Fighting COVID-19

100 Q&As

CIKD 中国国际发展知识中心
CENTER FOR INTERNATIONAL KNOWLEDGE ON DEVELOPMENT

Fighting COVID-19: 100 Questions, 100 Answers

While China has seen a significant decline of COVID-19 cases after making all-out efforts for more than two months, the world is currently facing an escalating urgency as the disease has broken out in multiple places and spread to more countries around the world. To increase understanding of China's key measures for prevention and control of the COVID-19 in a comprehensive and objective manner, CIKD is compiling "100 Questions, 100 Answers". This Series focus on widely-discussed questions and aim to facilitate understanding of similarities and differences from a comparative perspective. We sincerely welcome comments, questions and further insights, which we will try to incorporate when adding new questions and updating answers. It is important to note that the information provided in this Series is intended for your general knowledge only and is not a substitute for professional medical advice or treatment.

Fighting COVID-19: 100 Q&As
Logical Framework

Fighting COVID-19: 100 Questions, 100 Answers

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Why is the novel coronavirus very "insidious"?(Q04)

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Dong Dandan
Center for International Knowledge on Development

A: Coronaviruses are a family of viruses that exists widely in nature. It is usually transmitted in vertebrates such as mice, pigs, cats, dogs, birds and so on. Under certain conditions, coronaviruses can mutate and infect humans through intermediate hosts. The novel coronavirus, the seventh known coronavirus able to infect humans, is more infectious, more widespread, and more insidious than other coronaviruses. According to currently known information of the novel coronavirus, its wiliness mainly comes from the following six aspects:

First, its survival ability is strong. The novel coronavirus can adapt to a variety of different environments. Normally, it can survive for 48 hours at room temperature, but in suitable environment (such as when temperature is 20 degrees Celsius and relative humidity is 40-50%), it can survive for up to 5 days.

Second, its incubation period is long. The incubation period of novel coronavirus pneumonia is usually 1-14 days, mostly 3-7 days. Studies have shown that the median incubation period is 4 days, while the longest incubation period can last up to 24 days. Cases with incubation period of 28 days even appeared in Guangzhou. This means that the normal isolation cycle could not completely guarantee that the quarantined people are not infected, which may lead to patients being omitted.

Third, its source of infection is concealed. There are asymptomatic infectious patients of novel coronavirus pneumonia. The study showed that the proportion of asymptomatic infections is 1.2%. This means that conventional measures to prevent and control infectious disease, such as temperature measurement, are not effective in identifying patients and can only be used to confirm cases through testing reagents, which may lead to a large number of potential infections mixed with healthy people.

Fourth, there are various ways of transmission. Respiratory droplets and close contact transmission are the main modes of transmission. It can also be transmitted through mucosa membrane, with the possibility of aerosol transmission in closed environment and aerosol or contact transmission caused by fecal and urine pollution to the environment. This means that all groups of people may become infected in the case of inadequate protective measures.

Fifth, its infection is widespread across population. As the novel coronavirus pneumonia is generally susceptible, anyone may become a potential virus carrier, so it is difficult to take targeted local prevention and control measures customized for its susceptible population, which increases the difficulty of prevention and control.

Sixth, its clinical symptoms are easily confused with other diseases. The early symptoms of novel coronavirus pneumonia are not obvious and similar to common seasonal infectious diseases such as influenza, leading patients to be omitted and misdiagnosed. However, in the late stage of novel

coronavirus pneumonia, the disease develops very fast, and once it is converted to severe cases, it is extremely difficult to treat.

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How is COVID-19 different from flu?(Q05)

Hao Zhirong
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Lin Weiwei
Institute of Medical Information, Chinese Academy of Medical Science

A: According to the World Health Organization and other authoritative information sources, the COVID-19 and influenza are at least different as follows:

First, both of COVID-19 and influenza are respiratory infectious diseases caused by viruses, but the types of viruses are different.

Second, the epidemiological characteristics are different. The COVID-19 spreads in more ways than influenza viruses. In addition to transmission through droplets and contacts, the novel coronavirus can also be transmitted through mucosal, aerosol in closed environments, and aerosol or contacts in environments polluted by fecal and urine. Meanwhile, the susceptible population of the novel coronavirus is more extensive than that of influenza viruses. While the main susceptible population of influenza virus includes children, pregnant women and the elderly, the novel coronavirus infects wider population.

Third, the transmission characteristics are different. The incubation period of COVID-19 is longer than that of the influenza, with the former being 1-14 days, mostly 3-7 days, whereas the latter being generally within one week and rarely more than 10 days. Moreover, COVID-19 is more infectious than influenza. According to estimates for the basic reproductive numbers of both COVID-19 and influenza, the average number of secondary infections generated from one infected individual is 1.3 for influenza, whereas the number is between 2 to 3 for COVID-19.

Fourth, the clinical manifestations are different. The symptoms of COVID-19 are similar to those of the flu, but with the development of the disease, fatigue, chest tightness and dyspnea start to appear for COVID-19 patients. Severe cases are characterized by respiratory acceleration, respiratory failure, multiple organ damage and other critical conditions. Influenza generally have acute onset, the main

symptoms are fever, cough, sore throat, accompanied by headache, body aches, etc., with the systemic symptoms being more severe and respiratory symptoms being relatively light.

Last, the medical interventions for two types of diseases are different. There is no existing effective vaccine or treatments for COVID-19, while effective vaccines and treatments for influenza are relatively common. Also, the fatality rate of COVID-19 appears to be higher than that of influenza. Based on current statistics, the fatality rate of COVID-19 is between 1% and 2%, yet the fatality rate of seasonal influenza is usually below 0.1%.

Why is the fatality rate of COVID-19 in Wuhan so different from those in other parts of China? Which statistic is more accurate?(Q02)

Zhang Bingzi
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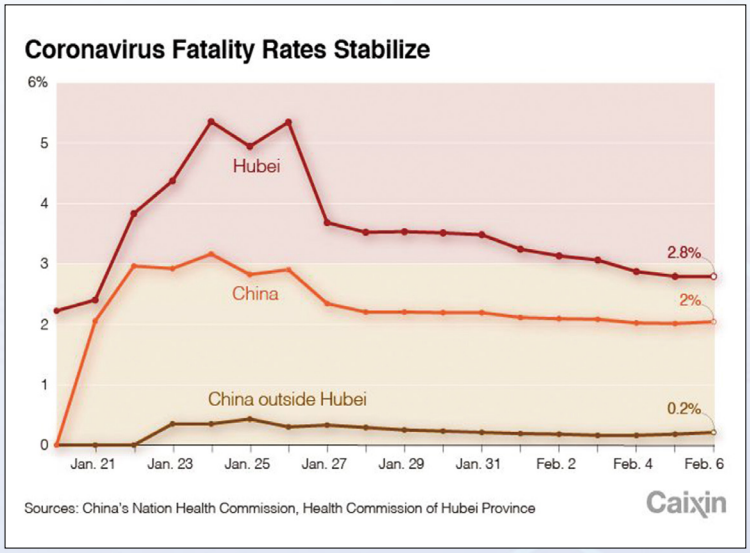
A: As of 9 March 2020, 49,965 cases of novel coronavirus infection had been confirmed in Wuhan, of which 2,404 cases resulted in deaths–the fatality rate of COVID-19 in Wuhan is 4.8%. In other regions Hubei Province except Wuhan, there had been 17,795 confirmed cases, and 620 patient deaths, with a fatality rate of 3.5%. While in all of Mainland China (i.e. data of Hong Kong, Macau, and Taiwan excluded) aside from Hubei, 12,994 confirmed cases were found, causing 112 deaths and a fatality rate of 0.86%. Apparently, there is a considerable gap in fatality rates of COVID-19 in different parts of China. Consequently, with different data used, the discussion about the risk of the novel coronavirus would lead to drastically different conclusions.



Credit: Caixin

The fatality rate, and the variance thereof, however, is not only an indicator of the pathogenicity of the virus, but also depends on the age structure and preexisting health conditions of those infected, the operation of the healthcare system in different times and locations, and the accessibility of testing as well as the time when fatality rate is calculated.

Firstly, the age structure and the underlying health conditions of the patients are important factors behind the fatality rate. A research by the Chinese Center for Disease Control and Prevention (CCDC) on more than 70,000 confirmed and suspected cases of COVID-19 as of 11 February found a general fatality rate of 2.3%, while the fatality rate for patients over 80 years old being 14.8%, 10.5% for patients with cardiovascular diseases, 0.2% for patients between 20-30 years old, and 0.9% for patients without underlying disease. Preventing novel coronavirus infection among high-risk groups, therefore, would significantly reduce the fatality rate of COVID-19. Important preventative measures include protection of elderly people from infection in hospitals and assisted living facilities, where susceptible groups are highly concentrated, as well as at home settings in the community. Because of widespread community transmission in Wuhan, the elderly makes up 5% of the cases of infection, while in all of China including Wuhan, the number is only 3.2%. The timely detection and isolation of new cases outside Wuhan effectively prevented the epidemic from spreading from the more socially active young and middle-aged groups to the elderly and contributed to the lower fatality rate in general.

Secondly, the accessibility of timely medical care and the operation of local healthcare systems also have great impact on the fatality rate. The lockdown measures in Wuhan gave other regions a valuable window of time for disease control and prevention, where necessary measures were taken to reduce interpersonal contact, mitigate the increase of new cases, and avoid the overloading of local healthcare systems. With early detection and early treatment of infected patients, the fatality rate of COVID-19 outside Wuhan is evidently lower. In the early stage of the outbreak in Wuhan, however, the overload of medical facilities and limited knowledge about this new virus led to unsatisfactory treatment results in many cases and thus the higher fatality rate. As a coordinated public health campaign against the epidemic, over 40,000 healthcare professionals arrived in Wuhan to provide support and two infectious disease hospitals (Huoshenshan Hospital and Leishenshan Hospital) and numerous makeshift hospitals started operating, which allowed all need for hospitalized care being met. These measures significantly improved the capacity of the local healthcare system, lowered the risks of community transmission, and prevented the deterioration of patient health. The tension between the outbreak and the limited medical resources was thus considerably resolved. Additionally, the national treatment standard for COVID-19 has been updated to its seventh edition and post-hospitalization recovery plans were made, which indicated enhanced understanding of COVID-19. The treatment capacity in Wuhan has greatly improved in the later stage of the epidemic.

Thirdly, although the range of testing and the time of fatality rate data collection do not change the risk of a disease, they can affect the judgment about the risk of the disease and the public health situation in general. Since most cases of novel coronavirus infection present mild or no symptoms, it is extremely difficult to detect all cases of infection if no large-scale surveillance testing is implemented. Patients with more serious symptoms, on the other hand, are more likely to seek medical help, a tendency that would make the calculated fatality rate higher than it really is. Ultimately, considering the progression of an outbreak, an accurate calculation of fatality rate is only possible after the epidemic. A study published in The Lancet by Huazhong University of Science and Technology with other organizations shows that the average duration from the onset of COVID-19 to the start of ICU care is 16 days, and that patient death typically happens after 7 days in the ICU. The fatality rate could be relatively low in the early outbreak and increase as the epidemic progresses. On 9 March, 19 new cases of COVID-19 were confirmed in Mainland China, a number that has remained low for some time, but there remain 4794 critical cases. The fatality rate of COVID-19 may still increase as time goes by.

Therefore, the different fatality rates in Wuhan and nationwide indicated the different fatality risk of COVID-19 in varying conditions. Other countries and regions should take the whole set of factors into consideration in data usage. The fatality rate in Wuhan, especially that when hospitalization needs were not fully met, is probably higher than the current figure of 4.8%, though no accurate data based on panel study are yet available. This represents the fatality rate when serious community transmission happens in a modern city of 10 million population with an extremely overloaded healthcare system. The fatality rate outside Wuhan, in comparison, represents the fatality level when good community prevention is in place and medical resources remain sufficient. To reduce the risk of death caused by COVID-19, the essence is to prevent or delay widespread community transmission, thus avoiding the overload of public health systems and the infection of high-risk groups. It would also considerably reduce the fatality rate if anti-viral medication and vaccines are successfully developed and applied. The global research community is collaborating to make breakthrough in this field at the moment.

Why is it difficult to identify the intermediate host(s) of COVID-19 virus?(Q16)

Chen Zheng
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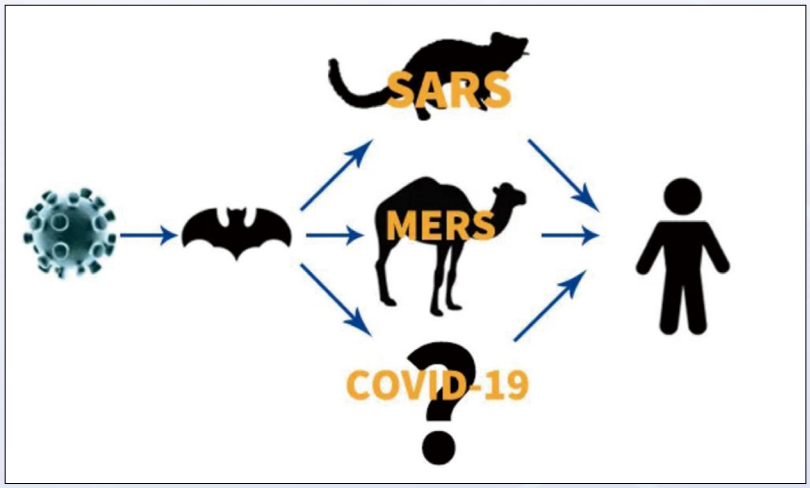
A: A virus, as a non-cellular microorganism, can only survive and replicate itself in living cells of other organisms. Such organisms can generally be categorized into reservoir, intermediate host and final host basing on virus' transmission routes. The report of WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) states that the virus that caused COVID-19 is zoonotic and that bats appear to be the reservoir and human is the final host. However, there are still many difficulties in identifying intermediate host(s).



Transmission routes of SARS, MERS and COVID-19
(author: Chen Zheng)

First, there is no direct evidence for source tracing. China found an infection source from Wuhan Huanan

Wholesale Seafood Market in the early stage of the outbreak. On January 26, the Chinese Center for Disease Control and Prevention (CCDC), based on its analysis of the samples taken from the seafood market, reported that the virus appears to diffuse from wildlife species sold at the market. However, the market had been shut down and cleaned up from January 1 and the surveillance video record was no longer available. Therefore, it is difficult to uncover the species. On January 29, a paper published by CCDC in The New England Journal of Medicine stated that the earliest cases had no reported link to the seafood market, and thus the possibility of other sources could not be ruled out. In short, the lack of animal contact evidence in the early cases makes it difficult to identify the intermediate host(s) directly.

Second, large-scale screening of wildlife is time consuming. In the absence of direct evidence, the most feasible approach is to screen wild animals on a large scale. Since the outbreak of COVID-19, several research teams have pointed out that mink, pangolin, and tortoises may be the intermediate hosts. However, all animals are suspicious in theory, so the number of samples to be analyzed is very large, which makes the work impossible to complete in a short time.

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What is the proportion of asymptomatic carriers in China?(Q29)

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A: Asymptomatic carriers are those who demonstrate no clinical symptoms like cough or fever but test positive for COVID-19. On January 28, the Chinese National Health Commission (NHC) provided its first official definition on asymptomatic carriers in its Protocol on Prevention and Control of Novel Coronavirus Pneumonia (Edition 3).

Asymptomatic carriers are also contagious, posing challenges to the epidemic prevention and control. Chinese Premier Li Keqiang called for high attention to asymptomatic carriers at a meeting of the leading group on novel coronavirus prevention and control on March 26. According to the NHC, 1541 asymptomatic carriers in China had been under medical observation and 205 of them were imported

cases as of March 30.

