WEBINAR TRANSCRIPTION:

CHINA'S EXPERIENCE IN ADDRESSING COVID-19

Presented by Dr. Sen Gong, Dr. Xiongjun Wang, Dr. Zhang Junhua and Prof. Bingqin Li

Discussion panelists: Dr. Zuoyou Wu, Dr. Jian-cang Zhou, Dr. Guangxi Li

April 17, 2020

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Division Inter-American
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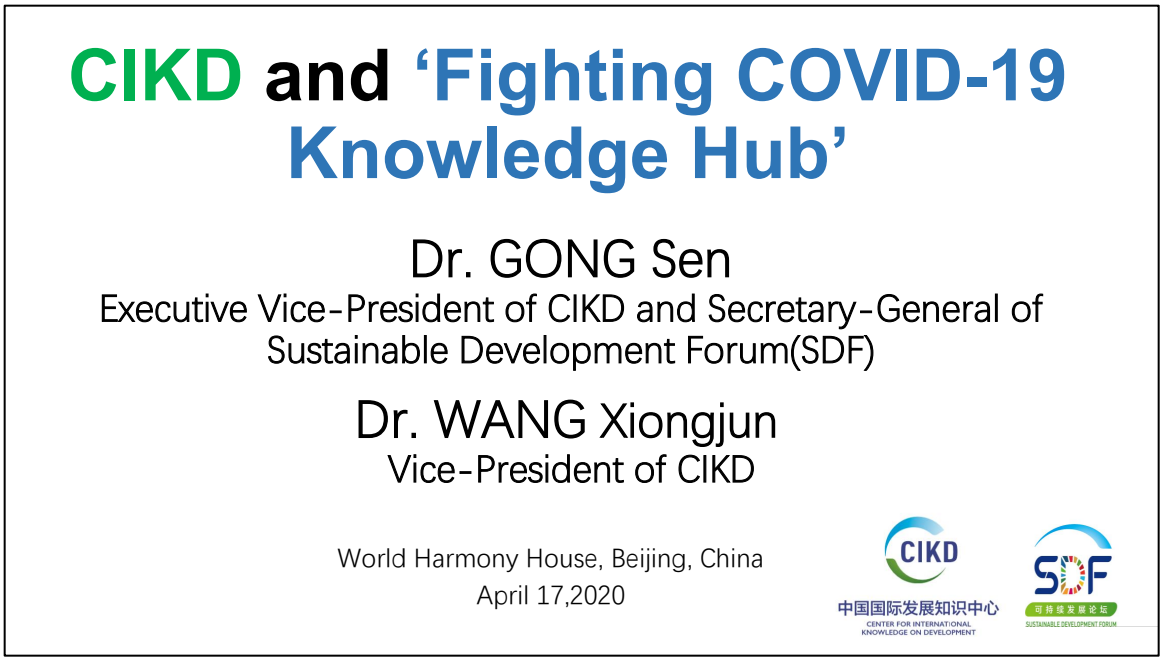

INTRODUCTION: Dr. Sen Gong

Minute 00:07:37

Before my personal greeting, I would like to read some messages from the CIKD president Mr. Ma Jiantang. He is also the Minister for the Development Research Center of the State Council Internal Think Tank to the Chinese government. He said that the coronavirus is the common enemy of human kind and that all countries should work together to stop the pandemic. The webinar, which is about sharing China's experience and is co-organized by the IDB, HHRDC and the CIKD, is a meaningful step in our collaborative effort to fight the worst. He would like to thank all the honorable guests for participating in this event and also, he wishes that you can all benefit from this meeting and he also wishes you all to stay well. Thank you.

Now let me pass on to my deputy Dr. Wang Xiongjun to give you a brief introduction about CIKD and our Knowledge Hub.

About CIKD

CIKD strives to research and communicate with other countries on development theories and practices suitable to their respective national conditions with reference to China's development experience. Its main mandates include:

1. To pool Chinese and international research resources
2. To undertake research on development theories and practices
3. To organise exchanges of research findings on international development issues, including the implementation of the UN 2030 Agenda for Sustainable Development and current global public health challenges and approaches

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

SDF
可持续发展论坛
SUSTAINABLE DEVELOPMENT FORUM

About CIKD: Dr. Xiongjun Wang

I will give a brief introduction of CIKD and the Knowledge Hub. CIKD is the Center for International Knowledge on Development (and) was first announced in President Xi Jinping's speech at the 2015 UN Development Summit and officially founded in 2017. CIKD strives to research and communicate with other countries on development theories and practices suitable to their respective national conditions, with reference to China's development experience.

About 'Fighting COVID-19 Knowledge Hub'

1.Chinese Knowledge

-China's Strategies, Actions and Insights in Addressing COVID-19

-Comparative research of anti-pandemic measures in China, Singapore and South Korea

2. 100 Questions and 100 Answers

-China's Basic Conditions
-Understanding about the Virus and the Disease
-Prevention and Control Strategies
-Major Measures
-Supporting Measures
-Effects and Impacts
-Preparing for potential 2nd Wave

3. Social Engagement

- -Real-life stories of Chinese people
- -Actions by Enterprises

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'Fighting COVID-19 Knowledge Hub'

So, the 'Fighting COVID-19 Knowledge Hub' is a knowledge-sharing platform launched by CIKD. We will present three series of knowledge products in the Hub.

First of all, CIKD set up a research project of comparative studies on the strategies, actions and the impacts of the fight against COVID-19 in China, Singapore and South Korea. We collaborated with scholars from Australia, Singapore and Hong Kong to produce four reports, including a comprehensive report and three country reports. Dr. Gong and Prof. Li will introduce the main ideas of this project later.

The second idea in fighting COVID-19 is '100 Questions and 100 Answers', for example, widely concerning knowledge and questions in the international community regarding COVID-19.

The third series is fighting COVID-19 (related to) social engagement, which aims to present how the Chinese are fighting against COVID-19, through writing and translating real life stories of Chinese people and the Chinese enterprises in different industries and areas.

The three series of experience and knowledge will be shared in the Hub. And we wish this will be a benefit in fighting COVID-19 in the world. Thank you.


THANK YOU!
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Wang.xiongjun@cikd.org
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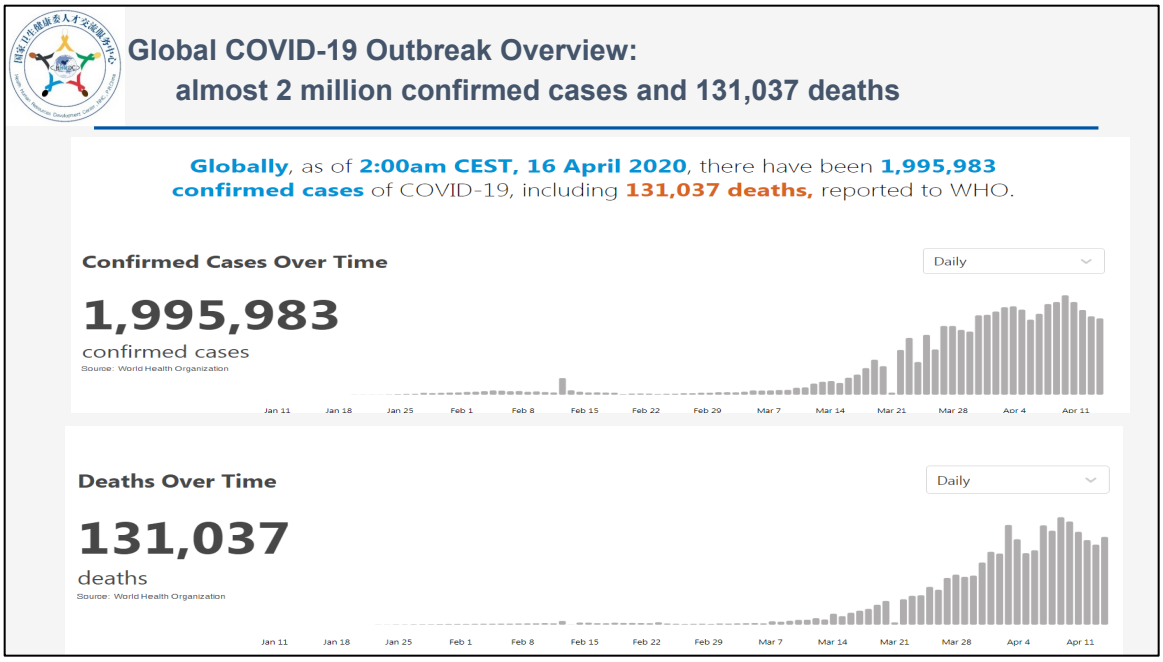
‘Fighting COVID-19 Knowledge Hub’: Dr. Zhang Junhua

Minute 00:12:11

I am the Director General of the HHRDC, the National Health Commission of China. This webinar is jointly organized by the Inter-American Development Bank, the Center for International Knowledge on Development (CIKD) and the HHRDC. It is also supported by the Belt and Road Health Professional Development Alliance. Here I would like to extend my warm welcome and thank you to the organizers and experts from both, domestic and Latin American and Caribbean countries, attending this webinar. Thanks to all of you.



Global COVID-19 Outbreak Overview

Minute 00:13:05

As of April 17, 2020, the COVID-19 outbreak has been affecting more than 210 countries and regions. There are more than 2 million cumulative cases confirmed and over 140,000 people lost their lives globally. As president Xi Jinping said, (this) major infectious disease is the enemy of all. The COVID-19 outbreak is spreading worldwide, causing an enormous threat to life and health and brings formidable challenges to the global health security. At the most difficult moment in our fighting against this outbreak, China received assistance and help from a lot of members of the international community. Such inspirations of friendship will always be remembered and cherished by the Chinese people. This virus respects no borders. The outbreak we are battling is our common enemy. We all must work together to build the strongest global network of control and treatment that the world has ever seen. China has set up its online COVID-19 Knowledge Centre and it is open to all countries. China is willing to share its experience of COVID-19 control and treatment with the international community.

