Prevention and Protection Handbook Against COVID-19

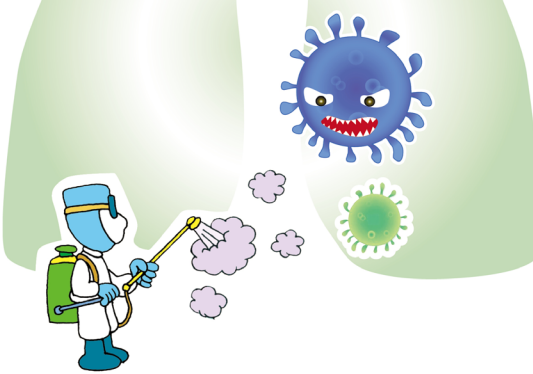
Liu Zhongmin，Wang Tao

SCPG

SCPG Publishing Co.

Prevention and Protection Handbook Against COVID-19

Liu Zhongmin，Wang Tao



SCPG Publishing Co.

Published by
SCPG Publishing Corporation
125 Maiden Lane #14E
New York，NY，10038
USA

Original title：新型冠状病毒感染的肺炎学生防护读本
Prevention and Protection Handbook against COVID-19

Originally published in Chinese by Shanghai Scientific & Technological Education Publishing House Co., Ltd, 2020

COVID-19 pneumonia was prevalent in China in January 2020 and now is spreading almost all around the world. This book aims to help the public better understand the knowledge about the novel coronavirus, and guide them to protect themselves effectively as well.

ISBN：978-1-938368-47-9 (Paperback);
978-1-938368-48-6 (E-book)

Contents

Part Ⅲ Methods of Treatment

Part Ⅳ Dispelling Rumors

Part I General Knowledge

1 What are coronaviruses?

Coronaviruses are a large family of viruses in the natural world. They have small sizes, only 100 nanometers or so in diameter, and can only be visible under the electron microscopes. A coronavirus has a roughly spherical shape and has many protuberances on its surface. If we put the coronavirus on a football, we cannot see the spikes unless the football is enlarged to the moon size.

Do spikes of coronaviruses look like a crown? Yes. Because of their characteristic crown-like appearance, the coronavirus (abbreviation: CoV) is named after corona, which means any structure that resembles a crown in shape.

Coronavirus is an RNA virus, which has one single outer membrane enveloping several genes. It is easy to mutate because its genetic material is a single-stranded RNA.

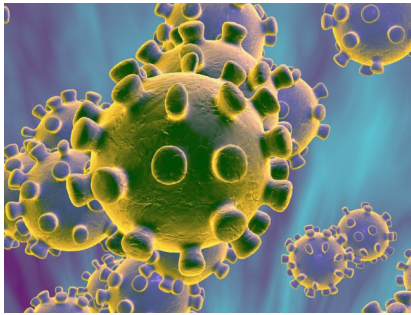
There is a cluster of members in the coronavirus family. Only six kinds of coronaviruses infecting human beings had been found before December 2019. Four of them make people mild symptoms of common cold, and generally recover within two weeks. But the other two are violent infections, once infected, they can cause serious respiratory diseases. One is named severe acute respiratory syndrome virus (SARS-CoV), which caused the SARS epidemic in China in 2003; the other one is named Middle East respiratory syndrome virus (MERS-CoV), which was first found in the Middle East in 2012.

Links

Coronavirus is an important pathogen that mainly causes respiratory and gastrointestinal diseases. In 1937, a coronavirus was firstly isolated from a chicken, which caused avian infectious bronchitis. This virus can seriously damage the poultry species, which has a diameter of 60–200 nm, and is polymorphous, suck like, sphere or ellipse.

So far, scientists have found about 15 types of different coronaviruses. They can infect mammals such as mice, dogs, cats, wolves, horses, pigs and cows, as well as chickens and other birds.

The human coronavirus was first detected from a nasal sample of patient with common cold in 1960s. Under the electron microscope, it has been found that the virus



has the coronal structure on its outer surface and it has spines on the viral membrane. The whole virus is like a corona. The spinous process of different coronaviruses has obvious differences. There are tubular inclusions in cells infected with coronavirus sometimes.

2 What is 2019–nCoV?

At the end of 2019, a novel coronavirus was identified as the cause of a cluster of pneumonia in Wuhan, the provincial capital of Hubei China. It rapidly spreads, resulting in an epidemic throughout China and a threat of global pandemics. The World Health Organization (abbreviation: WHO) designates this new virus as 2019-nCoV and the disease as COVID-19.