Source: Xinhua News

The first asymptomatic case was documented in a paper published in *The Lancet* by scholars from the University of Hong Kong on January 24. A 10-year-old boy and four of his family members tested positive for COVID-19 after returning to Hong Kong from Wuhan. The boy was an asymptomatic carrier. Mainland China reported the first asymptomatic case on January 27. The carrier infected five of her family members, among whom two developed into severe cases while the carrier herself showed no symptoms.

Existing studies show that the proportion of asymptomatic carriers is around 20%-60%. Between January 29 and 31, Japan evacuated 565 Japanese nationals from Wuhan. Among them, 8 were infected, of which 4 had no symptoms. The asymptomatic proportion was estimated to be between 37.5%-50%. On March 6, an article, without peer review, concluded that the share of asymptomatic cases was 17.9% from the data of passengers aboard the Diamond Princess cruise ship. On March 25, another study analyzing 115 infected children found that the share was 53%. On March 20, an article in *The Nature* argued that 30-60% of all cases showed no or mild symptoms.

There are four approaches to identify asymptomatic carriers in mainland China: (1) proactively testing close contacts during their medical observation period; (2) proactively testing people during investigation of infection clusters; (3) proactively testing those who have been exposed to the virus during infection source tracing; (4) proactively testing those who have travelled to or resided in regions with ongoing COVID-19 transmission. Based on these, agencies for disease control at all levels provided their estimates on the proportion of asymptomatic cases. On February 17, analysis from the Chinese Center for Disease Control and Prevention (CDC) based on 72,314 cases showed that asymptomatic cases totaled 889, accounting for just 1.2% of all cases. Local CDCs also calculated the proportion of asymptomatic cases based on data in mid and late February in their respective jurisdictions. Among them, Guizhou Province disclosed the highest proportion. By February 16, Guizhou had reported 18 asymptomatic carriers in 114 confirmed cases, accounting for 11.11%. By February 20, Zhejiang Province had reported 1,284 cases in total, with 108 asymptomatic ones, accounting for 8.41%. By February 21, 4 of 135 cases in Tianjin had demonstrated no symptoms, accounting for 3%. In contrast, Fujian Province reported the lowest share of asymptomatic carriers, with only 1.01%.

In an interview, Academician Zhong Nanshan argued that since the number of newly confirmed cases is decreasing in China, the number of asymptomatic carriers should be limited. Otherwise, the number of newly confirmed cases would have been pushed higher due to “silent” transmission.

In response to the challenges posed by asymptomatic carriers, Chinese Premier Li Keqiang underlined the importance of prioritizing the monitoring, tracking, isolation and treatment of asymptomatic carriers. China will scale up screening of asymptomatic carriers of COVID-19 and conduct research and epidemiological analysis through gathering a certain percentage of asymptomatic samples from the hard-

hit areas, so as to improve prevention and control measures.

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How contagious are asymptomatic carriers in China?(Q30)

Liang Xiaomin
Center for International Knowledge on Development

A: On February 5, China's National Health Commission (NHC) clearly stated that asymptomatic carriers could be the source of infection in the Protocol for Prevention and Control of Covid-19 (Edition 5). On March 26, at the meeting of the Leading Group of the CPC Central Committee for Prevention and Control of Covid-19, Chinese Prime Minister Li Keqiang emphasized that special attention should be put to asymptomatic carriers and required NHC to analyze their contagiousness and conditions. On March 28, a new case infected by an asymptomatic carrier in Henan province raised concerns in China.

The virus can persist in asymptomatic carriers for more than 3 weeks. During this period, asymptomatic coronavirus carriers, like symptomatic patients, can infect others by droplets and direct contact. Based on a recent study, the contagiousness depends on the proportion of asymptomatic cases in the population, the amounts of virus being expelled, and the duration of expelling, as well as other factors such as patients' occupation, behaviors, geographic scope of activities and sanitary measures.

No final conclusion has been reached about how contagious asymptomatic virus carriers are. In late January, several Chinese epidemiologists stated that asymptomatic carriers carry a lower amount of the novel coronavirus in their body, rendering themselves unlikely to be super-spreaders. However, other researches so far generally agree that the infectiousness of asymptomatic virus carriers differs little from confirmed cases. In a paper published in *The New England Journal of Medicine* on February 20, researchers of Guangdong Provincial Center for Disease Control and Prevention and other institutions warned about the infectiousness of asymptomatic carriers. These researchers found that the viral load

detected in samples of asymptomatic carriers was similar to that in symptomatic ones. Another study conducted by Ningbo Municipal Center for Disease Control and Prevention with samples of Ningbo cases on March 4, suggests that the infectiousness of confirmed cases and asymptomatic carriers is not statistically significant.

It is worth noting that second-generation patients infected by asymptomatic carriers could experience severe symptoms. On January 27, China reported the first asymptomatic carrier who infected five other people and among them two developed into severe cases. In an article in *Science China Life Sciences*, a researcher of Nanjing Medical University also pointed out that a close contact of an asymptomatic carrier in Nanjing developed into severe case one week after confirmation.

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What are the major difficulties in preventing and controlling COVID-19 in comparison with SARS?(Q15)

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A: Compared with SARS in 2003, the major difficulties of preventing and controlling the COVID-19 (novel coronavirus pneumonia) epidemic include the following aspects.

First, the novel coronavirus is more difficult to detect. With regards to symptoms, the COVID-19 patients range from being mild, moderate, severe, critical, to even asymptomatic. The SARS patients almost all had high fever, which could be quickly identified, facilitating control of the infection source.

Second, the transmission modes of the novel coronavirus are more diverse. COVID-19 can be transmitted by droplets, aerosol and contact. Droplet transmission usually refers to infection caused by sneezing, coughing and talking droplets as well as exhaled gas of patients, generally over short distances. Aerosol transmission is defined as “dissemination of either airborne droplet nuclei or small particles in the respirable size range containing infectious agents that remain infective over time and distance”. Contact transmission involves hand transfer of surface contamination to mouth, nose or eyes. The main mode of SARS transmission is close contact.

Third, the novel coronavirus spreads more widely. Nearly 5 million of the floating population in Wuhan headed to different places prior to the Spring Festival, which directly led to the outbreak across the country. However, the scope of SARS infection is largely limited to Beijing and Guangdong.

Fourth, China is more interconnected. As an important transportation hub in China, Wuhan saw significant improvement in traffic throughput and intersection density of air and land lines in 2019, compared with those in 2003.

Why does China adopt a whole-of-government and whole-of-society approach towards COVID-19?(Q14)

Jiang Xiheng
Center for International Knowledge on Development

Prevention and control staffs are helping a patient with hospital discharge
(source: Xinhua News)

A: On 20 January 2020, in response to the emergence of 224 COVID-19 cases in Wuhan and a few other places, Chinese government made the decision of "putting people's lives and health in the first place, and mobilizing all efforts to prevent, control, and resolutely contain the spread of the epidemic." On the same day, the first meeting under the Joint Prevention and Control Mechanism of the State Council was held, making a comprehensive deployment for epidemic prevention and control. Since then, China has been taking a whole-of-government and whole-of-society approach to combat the epidemic. In the process, the joint mechanism has continuously identified and filled loopholes in practice and adapted its policy focuses with the changes in epidemic situation and

work resumption.

First, the whole-of-government and whole-of-society response is a must for epidemic prevention and control, which is a massive and systematic undertaking. Negligence in any link may lead to the failure of the entire system. For this reason, horizontal and vertical policy coordination and collaboration are needed among various administrative authorities and government departments at all levels. The whole society has to be mobilized as well for the sake of cooperation and contribution of every citizen, enterprise and social organization.

Second, the approach has rich hands-on experience in China. China adopted the whole-of-government and whole-of-society approach not only in natural disaster mitigation and relief but also in delivering major national development tasks such as targeted poverty alleviation and the implementation of 2030 Sustainable Development Agenda. In this practice of "pooling resources for major undertakings", solutions were created and experience accumulated in coordinating various departments, partnering assistance between local governments, mobilizing communities and engaging enterprises and social organizations. The Joint Prevention and Control Mechanism of the State Council consists of 32 departments, creating synergies in medical treatment, logistics support, epidemic prevention and control, and information provision. It has effectively mobilized more than 40,000 medical professionals and huge quantities of medical and living supplies from across the country in support of Hubei province.

Third, the whole-of-society action has roots in societal consensus as well as cultural legacy. In traditional Chinese culture, people have a strong sense of connecting the fate of families with the country. More importantly, facing the highly contagious and uncertain COVID-19, a high degree of consensus has been built over the society on strict prevention and control measures. Convinced and touched by government's people-centered philosophy, the determination to contain the epidemic at all costs, and the sacrifices and dedication of tens of thousands of medical staff, people take staying at home as a duty to the family and the country. Numerous companies and individuals regard it as their responsibilities to surmount the difficulties caused by the epidemic, and willingly contribute money and provide volunteer services.

Currently, there are COVID-19 outbreaks in other countries. As WHO has called for, whole-of-government and whole-of-society efforts are urgently needed to win the battle against the virus.

Why is partner assistance adopted in China's COVID-19 battle?(Q03)

Zhou Taidong
Center for International Knowledge on Development

A: Partner assistance usually refers to paring local governments with each other to support the development of a certain region or sector under the overall coordination of the Chinese central government. Partner assistance facilitates sharing of material and fiscal resources as well as intellectual

Medical team from Liaoning Province to Xiangyang City
(Credit: online resource)

expertise, and features complementary advantages and mutual benefits.

China has been implementing partner assistance programmes for more than four decades. Such programmes have played important roles in different endeavors, including helping less-developed bordering areas where ethnic minorities are concentrated, poverty reduction, construction of major national projects, disaster relief and recovery, and medical teams under foreign aid.

The outbreak of COVID-19 constitutes an emergency not only in Hubei Province, but also in the whole country. In February 2020, the National Health Commission arranged for 19 provinces and municipalities to provide assistance to 16 cities and counties in Hubei, excluding Wuhan, to help combat the COVID-19. One city or county in Hubei province is twinned with one or more provinces in the country.

Through establishing mechanisms of “stronger provinces helping weaker ones” and delineating responsibilities, partner assistance has greatly improved medical treatment in Hubei province and played a crucial role in combating the novel coronavirus.

First, partner assistance helps effectively mobilize efforts and leverage resources of local governments under the overall coordination of the central government, while avoiding chaos.

Second, it can make full use of medical staff and supplies in the different regions and form virtuous competition among different entities to overcome difficulties.

Third, it can help relive the burden of Wuhan hospitals by preventing crowds from swarming into a few big and well-known hospitals in the capital city.

Fourth, it can help facilitate regional integration and communication and build bridges of friendship and cooperation across different regions.

When disaster struck, help came from all sides. When people pool their strength, victory is ensured. During the crucial stage of the COVID-19 outbreak, 63 medical teams consisting of 7,425 staff from 19 provinces provide medical services in the 16 cities and counties in Hubei province, in addition to the

31,207 medical staff from other provinces supporting Wuhan city. These teams also brought them with critical medical supplies and equipment. Partner assistance, once again, has been proved to be efficient and effective.

What roles did experts play in public communication during the pandemic?(Q49)

Wang Xiongjun
Center for International Knowledge on Development

A: Responding to major public health events is a highly professional and complex task. The prevention and control of major infectious diseases requires both professional guidance of experts and extensive participation of the public. In the COVID-19 outbreak, Chinese experts used various ways to communicate with the public to popularize relevant knowledge, guide public behaviors and comfort public emotions, playing a significant role in pandemic prevention and control.

First, experts help improve the public's self-protection ability through popularizing the knowledge of COVID-19 and guiding the public to develop good hygiene habits. Members of the national novel coronavirus pneumonia expert group and professionals who have long been engaged in disease prevention and epidemiology research co-authored *110 Questions on the novel Coronavirus Pneumonia Epidemiology*, which became a popular book during the epidemic. Medical experts in more than ten departments of Peking Union Medical College Hospital (PUMCH, one of the most famous hospitals in China), drawing on experience of SARS prevention and treatment in 2003, compiled *Questions and Answers for Public Protection of novel Coronavirus Infections from PUMCH*. This brochure is widely disseminated through various media platforms. In addition, public health experts and medical experts introduced the characteristics of the novel coronavirus to the public through various mainstream media and social media platforms and popularized public health knowledge such as wearing masks and hand washing.

Second, experts guide the public to understand and support national policies of pandemic prevention and control. The Chinese government adopted the most comprehensive, strict, and thorough prevention and control measures. Authoritative and influential experts not only participated in the making of a number of major decisions, but also interpreted the policies to the public based on their professional analysis and judgment. Policies explained include the lockdown of Wuhan (*Q07: What do cities have to consider when they prepare for a lockdown?*), strict management of communities (*Q31: Why is China able to practice closed-off community management?*), etc. The guidance from the experts helped increase the public's understanding of such policies and gain their support in forming an overall war to fight the COVID-19 (*Q14: Why does China adopt a whole-of-government and whole-of-society approach towards*

COVID-19?) .

Third, experts help reduce social panic and ease public anxiety. Facing the complexity and high uncertainty of the pandemic, the public tend to have panicky emotions and anxious behaviors. For example, some suspected patients evaded hospital admission. The public were snapping up masks, disinfectant and other protective materials, and even drugs that do not have a clear effect. Rumors further aggravated the public's panic and anxiety. By introducing the knowledge of viruses and epidemics, sharing scientific methods of maintaining mental health, and clarifying and dispelling rumors, experts effectively helped alleviate public anxiety and panic.

Why do Chinese people follow strict control and prevention measures in fighting COVID-19?(Q08)

Wang Xiongjun
Center for International Knowledge on Development

A: First, strict control is the most basic and important measure to prevent infectious disease. Such policy proposal was recommended by China's most important and authoritative experts on infectious disease prevention and control including Mr. Zhong Nanshan. Strict control and prevention measures are considered scientific and necessary for helping control infection sources and protect the safety and health of all citizens. The public largely accept and support such measures.

Second, Chinese people highly trust their government, especially the central government. According to the latest edition of the Edelman Trust Barometer, more than 80% of Chinese citizens trust their government. China has also ranked first among all economies for three consecutive years. During the time of big disasters, Chinese people generally believe that the Chinese government is people-oriented, responsible for people and accountable. It has also been proved in the past decades that the Chinese government is the most important and reliable force in dealing with major disasters.

Third, Chinese people are strongly committed to collectivism. Although strict control measures damage the freedom of travel and business activities, most Chinese people show a good understanding of these measures and are willing to temporarily sacrifice individual freedom and rights for the sake of overall and long-term interests of the society.

Fourth, people's basic lives could be guaranteed under strict control. The social management and public service system is relatively complete in China's grassroots society. Most urban and rural citizens have a social tradition of helping each other. At the same time, there is a relatively developed e-commerce network and logistics system. In a strictly controlled social environment and with support from the

government, the society and the market, people's daily lives have not been severely disturbed.

Fifth, group effect to some extent propels people to follow the strict prevention and control measures. Facing the complexity and uncertainty of COVID-19, many citizens suffered from panic and anxiety. The society as a whole has demanded strict control requirements of various levels, including government and community's control measures as well as residents' spontaneous mutual supervision and restraint. All the feelings and measures form group effect of strict control, which to some extent propels people to follow the strict measures.

Why are healthy Chinese wearing face masks outdoors?(Q01)

Sen Gong
Center for International Knowledge on Development

（Credit: online resource）

A: After the outbreak of COVID-19, the Chinese experts recommended the public wearing face masks in the epicenter of the outbreak or during the public gatherings outside the epicenter. In reality, however, most localities require that all people should wear the face masks in public places. I think there are four major factors for the Chinese people to accept the requirements of wearing the face masks outdoors.