Chinese president Xi Jinping calls on international cooperation

Minute 00:14:55

According to the needs of each country we show you how (we manage) anti-epidemic information sharing, with the support of WHO, (and how) to promote control and treatment protocols that are comprehensive, systematic and effective. China has provided supplies to Latin American countries for the fight against the virus and has sent medical experts to assist there. China is ready to work with Latin American and Caribbean countries to enhance the outbreak coping capacity through cooperation.

Live webinars

Minute 00:15:40

Therefore, today we invite three top experts in their fields and who are very experienced in the fight against COVID-19, to share information with the international community. HHRDC is a public service institution and the direct leadership of the National Health Commission of China. Our center is in charge of the management and the services in the area of human resources for health all over China.

Knowledge Center for China's Experiences in response to COVID-19

Minute 00:16:10

During the outbreak control and the fight against COVID-19, according to the guidance of the Department of International Cooperation National Health Commission China, HHRDC has established their Knowledge Center for China's Experiences in Response to COVID-19, which has been announced to the world by president Xi Jinping at the G20 extraordinary leaders' summit on COVID-19.

Knowledge Center for China's Experiences in response to COVID-19

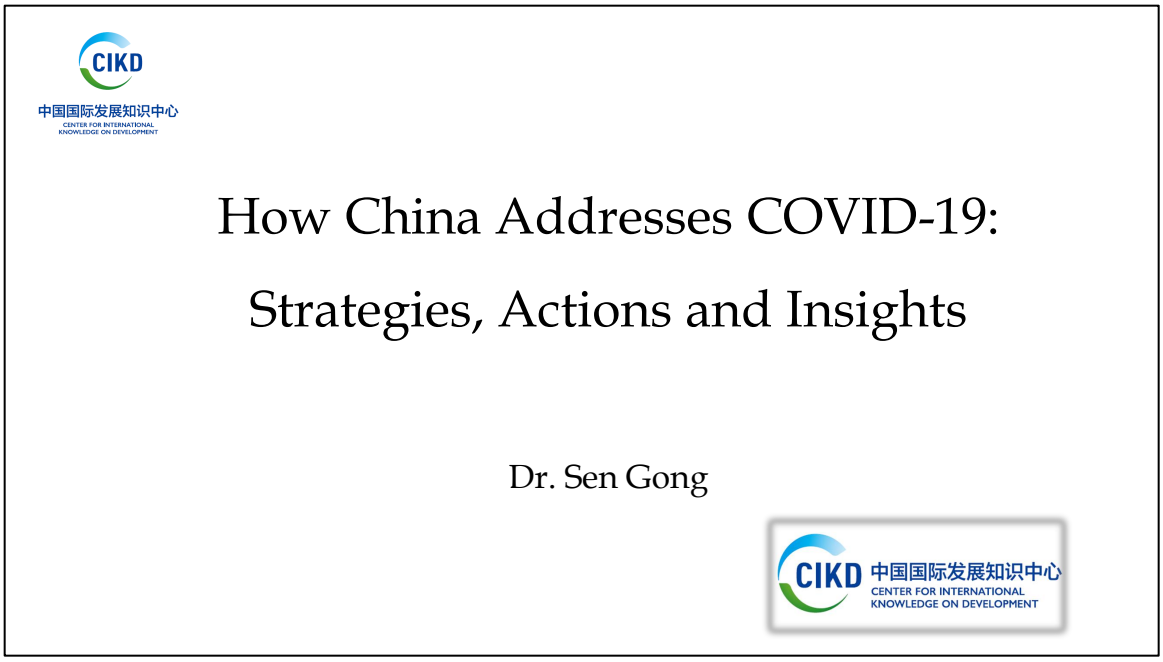
Minute 00:16:46

Meanwhile, under the direction of the National Health Commission, HHRDC established the online health-consulting platform for overseas Chinese, based on the Belt and Road Health Professionals Development Alliance. HHRDC, as the Alliance founder, has organized a dozen of webinars on experience sharing and the diagnosis and treatment of COVID-19. Chinese prevention in the control protocols, clinical diagnosis and treatment protocols, as well as professional experiences in fighting against the epidemic, could be identified on our website (which) is open all over the world. HHRDC is based on fighting COVID-19 together with all the sectors, stakeholders and health workers all around the world. We are also expecting more exchanges in cooperation with the IDB and attendees from all over the world.

Setting up the Internet Consulting Service Platform

Minute 00:18:05

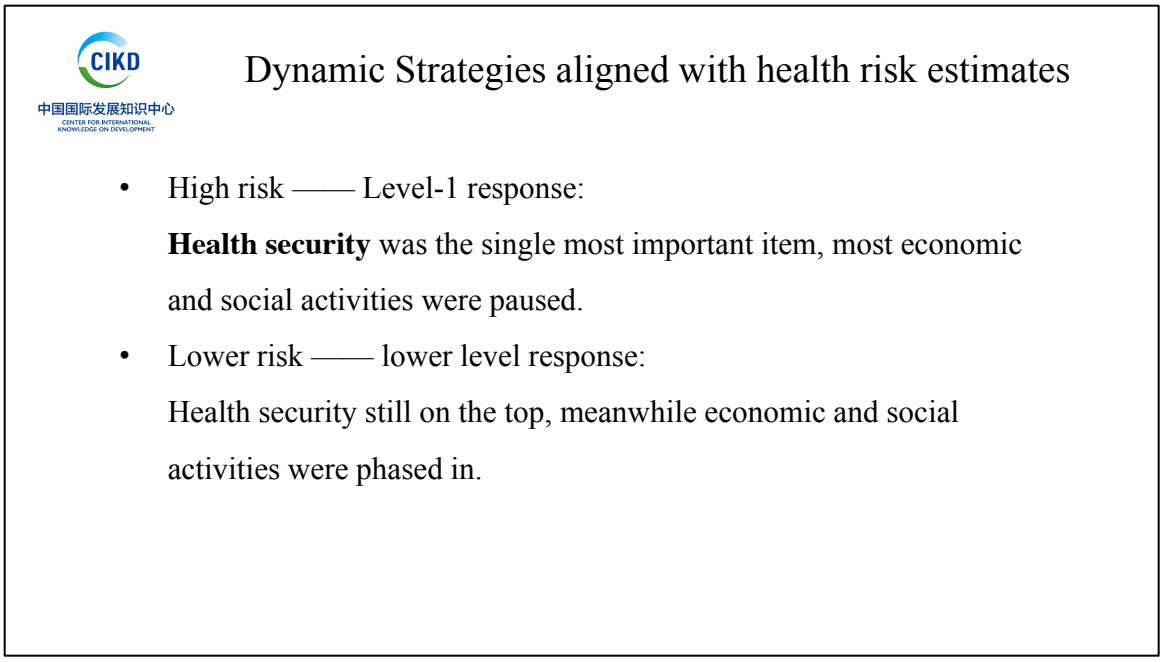
The experts invited to give presentations during this webinar are all excellent and outstanding physicians, who fought against COVID-19 for the past several months in China. I would like to express my gratitude to all the experts for their support to this webinar. Many thanks to the experts for their presentations to the colleagues from the Latin American & Caribbean countries on the general understanding of the outbreak in China, from public health measures taken to clinical diagnosis and treatment practices; We hope that this can help the work in your own country. Now is the critical phase to fight against the virus. The international community, inspired by the vision of a community with a shared future for mankind, should strengthen solidarity, coordination and cooperation to stop the spread of the virus, to protect the people's safety and health. We are convinced that that, through international solidarity and mutual assistance between countries, we will defeat this outbreak and we will embrace a brighter future for mankind. Thank you very much. I wish that the webinar is successful and fruitful.



INTRODUCTION: Dr. Sen Gong

Minute 00:20:11

My presentation is focused on the major features of the Chinese general strategies and actions. And then towards the end (of the presentation) I will try to give you some lessons learned from our experiences.



Introduction

Minute 00:21:05

First, in terms of the strategies, generally I think they are quite dynamic with a strong bias towards health protection. Actually, for more than one month, health security was the single most important item on the government agenda, from January 22 to February 23. Because of this strategy, according to the most recently released official data, the Chinese economy in the fourth quarter contracted by 6.8%. We don't know (if this is bad news) we just really put the health security on the top of the agenda. So that is the first feature.