2019-nCoV is a novel coronavirus that had never been found in humans before. It belongs to the family of coronavirus, which associates with SARS-like CoV.

Full-genome sequencing indicated that the coronavirus that causes COVID-19 is different from both SARS-CoV and MERS-CoV. The relationship between them is just like brothers and sisters in a big family. Every person has his/her own temper, manner and attitude. Similarly, these viruses also have different manifestations and they are so different genetically.

3 How can 2019–nCoV spread to human?

The novel coronavirus' transmission mechanisms is incomplete currently. Studies show the spread of 2019-nCoV may be similar to SARS-CoV whose hosts are bats. And the routes of transmission are likely to be the same: they are likely transmitted among birds and mammals, with bats being host to the largest variety of genotypes. Finally, human beings become the infectors after touching these wild animals carrying the virus. Person-to-person spread is thought to occur mainly via patient with COVID-19. Transmission of 2019-nCoV from asymptomatic individuals has been reported.

What are natural host and intermediate host?

Natural host is a kind of organism that provides a long-term and stable parasitic environment for pathogens, but it will not cause disease due to the infection of the pathogen itself. As the name suggests, intermediate host is the host in the intermediate stage. It can also

provide nutrition and protection for parasites, but only temporarily. The intermediate host often acts as a medium to "transport" the pathogen to the "terminal", that is, the final host.

4 What is the infectivity of 2019–nCoV? How long is the incubation period?

The novel coronavirus has a certain intensity of transmission. Theoretically, one patient can transmit the virus to 2-3 individuals without safety precautions. 2019-nCoV is not limited to limited human transmission but can continue to be transmitted to humans. The incubation period for 2019-nCoV is thought to be within 14 days following exposure, with most cases occurring approximately 3-7 days after exposure. It may also be contagious during the incubation period.

5 Who are susceptible to 2019–nCoV?

People are generally susceptible to 2019-nCoV. The elderly and those with basic diseases are seriously ill after exposure, and there is evidence to children and babies infected with 2019-nCoV. Pneumonia caused by the novel coronavirus can occur in immunocompromised and immune competent population, which is related to the amount of virus exposed. In case of a lot of viruses are exposed at once, there is a high risk of infection even

if people have normal immune function, which means whether infected mainly depends on the chance of contact. In the same exposure opportunities, the elderly, people with chronic diseases or people with abnormal immune function are susceptible to be infected.

6 How can 2019–nCoV be transmitted?

Person-to-person spread is thought to occur mainly via respiratory droplets and contact. However, given the current uncertainty regarding transmission mechanisms, spreads via air and stool specimens remain unknown.

A. respiratory droplets transmission

Generally, droplets are defined that watery particles with a diameter greater than 5 microns. The droplet particles are easy to settle, and bigger ones will not be suspended in the air for a long time. The droplets can enter the mucosal surface within a short distance (generally 1-2 m). Daily face-to-face talking, coughing, and sneezing can cause droplets to spread. Therefore, wearing a mask seems an effective prevention, as well as keep your distance from others as much as possible (at least 1-2 m).

B. Contact transmission

Contact transmission includes direct contact and indirect contact.

Direct contact transmission refers to the transmission of the virus through direct contact of mucous membrane or skin. If there are symptoms of suspected infection, kissing is not recommended, including the custom of kissing cheeks with simple greetings.

Indirect contact transmission refers to the transmission caused by touching contaminated objects that something with the virus on. If hands are contaminated by feces (such as stool, which has been still unsure) or secretions (such as droplets accompanied by coughing and sneezing), or daily necessities (learning supplies, bedding, toys, tableware, clothing and etc.) are touched by hand which has been contaminated, then the contaminated hand touches the nose, mouth and eyes, the virus will be able to enter the body through mucous membranes. Therefore, washing your hands frequently is the most important precautionary measure.

7 How long can 2019–nCoV survive in vitro?

After all, 2019-nCoV is a novel coronavirus we never really knew before. The knowledge and information about the new virus is still very limited on account of the absence of authoritative researches. Owing to the highly correlated heredity between 2019-nCoV and SARS-CoV, we can read lots of research outputs and documents about SARS-CoV as a reference.

• Survive about 48 hours on the surface of non-water-absorbing materials

• Survive about 6 hours on the surface of water-absorbing materials

• Survive more than 48 hours in tap water

These show that SARS-CoV is not resistant to drying. It has different survival time in different humidity environment. In dry situations, the survival time of SARS-CoV does not exceed 24 hours.