First, ideally only patients need to wear face masks. However, in reality since many cases have no symptoms or mild symptoms, it is hard to know who are infected, not to say to ask them to wear face masks. According to a Japanese testing on all the Japanese citizens evacuated from Wuhan, China to Japan, 41.6 percent of all passengers testing positive for COVID-19 had no symptoms. Another research on the 72,314 confirmed cases conducted by China Center of Disease Control (CDC) suggests that there were 889 cases without symptoms, accounting for 1.2 percent of all the confirmed cases.

Second, it is very difficult, if not impossible, for the general public to keep appropriate social distancing in many public places because of heavy population density. In Hubei Province, the epicenter of the outbreak in China, there was about 60 million population in 2019, roughly the same as that in Italy. The land area in Hubei, however, is only about 61 percent of that in Italy.

Third, some of the infected would not wear face masks because wearing masks only benefits others rather than themselves. The single most important purpose for the infected to wear masks is to prevent others from infection. However, it is the infected who are bearing all the costs such as breathing

difficulty, purchasing expenditures and even discrimination. Thus, the infected may have no incentives to wear face masks all the time. All people wearing masks could ensure engagement of the infected and self-protection of the healthy.

Besides, all people wearing masks could reduce the risk of aerosol transmission. Although aerosol transmission is not proved yet, its possibility has not been ruled out either.

Last but not the least, the Chinese society widely follows the requirement of wearing masks because of its confidence in production capacity. China has demonstrated its capacity to meet all the demands on face masks in a short period of time. Within a single month of February 2020, for example, the daily production capacity and real production of face masks increased 4.2 times and 11 times respectively in China. On March 2, both the capacity and the actual production for face masks exceeded 100 million per day, which could meet the demands of both the frontline medical staff members and the general public.

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How does China ensure timely and accurate collection and reporting of coronavirus data?(Q37)

Dong Dandan, Liang Weitang
Center for International Knowledge on Development

A: First, China timely detects and screens cases by adhering to the principle of “early detection, early reporting, early diagnosis, and early isolation”. Once a suspected case is identified, healthcare authorities and Disease Control Centers (CDCs) will collect samples and send them to testing within 24 hours and deliver the results within 48 hours[1]. At the same time, epidemiological investigations are conducted to screen and test close contacts of confirmed and suspected cases.

Second, data is directly reported through the National Reporting System (NRS). Drawing on findings from the first point, healthcare authorities or CDCs fill in infectious disease report cards in accordance with the requirements of the NRS, and report the number of confirmed cases, suspected cases, and close-contact cases on a daily basis. City and provincial CDCs need to review and approve the data in the system within 2 hours. The national CDC can get verified case data within 4 hours.

Third, authorities at different levels relentlessly check for possible errors, improve the reporting mechanism, and unify the statistical specifications. For reasons such as flawed diagnostic standards and technologies, overloaded medical resources, and insufficient epidemiological investigators during the early stage of the outbreak in Hubei province, the statistical measure and dimension were not perfect. For example, the prison system in Hubei Province was not connected to the NRS, and the data was largely reported manually. There was a lack of coordination between the prison authorities and the local CDCs. After noticing the problem, the prison authorities and the local CDCs checked and corrected the data in a timely manner[2].

Fourth, China timely publicizes information on confirmed cases and put them under public scrutiny. China discloses detailed information of each confirmed case, including residence address and travel history. This ensures the public's right to know and facilitates public participation and supervision.

Fifth, a strong oversight and accountability mechanism is put in place. On January 24, the State Council launched a new segment on its Internet Plus inspection platform[3]. The segment is aimed to collect clues of wrongdoings on the prevention and control of the Coronavirus epidemic, including misconducts such as delay, concealment, and under-reporting of relevant information. Mr. Cai, deputy director of the Lengshuijiang city committee of the CPC, and Mr. Yang, deputy director of the general office of Lengshuijiang city government in Hunan province failed to timely report the number of migrants. Moreover, the three-time reported data were inconsistent. Such misbehaviors dragged the process of contact tracing. Both were then removed from their posts for further investigation[4].

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Why did China close all schools?(Q27)

Zhu Qingyi
Center for International Knowledge on Development

A: The COVID-19 outbreak took place during the winter break of Chinese schools. On January 27th, China’s Ministry of Education (MOE) announced that the 2020 spring semester for schools would

be postponed due to the novel coronavirus outbreak. The MOE warned that students who had left campuses for the Spring Festival holiday should not return without approval before the new semester. All schools should guide students to stay at home, avoid gatherings and mass activities. The MOE also urged schools to draw up epidemic prevention and control plans and to routinely track the movements of students and teachers. On February 27th, the CPC Central Committee leading group on novel coronavirus prevention and control once again stressed that universities, middle and primary schools, and kindergartens should continue to postpone the coming semester in principle. Keeping schools closed during the COVID-19 outbreak helps protect students and teachers through preventing the virus from spreading to campuses. A couple of reasons explain the practice.

Source: China News

First, teenagers and children are vulnerable to COVID-19 infection. Admittedly, data on individuals aged 18 years old and under suggest that there is a relatively low attack rate in this age group. For them, the disease appears to be comparatively mild or even asymptomatic. Yet it is not possible to tell from available data whether children are less susceptible or if they present differently clinically. In fact, everyone is assumed to be susceptible because in humans there is no known pre-existing immunity to the newly identified pathogen. Patients with mild or no symptoms are able to spread the novel coronavirus as well. Comparing with adults, children patients generally experience longer incubation periods, atypical symptoms and prolonged intestinal detoxification period. Hence, underage mild-symptom and asymptomatic patients tend to be misdiagnosed or missed diagnosed, which may lead to wider spread of the virus.

Second, behavioral and hygiene habits of young children increase virus transmission risks. Young children are normally unable to abide by the strict requirements of COVID-19 prevention and control. It is very hard for them to keep appropriate social distance, wash hands and wear face masks in a medically correct way. Cross infection could therefore easily occur among young children.

Third, high crowd density in campuses and classrooms results in higher cross infection risks. COVID-19 is transmitted via droplets and fomites during close contact. In a country where the student population is very large, crowd density in campuses is high. In 2018, there were 518.8 thousand schools in China with 276 million students enrolled and 16.7 million teachers employed. School shutdowns prevent virus spread among students and teachers by avoiding mass activities and crowd gatherings.

Fourth, starting a new semester may cause cross-region transmission because the populous group of higher education students need to travel back to campuses from everywhere home and abroad. Higher education students in China total 3.8 million. In Wuhan alone, there are more than 1.2 million college students. On one hand, dormitory and canteen disinfection present a huge challenge to higher education institutions. On the other, student travel peak after the winter break features large passenger flows to limited destinations in a very short time period. Postponing the spring semester reduces passenger flows and gatherings to the largest extent and helps cut virus transmission routes.

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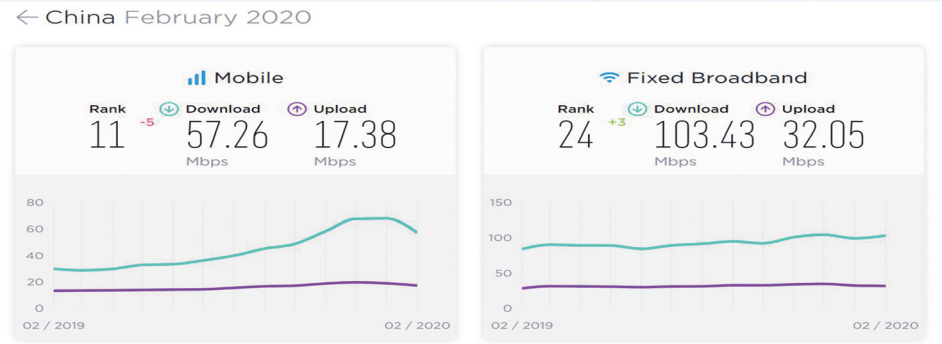
Why can students keep learning amid class suspension in China?(Q28)

Liang Weitang
Center for International Knowledge on Development

A: There are three main reasons that students in China can keep learning amid class suspension.



Source: Speedtest

First, China's network infrastructure has a wide coverage and a fast speed. According to the China Internet Network Information Center and *Global Competitiveness Report 2019*, the number of Chinese Internet users reached 854 million in June 2019, occupying 61.2% of the population. In terms of network speed, according to Speedtest Global Index, China's mobile network speed ranked 11th among 140 economies, and its fixed-bandwidth network speed ranked 24th among 176 economies in Feb. 2020.

Second, in terms of accessibility, China makes efforts to ensure that students in remote areas can share high-quality online resources via internet or cable television. In addition to network platforms, students

can also study at the places with internet access under the organization of relevant authorities or learn online through cable television. For the students in remote areas out of the coverage of cable television, the government has set up an exclusive education channel broadcast by satellite television. The government also organizes proficient teachers from public schools to record courses and provide online instructions, which greatly enriches online education resources.

Third, in terms of affordability, the government encourages schools and telecom operators to reduce online learning costs. Under the guidance of the government, schools and telecom operators have respectively implemented supportive incentives. The Ministry of Education coordinated high-quality primary and secondary schools in Beijing and Shanghai to open their online learning resources to the public for free during the extended break. The three major telecom operators in China introduced promotions to reduce or even exempt students' the cost of data from online learning. These measures helped ensure that students would not stop learning because of expenditure concerns.

Fourth, internet platforms actively participate in facilitating online education. Internet giants seized the opportunity to leverage their platform advantages and actively participated in online education. For example, Tencent Education provides free services to students. Alibaba has also launched a programme entitled "Class at Home" through Youku and DingDing. Tomorrow Advancing Life (TAL) Education Group provides free live broadcast platform and technical support to primary and secondary schools in China, covering more than 300 schools in 49 cities and counties across the country.

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Why diverting international flights bound for Beijing to designated first points of entry?(Q48)

Hua Ruoyun
Center for International Knowledge on Development

A: As the capital of China, Beijing has become a key battlefield for the prevention of imported cases after the COVID-19 outbreak was largely controlled in Hubei. As of March 19, Beijing Capital International Airport, the most important international aviation hub in China, still has 205 international flights per

week, connecting 33 countries including the United States, South Korea, France, Germany, and Spain. Therefore, Beijing Capital International Airport faces high risks of imported cases.

In order to diversify risks, reduce pressure of quarantine and treatment, and maintain normal economic and social order in Beijing, Chinese ministries including the Civil Aviation Administration, the Ministry of Foreign Affairs, the National Health Commission, the General Administration of Customs and the National Immigration Administration, with the approval of the State Council, jointly issued the Notice on Diverting International Flights Bound for Beijing to Designated First Points of Entry into China (No. 1) on March 19th. This measure is conducive to strictly preventing imported cases, to protecting the life and health of passengers, and to improving the efficiency of customs clearance while preventing epidemic.

An airport to be selected as a first point of entry should meet three criteria. First, it should be an international airport, being able to receive foreign flights and having custom clearance conditions. Second, it should meet the requirements of safe operation regulations in support capacity, such as being able to support category E aircrafts and having good sound operation record. Third, it should have major domestic airline companies or sales departments in place. Airlines can choose the first point of entry based on direction of the route.

Meanwhile, it is also made clear in the Notice that timely adjustment will be made to the designated first points of entry for international flights bound for Beijing and other relevant measures based on the epidemic development.

Why did China impose a lockdown on Wuhan?(Q06)

Ma Jun
Center for International Knowledge on Development

A: There were three reasons for locking down Wuhan City, the epicenter of the COVID-19 outbreak.

The first reason was the need to control the source of infection. Before the lockdown, Wuhan witnessed a notable increase of patients with fever. The healthcare system in Wuhan was already under great pressure, and the fever clinics, outpatient services, and emergency rooms were severely overloaded. The outbreak in Wuhan had spread to other parts of Hubei Province and the country as most reported cases of COVID-19 across the country could be traced back to the city.

The second reason was the need to cut the chains of transmission. Along with the Spring Festival migration, the epidemic could spread across the country via Wuhan and Hubei Province. The outbreak started before the Lunar New Year holiday, when a great number of people in China would travel across the country for family reunions and tourism. As a centrally located transportation hub for roads, railways, waterways, and aviation in China, Wuhan was a typical transfer station for various passengers. It was estimated that in January 2020 transportation services in the city would serve about 15 million passengers

during the holiday period. The lockdown of Wuhan, including transportation closures and inbound and outbound travel restrictions, was imposed to stop the epidemic from spreading nationwide through interregional transportation. Experts and scholars including Dr. Tedros Adhanom Ghebreyesus, Director-General of WHO, commented that the Wuhan lockdown reduced the possibility of the epidemic's further spreading, and that the measures taken were very appropriate and highly important.

Last but not least, the reason was the need to react to the uncertainty as well. Based on the judgement of China's COVID-19 Expert Team and the High-level Expert Group of the National Health Commission (NHC), the only certainty about the COVID-19 was the human-to-human transmission. There were many uncertainties about understanding of the epidemic situation, such as what the route and mechanism of human-to-human transmission are, what the exact fatality rate is, who the susceptible groups are, how many people have been infected. Furthermore, the quick development of the epidemic brought unprecedented challenges for the prevention and control of the disease. The lockdown was to reduce the damage caused by the epidemic at large.

What do cities have to consider when they prepare for a lockdown?(Q07)

Bingqin Li
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Sen Gong
Center for International Knowledge on Development

A: As COVID-19 continues to spread, national and city leaders in the world face the tough decision of whether to opt for a citywide lockdown. For world cities, such as London and New York, it is a particularly tough decision. To make the Wuhan experience easier to understand, we compare the conditions of Wuhan and a city of similar size, London, to illustrate some of the political and practical issues. Both cities have about 8.9 million residents, and the areas of the two cities are also quite similar: 8,382 km² for London and 8,494.41 km² for Wuhan.

Decision makers are unavoidably torn between human costs and economic costs associated with a lockdown. Both cities have many businesses, but London's GDP and GDP per capita are much higher than those of Wuhan. London's share of the national GDP is also much higher than that of Wuhan. London comprises 22% of the UK's GDP, whereas Wuhan's share of China's GDP is only 1.6%. A comparable lockdown would have much greater impact on the UK's national economy than the lockdown of Wuhan had on China's economy. What is more, London is a world financial centre. The impact on the world's economy should also be taken into account.

Leaving the economic considerations aside and instead prioritising the health security of the population

on the very top of the government agenda, the city was locked down on 23rd January. There are a number of practical issues to enforce a lockdown.

For a total lockdown to work, it would require strong incentives for the central and local authorities to enforce the rules and a strong persuasive power to build up social consensus. Otherwise, if people can travel or lead a normal life as usual, the purpose of introducing a lockdown would be defeated.

Two levels of lockdown have been enforced in Wuhan over the past two months. The lockdown at the municipality level, or external lockdown, means cutting down all the unnecessary travels into and out of the city. Wuhan has 19 highway exits and 30 toll stations with physical barriers. When the travel ban started, the toll stations were shut down and the need for human enforcement was minimal. The highway system in the UK is toll free, so there are no existing highway barriers. Apart from highway, there are many ordinary roads that can be used to drive out of town. All would require enforcement staff.
The force available for policing the lockdown in Wuhan is stronger than in London. Wuhan has about 17,000 people working as formal police officers and another 20,000 auxiliary police staff. The role of the auxiliary police in China is mainly traffic control in the street. These are often retired or previously unemployed people. During the lockdown, these people were able to man the roadblock. In London, the police force is more formally employed with more than 30,000 police officers. However, it has fewer community support officers.

	London	Wuhan
Police officers	30,940	17,000
Community support officers/Auxiliary police	1,326	20,000
Total	32,266	37,000

For the lockdown in Wuhan at community level, or the internal lockdown, the need for enforcement officers and service providers would be exponentially higher than a municipal level lockdown. In communities in Wuhan, to make sure of food supply, army force and street level bureaucrats were mobilised to arrange food rationing and delivery to the entrance of the communities. Government officials, volunteers and community security guards were placed at the entrance of all the communities and public spaces and shops to enforce the rules.