Proactive strategy

Eradication： Minimizing infections and saving the infected

Infection Rates of China, South Korea, Singapore and G7 Countries
(number of infections per million population)

	Date of first confirmed case	70th day		80th day	
		Date	Infection rates	Date	Infection rates
China	Dec. 8	Feb. 16	50.39	Feb. 26	56.07
South Korea	Jan. 20	Mar. 30	190.76	Apr. 9	203.70
Singapore	Jan. 23	Apr. 2	184.04	Apr. 12	444.21
US	Jan. 20	Mar. 30	428.52	Apr. 9	1297.65
Canada	Jan. 27	Apr. 6	420.48	Apr. 16	
UK	Jan. 31	Apr. 10	1054.40	Apr. 20	
France	Jan. 24	Apr. 3	948.44	Apr. 13	1448.72
Germany	Jan. 27	Apr. 6	1195.19	Apr. 16	
Italy	Jan. 31	Apr. 10	2444.95	Apr. 20	
Japan	Jan. 16	Mar. 26	11.03	Apr. 5	29.05

Source: WHO outbreak report

Case Fatality Rates of China, South Korea, Singapore and G7 Countries (%)

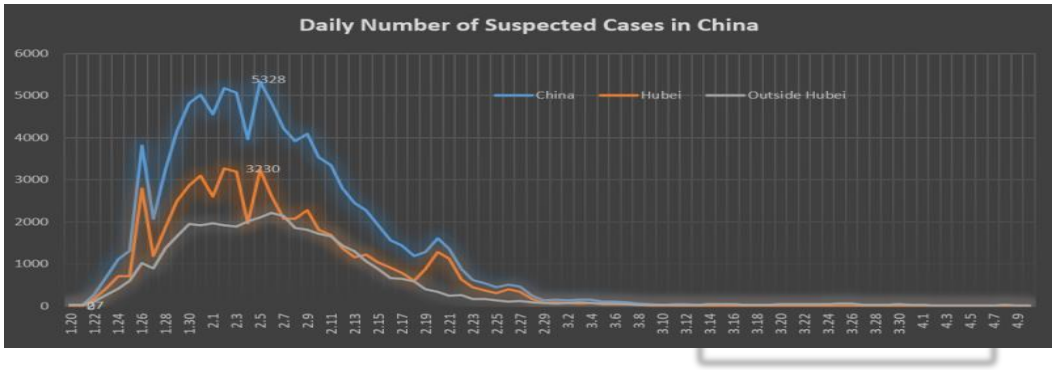
	Date of first confirmed case	70th day		80th day	
		Date	Fatality rates	Date	Fatality rates
China (including Hubei province)	Dec. 8	Feb.16	2.509	Feb. 26	3.496
China (excluding Hubei province)			0.598		0.798
South Korea	Jan. 20	Mar. 30	1.655	Apr. 9	1.990
Singapore	Jan. 23	Apr. 2	0.381	Apr. 12	0.316
US	Jan. 20	Mar. 30	1.705	Apr. 9	3.443
Canada	Jan. 27	Apr. 6	1.854	Apr. 16	
UK	Jan. 31	Apr. 10	12.747	Apr. 20	
France	Jan. 24	Apr. 3	10.219	Apr. 13	15.400
Germany	Jan. 27	Apr. 6	1.620	Apr. 16	
Italy	Jan. 31	Apr. 10	12.774	Apr. 20	
Japan	Jan. 16	Mar. 26	3.317	Apr. 5	1.998

Source: WHO outbreak report, China NHC outbreak report.

Proactive strategy

Eradication： Minimizing infections and saving the infected

→ Zero cases as soon as possible;



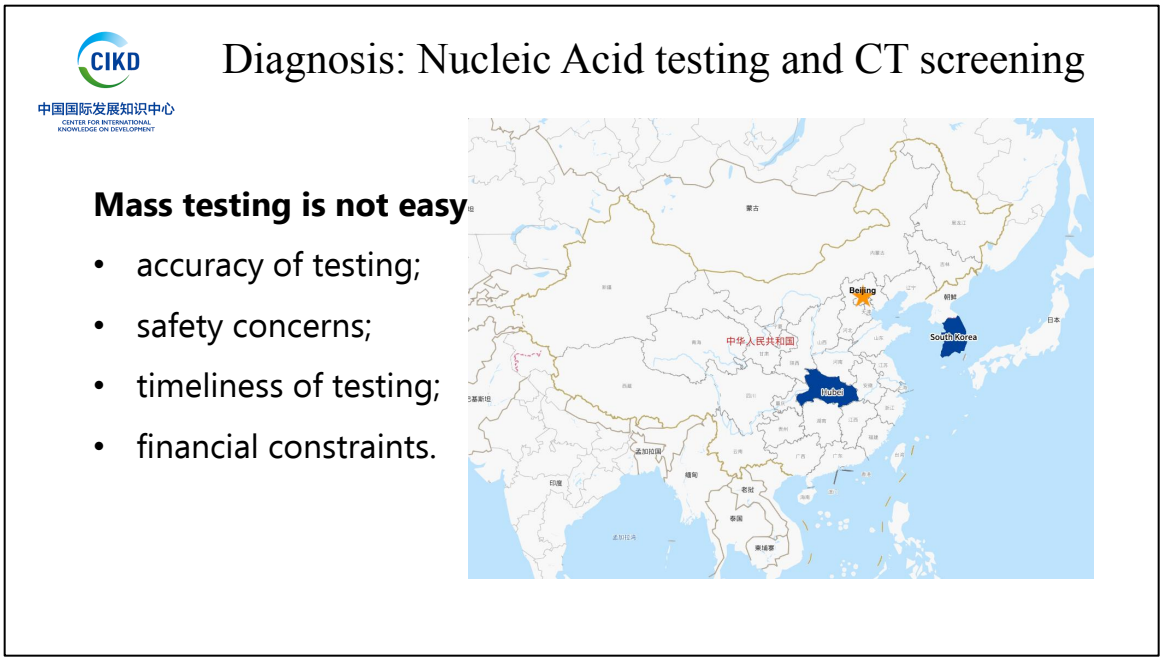
Proactive Strategy

Minute 00:21:23

The second feature of the Chinese strategy is that it is very proactive and includes three objectives. The first one is trying to minimize the infections. The second one is to save the life of those infected, as the most important one, and the last one is to achieve to stop the transmission as soon as possible. So, from the two papers you can see that China is among

the three best performers defined by the WHO and also compared to the G7 countries. China is the only one, which has a pretty low mortality rate and also case fatality rate. You can also see that in 40 days, or something, China has achieved quite few cases from the highest point where we got more than 5,000 cases and in one-month time we only have 100. So that is quite ambitious and also, we are quite successful to achieve this objective.

In terms of concrete actions, we have taken the first one is the diagnosis.



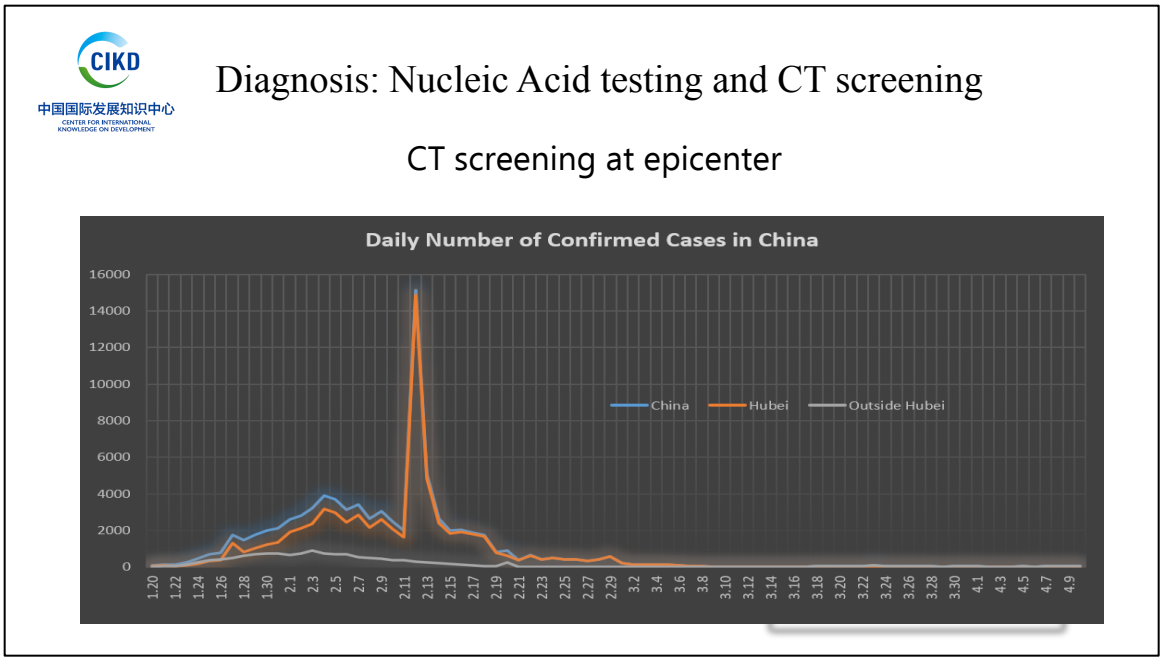
Diagnosis

Minute 00:22:26

For the diagnosis the major feature is that we do not heavily depend on the testing, although we got very intensive and massive testing. But since the very beginning, at our epicenter in Wuhan, there were large accumulated cases. And also, at the very beginning the testing only concentrated at the CDC headquarters. You can see from this graph that the Hubei epicenter is very far from Beijing.

Hubei has got, in terms of area, almost twice (the area of) South Korea. It is far from Beijing and they had to send the samples to Beijing, which is too time consuming. It takes two or three days for the sample to be really examined. Then, for decentralization, there is also the biological safety concern as well as staff member capacity and everything.

So mass testing is not easy. So that is why in the United States the mass testing cannot really be done. It seems like a mission impossible.