The novel coronavirus has a similar structure to SARS-CoV, so the survival time of 2019-nCoV on the surface of the article can be referenced to the data of SARS-CoV. That is to say, in the door handle, elevator keys and other parts, 2019-nCoV can survive for almost 48 hours.

8 What's the clinical symptom when people infected with 2019–nCoV?

Fever, fatigue, and dry cough are the major manifestations of human infection with the 2019-nCoV, and a few patients have symptoms such as nasal congestion, runny nose, and diarrhea. Severe cases often have dyspnea after one week, and severe cases get worse rapidly to acute respiratory distress syndrome, septic shock, metabolic acidosis and coagulopathy.

It is worth noting that a few severe and critically ill patients only have a low-grade fever, even without obvious fever during the course of the syndrome. Some patients only have a low fever, slight fatigue, no pneumonia manifestations, and usually recover after one week.

9 What's the difference among COVID-19, common cold and influenza?

A. Common cold

"Common cold" generally refers to upper respiratory tract infections that mainly manifest nasopharyngeal symptoms caused by cold, fatigue, etc. It's a common acute upper respiratory tract viral infectious disease. Symptoms of colds are mainly nasal congestion, runny nose, sneezing, no obvious fever, no obvious changes in physical strength or appetite. There are few symptoms such as headache, joint pain, and general discomfort. People with colds usually have severe upper respiratory symptoms, but mild systemic reaction, and they are not life threaten. After 1 to 2 weeks, most patients recover themselves and symptoms disappear. Colds can occur all year round, frequently in winter and spring, but there will be no pandemic.

B. Seasonal influenza

Seasonal Influenza, called flu for short, refers to an acute

respiratory disease caused by an influenza virus infection, which not only infects the upper respiratory tract, but also causes lower respiratory tract infections, also known as pneumonia. Influenza patients have an acute illness, severe symptoms, and systemic symptoms. Common symptoms for high fever, the body temperature may rise above 39℃ at the beginning within a day or two, and symptoms such as headache, muscle aches, fatigue, and loss of appetite are obvious. The elderly, children, obese, pregnant women or people at high risk such as basic diseases may have severe pneumonia. Patients with milder symptoms can recover themselves within 3 to 14 days, while severe patients can be life-threatening or even die.

There is often an epidemic of the flu in the winter and spring, commonly types of seasonal influenza-A and B. Influenza viruses are easy to mutation and are highly contagious. They are generally transmitted through droplets and contact. The population is generally susceptible and it has a high incidence. It is an important public health issue of global concern.

C. COVID-19

The symptoms of COVID-19 pneumonia are diverse. Asymptomatic carriers of 2019-nCoV do not get sick, and the virus is detected only in the respiratory tract.

Mild patients have only a slight fever, cough, chills, and physical discomfort. Severe patients have a gradual illness by a process of exacerbation. Early symptoms, especially in first three to five days, are mainly fever, cough, and increasing fatigue. After one week, the condition gradually worsens and develops into pneumonia, or even severe pneumonia, with accelerated breathing, respiratory failure, and multiple organs injuries, etc.

10 Is there any vaccine for COVID–19?

The 2019-nCoV is a newly discovered virus, and there are currently no vaccinations against infection. Scientists at home and abroad have started to research and develop vaccine and made significant progress. But just as the development of new drugs will take a long time, a kind of new vaccines is also difficult to come out in the short term. Because of the absence of effective vaccines, active isolation and cut-off transmission are still one of the most effective measures against COVID-19 epidemic.

11 What kind of infectious disease does the COVID-19 belong to?

In January 20th, 2020, approved by the State Council, COVID-19 has been embodied into the Law of the People's Republic of China on Prevention and Control of Infectious Diseases as B class infectious, but the level of precaution according to A class.

Links

The Law of People's Republic of China on the Prevention and Treatment of Infectious Diseases divides infectious diseases into 3 classes: A, B and C.

Class A infectious refers to plague and cholera.