The lockdown policy has been enforced for almost two months. In fact, it was not so strictly implemented in the first 3-4 days particularly in the first 8 hours immediately after the announcement of the lockdown. In Wuhan the lockdown was announced at 2am on 23rd January and the actual implementation was at 10am with an eight-hour gap in between. Some interviews suggest that the eight-hour gap allowed 300 thousand people left the city before the lockdown. Some experts labelled this practice as compromised implementation.

These considerations are by no means all. We will continue to discuss other factors in the future Q&As. What Wuhan has done is unprecedented. Many lessons can be learnt from this experience. How to build a city and labour force that can protect the population from the most unexpected disasters is a topic not only for Chinese cities, but also for other cities around the world.

Why is China able to practice closed-off community management?(Q31)

Zhu Qingyi
Center for International Knowledge on Development

Source: Beijing News

A: Urban communities and village communities are administratively defined units for social governance in China. Communities provide geographical space for residents' daily activities. China adopted closed-off community management right after COVID-19 broke out. Common measures include but are not limited to minimizing entrance numbers, setting up checking points, issuing entry permits, supervising face mask wearing, enhancing health monitoring and registering personnel and vehicles passing through. At the epicenter of the outbreak, communities enforce social distancing and travel ban by leaving one entrance open only. Residents are completely housebound or have limited opportunities to go outdoors. In areas where the outbreak is not severe, communities reduce the number of available entrances. Residents may enter or exist only with their entry permits. Non-residents are banned from entering.

The key to preventing and controlling COVID-19 lies in communities. Adopting closed-off management appears to be a crucial method. It effectively decreases people flows, protects vulnerable populations and curbs virus spread. Daily activities of elders and children—both groups are vulnerable to COVID-19 infection due to weaker immune systems—generally happen in communities. Aside from residents, groups like couriers, postmen, and employees and customers of community shops also appear in communities every day. High crowd fluidity and density leaves communities prone to big-scale cluster outbreaks and community transmission. Closed-off management measures, especially shutting down community shops and banning non-resident entry, effectively reduces people's gatherings and moving, thus isolating sources of infection and containing the spread of the epidemic.

China is able to practice closed-off community management for a couple of reasons.

First, communities generally occupy independent geographical space, which creates preconditions for closed-off management. Urban communities in China usually distinguish themselves from the outside

with walls and fences. Village communities are naturally physically independent.

Second, China has a relatively mature grassroots social governance system at hand for epidemic prevention and control. Most Chinese communities have established grid management mechanisms. To govern local communities precisely, Street Offices, lowest-level administrative agencies of the Chinese government, hire grid masters and grid workers to closely collaborate with resident committees. Members of resident committees are elected by community residents directly or by the representatives of resident groups. Some resident committees hire building masters and unit masters who are usually older people and keen to participate in community management. Under the coordination of Street Offices, resident committees are able to engage property management companies, residents and other actors in implementing disease prevention measures.

Third, temporary work force, such as CCP members, civil servants, and volunteers from the general public, guarantees labour resources needed for closed-off community management. Civil servants and officials are drafted from various governmental level to the frontline. In Wuhan, around 36,000 CCP member and civil servants were deployed to communities for COVID-19 prevention and control. A large number of residents volunteered to participate in community work. Tasks fulfilled by temporary work force include health status monitoring, epidemiology surveys, delivery of living necessities, etc. Please refer to *Question 18: What have community workers done to combat COVID-19*? for detailed description of the job.

Fourth, daily life needs can be guaranteed during closed-off management. Various e-commerce platforms and shops started to provide contact-free delivery services during the outbreak. Communities have also arranged group purchases and distribution services. In cities where community-based healthcare systems were set up, prescription periods of chronic disease drugs were extended to reduce the number of hospital visits. Drugs are delivered to community-based GPs for people to collect. *Question 17: How do Wuhan citizens address daily life needs?* and *Question 19: What roles did Chinese e-commerce platforms play in preventing and controlling COVID-19?* provide further information about guaranteeing residents' daily life needs. With the efforts of the above actors, residents are able to keep their life in order in a closed-off community.

What have community workers done to combat COVID-19?(Q18)

Yu Lu
Center for International Knowledge on Development

A: Community is the basic unit in Chinese social life. As the executors of China's measures for prevention and control of the COVID-19 at the gross-roots level, community workers have played a vital role in cutting off the virus transmission and curbing the spread of the epidemic by undertaking the following tasks.

First, community workers coordinate hospital beds for confirmed patients based on availability information provided by the street-level institutions. This ensures that all confirmed cases could be timely accepted and treated.

A community worker is screening residents.
(source: China News)

Second, community workers are responsible for screening and tracking residents and implementing isolation measures as needed in communities. Residents are screened one by one. Key targeted groups are urged to stay at home for 14 days for medical observation, whose physical conditions are closely monitored by community workers. Once suspected symptoms such as fever occur, community workers need to immediately send these people to fever clinics for diagnosis and require all the close contacts to isolate for medical observations.

Third, community workers are responsible for information collection. A person is designated to collect and sort out daily community epidemic information, covering key population groups, residents' complaints and suggestions, as well as other new issues in the community. Such information is released to local public and reported to the upper-level government.

Fourth, community workers need to publicize and popularize epidemic prevention and control knowledge among residents. Both online and offline methods are adopted to spread such information as "less going out, no mass gatherings, frequently washing hands, ventilating, wearing a mask when going out". Online methods include WeChat groups, public accounts, QQ groups and other information platforms; offline ones include publicity columns, banners, community radio, loudspeakers and other traditional media.

Fifth, community workers need to manage sanitation and safety issues. They are responsible for daily sanitation and disinfection of public areas and public facilities such as elevators, corridors, and waste sorting points. They need to be on duty at the checkpoints in the community to register and measure temperature of entrants, help close the non-essential, easy-to-gather places such as chess and card rooms, as well as control the flow of people and prevent gatherings in accessible places such as supermarkets and pharmacies.

Sixth, community workers need to purchase goods and provide caring services for the disadvantaged groups and isolated people. They help provide such goods as food, vegetables, meat, eggs and other necessities and medicines, and help apply for social assistance when needed.

Last but not least, community workers also provide other services based on residents' needs, such as haircuts, repairing, psychological counseling and emotional comfort.

In short, community workers, by connecting themselves with every family and every individual, solve the "last-mile problem" in epidemic prevention and control.

Why is testing so important for fighting COVID-19?(Q26)

Zhang Liang
Center for International Knowledge on Development

A: Efficient and timely virus testing is a crucial prerequisite for early identification, reporting, isolation, diagnosis and treatment. Testing casts direct impact on the effectiveness of epidemic prevention and control. WHO has called on all countries to ramp up testing programs. Dr. Tedros, Director-General of WHO, made it clear at the media briefing in Geneva on March 16, "We have a simple message for all countries: test, test, test. Test every suspected case."

First, testing helps identify sources of infection and facilitates overall and targeted planning of epidemic prevention and control. Testing being one of the main means, identifying sources of infection is the precondition and basis of infectious disease prevention and control. China tested potential infectors to identify confirmed cases. On this basis, China adopted a series of measures including conducting targeted epidemiological investigation, tracing close contacts, as well as quarantining and testing close contacts. These have effectively prevented further spread of the epidemic.

Second, testing helps with timely diagnosis and facilitates early treatment to raise the cure rate and reduce the fatality rate. Virus test is an important diagnostic criterion for COVID-19. Timely virus tests shorten diagnosis time and guarantee early diagnosis and treatment, thus being a key measure to raise the cure rate and reduce the fatality rate. According to the statistics of the National Health Commission, the proportion of severe cases in Wuhan dropped from 38% in the early stage to 18% on February 17 through early diagnosis and treatment and continuous observation of mild patients after admission.

Third, testing helps categorize patients and facilitates timely diagnosis and treatment of other diseases. The initial symptoms of COVID-19 are similar to those of many other diseases such as influenza, which can easily lead to misjudgments. Through testing and screening, patients with other diseases can be excluded and receive timely and targeted treatment.

Practice has shown that rapid and low-cost testing through various ways greatly helped the epidemic prevention and control in China. The novel coronavirus is highly infectious and early testing results help reduce the risk of transmission. Through various efforts, China has rapidly improved its capacity and efficiency in novel coronavirus testing. Hubei province can test up to 10,000 people per day under full working capacity. The nucleic acid test (NCT) results can be obtained within about two hours. At the same time, measures were taken to guarantee low-cost access to testing for potential infectors. Despite the lack of a clear and unified standard of testing fees nationwide, all provinces and municipalities in China have incorporated testing costs into financial support and medical insurance reimbursement. For example, Hunan province stipulated that the cost of nucleic acid testing in public hospitals shall be 160 yuan per person and paid by the government and that private hospitals shall not charge more than 160.

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Tracing COVID-19 close contacts: How did China make it happen?(Q36)

Xu Puheyan
Center for International Knowledge on Development

A: Close contact tracing and management is an effective tool to control the spread of infectious diseases. The Chinese National Health Commission, in the Protocol on Prevention and Control of COVID-19 (Edition 6), defines close contacts as "people who had unprotected close contact with a confirmed or suspected case within two days prior to illness onset or with an asymptomatic carrier within two days before sampling". As of March 30, China has identified 706,017 close contacts, among whom 19,853 are still under medical observation.

Close-contact tracing is conducted by designated health professionals through epidemiological investigation. Based on the principle of localized management, the county/district health authorities should work with centers of disease control (CDCs) to initiate the epidemiological investigation on infected patients. For example, in Shanghai, about 550 medical staff were mobilized from Shanghai municipal and district CDCs and were divided into three taskforces, including epidemiological investigation group, disease control group and close contact monitoring group. Moreover, surge medical teams from across the country to Hubei also included staff specialized in epidemiological investigation to assist Hubei to trace close contacts.

Close contacts are located based on massive and careful epidemiological investigations and with the cooperation of community organizations, grass-roots health authorities, CDCs and public security departments. During the process, big-data platforms play a vital role. Upon receiving a reported case, an investigator will first conduct an on-site epidemiological investigation. By interviewing doctors and patients, the investigator will collect information of patients' health details, contacts and travel history and compile an analysis report to identify close contacts. CDC and police officers could also study CCTV footage to further pinpoint patients' contacts when necessary. In addition, through publicizing travel history of confirmed and suspected cases and informing the public of infection risks, relevant government authorities could collect information of close contacts as well.

Close contacts, once identified, are put under collective or home quarantine for medical observation. The observation period is 14 days after the last unprotected contact with a case or an asymptomatic carrier. If close contacts show no symptom within this period, they could be exempted from medical observation. Medical observation can also be removed anytime for close contacts of suspected cases who are not confirmed.

Why are mild-symptom patients treated at designated places?(Q12)

Hu Dengsheng
Center for International Knowledge on Development

A makeshift hospital for mild-symptom patients
(source: CJN.cn)

A: According to the latest Diagnosis and Treatment Plan issued by the Chinese National Health Commission, COVID-19 patients are divided into four categories based on the severity of their symptoms: mild, moderate, severe and critical. Researches find out that 80% of patients are mild and moderate, 15% are severe and 5% are critical severe. Patients with mild symptoms get positive results from the nucleic acid test. Such patients do not have other special symptoms. The main considerations of treating mild patients at designated places are as follows:

The first purpose is to avoid patients with mild symptoms becoming a new source of infection. If there are a large number of patients with mild symptoms in communities, they will become major sources of infection and accelerate the spread of the epidemic.

The second purpose is to ensure that patients with mild symptoms have access to treatment and psychotherapy in a timely and effective manner. China quickly hospitalized and treated all mild patients

and provided them with corresponding medical care and psychological intervention as needed.

The third purpose is to ensure that patients with mild symptoms can be referred in time when condition worsens. The condition of those patients can be monitored in real time at designated places. Medical staff could be informed when conditions of patients worsen and help timely transfer these patients to a regular hospital for intensive medical treatment.

Why do COVID-19 patients need collective or home quarantine for 14 days after being discharged from hospitals?(Q32)

Hu Dengsheng
Center for International Knowledge on Development

A: According to the Diagnosis and Treatment Protocol for Coronavirus Pneumonia (Trial Version7) issued by the Chinese National Health Commission (NHC), the discharge criteria for COVID-19 patients are as follows: no fever for more than three days, improved respiratory symptoms, pulmonary imaging showing obvious absorption of inflammation, and 2 consecutive negative nuclei acid test results for respiratory tract samples. The Protocol also recommends that patients continue to undergo quarantine and observe their own health conditions for 14 days.

COVID-19 patients need collective or home quarantine and observation for 14 days after being discharged from hospitals for the following reasons:

First, a small amount of coronavirus still exists in some patients who have met the discharge criteria. In the light of current epidemiological observation, patients infected with the novel coronavirus usually do not show clinical symptoms during the incubation period. More importantly, although some discharged patients may show significantly-improved or no clinical symptoms, they could still carry a small amount of virus and are in a recovery process of virus clearance. With the 14-day quarantine and observation after being discharged from hospitals, the recurrence of positive NCT after the initial recovery and the source of infection can be controlled to the greatest extent.

Second, nucleic acid tests may appear “false-negative” for people infected with the novel coronavirus. The test results can be “false-negative” because of such reasons as the characteristics of the novel coronavirus, the stability of coronavirus test kits, and the collection and transportation of samples. Through the two-week quarantine and observation, these patients could be transferred to designated

hospitals for re-diagnosis in time once the clinical symptoms like fever and cough appear. This also helps cut the transmission of the disease.

Third, two-week collective or home quarantine can reduce the risk of infection with other pathogens due to low immune function. If discharged patients do not undergo effective health management and test during the recovery period, they would be at the risk of infection with other pathogens due to their weakened immune system.

Why medical teams can be mobilized nationwide to aid Hubei and Wuhan in a very short time?(Q13)

Shen Qiu
Center for International Knowledge on Development

The national medical team set off for Hubei (source: Xinhua News)

A: After the epidemic outbreak in Wuhan, Chinese central government made a rapid deployment to mobilize national medical resources to support Hubei province for the control and treatment of COVID-19. Since the first group of medical teams arrived in Wuhan on January 25, over 300 medical teams of 40,000 medical workers in total came from 29 localities, national agencies and the military have rushed to Hubei to combat the virus. Under the arrangement of National Health Commission, 19 provinces and municipalities provided pairing assistance to 16 cities and counties in Hubei province. There are four reasons that the Chinese government has been able to mobilize such a large medical team to aid Hubei and Wuhan in a short time.

First, China is a country with a unitary system. The central government has the power and capacity to mobilize, integrate and allocate national resources to meet major national challenges.

Second, public hospitals constitute the major components of China's medical and healthcare system. The construction and planning of public hospitals, as well as their personnel and financial arrangements,

are managed by the government. The central government has the legal authority to mobilize, integrate and deploy public medical resources across the country to control the epidemic outbreak and treat the infectors.

Third, despite that China's medical resources per capita is relatively lower, the country has a large scale of total medical resources. The resolute "Wuhan Lockdown" move contained the spread of the virus, which enabled the government to reallocate medical resources in other provinces and cities to Hubei.

Fourth, the Chinese nation and its people share their traditional spirit of helping each other and standing together through thick and thin. Thousand years' history shows that national cohesion and people's unity is a powerful force to overcome difficulties. Such spirit inspired tens of thousands of medical workers to volunteer to go to Hubei after the outbreak of COVID-19.

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How did China address medical supply shortages?(Q20)

Xu Puheyan
Center for International Knowledge on Development

A: The COVID-19 outbreak coincides with the Spring Festival holiday in China. Factories were closed and workers went home for holidays. Medical supplies were in serious shortage. Through full cooperation of relevant government departments and manufacturers and by taking advantage of the relevantly complete industrial chain system, China successfully reversed the unfavorable situation of medical supply shortages.