Diagnosis

Minute 00:24:43

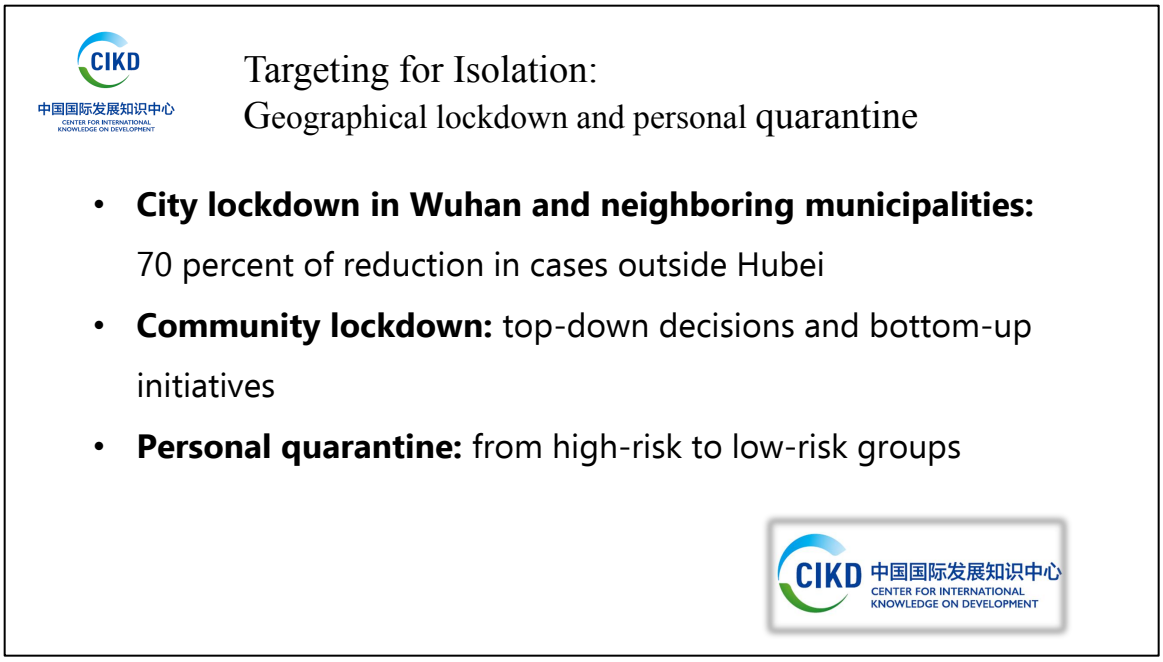
So, for some time at the epicenter the experts have adopted the CT screening to assist the testing.

Tracing close contacts

Minute 00:24:58

And for tracing the close contacts in China we have got several features here. In terms of definition of the close contacts, in China we don't have a really accurate definition, like for example, how many minutes you have stayed with somebody, like it is defined in Singapore. They defined a certain number of minutes you stayed with somebody who is infected, then you would be a close contact. In China we do not have really exact minutes. So, we have a broad definition. It has something to do with our policy objective. We try to minimize the risk of transmission in the community.

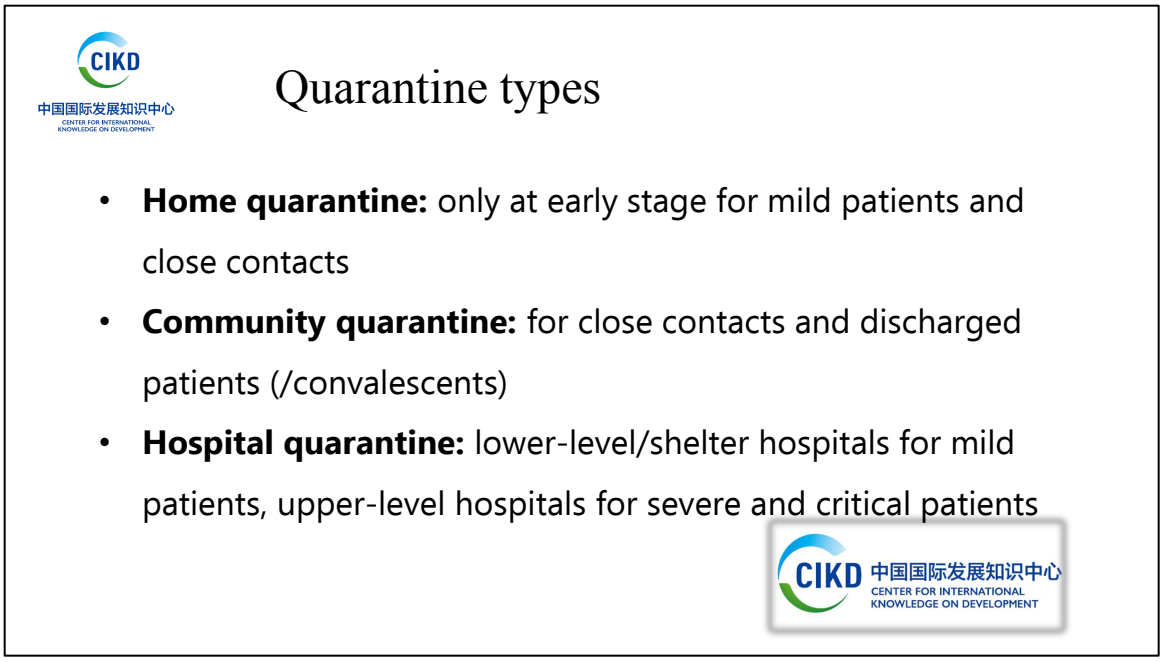
In terms of the means of tracing we do not only use the traditional ways of investigation but we also use digital technology. So, there is some trade-off between public health, public awareness and private privacy. So, we put more emphasis on public health and public awareness.



Targeting for isolation

Minute 00:26:12

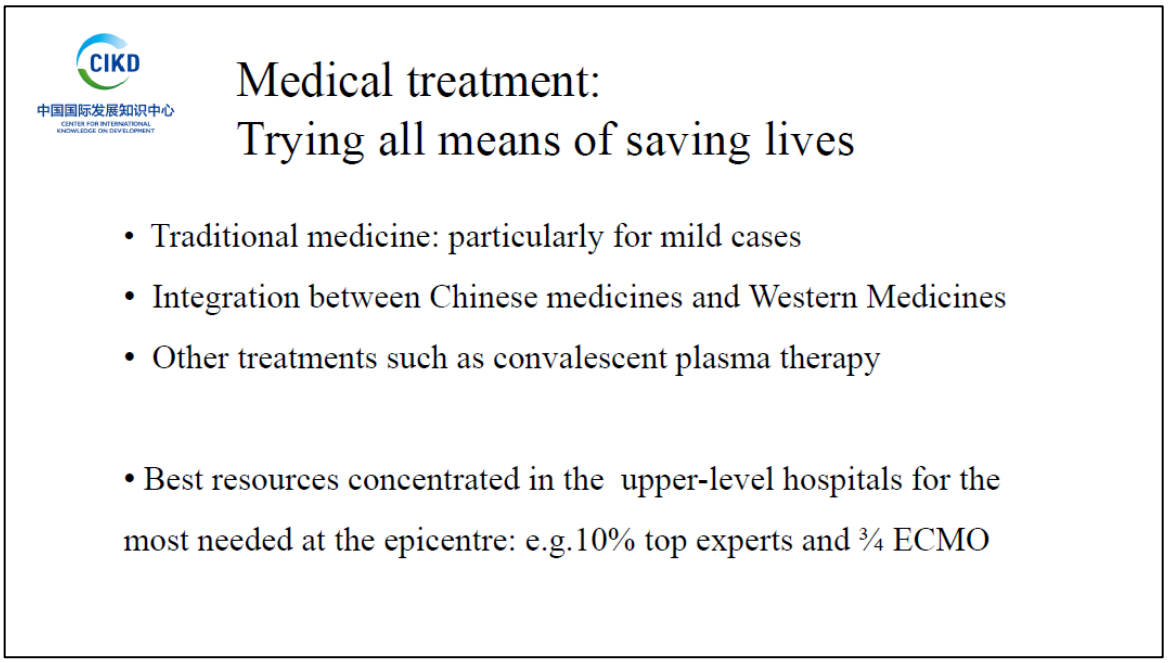
In terms of targeting, like I mentioned earlier, through testing we can find out who are the persons and then we isolated them on the individual basis. But at the very beginning of coping with that virus, right at the epicenter there are many cases and it is hard to have the testing capacity there. So, at the very beginning the targeting was only done on a geographical area basis not on an individual basis. So, the government enforced a full city lockdown in Wuhan and neighboring municipalities. According to an article in Science General, this is how we reduced 70% of cases outside Hubei, in China. And also, at the epicenter the government level had ordered a community level lockdown. That is really a top-down decision but beyond, outside Hubei, many localities actually questioned if they themselves had taken some rigid lockdowns. And I think it is rational because they have fewer resources, since they are very poor there, so they were very concerned about the risk to them. So, they were wondering about taking those villages under lockdown.



