be socially responsible to save themselves and halt the spread of COVID-19.

Yasir Masood, an international relations analyst working as director of media at the CPEC-Centre of Excellence, Islamabad

The large turnout of volunteers helping the nation combat the virus is an example of Chinese willingness to make sacrifices for the country.

Hisham Abu Bakr Metwally, first economist researcher at the Egyptian Ministry of Foreign Trade and Industry

The use of artificial intelligence and data science has proven to be effective in China and the Republic of Korea.

Oriol Caudevilla, a fellow at the East Asia Research and Studies Center of Universitat Autònoma de Barcelona

Africa and China know solidarity and international cooperation are the most powerful weapons to overcome COVID-19.

Gert Grobler, former ambassador of South Africa to Japan, currently a senior research fellow at the Institute of African Studies at Zhejiang Normal University

The first strategy the global community could learn from China, both at national and local levels, was setting up a unified principle and leadership by establishing the guiding principle as, “placing people’s life, security and health above anything else”.

Hiria Ottino, president of the Council on Pacific Affairs

Promoting self-quarantine in all cities and regions through awareness campaigns and community coordination. This helped people, even in remote areas, to avoid infection by the disease.

Geeta Kochhar, visiting scholar at Fudan Development Institute, and an assistant professor at Jawaharlal Nehru University, New Delhi

The most decisive aspect of China’s epidemic response was the decision to elevate it to a coordinated national-level policy. This ensured directives like quarantine were uniformly executed and followed, and other aspects of the policy were integrated to minimize panic and economic damage.

Thomas DuBois, professor of humanities at Beijing Normal University and invited researcher of Fudan Development Institute

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Wang Chen, an academician with the Chinese Academy of Engineering, an expert in respiratory diseases, and president of Chinese Academy of Medical Sciences

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Cheng Huijian, director of the Center for Disease Control and Prevention of Jiangxi province

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Denis Simon, executive vice-chancellor of Duke Kunshan University

Dong Guanpeng, a member of the National Health Commission's expert panel investigating on COVID-19, dean of the School of Government and Public Affairs at the Communication University of China

Gao Shanwen, chief economist at the Essence Securities

Geeta Kochhar, a visiting Scholar of Fudan Development Institute Assistant Professor of Jawaharlal Nehru University, New Delhi, India

Gert Grobler, former ambassador of South Africa to Japan, currently a senior research fellow at the Institute of African Studies at Zhejiang Normal University

Han Yonghui, doctoral supervisor and a Pearl River scholar with the Guangdong Institute for International Strategies at the Guangdong University of Foreign Studies

Harvey Dzodin, a senior fellow at the Center for China and Globalization

Hiria Ottino, president of the Council on Pacific Affairs

Hisham Abu Bakr Metwally, first economist researcher at the Egyptian Ministry of Foreign Trade and Industry

Hu Angang, president of the Institute of Contemporary China Studies at the Tsinghua University

Hu Biliang, director and professor of the Belt and Road School at the Beijing Normal University

Huang Haoming, acting dean and professor at the China Global Philanthropy Institute

Huang Qunhui, director of the Institute of Economics, Chinese Academy of Social Sciences

Huang Yiping, deputy dean of the National School of Development at the Peking University

Huang Yueqin, a professor with the School of Journalism and Communication at the Central China Normal University

Humphrey P.B. Moshi, a professor in economics and the director of the Centre for Chinese Studies at the University of Dar es Salaam

Jing Linbo, director of the Chinese Evaluation Center for Humanities and Social Sciences, Chinese Academy of Social Sciences

- Juan Diego Zamudio**, professor of Economics at National University of San Marcos
- Lai Xianjin**, a professor with the Department of Public Management at the National Academy of Governance
- Li Candong**, president of the Fujian University of Traditional Chinese Medicine
- Li Yiping**, a professor with the School of Economics at the Renmin University of China
- Liu Dongchao**, a professor with the Department of Literature and History at the National Academy of Governance
- Liu Jinlong**, a professor of the Agriculture and Rural Area Development at the Renmin University of China
- Liu Xiaoguang**, an associate professor with the National Academy of Development and Strategy at the Renmin University of China
- Liu Yuanli**, dean of School of Public Health at Peking Union Medical College
- Liu Ying**, an associate researcher with the Institutes of Science and Development, Chinese Academy of Sciences
- Liu Zhibiao**, president of the Yangtze Institute of Industrial Economy of the Nanjing University
- Mario Cavolo**, Italian-American freelance writer and commentator
- Mao Yonghui**, director of the Nephrology Department of the Beijing Hospital
- Oriol Caudevilla**, a fellow at the East Asia Research and Studies Center of Universitat Autònoma de Barcelona
- Swaran Singh**, professor at Jawaharlal Nehru University (New Delhi) and adjunct senior fellow the Charhar Institute (Beijing)
- Shi Haoying**, founder and CEO of the SinoUnited Health
- Sui Jigang**, a researcher with the Institutes of Science and Development, Chinese Academy of Sciences
- Sun Zhuangzhi**, director of the Institute of Russian, East European and Central Asian Studies, Chinese Academy of Social Sciences
- Tang Zhouping**, vice-president of the Tongji Hospital of Tongji Medical College (Guanggu) at Huazhong University of Science and Technology
- Thomas DuBois**, professor of Humanities, Beijing Normal University, Invited Researcher of Fudan Development Institute
- Tim Summers**, a senior consulting fellow on the Asia programme at Chatham House

Wang Han, chief economist of the Industrial Securities

Wang Lei, an associate professor with the School of Government and director of the research center for BRICS cooperation at the Beijing Normal University

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Wang Ting, director of the China Research Institute for Science Popularization and vice-president of the China Science Writers Association

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Wang Zhen, vice-director of Shanghai Mental Health Center

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