Face mask manufacturing plant
(source: Xinhua News)

According to the Chinese Ministry of Industry and Information Technology (MIIT), within one month, the daily output of N95 masks and protective suits had increased from 200,000 to 1600,000 and from 20,000 to 500,000 respectively. The production capacity of other medical equipment such as ambulances has also been

greatly improved.

Here are some measures that China has taken to address medical supply shortage.

First, medical material producing companies are urged to resume work ahead of schedule and expand their production capacity through technology upgrading.

Second, non-medical companies are encouraged to switch up their production lines. Non-medical equipment manufacturers are engaged in conducting independent research and development or purchasing of new production lines to make urgently needed medical supplies. Automakers such as SAIC-GM-Wuling and BYD, and manufacturing companies in apparel, food, cable, and others restructured their production capacity to ensure full supply of face masks.

Third, the entire industrial chain is operating in a coordinated manner. Upstream enterprises were making an all-out effort to supply raw materials. The manufacturers themselves and relevant government authorities communicated in a timely manner to resolve issues regarding equipment and raw material supplies.

Fourth, local authorities and financial institutions provided support. Different local authorities urgently organized training for unskilled employees from other enterprises to overcome labor shortage. Financial institutions established special channels to address funding constraints.

In the process, relevant government authorities continued to roll out policies and measures, including launching the national material platform, sending working groups to key enterprises, connecting the export standards with Chinese ones, and promising to buy back redundant stocks. Such measures helped efficiently mobilize resources and guarantee interests of manufacturing companies.

Why do designated hospitals in China have so many large medical devices such as Extracorporeal Membrane Oxygenation (ECMO)? (Q35)

Wang Xiongjun
Center for International Knowledge on Development

A: China has dedicated tremendous human and material resources to COVID-19 treatment. A large number of medical devices and supplies were sent to frontline hospitals. WHO visiting experts even found 5 ECMOs in one hospital, which outnumbered most hospitals in Europe. “If I had COVID-19,

I'd want to be treated in China." Bruce Aylward, Assistant Director-General of WHO and team leader of the WHO-China Joint Mission on COVID-19, stated after the visit. Designated hospitals for COVID-19 treatment in China have many large medical devices such as ECMO at hand because of the following reasons.

（Credit: online resource）

First, China's healthcare industry has built up a big reservoir of talent, devices, techniques and funding over decades of development. Taking ECMO as an example. There are about 430 ECMO centers worldwide practicing around 13,000 treatments annually. China has 260 ECMO centers with about 400 devices conducting nearly 4,000 treatments annually. [1] Wuhan is a regional hub city with 61 Grade- Ⅲ hospitals, among which 27 are Grade- Ⅲ -A hospitals and 5 are among China's top 100 hospitals. Wuhan is thus equipped with relatively advanced medical resources and devices. [2]

Second, a huge number of medical devices were sent to Wuhan under nationwide requisition. The coronavirus outbreak drastically increased Wuhan's demand for large medical devices. The material support team of the Central Guidance Group issued a requisition notice nationwide. Hospitals all over the country responded with great generosity. After two rounds of requisition respectively on February 23 and 26, a total of 21 ECMOs arrived in Wuhan from hospitals across the country and were quickly put into use. [3]

Third, global procurement and urgent express delivery further ensured supplies of medical devices. Upon receiving an urgent procurement requirement on February 10, the Ministry of Industry and Information Technology and the Red Cross Society of China acted immediately and managed to purchase 29 ECMOs from the global market within half a month. The devices were delivered to Wuhan at the fastest possible speed thanks to the support of the Civil Aviation Administration, General Administration of Customs, Air China, Postal Aviation and other departments in customs clearance and transportation. It is worth noting that there are only a dozen of ECMO manufacturers worldwide and that the common delivery cycle is three and a half months.

In addition to the above sources, some medical aid teams brought ECMOs and other large medical devices with them to Wuhan. Donations from various social sectors also provided some equipment. For example, Terumo Japan donated 3 ECMOs, [4]and Han Han, a well-known Chinese writer and director, donated 1 ECMO to Wuhan. [5]

Despite the fact that China lags behind developed countries in medical device possession per capita, China has relatively sufficient advanced medical equipment reserves. In addition to ECMO, China also reserves a large number of CT scanners, ventilators and other important first aid equipment. For example, the number of CT scanners per million people in China increased from 7.8 in 2013 to 14.3 in 2017. Although the number is smaller than that of Japan (92.6 per million people) and the United States (32.2 per million people), China owns a total of 19,000 CT scanners. [6] Besides, most first aid equipment can be produced in China. Generally speaking, China is able to guarantee medical device supplies in the event of a pandemic.

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Why were health care resources overloaded in Wuhan?(Q09)

Dong Dandan
Center for International Knowledge on Development

A: Starting from mid-January 2020, medical resources were overloaded in Wuhan. This was not a result from insufficient supply of local medical resources in the city. In 2018, Wuhan had about 7.48 hospital beds per 1,000 people , while the whole country had about 6.03 per 1,000 on average . The number of hospital beds per 1,000 people in Wuhan is actually higher than that in the United States and some OECD countries. We think the following four factors contribute to the overloading of healthcare system in Wuhan.

A medical staff attended the patients in protective clothing
source: The Beijing News

First, after one month's accumulation and development, the conditions for a large number of unconfirmed patients worsened. These people need intensive medical services. The earliest case in Wuhan emerged in early December 2019, but many infected people were not aware of the disease when the outbreak had not been discovered, so they did not seek medical treatment immediately. With the aggravation of conditions and difficulty in self-healing, a large number of patients flocked to hospitals for testing and treatment.

Second, the outbreak coincided with a high incidence of influenza. The outbreak of COVID-19 occurred in winter, when seasonal infectious diseases such as influenza were in high incidence. Even if there was no outbreak of the epidemic, respiratory departments and fever clinics at hospitals are usually overcrowded during this period. The influx of a large number of COVID-19 patients further increased the pressure of hospitals in diagnosis and treatment.

Third, the hierarchical diagnosis and treatment system is still incomplete in Wuhan, which resulted in the concentration of patients in a number of large hospitals. Wuhan has not implemented the strict hierarchical diagnosis and treatment system, and large-scale medical institutions are often the first choice for the public to seek medical treatment, while community health services center and other primary health institutions are not visited. After the outbreak, a large number of patients swarmed into the fever clinic of large hospitals, resulting in frequent cross-infection among patients, family members and other groups, further exacerbating the issue of overloading.

Fourth, the unknown virus makes the public panic. People panicked at the early stage of the outbreak due to the sudden emergence and rapid spread of the virus. When lacking effective information, the public often associate novel coronavirus with SARS, which further aggravated people's sense of insecurity. Dominated by panic, numerous patients with suspected symptoms swarmed into hospitals for treatment, resulting in overwhelmed operation of hospitals and Wuhan's health system.

In addition, due to inadequate protection at the early stage of the epidemic, some medical personnel were also infected, which also worsened the overloading situation of hospitals in Wuhan.

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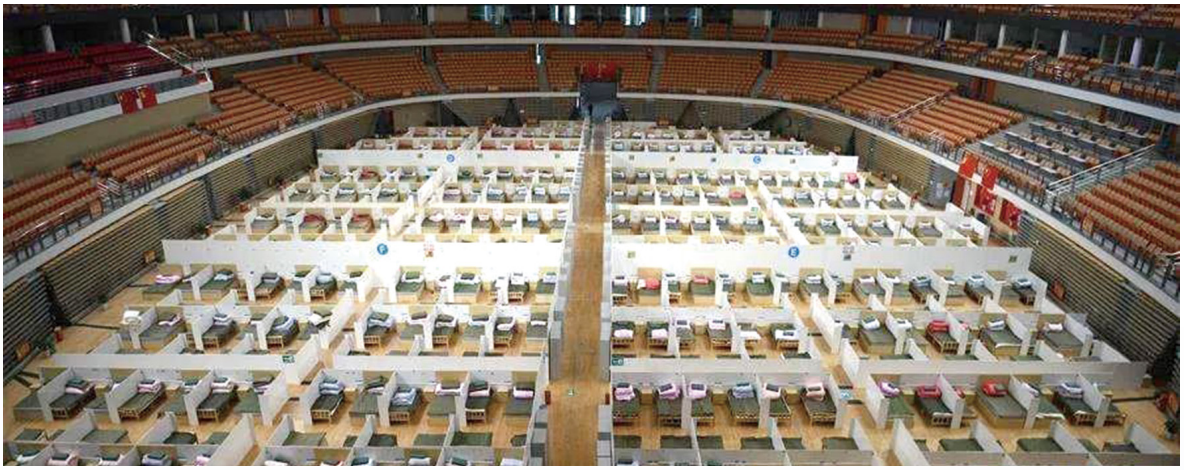
Why makeshift hospitals are built to fight the COVID-19?(Q11)

Zhang Liang
Center for International Knowledge on Development

A: Makeshift hospitals are mobile medical spaces, generally composed of medical functional units, ward units, technical support units and other parts, with emergency treatment, surgical treatment, clinical testing and other functions.



A makeshift hospital (source: Xinhua News)

The original intention of building makeshift hospitals is to accommodate and treat patients with mild symptoms. 80-85% of COVID-19 patients experience mild symptoms. Most of them can recover spontaneously or avoid worsening with some standardized medical care. The concentration and isolation of these mild patients who have accumulated at homes, communities and society play a crucial role in controlling the spread of the epidemic. In the context that the capacity of the designated hospitals is limited and difficult to meet the requirements, the makeshift hospitals have the features of large capacity, fast construction speed and low cost. Although the medical conditions are not as good as those in the designated hospitals, it includes mobile clinics, operating rooms, and laboratories, which are enough to treat patients with mild symptoms. Therefore, beds in designated hospitals can be freed up for the treatment of more severe patients.

Makeshift hospitals have played three basic functions in the treatment of mild patients. The first is the isolation effect. Further spread of the epidemic can be prevented by treating patients in isolation place and cutting off transmission caused by family and social contact. The second is the therapeutic effect. Makeshift hospitals can offer medical care in accordance with the rules and characteristics of the disease to mild patients, so as to prevent the deterioration of mild diseases as far as possible. The third is the monitoring effect. Makeshift hospitals can discover the situation when patients' condition aggravates and immediately transfer patients to designated hospitals for intensive medical treatment.

Makeshift hospitals have taken various measures to prevent cross-infection. These hospitals follow strict functional divisions. Patients in the makeshift hospitals were infected with the same virus, therefore, there was no cross-infection risk between patients. To avoid possible influenza cross-infection, hospitals required all patients to be tested for influenza before admission. If it was influenza, they cannot be admitted. Hospitals stipulated that patients must wear masks for isolation. The staff carried out comprehensive protection in the wards. Through the above measures, makeshift hospitals are not weaker than the normal hospital in terms of prevention of nosocomial infection.

On March 10, 2020, Wuhan makeshift hospitals suspended after 35 days of operation. More than 12,000 patients have been cured in 16 such facilities, effectively solving the problem of accommodation and treatment. Makeshift hospitals played a key role in reversing the once extremely passive situation of prevention and control of the epidemic.

Note: some contents refer to the interview with Xinhua News Agency reporter by Academician Wang Chen, vice president of Chinese Academy of Engineering.

How did China manage to mobilize resources to construct two temporary hospitals within a matter of days?(Q10)

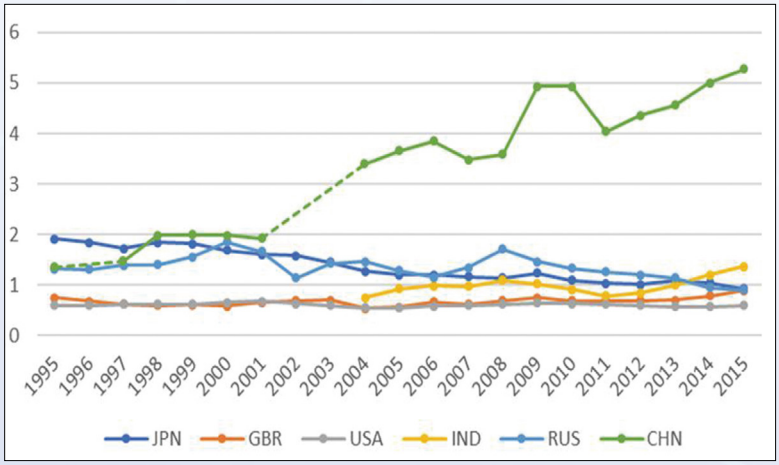
Liu Chen
Center for International Knowledge on Development

A: To boost the capacity for treating COVID-19 patients, the Chinese government constructed two designated hospitals in a matter of days. This has drawn wide attention from the international community. The reasons could be attributed to the following four factors.

The first is the experience of constructing the Xiaotangshan Hospitial in Beijing in 2003 during the SARS outbreak. Xiaotangshan Hospital utilized modular design, and was completed in only 7 days. This experience provides useful lessons for the constructions of new temporary hospitals in Wuhan.

The second is that China excels in building infrastructure. Infrastructure has always been a major driver for China's rapid economic and social development. China's total investment in infrastructure and its infrastructure investment to GDP ratio are both significantly higher than those in other countries. China's emphasis on infrastructure and its great capacity formed the important basis for swiftly building the two hospitals in Wuhan.

On February 4th, the Leishenshan Hospital was under construction
source: Xinhua net



Investment in transportation infrastructure to GDP ration
Source: OECD Library

The third is improvement in resource mobilization and coordination capacity from years of experience with dealing with public emergencies. China is one of the countries that are most heavily impacted by natural disasters. China has experienced many droughts, floods, and earthquakes over the years. In order to protect its people, the Chinese government had established a well-functioning emergency management system, and its capacity to mobilize resources and coordinate efforts was greatly improved as a result of tackling various natural disasters.

The fourth is the commitment and devotion of every involved individual. Although the outbreak of the coronavirus coincided with the Chinese New Year holiday, many volunteered to work on the construction site, giving up vacations and disregarding the enormous risk of being infected. At peak hours, there were more than 7000 workers and over 800 pieces of heavily machinery on site, working simultaneously. Additionally, many people from neighboring communities also volunteered to provide food and other necessities for the construction workers. The great commitment made by all the individuals was key to the rapid completion of the two hospitals.

Why were the designated hospitals in Wuhan not overwhelmed at the peak of the outbreak?(Q42)

Zhong Sheng
Center for International Knowledge on Development

A: At the beginning of the epidemic, as the number of COVID-19 cases skyrocketed, medical institutions, especially the designated hospitals in Wuhan, were overwhelmed due to limited healthcare resources. Facing such situation, strategic deployments and adjustments were timely made to the designated hospitals to prevent the collapse of the medical system.

Source: Qilu Evening News

First, more hospitals and beds were made available. Thanks to the construction of the Huoshenshan Hospital and the Leishenshan Hospital, as well as a series of requisitions and flexible transformation of other hospitals, the number of designated hospitals increased from only one, the Jinyintan Hospital, to 55 . The beds expanded to 24,387, accounting for nearly one-third of the total in Wuhan's hospitals.

Second, only COVID-19 patients in severe condition were admitted to hospitals through precise identification. In order to assuage hospital bed shortage and improve the efficiency of medical resources, the designated hospitals updated their functions continuously. Starting from February 5, the designated hospitals only admitted patients who suffered from severe or critical symptoms and critically ill suspected cases. By doing so, these hospitals were well-positioned to achieve the goal of "accepting as many patients as they should be".