Quarantine types

Minute 00:28:11

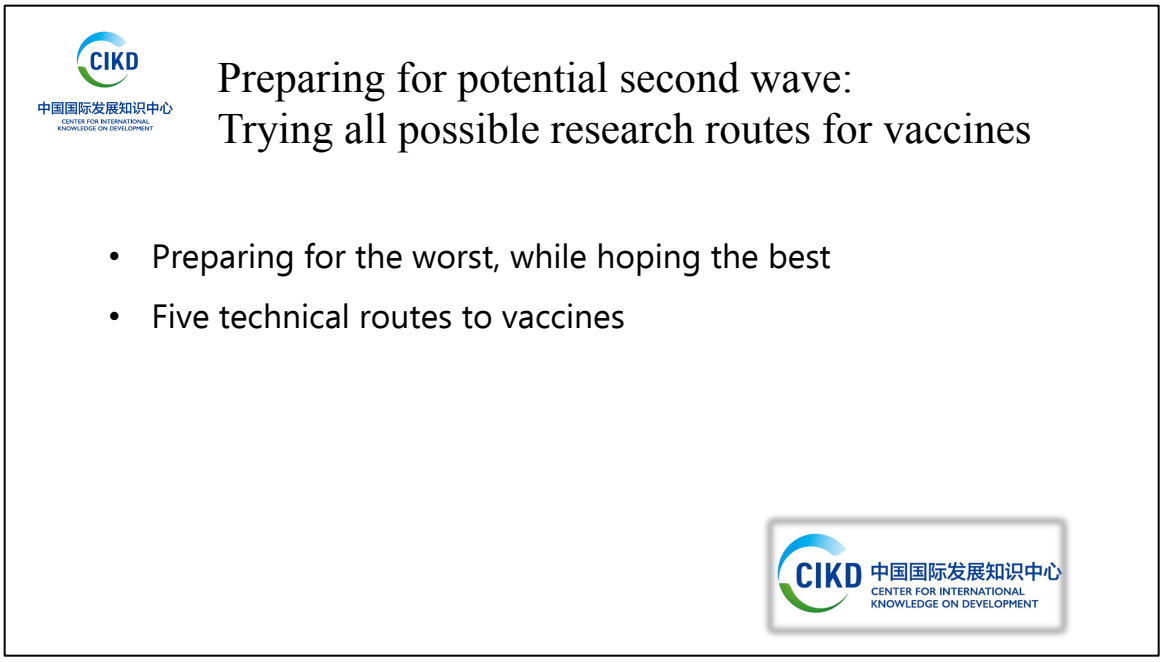
So then, in terms of targeting, we compared geographical targeting and also individual targeting. And in terms of quarantine, in China the major feature really is that we favor the institution-based quarantine. At the very beginning, when you also face those milder cases, they and also their closer contacts can stay in their home. Then, eventually, we found out that it is very hard to cut down this transmission. So, then we decided to put all those close contacts and even the discharged patients into the community quarantine and then for those milder cases in a shelter or community hospital. And for those severe and critical cases they are put in tertiary and special general hospitals.



Medical treatment

Minute 00:30:15

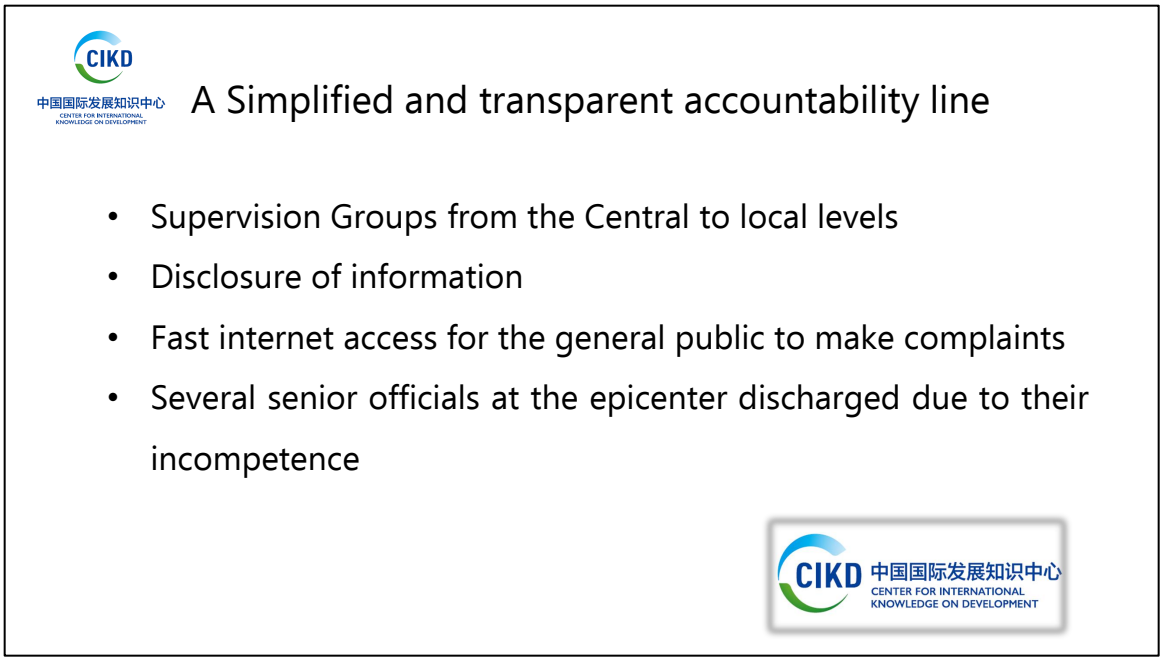
That was for the non-pharmaceutical intervention. But for the pharmaceutical intervention, although there are not many very specific drugs here, but in China we have really tried various means of drugs trying to save lives. We tried some traditional medicines; one of my colleagues here will enter in more detail. It seems that traditional medicine works pretty well for mild cases. Another thing is that Chinese doctors are trying to integrate some Chinese medicines with Western medicines. And also, besides the pharmaceutical treatment, they also tried the convalescent plasma therapy. And also, the government has been able to shift in a way to concentrate the best resources in the upper-level hospitals for the most needed that means for the critical cases at the epicenter, like in Wuhan. According to our statistics, more than 10% of our top experts and 70% of our ECMO had been moved to Wuhan in the Hubei province.



Preparing for potential second wave

Minute 00:31:10

Then for the potential second wave of the outbreak, so here is a big concern that [inaudible] the government did not really think about the near future. So, we are trying to cut down this outbreak as much as possible. But now, how about the future if there is a second wave? We have been trying to do many preparations right now. First of all, we are trying to restructure our system and we are trying to cope with some weaknesses in our institutional arrangement. Secondly, we are increasing our investments. Lastly, but also very important, is that we are trying to do research of vaccines. Actually, we have adopted five possible technical routes to vaccines.



A simplified and transparent accountability line

Minute 00:31:58

In terms of implementation we also have some features. In China we have the emergency management process where we have a simplified and transparent accountability line. So, the central government has sent a supervision group to every individual province and also there is a very strong and updated disclosure of the information; and also, fast Internet access for the general public to make complaints to the Central Authority. And also, several senior officials at the epicenter have been discharged due to their incompetence. So that is very strong monitoring and evaluation as well as accountability there.

Some takeaway points

Minute 00:32:46

So, some take away points, the three major points, are (the following). The first one: in China we have made some reasonable trade-offs. We are not trying to strike a balance but we really need to make some trade-offs. The trade-offs include health security, economic development and personal freedom. The second trade-offs are public awareness and privacy.

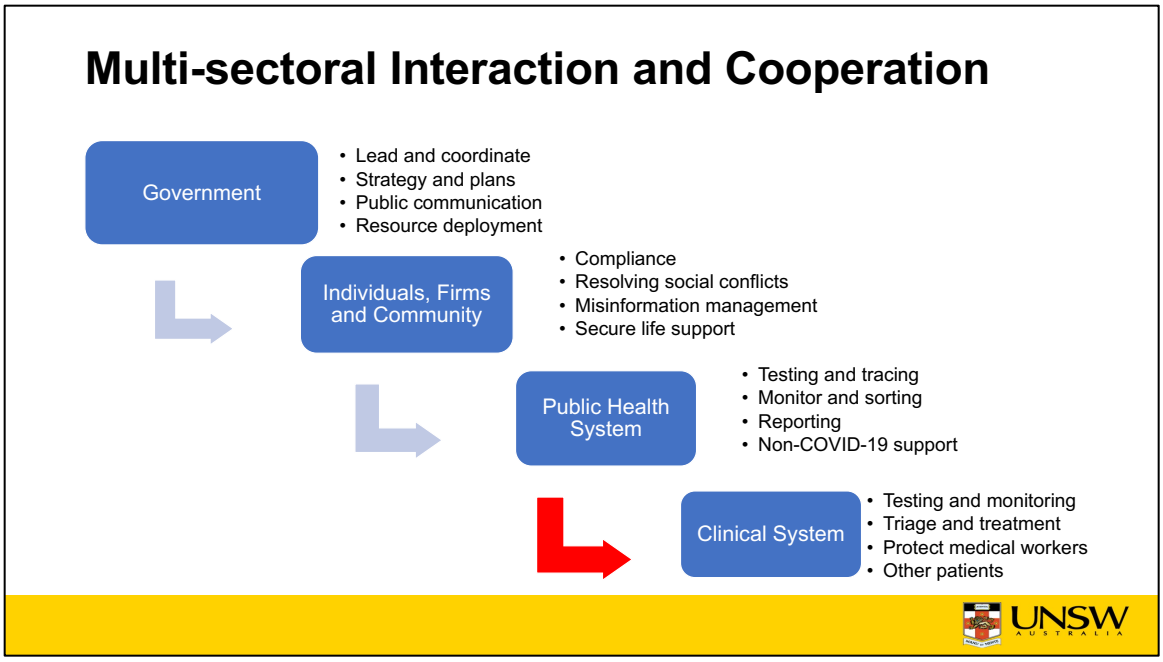
The second point is to use whatever you have and the best fit to your own context, not necessarily the most advanced technology or best practice in other contexts.

The third main point is that the implementation is as important, or even more important, as the policy itself.

INTRODUCTION: Prof. Bingqin Li

Minute 00:33:59

I am Bingqin Li from the Social Policy Research Center at the University of New South Wales, Australia. Since the COVID-19 pandemic, researchers in SPRC, which is our research center, are working together to understand the changing relationship between the states and the society, in particular how to help the disadvantaged population to be better prepared in Australia. And so, we have paid close attention to what is going on in China. I am going to talk about how China responded to COVID-19, with references to South Korea and Singapore because these are the cases that are also internationally championed.