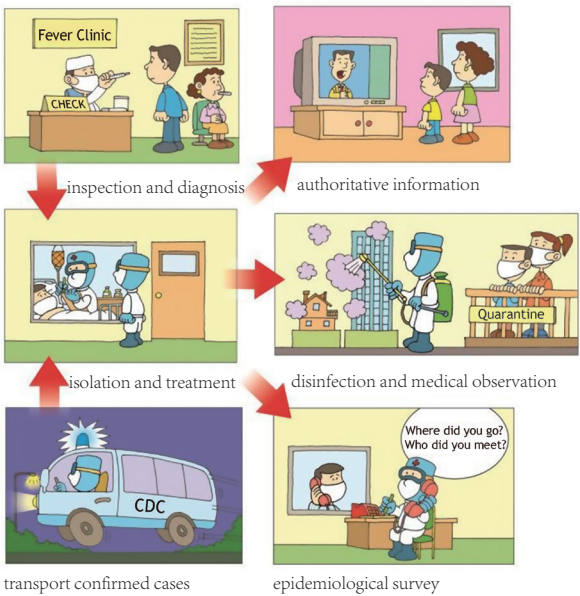
Class B infectious refers to COVID-19, AIDS, viral hepatitis, poliomyelitis, human infection of highly pathogenic avian influenza, measles, epidemic hemorrhagic fever, rabies, epidemic encephalitis B, dengue fever, anthrax, bacterial and amebic dysentery, tuberculosis, typhoid fever and paratyphoid fever, epidemic cerebrospinal meningitis, pertussis, diphtheria, neonatal tetanus, scarlet fever, brucellosis, gonorrhea, syphilis, leptospirosis, schistosomiasis, malaria.

Class C infectious refers to influenza, mumps, rubella, acute hemorrhagic conjunctivitis, leprosy, epidemic

and endemic typhus, kala azar, hydatidosis, filariasis, infectious diarrhea other than cholera, bacterial and amoebic dysentery, typhoid and paratyphoid.

12 What are the preventive treatment measures to deal with the epidemic of infectious diseases?

China has established a relatively complete response system to prevent an outbreak of infectious diseases.



Health administrative departments, disease prevention and control institutions and medical institutions will be in accordance with relevant emergency plans, organize and mobilize forces to work together to prevent the spread of infectious diseases and reduce the hazard.

1 What precautions should be taken to prevent COVID-19?

A. Reduce activities outside as much as possible

• Keep away from epidemic areas.

• Reduce family visit, no gathering together.

• Avoid going to crowded public places, especially those with poor air mobility.

B. Pay attention to personal protection

• Wear a mask when you go out.

Put a medical surgical or N95 mask on when go to see a doctor by public vehicles.

• Keep hand hygiene at anytime.

Reduce frequency of touching public items. Wash hands with hand sanitizer or soap. If soap and water are not

available, use hand antiseptic rinse free gel.

Avoid touching your eyes, nose and mouth with unwashed hands. Cover your mouth and nose with a tissue or your elbow instead of covering your mouth by hand when you sneeze or cough.

One of the best ways to prevent the spread of illness is to wash hands frequently. The most effective way to do is to wash your hands if visibly dirty, after returning from outside, using the toilet, before eating, before and after preparing food, after blowing your nose, coughing or sneezing.

Teach children to throw away the tissue and wash hands immediately.

• Pay attention to personal hygiene.

Take a shower regularly. Wash hands after returning from outside meanwhile remember to clean nose and

mouth. Change clean underwear and coat regularly.

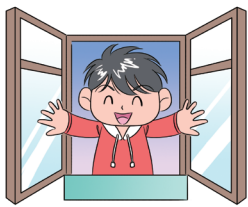
C. Carry on health monitoring and seek medical care early

• Prepare a thermometer at home. Have a daily health-check and report to the assigned administrator of community or school as required.

• Go to a hospital as near as possible if you have fever, cough, sore throat, chest pain, respiratory distress, fatigue, nausea, vomiting, diarrhea, conjunctivitis, muscle ache, respiratory symptoms and report to your school actively.

D. Pay attention to home hygiene and health

• Clean and disinfect frequently touched household objects and surfaces in your house. Improve room ventilation by opening windows as much as possible.



• Maintain touched household objects and table wares clean. Frequent drying of clothes and quilts, timely

taking out the trash. Sterilize home indoor environment with an alcohol-based disinfectants.

• Pay attention to food safety and keep healthy diet habits.

2 How to choose a mask?

• If you are healthy, you only need to wear a mask when take care of a suspected patient with 2019-nCoV infection.

• Wear a mask if you have coughing or sneezing.

• Before wearing a mask you must wash your hands clean by alcohol-based hand rub or soap.

• If you wear a mask, then you must know how to put it on and dispose of it properly.

2019-nCoV is mainly transmitted through respiratory droplets. Wearing masks is an effective means to block the spread of respiratory droplets.

The protection ranks of masks(from high to low): N95 mask > surgical mask> medical mask > cotton mask。 Wearing Surgical or N95 masks is the preferred choice to prevent 2019-nCoV infection.