Third, the demand for treatment of critically ill patients fell through a "coordinated war" on the virus. The makeshift hospitals timely treated a large number of mild cases and reduced the possibility of these cases developing into severe ones. It is worth mentioning that combined traditional Chinese and western medicine treatment played an important role in this regard, the rate of patients with mild symptoms turning severely unwell dropped sharply to about 2%-5% . In addition, measures such as lockdown of cities and home quarantine effectively curbed the spread of the virus, greatly easing the pressure on the designated hospitals.

Fourth, the shortage of health professionals was addressed thanks to nationwide assistance. More than 40,000 doctors and nurses, including top professionals in respiratory, infection, and ICU (11,000 ICU doctors, accounting for nearly 10% of the national total), surged to join the medical teams in local hospitals in Wuhan and other places in Hubei. Affectionately known as "angels in white", medical workers with strong work ethics rushed to the frontline bravely and provided tremendous support for emergency response.

Fifth, infection of medical staff is controlled because of adequate protection. The designated hospitals minimized the risk of infection among medical workers and prevented cluster of cases and super spreaders through scientific transformation of infrastructure, strict formulation of protection protocols, priority allocation of supplies and materials, and optimization of the work scheduling process.

As a result, Wuhan effectively removed the sticking points that would affect treatment. The overloaded situation of designated hospitals did not occur any more at the apex of the outbreak.

How did China meet the needs of medical staff when face masks were in short supply?(Q47)

Hu Dengsheng
Center for International Knowledge on Development

A: At the very early stage of the COVID-19 outbreak, China faced severe shortage of personal protective equipment (PPE) such as masks (especially the N95 respirators). The Chinese government took the following measures to ensure that the needs of medical staff were prioritized and met.

First, the general public were called upon not to wear N95 respirators for the sake of protecting front-line medical workers. There are two kinds of masks for epidemic prevention and control: surgical masks and N95 respirators. Research shows that surgical masks and N95 respirators can filter 70% and 95% of bacteria and viruses respectively. Authoritative experts including Zhong Nanshan and Zhang Wenhong pointed out that surgical masks could prevent most droplets with virus from entering respiratory tract and hoped that the general public would not occupy valuable medical resources to ensure that N95 respirators were used to protect front-line medical workers.

Second, the general public were encouraged to wear masks reasonably through extended use and limited reuse to save mask resources. According to the Guidelines for the Selection and Use of Masks of Different Groups in Preventing Novel Coronavirus Infection released by the State Council, extended use and/or limited reuse of masks could be appropriately allowed when acceptable, but attention should be paid to the preservation, cleaning and disinfection of masks. Meanwhile, the public is advised to wear disposable surgical masks when in crowded places such as shopping malls and elevators to reduce the risk of exposure to diseases. For those who stay at home or do outdoor or indoor exercises at well-ventilated and uncrowded places, there is no need to wear masks.

Third, the government coordinated and allocated masks and other medical supplies in a unified way. Masks and other medical supplies are strategic resources for epidemic prevention and control, guaranteeing the safety of front-line medical workers. To improve the efficiency of limited resources and ensure medical supplies in major regions and hospitals, local governments established leading groups responsible for guaranteeing supplies of materials. The needs of front-line medical workers were prioritized in the process of allocation of masks and other prevention materials.

Why are the working hours of Chinese frontline nurses reduced from 6 to 4 hours?(Q38)

Lin Weiwei
Institute of Medical Information, Chinese Academy of Medical Science
Dong Dandan
Center for International Knowledge on Development

A: Working duration of Chinese frontline nurses gradually shortened from 6 hours in the early stage of the COVID-19 outbreak to 4 hours with slight difference among hospitals. There are four factors influencing the working duration of nurses.

The first is related to the adequacy of nurse staffing. Early in the outbreak, Hubei province, especially Wuhan city, saw explosive growth in cases. Designated hospitals were strained in capacity and nurse staffing was inadequate. With more than 40,000 medical staff from 346 medical teams across the country

and the opening of 14 makeshift hospitals, nursing workload was reduced.


（Source: Xinhua News）

The second is related to the shortage of Personal Protective Equipment (PPE). Due to the extension of the Spring Festival holiday, PPE manufacturers had relatively limited production capacity. There were serious shortages of PPE throughout the country, especially in Wuhan. Moreover, it took about one hour to put on and take off PPE. For the sake of saving both equipment and time to diagnose and treat more patients, nurses worked 6 hours or even longer. In fact, working for 6 hours in heavy protective equipment is physically demanding. The protective effect may also decrease if the protective clothing is used for more than 4 hours. In addition, wearing PPE for a long time can easily cause condensation on protective goggles, facial indentations and even skin diseases, undermining the implementation of nursing tasks. As protective clothing supplies increased, the duration of nurses' work was shortened.

The third is related to work intensity. Nurses in ICU or infection departments usually have more workload than general nurses. Frontline nursing staff have even more workload and may not be able to handle pressure well. Generally speaking, nurses work 6 hours in makeshift hospitals, 5 hours in general wards, and 4 hours in ICUs.

The fourth is related to local transportation capacity. Assisting nursing staff lived together in designated hotels and were transported via shuttle buses. With the continuous improvement of transportation capacity, the frequency of shuttle buses increased. As a result, the working hours of each nurse could be reduced.

Why does China widely combine traditional Chinese medicine and western medicine in treating COVID-19?(Q23)

Wang Xiongjun
Center for International Knowledge on Development

A: 1. A massive number of cases and data have proved that combining traditional Chinese medicine

(TCM) with western medicine leads to better curative effect. In 2004, WHO, in a 194-page clinical trial investigation and analysis report, affirmed the safety and effectiveness of preventing and treating SARS through combining TCM and western medicine. For COVID-19 prevention and treatment practices, TCM is estimated to be used for more than 90% of cases in China. Multiple datasets show that combined treatment performs significantly better than western medicine alone in relieving symptoms, shortening hospital stay length, and increasing nucleic acid conversion rate.

2. TCM has a long history and enjoys high public popularity. From a cultural psychological perspective, using TCM has at least a placebo effect. As the novel coronavirus pandemic spreads, demands for Chinese medicine exploded not only in China but also in the US and in Europe. In the context that the efficacy of TCM cannot fully be proved or falsified, people's choices based on long-term historical experience and personal feelings should be respected.

3. TCM is inexpensive and safe. TCM is mainly made from natural plants and some animals or minerals. It has a long history of application and a mature theoretical system and medication guidance. As long as the relevant theoretical guidance is followed, it is safe and cost effective. In the absence of specific drugs, TCM can be an important option for treating COVID-19.

4. The value of TCM should not be denied on the grounds that there are practical problems with TCM or that its theories and practices are unknown or not fully understood. Admittedly, TCM is encountering practical challenges due to long-term shortage of professional talents and policy deviations. However, this does not mean that TCM theories and methods are problematic. TCM has its own independent philosophical system, as well as a systematic and complete theoretical system for life sciences and health interventions. TCM should not be evaluated or judged merely from a western medicine perspective. Both TCM and western medicine are important components of human life science achievements. The combination of TCM and western medicine should base on their respective mature theoretical systems and intervention techniques for joint positive contribution to human life and health.

What role do ventilators play in treating COVID-19?(Q45)

Yu Lu
Center for International Knowledge on Development

A: As the epidemic continues to spread, the world has witnessed rapidly rising demands and a widening supply gap of ventilators. Including the United States, Italy, the United Kingdom and Spain, countries with a large number of confirmed cases have been struggling to meet their demands by purchasing globally and expanding production domestically. Why are ventilators so critical in the treatment of COVID-19 patients?

Breathing difficulties are one of the clinical symptoms of severe COVID-19 patients. When the new

coronavirus attacks patients' lungs, complications such as pneumonia and Acute Respiratory Distress Syndrome (ARDS) may occur. According to the Clinical Guidance for COVID-19 Pneumonia Diagnosis and Treatment (7th edition) released by the Chinese National Health Commission (NHC), in severe cases, patients present dyspnea and/or hypoxemia within one week after onset and some of them may rapidly deteriorate to ARDS. The World Health Organization (WHO) estimated that about 13% of confirmed cases turned critically ill and could have breathing difficulties. In such cases, using instruments to support or replace breathing is the only solution.

An employee of Hamilton Medical AG tests ventilators at a plant (Source Reuters)

Ventilators are vital medical devices in improving human respiratory function. During the process of inhalation, lung volume increases and alveoli expands as a result of the contraction of respiratory muscles. Then inhalation occurs because of the pressure gradient between atmosphere and thoracic cavity. In contrast, during exhalation, respiratory muscles relax and alveoli contracts. Then exhalation happens due to increased pressure within the thoracic cavity. When patients encounter breathing difficulties, ventilators can help achieve the pressure gradient, thus replacing, controlling or changing patients' breathing. Ventilators can be divided into two categories. In non-invasive ventilation, patients receive breathing support through a face mask, nasal mask or a helmet. If the condition does not improve or gets worse, tracheal intubation and invasive mechanical ventilation should be performed timely.

Ventilators play a significant role in reducing the fatality rate of COVID-19. To date, there is still no "wonder drug" in the treatment of COVID-19 patients. Therefore, when severe and critically severe patients have symptoms of respiratory difficulty or failure, using ventilators to assist breathing and ensure oxygen supply to brain and organs lays the basis for follow-up treatment. Given the important role of ventilators in reducing fatality rate, NHC has announced mechanical ventilation as one of the major methods in the treatment of COVID-19 patients.

Additionally, several points are worth noting in the use of ventilators to provide breathing support for COVID-19 patients. For more details, please refer to Question 34: How to use ventilators to effectively support severe or critically severe patients.

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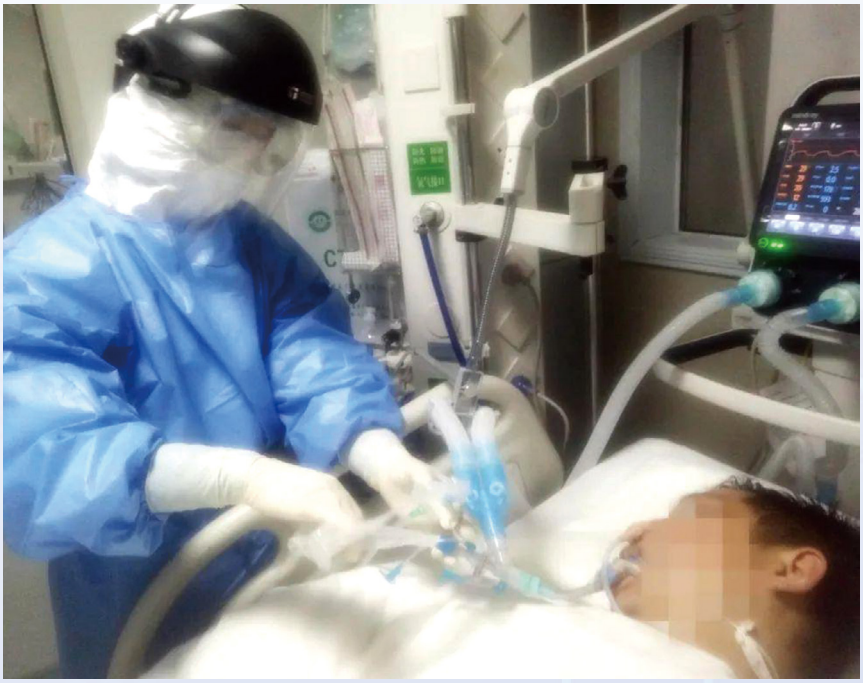
How to use ventilators to effectively support severe or critically severe patients?(Q34)

Yu Lu
Center for International Knowledge on Development
Dong Dandan
Center for International Knowledge on Development

A: As of March 29, confirmed cases of the novel coronavirus pneumonia (NCP) have exceeded 660,000 globally. Many countries are now facing daunting shortages of lifesaving ventilators due to the pandemic, The Society of Critical Care Medicine (SCCM) estimated that about 960,000 NCP patients would require ventilatory support in the United States, while there are only about 200,000 ventilators currently. New York State has approved technology that allows two patients to share a single ventilator. To address the desperate needs of ventilators, many countries are making great efforts to expand production. Ventilators help restore patients' blood



A medical worker is helping a COVID-19 patient with sputum suction
Credit: online resource）

oxygen saturation, thus playing a vital role in the treatment of severe and critically severe NCP patients. However, China's experience indicates that the following points should be noted in the use of ventilators.

First, medical workers need to adjust ventilator parameters based on patients' physical conditions. In several anatomical studies, researchers have observed a large number of sticky secretions in lungs of death cases. These secretions prevent oxygen from entering alveoli, where gas exchange occurs, thus resulting in suffocation and death. Zhong Nanshan, head of the high-level expert group of the National Health Commission and academician of the Chinese Academy of Sciences, pointed out that the large number of viscous mucus in the small airways of serve cases obstructed airflow. That means the mucus plug may be pushed further if the ventilator pressure is too high. Therefore, it is necessary to evaluate patients' respiratory mechanics conditions and to adjust ventilator parameters accordingly.

Second, appropriate sputum cleansing methods should be adopted meanwhile. To enable the ventilators to effectively provide respiratory support, mucus must be diluted and removed to "open up" the airflow path. Practically, medical workers should provide respiratory support after helping patients with phlegm reduction, sputum suction and airway cleansing. For critically severe patients using tracheal intubation and invasive mechanical ventilation, their normal sputum discharge function is limited. In such cases, closed sputum suction should be considered, and bronchoscopy should be performed when necessary. In the process, medical workers must take good self-protection to prevent infection.

Last but not least, prone positioning is helpful for patients in mechanical ventilation. A recent observational study conducted in a 35-bed ICU at Wuhan Jinyintan Hospital found that some patients with severe Acute Respiratory Syndrome (ARDS) did not respond well to high positive pressure, while their lung recruitability was improved in prone positioning. That is because tissues at the bottom of lungs collapse in supine positioning. In contrast, lung tissues face upwards and lungs expand in prone positioning due to respiratory mechanics, exerting positive effects on improving patients' oxygenation status. Therefore, for patients with severe ARDS, prone ventilation should be performed for more than 12 hours per day.

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Why is there no any mass explosion of COVID-19 in the nursing homes in China?(Q24)

Zhong Sheng
Center for International Knowledge on Development

A: At the beginning of the epidemic, a few senior citizens from some nursing homes in Wuhan caught the COVID-19, and all of them were timely sent to hospitals and received proper treatment there. On this basis, the Chinese government ordered that all the nursing homes must implement total lockdown management so as to prevent the occurrence of imported cases and built up some strong defense for all the nursing homes in China against the epidemics, through carrying out early discovery, early reporting, early quarantine, early treatment, as well as efficient checking, collection and treatment.

A nursing home adopt closed-off management (online resource)

Firstly, all the nursing homes are required to practice total lockdown management. The measures include ceasing of receiving any outside visitors or senior citizens who wish to live in the nursing home. Well, inside each nursing home, no any group activity is allowed; all the residents are required to eat separately; safety service is strengthened, and daily sterilization and body temperature testing are also practiced. During the epidemic, the civil affairs departments pay much attention to the guidance and supervision concerning the implementation of the management requirements as required of the nursing homes. They also make efforts to solve all problems very timely; and hold all nursing homes responsible for any failure to efficiently implement the epidemic prevention and control measures, which effectively ensured the professionalism and normativity of various anti-epidemics measures.

Secondly, strengthen the professional epidemics prevention and control guidance for the nursing homes; and coordinate the services of care providers across the nation. The Joint Prevention and Control Mechanism of the State Council issued a series of epidemics prevention and control guidance and relevant regulatory documents for the Chinese nursing organizations; it also published medical guide for the senior citizens at nursing homes, as well as epidemics prevention and control work guide for the medical and nursing organizations. To deal with the problem of shortage of nursing workers, the national

departments of health and civil affairs work together with local governments to provide multiple cross-city and cross-province nursing assistance. At the same time, they try hard to provide comprehensive training and guidance in terms of professional epidemics prevention and control for the nursing homes, by seeking help from the nearly one thousand professional workers in epidemics control who have come from different areas in China to help the Hubei and Wuhan people.