Multi-sectoral interaction and cooperation

Minute 00:34:49

I will focus primarily on China, as China's GDP per capita is more comparable to that of Latin America. The key point is that different countries have very different capacities. Solutions that work in one country may not work in another. So, as we champion successful models it is very important to consider the constraints that a country has to face.

So, let's look at this chart. The basic idea behind the COVID-19 response is to prevent the medical system from collapsing. So, the red arrow, at the bottom, is the medical system. So, this chart shows that the four sectors, the government, the society – including individuals, families, firms and the community –, and also the public health system and the clinical system have to work together. Each of them has their own responsibilities. The more capable the first three sectors are, including the resources, quality of service and the governance, the less likely a patient would need to be hospitalized. So, fighting the pandemic is a task for the whole society, not just health care.

Basic conditions in China, South Korea and Singapore

		Population (million)	Population density (person/km²)	GDP per capita (USD)	Hospital beds per 1000 persons	Critical care beds per 100,000 persons
China (2019)	National	1,438.1	153.0	10,121.3	5.64	3.6
	Hubei Province	59.17	318	11,218	6.77	
	Wuhan (2018)	11.21	13798	20,960	7.56	
South Korea (2018)	National	51.3	505.1	31,430	12.27	10.6
	Daegu	2.5	2,818	23,794		
Singapore (2018)		5.8	8,702.8	56,679	2.8	11.4

Phua, J., Faruq, M. O., Kulkarni, A. P., Redjeki, I. S., Detleuxay, K., Mendsaikhan, N., ... & Haniffa, R. (2020). Critical Care Bed Capacity in Asian Countries and Regions. *Critical Care Medicine*. & Three country report

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Basic conditions in China, South Korea and Singapore

Minute 00:36:32

So, if you look at this – here some basic information about the three cities – then [Singapore] is a city state, South Korea is a medium sized country with comparable size to Hubei province, where Wuhan city is. China on the whole has 1.4 billion people and a much lower income than either, South Korea or Singapore. And Wuhan, which is the epicenter of this whole outbreak in China, has much higher population density than both, South Korea and Singapore. And Singapore and South Korea also have many more ICU beds. On the right-hand side, you can see the critical care beds, which I put here, they are much higher. So, this means that China had to make particular efforts to minimize the burden on its limited ICU capacity.

Proactive and coordinated

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Proactive

Most traditional approach—social distancing
- Self disciplined
- Human enforced + no lockdown
- Lockdown + face mask --China

"Cutting edge" approach—IT supported social distancing
- Good tracing capacity
- Loss of privacy
- Not suitable for countries that suffer from serious digital divide—Latin America?

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Proactive

Minute 00:37:44

So, basically, I put 'proactive' and 'coordinated' here. So, the idea is that, on whole, there is testing, tracing and isolation. These are all very important here because these activities are public health sector responses in the previous figure I showed earlier. So now I will just focus on the role of the society and the government structure and I think somebody else is going

to talk about the role of testing and isolation.

This ‘proactive’ slide basically shows that maintaining social distancing is an effective way to cut off the sources of infection. Unless people are very obedient, social distancing has to be enforced either by people or by technology. South Korea used technology. China used some technology but relied more on strict lockdowns and the people in each residential compound to enforce it. And Singapore did not lock down until recently. Singapore asked people to maintain social distancing and introduced heavy penalties for violating it. So, what we can see is that the Singapore and South Korean approach require great legal and technology capacity. China’s approach relies more on people and some technology and the fact that most people live in high-rise residential compounds, making it easier to control.

Wearing masks has its benefits to support social distancing. People like to stress that it can prevent transmission. But if you think intuitively it is also important to note that from the perspective of enforcing compliance, identifying people who are not wearing masks is a lot easier than identifying people not meeting the 1 meter or 2 meters distance rule in public spaces.

And another perspective that is probably worth considering is that in Latin America, I just checked online, about 288 million people are not connected to the Internet. This makes it potentially difficult to use the newest digital technology for enforcing social distancing rules across the board. So, this is probably worth considering.

Coordination

Intersectoral collaboration
- Interdepartmental tasks force (working groups)
- Strong community support

Interregional coordination
- Nationwide lockdown though controversial but has a core benefit
- Allows concentration of resources in the most needed region
- 42000 medical professionals travelled to Wuhan
- Quality healthcare equipment go together

Suitable when there is a shortage of medical resources

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Coordination

Minute 00:40:36

So, all three countries have good international collaboration. China has fewer per capita resources but was able to send medical resources to Wuhan from other parts of the country. I would highlight that this would require centralized coordination. And also, the lockdown in other parts of the country prevented outbreaks as the medical resources were sent to Wuhan. I think this is a very important point because a lot of people were asking whether it is necessary to lockdown Wuhan. But if you look at what China has done, because all the important medical resources were concentrated in Wuhan, the last thing you want is to have another outbreak in your backyard. So, China may not have been able to deal with the severe outbreaks in several provinces at the same time. So, the national lockdown, regardless whether they are initially intended for this purpose in the beginning, is literally the whole country helping Wuhan and Hubei to struggle through the test.

However, to truly enforce a lockdown there needs to be strong community support. In China there is an elaborated grid master system, which is comparable to a fire warrant system, where each building and floor has someone to be responsible when some issues arrive. So, during the pandemic, the public health system and the community system intertwined in the neighborhood, carrying out patrolling, temperature tests, organizing food supply, answering phone calls or even offering medical support for people not having COVID-19. So, a lot of street-level officers and volunteers were involved in the tasks. And there were also the migrant

workers who gave up their holiday break to work, as deliverers and cleaners. Similar to Singapore and South Korea there is a high level of inter-sectoral collaboration in China. Special task forces composed of multiple government agencies are organized to coordinate efforts. So, these efforts make limited resources to be used efficiently.

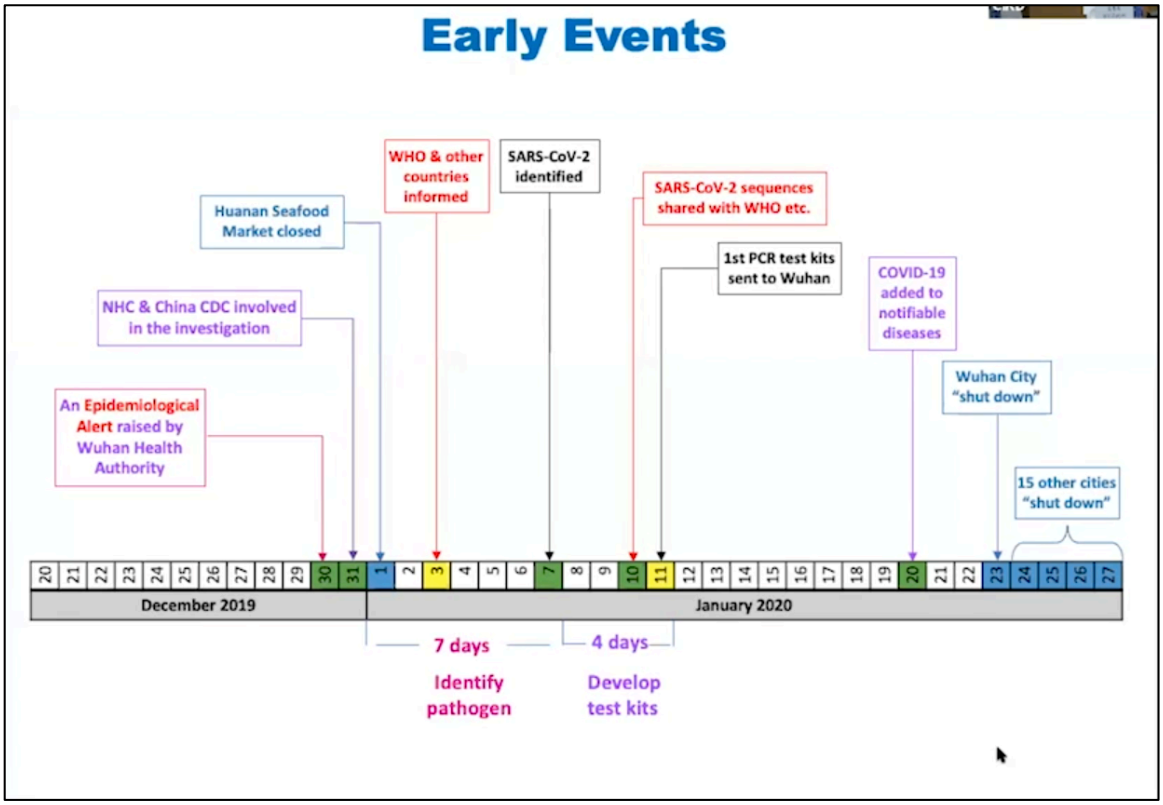
Take away points

Minute 00:43:12

Here are some take away points. There is not one single way to fight against COVID-19. Countries should mix and match the solutions that are appropriate to their own circumstances and constraints. China was the earliest country to respond and there was a lot of confusion about what should be done initially but then it was fast to adapt and to make changes and improvements. This is very important. Some Latin American countries are facing constraints with resources but with a strong community participation background they can benefit from looking at China's experience.

Questions and answers (moderated by Will Savedoff)

For this question and answer section we are going to be joined by an additional group of senior Chinese experts and we would like to introduce them to you before we begin.