Thirdly, proper publicity and education work have been done for the senior citizens. At the beginning of the epidemic, the national health department published some open letters for all the senior citizens in China, and requested that they should view the matter in a correct way. They should not show any indifference towards the epidemics, nor should they worry too much about it; but instead, they should try to prevent and fight against it in a scientific manner. At the same time, the governmental works hard to spread anti-epidemic knowledge among the senior citizens, by printing pinyin and comic versions of publicity materials which use simple language as well as a combination of texts and pictures. On the other hand, the nursing homes actively teach anti-epidemic knowledge to the elderly, and provide them psychological guidance service in a timely manner.

Why do Chinese health-care workers wear a full set of personal protective equipment?(Q22)

Dong Dandan
Center for International Knowledge on Development

A: After Wuhan lockdown, what we could see on the television is that Chinese health-care workers wore full body personal protective equipments (PPE). The equipment includes N95 masks, gloves, goggles and hazmat-like suits. Even though COVID-19 has been declared pandemic now, an expert published an article in the *New Yorker* saying that Chinese health-care workers are over-protected, and suggested that they only need to wear surgical masks, gloves and gowns following Singaporean and Hong Kong practices. Then why have Chinese health-care workers been armed to

Chinese medical team and the local medical staff of Italy (source: CCTV News)

the teeth?

Because of inadequate protection, health-care workers were infected in the early stage of the outbreak in Wuhan. Over the early stage, more than 1100 health-care workers in Wuhan had been infected with COVID-19. Most of them did not wear the standard infectious disease PPE. Moreover, a member of the Expert Group of the National Health Commission of China, was infected with COVID-19 after investigating the heavily infected areas in Wuhan. This was probably due to his close contact with patients in the fever clinic without goggles. On the contrary, a respiratory team of a provincial hospital in Wuhan equipped N95 protective masks and protective suit for their staffs from the early stage of the epidemic. None of the team members were infected.

Because of the "full armour", none of the tens of thousands of medical workers assisting Hubei had been infected. On January 20, the State Council of China authorized the National Health Commission (NHC) to classify the COVID-19 as a Category B infectious disease but to administer it as a Category A infections disease. On 22 January, NHC issued the Technical Guidelines for the Prevention and Control of Novel Coronavirus Infection in Medical Institutions (First Edition). The Guideline requires health-care service providers and health-care workers to improve personal protection. It suggests the medical professions to implement the required hand hygiene practices, take strict protective isolation measures against droplet, contact and airborne infections, and wear proper protective equipment such as goggles, medical surgical masks, medical protective masks, protective gowns, and hazmat-like suits. As of March 8th, none of the 42,000 medical staff who assisted Hubei had been infected.

The extra cautious protection, or the principle of additional protection, was a result of the perception of uncertainty and higher risks associated with COVID-19. This principle also applies to other workers who are at a similar level of risks. Additional protection is the stronger protection on top of the standard protection. Whether to put on extra protection is based on the evaluation of the actual risks medical workers may be exposed to at work. Generally, the PPE of health-care workers are surgical masks, gowns and so on. However, when the risk of infection exposure is increased, all relevant workers not limited to medical staff, such as cleaners of medical wastes, should wear a full set of personal protective equipment. The circumstances include:

- possibility of contact with blood, body fluids or virus specimens of patients with infectious diseases,
- need to enter infected areas or transfer infectious patients.

When the risk of infection is particularly severe, such as operating on patients with Category A infectious disease, new and recurrent infectious diseases and unknown infectious diseases, more stringent protection would be taken, such as wearing positive pressure respiratory protective hood.

In short, the configuration of PPE for Chinese health workers is based on the experience and lessons of practice. It is a more deliberate, reliable and safer protection strategy.

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How did China reduce the anxiety of frontline healthcare workers amid the COVID-19 outbreak?(Q50)

Dong Dandan
Center for International Knowledge on Development

A: Healthcare workers are not only the backbone in the battle against COVID-19, but also play important roles in family life. Amid the COVID-19 outbreak, they could not take care of their families as they need to work in the frontline day and night. In light of this, active actions have been taken to provide multi-faceted support for the healthcare workers.

First, family members of healthcare workers showed full understanding and support. After the outbreak, medical workers worked overtime and even could not go home. Their family members not only assumed all family obligations, like raising children, supporting the elderly, and doing daily housework, but also provided comfort to relieve their psychological pressure. For example, a husband in Guangyuan City, Sichuan Province, called out to his nurse wife during her departure to Wuhan, the epicenter of the outbreak, "Come back safely, I will do all the housework for the whole year!", showing his care and full support.

Second, the central government issued safeguarding policy to require governments at all levels to care for the frontline healthcare workers. On February 5, the Joint Prevention and Control Mechanism of the State Council issued a Notice on Providing Full Protection and Care to Frontline Medical Workers and Their Families, requiring governments at all levels to take measures to support medical staff in living, mental health, humane care, safety and work subsidies.

In addition, all sectors of society provide support to medical workers and their families through various ways. For example, The All-China Women's Federation calls on women's federations at all levels to deliver food, provide psychological counseling services, support children's education, and provide housekeeping services to frontline medical staff families. In response to the urgent needs of female medical staff, women's federations also urgently raised sanitary products such as sanitary napkins and relief pants, and promoted the inclusion of physiological and sanitary products in the list of epidemic prevention supplies to address the practical difficulties of female medical staff. Some places, like Heilongjiang Province and Fujian Province, established a "one-to-one" liaison system between communities and medical workers' families. The community neighborhood committee fully understood the family situation of each frontline medical staff, and provided follow-up protection to families with elderly parents and young children. The Beijing Municipal Education Commission also requires childcare institutions to provide childcare services for families of medical staff who have difficulties.

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How does the Chinese Government guarantee stable employment facing the impacts of COVID-19?(Q39)

Shen Qiu
Center for International Knowledge on Development

A: Employment is the cornerstone of basic livelihood, economic development and social stability. Influenced by the outbreak of COVID-19, the surveyed urban unemployment rate in China jumped to 6.2% in February 2020, up by 0.9 percentage point month-on-month. To ensure the recovery and stability of employment while preventing and controlling t he epidemic, the Chinese government has introduced a number of policy measures and ascertained the responsibility to ensure the implementation of these policy measures.

First, targeted measures have been taken to promote the resumption of work and production. The government helps micro, small and medium-sized enterprises (MSMEs) overcome difficulties through measures of reducing corporate burdens to stabilize employment. MSMEs contribute more than 80% of the total employment demand of enterprises in China, but are greatly affected by the epidemic due to insufficient cash flow and low resilience. The Chinese government has rolled out a series of traditional employment measures to help MSMEs resume work and production, including slashing taxes and fees, offering financial support and streamlining administrative measures. In places where the epidemic has been alleviated, the government adjusts law enforcement and regulatory measures to allow street-facing shops and itinerant traders to temporarily occupy roads and set up stalls in designated areas. The government also adopts a differentiated and step-by-step approach to promote collaborative resumption of work and production among enterprises. By prioritizing work resumption in major projects, key industries, such as manufacturing, construction, logistics, public service and agricultural production, as well as areas where the epidemic has been alleviated, it is expected that other industries and regions will gradually follow.

Second, multiple measures have been taken to help key groups orderly get back to work and obtain employment. The government has rolled out “health QR Code” and organized special buses and trains, known as “point to point service”, to safely and orderly transport migrant workers back to work. By early March, 80 million migrant workers had returned to work, accounting for 60% of those returning home for the Spring Festival. For migrant workers who could not go to work in urban areas soon, local authorities provided guidance and encouraged them to get employed locally and dedicated themselves to spring ploughing, local agricultural industries and public infrastructure construction. For graduates and other groups facing difficulty in employment, the government has offered assistances, optimized employment and entrepreneurship services, and improved online recruitment.

Third, responsibility system is placed to ensure policies of keeping jobs stable are implemented. To ensure the above policies are implemented, the Chinese government has strengthened organizational

leadership, secured financial support, and provided positive and negative incentives. In particular, in terms of monitoring and supervision, the central government divided employment targets and tasks based on administrative levels and incorporated employment stability as a significant indicator of measuring local governments' performance, paying special attention to employment service, employment of key groups and financial support. Those who failed to implement the tasks will be held accountable.

How does the Chinese government help SMEs address cash flow difficulties during the COVID-19 outbreak?(Q40)

Liang Xiaomin
Center for International Knowledge on Development

A: Small and medium-sized enterprises (SMEs) are of great importance to maintain stable employment and economic development in China. By the end of 2018, there were more than 30 million SMEs and more than 70 million individual businesses in China, contributing more than 50 percent of tax revenue, 60 percent of GDP, 70 percent of technological innovation and 80 percent of employment. During the outbreak, SMEs suffered from declining orders, delayed production and shortage of liquidity. Addressing cashflow difficulties is prioritized for resuming production.

Workers in a clothing factory are busy meeting orders (Source: People.cn)

The Chinese government has taken four actions to help SMEs get through the cashflow crisis.

First, different measures are taken in different sectors to help SMEs resume production. In low- and medium-risk regions, production is resumed orderly. Inappropriate control of logistics and people flows are abolished to enable business resumption. Local governments have set up rapid response mechanism for SMEs to report their problems on production resumption. For example, in March, Shenzhen launched a platform where SMEs can relay their concerns and related government departments are required to respond within 24 hours. In the first 14 hours of operation, 350 enterprises registered and submitted their appeals via the platform.

Second, tax and fee reductions and exemptions are implemented with enhanced fiscal support to SMEs. Between March 1 and the end of May, small-scale taxpayers in Hubei province are exempted from value-added tax (VAT) while the rate decreases from 3% to 1% for small-scale taxpayers in other regions. From February to June, social security contributions from SMEs are exempted provisionally, which is expected to help qualified enterprises save more than 600 billion yuan in total.

Third, support is provided to facilitate financing for SMEs. Eligible SMEs are permitted to postpone the payment of their loans and interest. For those facing temporary hardship caused by the outbreak, financial institutions are not allowed to withdraw loans. A 300-billion yuan special re-lending fund has been launched to help SMEs with the re-lending rate lowered by 0.25%. Commercial banks are required to simplify the loan processes and reduce loan costs. As of March 13, 107.5 billion preferential loan has been issued in total, among which SMEs received 38.5 billion with the weighted average interest rate of 4.36%.

Fourth, the operation cost of SMEs is decreased. All vehicles are exempted from highway tolls amid the outbreak nationwide, reducing logistic expenditures. This policy is expected to cut the cost up to 1.5 billion yuan in total, estimated on the average daily traffic flow of 26 million vehicles. Electricity fees are cut by 5% for enterprises temporarily, allowing about 50 million eligible enterprises to save 44 billion in total between February and June. Platform firms are also encouraged to support on-line business by reducing service fees and lowering entry threshold.

What prevention and control measures have restaurants taken after resuming operation?(Q21)

Liang Xiaomin
Center for International Knowledge on Development

A: China started to take consolidated and coordinated economic recovery measures as the COVID-19 outbreak is being contained. Different regions adopted different approaches per the risk assessment. For example, while low-risk areas are restoring normal work and life, medium-risk regions are encouraged to resume work and production in a gradual and orderly manner. Different sectors also differ from each other in prevention and control measures. The following are what restaurants in China are taking after resuming operation.

First, to reinforce employee management. Measures include collecting health information of employees comprehensively and routinely, increasing employees' self-protection awareness, asking employees to avoid public transportation on the way to and from work, requiring employees to wear masks all the time during work, and conducting professional training for employees responsible for disinfection and

temperature monitoring.

Second, to strengthen disinfection measures in restaurants. Strict disinfection procedures and standards are set in each region. For frequently touched surfaces such as elevator buttons, doorknobs and chairs, disinfection measures are reinforced. Special attention is also paid to tableware disinfection and any system that circulates air.

Customers are registering before entering a restaurant (source: Xinhua News)

Third, to set rules for dining. Takeaway and "contactless delivery" are encouraged. Customers are required to check their body temperature and provide contact information before entry, which enables easier information tracking in case of infection risks. The upper limit of seat occupancy rate is 50%. Customers need to be seated with a safe distance of at least one meter. Tables must be fully disinfected before accommodating the next guest. Restaurants should avoid lines and adopt appointment systems.

Fourth, to prepare prevention and control supplies such as temperature detectors, disinfectant and masks for business resumption. Frontline employees should be prioritized in distribution.

How do Wuhan citizens address daily life needs?(Q17)

Hu Dengsheng
Center for International Knowledge on Development

A: All residential communities in Wuhan are completely locked down amid the epidemic of novel coronavirus pneumonia. Safeguarding people's daily life needs is an important part of epidemic prevention and control in Wuhan and Hubei.

To ensure supplies of daily necessities for Wuhan residents, relevant authorities have taken various measures. For example, the Ministry of Commerce established a cooperation mechanism among nine provinces and cities to provide joint guarantee and supply of life essentials to Hubei province. From January 23 to February 19, eight provinces and cities transported 21,000 tons of vegetables and fruits to Hubei. The Ministry of Agriculture and Rural Affairs launched the daily price reporting system of "vegetable basket" products, and organized and coordinated major vegetable-producing areas including Guangxi, Hainan, Shandong, Hebei etc., to establish a "one-to-one" mechanism with Wuhan and other epidemic-stricken cities. Please refer to Question 3 for a discussion of partner assistance in China's COVID-19 battle.

Meanwhile, Wuhan City mobilized all supermarkets to adopt community group purchase and centralized distribution and set up delivery points at each control checkpoint to ensure that goods could be delivered to Wuhan residents as early as possible. The needs of residents for living materials and medicines are met through innovative ways of group purchase, collective purchase, online platform, and community Fresh Express. Community property management companies, government cadres and volunteer groups are responsible for delivering such materials and medicines to the doors of the residents. For the extremely poor, the elderly living alone, the disabled and the left-behind children, communities also arranges special personnel to deliver meals and medicines to ensure their safety during the lockdown period.

Volunteers are delivering daily supplies to residents. (source: Xinhua News)

How to guarantee supplies of daily necessities for the solitary elders?(Q25)

Yu Lu
Center for International Knowledge on Development

A: Solitary elders are vulnerable groups. They are aged, frail, susceptible and often troubled by mobility problems and lack of information. During the epidemic period, their children are unable to visit them due to the "closed-off management". Thus, these solitary elders might encounter shortages of basic living materials. The Ministry of Civil Affairs has paid special attention to this issue and made arrangement to provide care services for the disadvantaged groups accordingly. At grass-roots level, the following steps were taken to guarantee solitary elders' daily necessity supplies.

Community volunteer deliver food to a solitary elder (source: Xinhua News)

The first step was to identify the solitary elders

and collect their information. Community workers made on-site visits to or phone calls with the solitary elders to understand their preparedness and responses, guardianship, personal needs and physical conditions. Such information was registered, filed, and regularly updated.

The second step was to expand workforce. In early days of the epidemic prevention and control, many communities faced shortage of manpower because of the heavy workload. Under this circumstance, public servants were designated as representatives to look after the disadvantaged households and help solve their problems. Among them, guaranteeing the solitary elders' daily necessity supplies is an important part. Residents and staffs of property companies and social organizations also served as volunteers to provide care services.

The last step was to help purchase and deliver living materials. Community workers, public servants and volunteers needed to keep in touch with the solitary elders or their children and help purchase rice, oil, meat, vegetables and other necessities as needed at supermarkets nearby. These goods were then delivered to each household. Materials could also be mobilized through online and offline solicitations when nearby supermarkets were closed or when some specific needs could not be met.