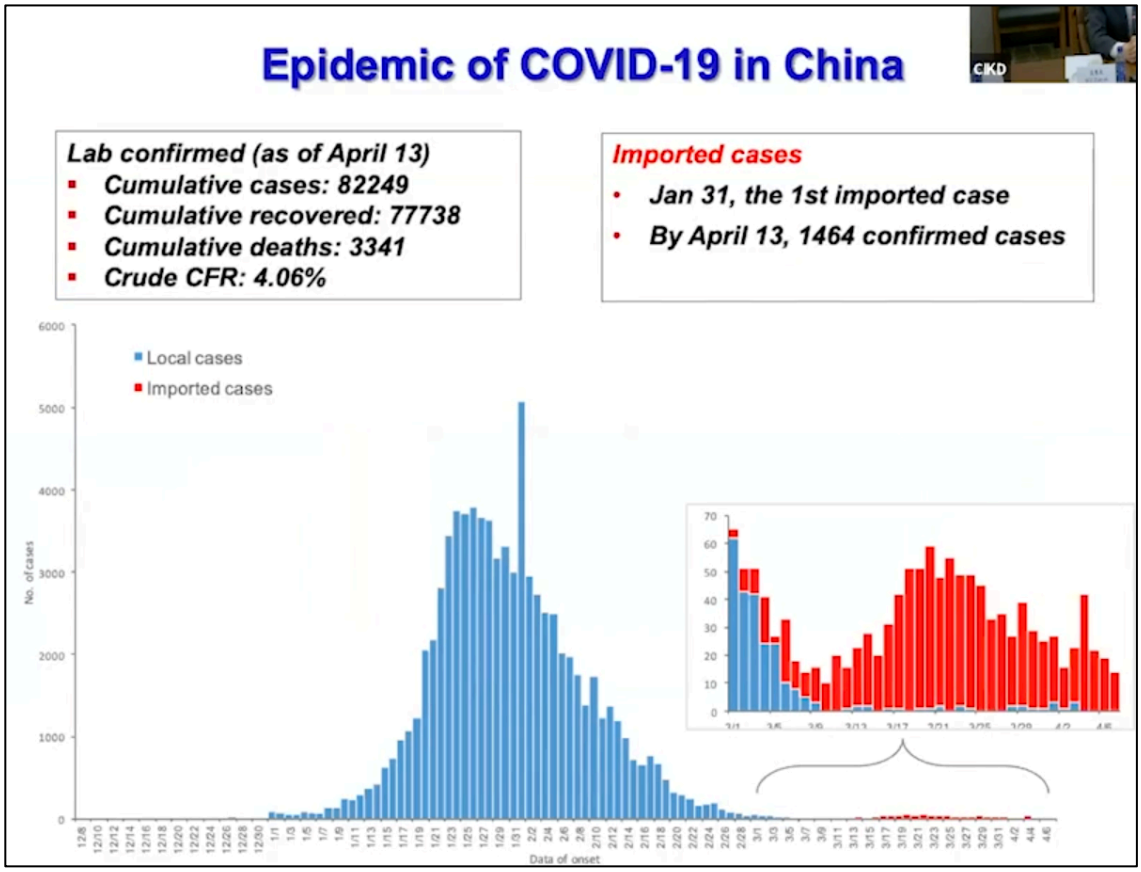


Early events

Minute 00:45:30

I am Dr. Zuoyou Wu from the China CDC. I am an epidemiologist and I have worked on COVID-19 since January. My work is to monitor the epidemic trying to understand the trend how the epidemic moves and how to stop it. I have only two slides I want to share with you. The first slide is just a quick review of the early events. Last December an epidemiology alert was issued by Wuhan authorities - on December 30. The second day the National Health Commission and the China CDC sent an expert team to Wuhan to assist the investigation. The early cases indicate that they had common exposure to Huanan Seafood Market. Then, the next day, January 1 the market was closed. So, we did not know exactly the passage for the pneumonia. At that time, we shared our concerns and information regarding some events of undetermined passage pneumonia with the WHO and other countries. On January 7 we isolated the virus, called the novel coronavirus identifying the passage for the pneumonia.

Then on January 10, we shared the coronavirus sequence with WHO and other countries. The next day, January 11, we sent a laboratory testing kit to Wuhan for making diagnosis. On January 20 COVID-19 was enlisted as a notifiable disease. On January 23 Wuhan was shut down. Then, after a few days, other 15 cities were shut down. So, we reviewed that first three weeks. It created in the human history the shortest record in the history to recognize an emerging infectious disease. It only took seven days to identify the passaging and we took a severe and determined response in only less than three weeks. I think we responded very quickly and firmly.



Epidemic of COVID-19 in China

Minute 00:48:26

It took us a little more than two months to control the epidemic. Now we still face the challenge of imported cases. So, if you look at the slide, the red color bar indicates the number of imported cases. So, we are now working hard to try to prevent the epidemic rebound. We are confident that we are able to prevent the second wave. However, the challenge is still great. So, we are facing two challenges. One challenge is that we want to go back to normal life, to resume our productivity and the other challenge at the same time is that we want to prevent the epidemic rebound.

Introduction: Dr. Guangxi Li

My name is Dr. Guangxi Li. I am from the Wuhan Hospital China Academy of Chinese Medical Science. Basically, how we manage patients in China in one part is using Chinese medicine. So, you know, COVID-19 patients usually go to the ICU, especially for the elder patients with some kind of comorbidities. So, this part of patients is about 20%. So, what we did is to use Chinese medicine to prevent the development of the acute illness. For COVID-19 the major mechanism of how it puts patients into dangerous situations, the major thing, is the development of acute lung injury. So, using Chinese medicine to prevent the development of acute lung injury is our major advocacy. That is what we have tried using Chinese medicine for. So, we have quite a lot of evidence to show in future publications.

Questions related to testing

There are quite a few questions coming in about testing, which is obviously a critical and very important part of dealing with this. One of the amazing things is that we have tests so quickly for this disease, relative to previous epidemics in the past. I think for the concern of Latin America a lot of the issue is that most of our countries do not have the scale of testing that really is important. And it sounded like you used CT tests early on and that there were issues with symptomatic detection. I recall that there were cases were sometimes people quarantined themselves without having full test confirmation, and stuff like that. Can you talk about the early experience with the testing, when you did not have enough, and how you used that to emend the epidemic at the early stages?

Answer Dr. Zuoyou Wu

Let me respond to your question about the capacity of laboratory testing in the early stage. I think we faced a great challenge in the early stage. The capacity in the local laboratory was limited. We tried to help and we also sent a mobile level 3 laboratory from Beijing, China CDC, to Wuhan to assist. We also mobilized lab technicians to Hubei and Wuhan to provide support. So, the capacity gradually expended because the lab test became a bottleneck for diagnosis. We also noticed in February that one day we had a significant increase of clinically diagnosed cases because we cannot provide much diagnosis for patients waiting for laboratory confirmation. So therefore, the capacity expanded and we solved the issue. So around February 20 I visited Wuhan, the daily (number of) tests performed in one single day was more than 20,000 per day. So now in the border area between China and Russia we have imported cases and we also send our mobile laboratory to that border area to assist. So, laboratory testing capacity is very important for the response, particularly at an early stage.

Questions related to testing

People were actually asking more specific questions about testing, in terms of what are the actual sensitivity and specificity of the tests that you are using. And I guess, part of the question there is that tests have different levels of precision and particularly for the serological tests and the uses, whether it is for clinical purpose or for the epidemiological information might vary. Are you using a wider range of less reliable tests than you would have otherwise or are the standards the same, as you would have before the pandemic?

Answer Dr. Zuoyou Wu

That is a very technical issue. I think we rely on RT-PCR. RT-PCR directly detects the virus gene, the nuclear assay. So that testing is very sensitive. We do not worry about sensitivity; however, we do worry about contamination. Contamination caused false positive. That is why we have required laboratory capacity. The sensitivity is not about the test itself; it depends on how the specimen are being collected because the virus infection is not in the upper respiratory tract. It is mostly in the lung. So, the specimen collection is very important. If you are lucky then you collect the specimen with virus you test positive. If you are not lucky or you are not skilled, even if you have the virus in your lung you might not get the right specimen so the false negative is more concerning than the false positive.

In terms of RT-PCR, compared with serological tests, serological tests cannot detect early infection because for serological tests you need to wait until the body produces anti-bodies and that takes time, at least a week. So, for early detection of infection we do not encourage or support the use of serological tests. So, RT-PCR tests still are the most sensitive test and best laboratory tests for early diagnosis. For the sensitivity and specificity concern, serological is not like RT-PCR, (which is) for (detection of) the nuclear assay.

Questions related to tracing strategies

Again, there is a variety of ways countries have done it. Some of the speakers talked about the differences between Singapore, South Korea and China. One of the questions was related to the difference of the tracing strategy you followed in Wuhan versus what you were following in other provinces. And I am thinking also the difference in a tracing strategy when you have a very high prevalence versus a very low prevalence. So, can you speak a little bit more about the tracing and tracking strategies?

Answer Dr. Zuoyou Wu

Contact tracing is a very important strategy to stop the epidemic. I think for the outbreak in Wuhan, at that time, at an early stage we did not do well in contact tracing because we did not recognize that the outbreak was so contagious and spilled so fast. So, the other city provinces did a wonderful job with contact tracing. If we look at the cases outside of Hubei, over 85% can identify who transmitted (the virus) to the patient. So, contact tracing could identify early cases. That could reduce the (risk that) infected people transmit the virus in the community. So, if we look at all the cases of the city provinces outside of Hubei there are only cluster cases. They did not have community transmission. However, in Wuhan this is a little bit different as they had so many patients in such a short time, concentrated in the hospitals and in the community. So, we do not have enough personnel to do contact tracing and to do epidemiological investigation to identify close contacts. So, then we sent more health workers, particularly epidemiologists from other provinces to Hubei to help. So, in the time I visited Wuhan, in February, we had 1,875 investigation teams. Each team had five members, that means almost 10,000 epidemiologists to do close contacts (tracing). So that means huge resources are important for contact tracing to identify patients earlier. That is very important.

William Savedoff

I think that is a message that hasn't got out enough, the role that these teams can play in terms of contact tracing. I know that the New York Times had an article about Massachusetts, actually, ramping up in this direction. So, it is a lesson that is gradually getting to other parts of the world.

Questions related to treatment

The standard treatment that we are aware of for very intensive cases is the ventilator. And there have been a lot of concerns about the number of those. But as several speakers have mentioned, there is actually a range of symptoms and seriousness to the disease, plus you have now had experience in dealing with a lot more patients and this disease does seem to have characteristics that are different than other kinds of Influenza. Could you say something about the treatment protocols, the range of treatments and any new discoveries you have had about how to treat this differently than previous coronaviruses?

Answer Dr. Jian-cang Zhou

First, I have to ask if your question is about the individual strategy for treating different patients. Is that right? Is that the question you are asking?

William Savedoff

The question is about treatment protocols for coronavirus in general and any new things you have learned about the treatment for the coronavirus from the experiences

that you had that are different from other treatments for coronavirus than in the past.

Answer Dr. Jian-cang Zhou

As you may know, the treatment of COVID-19 mostly is the supportive care because so far there are no special drugs specified for COVID-19. However, you also have evidence-based treatment for these kinds of patients. You have to take care of the patients balance, especially, given that there is a high incidence with cardiac impairment. And also, for the patients with lung infections you have to adapt the lung protective interventions, for some patients, especially in the early stage, the protection will be beneficial. However, it really varies from patient to patient. They can be similar to other patients, for example to ARDS patients. It just depends on your close observations to (make) some adjustments to the treatment for all individuals. The individual treatment strategy depends on what you have found on the patient's personal situation and his or her personal response to your primary treatment.

Answer Dr. Guangxi Li

Basically (for) the most part it is supportive care because right now there is no confirmed anti-viral that could really work on those patients. So, the major mortality reason is the development of acute lung injury and the development of an ARDS. So, the respiratory support is the most important (treatment) for most patients. But what we found, really, is that the most effective way is to integrate traditional Chinese medicine, like Dr. Gong said. That is the most effective way to treat especially the early stage, not only the mild symptoms but the early stage. What that means is that if the patient had very persistent fever in the first week that could trigger the development of an acute lung injury. So, during the first week window, if we could reduce the inflammation with Chinese medicine this could really reduce the incidence of acute lung injury, so that we don't need so many critical care resources and we don't have so many patients on the ventilator. So that is how we treated Wuhan patients later.

Question related to protect the health care workers

Along with the treatment protocols is the question about protecting the health care workers themselves. Latin America is currently trying to get enough masks, gowns, personal protection equipment and these kinds of things. Did you have enough right from the start or how are you making sure that medical professionals and people working in the hospitals are also safe?

Answer Dr. Sen Gong

From my observation, at the very beginning we did not have adequate PPE. So that is why many nurses and medical staff members worked (with it) for six hours because they did not have

enough. But eventually, since then, we have enough PPE and they can work (with it for) fewer hours, like 4 or something. So how could we resolve this problem? Prof. Zuoyou Wu (will answer this question).

Answer Prof. Zuoyou Wu

We have looked at the number of health providers infected and also, we looked at the severity and mortality among health care providers. I think that PPE is very important. On the other hand, I think it is more important for people or health workers to be trained as infectious specialist or they are specialists for respiratory diseases so they are aware of the risk and have concerns and are more cautious to protect themselves. In the early epidemic the patients may have stayed at a different department so health workers in other departments were not aware and not concerned to protect themselves. So, most of the health workers infected, many were (infected) in the early stage. So now we compare the infection rate. So, we found very interesting findings. The workload is associated with problems of health worker infections. So that means the hospitals that take care of large numbers of COVID-19 cases are more likely to have infections among health care providers. That is one observation.

The second observation we found is for people specifically collecting sputum (or for the cough in the throat), they have less prevalence of severity or mortality. That means if health workers protect themselves well, they will not get infected severely. That indicates that, as long as health providers have sufficient PPE, they are safe. For example, one of the earliest doctors, her name is Zhang Jixian and she is a specialist in the respiratory department. She engaged in the early care of a lot of COVID-19 cases. She did not get infected. So, I think it is (because of) the training and the routine, awareness and (alertness).

Question related to business

Now that you are in the stage of trying to keep the disease at bay, (what about) business practices for hygiene? Another participant asks how are you handling the possible spread of the disease via transportation networks? He mentioned the trade in goods and service, but I am also thinking about public transport, and stuff. Are there some elements of that you could explain to us of how one you have gotten past this first wave and you got control over the disease, how do you deal with these business and transportation levels?

Answer Prof. Zuoyou Wu

Thank you for that question. It is very challenging, particularly now that we are trying to resume the work. So, we do develop the protocol, so actually we start slowly and gradually to think about strategies of how to slowly go back or resume our normal life or productivity. So, we have

priorities which category of work needs to be first to start. For example, even at China CDC people who do not work on COVID-19, before last week, we only allowed less than 10% working at the office. The majority worked at home. And starting this week we could have 30% to 40% working at the office. It depends on your style. If you could work from home, we encourage people not to come to the office. For the factories, I think we also have a strategy, that means both the employer and the employee take responsibility. The most important (thing) is to have the screening at the entry point. At the entry point we also have daily monitoring of the temperature and the symptoms. For example, you can go inside a building if you have the green code. A green code means that you have stayed in this place and have not travelled to the epidemic area in the past fourteen days. If you have the green card you have a passport to travel or you can have the working permission to be eligible to start to work. Even if you have started to work, we have supervisors to make sure that all the prevention measures are implemented appropriately. So, we gradually, slowly start our work. We do not want to jump quickly and to take a greater risk. So, by doing it slowly we hope we are soon going back and at the same time we don't have an epidemic rebound.

Answer Dr. Sen Gong

May I maybe add one more point. For the reopening of our schools we have taken a different approach compared to many other regions, like they proposed in the United States that probably they are going to start with the kindergarten. That is nothing that we are going to do. We think that kindergarten kids do not know how to protect themselves. So, our sequencing would start with –how should I say – we are more (oriented towards a) health-oriented reopening. So, we will start with the safest, the (ones that) could protect themselves. And also, there is no cross-provincial transport. So, we don't start with the graduate students, the college students. They know how to protect themselves but they are from different provinces so we do not start with them. But we start with the senior high school and junior high school, especially for each period of schooling we start with the graduates, like a grade 9 and a grade 12, so they are ready to face their entry examinations soon. So, we start with the middle school students and especially the last year of each schooling period.

I understand that probably in the United States they are more concerned about helping the parents, since all parents have to go back to work so for the young kids, they cannot stay at home so that is why they start with kindergarten. So that is a different approach.

Answer Prof. Zuoyou Wu

I want to add one more point about mask wearing. It is very important, even though in China now we do not have many cases, however at the workplaces and particular in crowded areas, including in the transportation as you just said, like in the subway, train or airplane, it is required

to wear masks. I think comparing China, Eastern ways, Europe or America, there are cultural differences and beliefs. We believe that wearing masks is very important to stop or to reduce the virus transmission because the virus is shedding one to two days before the onset of the illness or symptoms. That means that people in the pre-symptomatic stage are already infectious. So, people who are infected are not aware that they are infected. They may spread the virus to others. And because healthy people do not know, in the crowded areas if anyone is asymptomatic. So, mask wearing is very important.

Question related to masks

Germany, for example, is clearly planning on making that an essential part of their following the wave strategy, but with surgical masks. In China, when you say that people have to wear masks, is its surgical masks, or even handmade masks or even any kind of fabric over the face?

Answer Prof. Zuoyou Wu

I think for the masks, for the general people, for the non-medical settings, general surgical masks are good enough. So, you don't need to wear a 3M or N95. If you do not take care of COVID-19 cases in the hospital setting, general surgical masks are good enough.

Question related to impoverished areas

What to do in impoverished areas and places that are more crowded and less organized? People might not have access to soap and water and in some cases electricity, and so forth. So how is that being handled in China or in South Korea or Singapore?

Answer Prof. Zuoyou Wu

I am not sure if we have (this) actually, because in the past few years the government has tried very hard to have the poverty alleviation. So, the electricity reaches almost every corner in China and the water supply also reaches almost every corner of China. I think that COVID-19 epidemic, so far, we understood in China it is mostly in the city, in the crowded areas because it is a respiratory disease. So, in the remote, rural areas it is not concentrated so we did not experience such an issue or challenge so far.

Answer Prof. Bingqin Li

Can I add one sentence to this? Because I have been following, basically, internationally what other countries are doing and also, for example, in places like in Australia they also have these, kind of remote rural areas; So what is very important is, particularly in areas where there is no

internet and people may have information shortage, so probably it is important to find innovative ways to provide education and information to the people in remote areas. I wonder whether you have some facilities that are used to, let's say, to travel to rural areas – vehicles, whatever – to be able to tell them to wash hands and to do this kind of training. And once people are aware of it, it is the first step and it is very important. And then with the others, probably, you also probably need a lot of volunteers to work in those areas and help people with testing or whatever. So that is also why the community relation and trying to make use of the non-medical staff at the prevention stages are really important.

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