During the epidemic prevention and control period, offspring's role in taking care of solitary elders is weakened to some extent. China's grid-based management in communities has shown great advantage in quickly identifying solitary elders and clarifying local officials' responsibilities. Community workers were the executors and fighters in the frontline; public servants timely shared the laborious tasks in this process; many volunteers provided care services out of China's tradition of helping each other and respecting the elderly. Through such joint efforts, solitary elders' daily necessity supplies were guaranteed.

How do Chinese citizens support themselves financially during home quarantine?(Q33)

Liang Xiaomin
Center for International Knowledge on Development

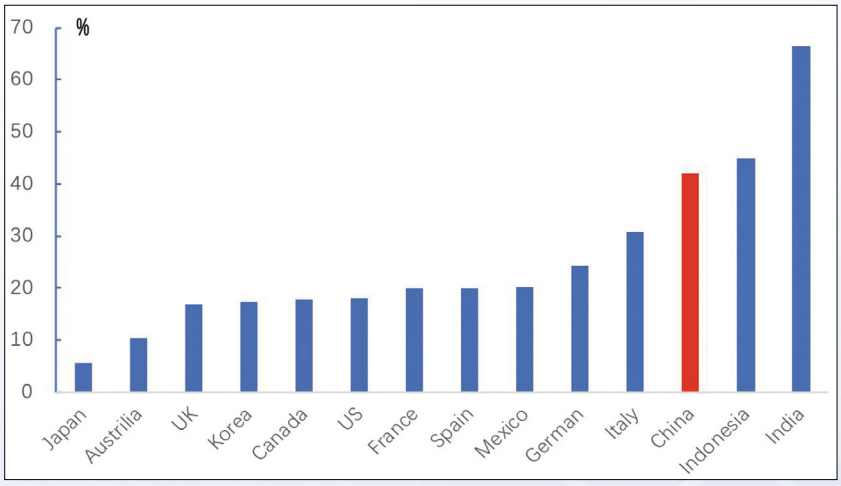
A: Most Chinese people stay at home and avoid contact with others to prevent spread of the novel coronavirus amid the outbreak. Economic activities are suspended nationwide. However, the negative impacts on people's daily life are relatively limited. Here are the reasons.

First, the timing of outbreak overlaps with the Spring Festival, reducing the negative impact on income. The Spring Festival is a 7-day national holidays in China and most companies are temporarily closed except for those in tertiary sectors like retail, accommodation and catering. Most of the employees get their payments before the holiday, while those in informal sectors have prepared cash flow in advance.

Source: Xinhua News

For example, migrant workers who are paid on daily basis usually return home to gather with their family two weeks before the Spring Festival and get back to cities two weeks after the holidays. The overlapping period between self-quarantining and family gathering during holidays alleviates the impact of the epidemic on their incomes.

Second, the characteristics of rural communities where most Chinese live during the outbreak, alleviate their financial pressure. As of 2018, the proportion of rural population accounts for 42.1% in China, much higher than that in the US (18.0%), Korea (17.3%) and Japan (5.7%). The percentage remains quite high even excluding migrant workers. In China, acquaintance society features rural communities, where rural residents benefit from interpersonal trust and infra-family transfers. Rural communities are also geographically and economically independent and could support residents' daily life even during lockdown for weeks. For those who plant most of food by themselves, the damage of the temporary isolation is also limited.

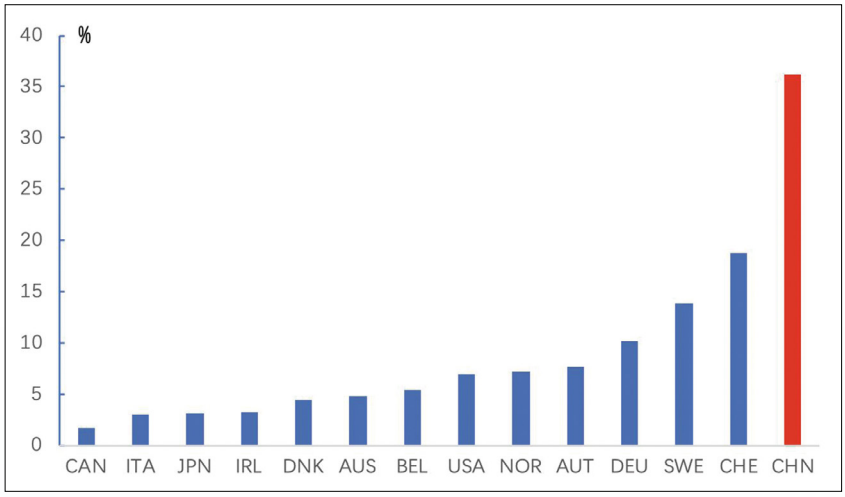


The proportion of rural population in 2018
Source: 2018 International Statistical Yearbook; World Development Indicators (WDI)

Third, the high saving rate in China cushions the economic blow from the virus outbreak. According to OECD data, the household saving rate in China is 36.1% in 2016, much higher than the average level in OECD countries. The saving provides a buffer for Chinese residents against the income cut-off.

Fourth, the vulnerable are supported by the social protection system. At the end of 2018, fiscal

expenditure on the subsistence allowance reached 146.25 billion with a coverage of 45.28 million people. During the epidemic period, most vulnerable people within the system could subsist on the allowance. In the meantime, facing the temporal hardships suffered by some low-income people, the government adopted a flexible process and raised allowances with an extended coverage immediately.



Household Saving Rate in 2016
Source: OECD

Fifth, a sound internet infrastructure allows employees to work from home. As of April 2018, 95% of villages and 99% of the population have access to 4G. The fiber broadband network covers more than 95% villages in China. Major telecom operators in China have been cutting down internet rates in recent years. With accessible, affordable and high-speed internet, employees can work from home and get paid amid the outbreak.

Last, with the government's strong actions to counteract the downward pressure on growth, the expectation on economic and employment keeps stable. Attentions are now paid on maintaining the normal economic and social order as the COVID-19 outbreak is being contained. Fiscal policies and monetary policies are adopted timely. Actions to lower the operating cost are taken in order to support the enterprises. An array of aid policies stabilize the expectations on economic development.

Home quarantine during the Spring Festival has not led to severe blows to residents' incomes in China. However, it should be admitted that the 2-month lockdown of Wuhan and the long-term national economic shutdown will hit the country and its people the most with the result of a declining growth rate and increasing unemployment rate. This is also the reason that the Chinese government has adopted differentiated measures to resume production right after the outbreak is contained.

What roles did Chinese e-commerce platforms play in preventing and controlling COVID-19?(Q19)

Chen Xiao
Center for International Knowledge on Development

A: During the prevention and control of the epidemic, Chinese e-commerce platforms played important roles in the following aspects by taking their advantages in terms of access to information, supply chain, warehousing, logistics, platform governance and digital technology.

First, these platforms provided timely and accurate information service for emergency prevention and control. Some e-commerce platforms set up special working teams for epidemic information service, established monitoring systems on people's mobility, and regularly reported epidemic data and emergent cases to relevant official departments.

Second, these platforms provided assistance in the deployment of emergency supplies through warehousing, logistics, and supply chain. Some e-commerce platforms carried out global sourcing, social donation and supply chain collaboration of medical and emergency supplies, organized production in hundreds of regions within China and abroad, and quickly delivered to key regions such as Wuhan through logistic channels and financial networks of their own.

Third, these platforms used digital technology to facilitate medical diagnosis and scientific research. Some e-commerce platforms used open data, computing algorithms, artificial intelligence, and cloud services to help medical and research teams collect, read, calculate, and analyze data, accelerating the research on new coronavirus, disease diagnosis, and R&D on vaccines and drugs.

Fourth, these platforms helped stabilize the market. E-commerce platforms built strong connections among producers, buyers and consumers, dynamically matched supply and demand, timely stabilized the price of supplies and necessities, cracked down on fake and shoddy goods, and helped micro-, small- and medium-size enterprises, effectively maintaining the normal market order.

Fifth, these platforms ensured people's daily life and work by enabling online activities. Many e-commerce platforms introduced new business modes such as non-contact distribution, online shopping, online medical treatment, online education and telecommuting, which not only met the requirements of epidemic management in public spaces during the special period, but also timely satisfied people's daily needs of living, working and learning, promoting work resumption with scientific methods and a good order.

Health code: what and how?(Q41)

Jiang Xiheng
Center for International Knowledge on Development

A: To contain the COVID-19 outbreak, limiting people's movement is necessary. However, companies would need their employees to go back to work after the Spring Festival holiday. To balance the need between disease control and work resumption, local governments in China have created "Health Code", using digital technology to facilitate people's movement and improve public health management.

"Health Code" is a dynamic code on the mobile phone app that consists of three colors: green, red and

yellow. It is automatically checked and generated by the system of local governments with information received from users' self-declaration and disease control-related big data. The Green "Health Code" works as a digital pass, with which people can move around in places like public transportation, communities, offices, supermarkets and pharmacies. It will turn to red or yellow if the user gets in touch with the infected, and the user might be informed to quarantine immediately.

Health Code used in Hangzhou
(Online resources)

On February 11, the government of Hangzhou City in Zhejiang Province created "Health Code" with the help of Alipay. In the next two weeks, "Health Code" has been promoted in seven provinces and municipalities such as Zhejiang, Sichuan, Chongqing and Shanghai. Some other provinces and municipalities also created different versions of "Health Code" with the help of WeChat. To solve the discrepancy of "Health Code" systems that hinders people's travelling across provinces, the national E-Government Citizen Services Platform created a unified form of code for all provinces to follow. Hence, the local governments would report relevant health information to the national platform, using the same standard and requirement.

Up to March 20, "Health Code" has been used in most of the regions in China, with the total number of usage reaching 1.2 billion times. In addition, since March 10, the government of Hubei Province has been issuing "Hubei Health Code" to support companies to resume work and people's movement. In addition, the government of Zhejiang Province has created the international version of "Health Code" for those returning from overseas.

"Health Code" functions in the following ways:

1. For disease control agencies, the "Health Code" platform helps them fulfil duties like community registration, employees' registration, health self-check and report, fever clinic inquiry, mask reservation and purchase, online payment and real-time disease information release. The platform has improved the efficiency of disease prevention and control, simplified the information gathering process, and avoided repeated form-filling paperwork.
2. For the government, the "Health Code" platform has established a unified standard to solve the information discrepancy from different companies, communities and schools. The platform helps to have a more precise assessment of the real-time situation, and to make policies based on the balance of disease control and resumption of economic and social activities.
3. For individuals, it is no longer needed to report their health conditions repetitively to different agencies with different paperwork. They could go to different places with a single pass. It also helps people to know their exposure to risks.

It should be noted that "Health Code" is a digital management tool for people's movement under the current situation of COVID-19 containment. It is expected that its use will be adapted when situation changes.

Why did China conclude that the spread of the virus had been largely blocked domestically?(Q43)

Hao Zhirong
Center for International Knowledge on Development

A: Since the outbreak of the epidemic, China has taken a very aggressive, agile and ambitious approach to fighting the virus, changing the dangerous course of rapid spread of the epidemic. With the efforts of all sectors of society, the spread of the epidemic in China has been largely blocked.

First, the judgement is made based on indicators such as number of newly confirmed and suspected cases, existing suspected cases, and cure rates. According to the data from the Chinese National Health Commission (NHC), as of March 29, many provinces including Hubei Province have reported no newly confirmed cases, no newly suspected cases and no existing suspected cases for several consecutive days, realizing "three zeroes". The cure rate continues rising, while the number of severe cases and new deaths keeps decreasing. More than 93% of the confirmed patients in China are cured and discharged from hospitals. The cure rates in Wuhan City, the epicenter of the virus, Hubei (excluding Wuhan) and other provinces are 91.5%, 96.4%, and 94.3% respectively.

Second, the epidemic does not bounce back after work and production are orderly resumed. Starting from February 10, most provinces in China excluding Hubei has resumed work and production, following region-specific and multi-level targeted approaches to epidemic prevention and control. The average operating rate of above-scale industrial enterprises has exceeded 95%, and about 80% of employees have returned to work. About 60%% of the small and medium-sized enterprises went back to business. Key industries and leading enterprises, including foreign-funded enterprises, resumed production gradually. For more than one month, the prevention and control of the epidemic has been effective and the epidemic has not rebounded.

Third, Wuhan, the epicenter of the outbreak, has largely blocked the transmission and gradually resumed social order. Through hard work, Hubei province and Wuhan city have successfully prevented the spread of the virus within their jurisdictions and beyond. The spread of the epidemic in Wuhan, the main battlefields of the war against the virus, was basically contained. Since March 18, there was only one newly confirmed case. Wuhan city as a whole is now regarded as a medium-risk region, and 5 districts of the city are at low-risk level. Wuhan is now speeding up its process of "restarting" the transportation network.

However, it should be noted that there is still a risk of a new round of transmission and spread caused by sporadic cases domestically and imported cases from outside China, and epidemic prevention and control is still under great pressure. There were 17 new suspected cases on March 29, and all of them are imported ones. In total, there are 630 confirmed cases and 165 suspected cases from outside China.

In the future, a very strict scientific assessment is needed to completely control and block the epidemic.

Reference:

National Health Council official website, March 29, 2020

How did China ensure smooth flows of logistics amid strict prevention and control measures?(Q46)

Jiang Xiheng
Center for International Knowledge on Development

A: During the period when China implemented strict prevention and control measures and Wuhan city, the epicenter of the outbreak was shut down, China adopted various measures to prioritize logistics for the smooth delivery of medical supplies and daily necessities.

1. The "green channel" policy guaranteed unimpeded flow of food supplies. In the context of reduced transportation capacity, the strategy was to deliver the most urgent supplies as quickly as possible and maximize the use of limited transportation resources. On January 30, the Ministry of Agriculture and Rural Affairs, the Ministry of Transport and the Ministry of Public Security jointly issued a notice requiring all regions to effectively implement the "green channel" policy for transporting fresh agricultural products. There were also policies and measures to maintain the efficient operation of wholesale markets and urban logistics. In addition, local governments have prioritized the supply of products in the "shopping basket program" and agricultural production materials. They have also ensured that stock of supermarkets, convenience stores and community-level supply hubs is replenished in a timely manner. Activities like setting up check posts or blocking traffic without authorization are illegal and strictly forbidden.

2. The Chinese government established a list of key enterprises to guarantee supply and a cooperative mechanism among different provinces and cities. The Ministry of Commerce has listed 100 key enterprises to guarantee supplies. Whenever there is an urgent demand from somewhere, the ministry helps coordinate and provide a solution as soon as possible. At the same time, to ensure the supply of daily necessities to Hubei, especially Wuhan, the central government has strengthened the collaborative mechanism with the 9 provinces near Hubei and to mobilize their resources for the assistance.

3. Increasing support was provided to logistics companies. First, governments at all levels made it a priority to help employees of logistics companies return to work. A special fund for COVID-19

prevention and control was established to focus on the health and safety of these frontline employees. Interest free loans were granted to small- and medium-sized companies in difficulties. As a result, companies have proactively accelerated the get-back-to-work process. Second, governments provided continuous support to logistics companies' short-term financing needs and preferential interest rate loans to those transporting important medical and living supplies. Third, governments offered timely financial compensation. Local financial administrations were required to compensate the transportation and logistics companies in a timely manner under the scope of government procurement of public services.

4. Major E-commerce and logistics companies played critical roles. E-commerce platforms like Alibaba and JD utilized their mature digital technology and supply chain network to improve the allocation efficiency between supply and demand. They helped create smooth logistics, capital and data flows and facilitated direct connections between consumers and producers of agricultural products and daily necessities. Backbone logistics companies such as SF continuously provided delivery services, serving as a main force to reach the communities in quarantine. Meanwhile, these companies actively fulfilled their social responsibilities, including procuring and delivering urgently needed medical supplies for free to Wuhan hospitals and providing food and necessities to medical staff.