Wearing a standard medical mask is one of the prevention measures to limit spread of certain respiratory diseases. To some degree, masks do function as a barrier

to pathogen avoiding inhalation of the mouth and nose, owing to the hydrophobic layer of the surface of the medical surgical mask. In high risk situations, such as in health care facilities, or need to contact the sick directly, N95 mask can provide a relatively adequate level of protection and other equally relevant measures should be adopted.

There are two types of N95 mask depends on breathing valve. N95 has breathing valve can only prevent the wearer according to the one-side protection, which is unsuitable in public under 2019-nCoV outbreak now.

3 Appropriate masks management

(1) Wash your hands at first.

(2) Identify front and behind, up and down of a mask. The light-colored side is behind, the dark-colored side is front, and the edge with metal strip is upside.

(3) Avoid touching the inside face of the mask when wearing.

(4) Cover mouth and nose by extend the folded surface completely.

(5) Press the nose clip to make sure the mask wearing seamlessly.

All kinds of masks can only isolate the virus on the surface of the mask. While in use, avoid touching the

mask. Squeezing a humid mask by hand may bring the risk of infection.

Do not touch the outer and inner surfaces but remove the lace from ears carefully.

4 What are the situations to change a mask? How to dispose of a used mask?

Change a single-use surgical mask every 4 hours, and 6-8 hours for N95 mask. Change your mask as soon as possible in following situations:

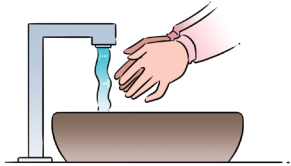
- Respiratory distress
- Masks be worn
- Masks leakage
- Masks are contaminated (blood or respiratory secretions)
- Used in isolation ward or close contact with sick
- Smelly

Pathogens stick on a used mask when in the same room with the affected individual. Dispose of the material immediately in a plastic bag after using instead of putting it in your bags or pockets. Then throw the bag into dry bin or special bin. After that, wash your hands immediately.

5 How to wash hands appropriately?

2019-nCoV can be transmitted through contacts. Washing hands is the effective way for prevention. Advise to wash hands in following situations:

- Returning from outside
- Before eating
- Before and after toilet
- Before wearing and after taking off a mask
- After touching respiratory secretions, including covering mouth and nose when coughing or sneezing with disposable paper tissue
- Handle wound before and after
- After touching animals, animals' food and excreta
- After disposing rubbish and visible soiled Perform hand hygiene frequently, using soap, hand sanitizer and flowing water or at least 60% alcohol-based hands free disinfectant if soap and water are not available.



Remember following pithy formula: more than 20 seconds with 7 moments for hand hygiene. You can sing twice the song of ***Happy Birthday*** for evaluating the time duration. "Inside, outside, clip, arch, big, erect, wrist" are the 7 keys to hand hygiene.

(1) Inside: Palm to palm

(2) Outside: Right palm over left dorsum, then in reverse

(3) Clip: palm to palm with fingers interlaced

(4) Arch: back of fingers to opposite palms with fingers interlocked

(5) Big: rotational rubbing of right thumb clasped in left palm, then in reverse

(6) Erect: rotational rubbing of fingertips and the thumb of right hand on left palm, then in reverse

(7) Wrist: rotational rubbing of right wrist with left palm, then in reverse

6 How to disinfect properly at home?

2019-nCoV can't tolerate heating. It can be killed with 30 minutes at 56℃. 2019-nCoV can also be killed by chlorine disinfectants, alcohol, ethyl ether, iodine and peroxides.

84 liquid disinfectant, bleaching powder or other chlorine containing disinfectant (more than or equal to 500 mg/L) can be used to prepare a solution with an effective chlorine concentration to disinfect. For heat-resistant items (such as tableware and some toys), boiling in the water is simple and effective. Tableware, vegetables and fruits can also be disinfected by soaking in 5‰ potassium permanganate for 1 minute, then rinse with clean water.

High concentrations of alcohol can be used to disinfect, but they are flammable. Please keep watching for

spraying alcohol away from fire. Alcohol and 84 disinfectant must be stored and used separately.

7 How to disinfect properly on campus?

Keep classrooms with good airiness.

Clean and disinfect routinely touched desks, chairs and other surfaces of objects.

Put hand sanitizer in the toilet and hands free disinfectant in the classroom.

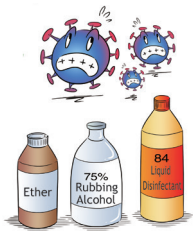
Clean up garbage in time.

8 Is it necessary to disinfect your daily articles, coats and other personal objects?

2019-nCoV can be transmitted through contact. 2019-nCoV may enter the body through the mucosa of nose and mouth by contaminated hands after touching contaminated articles. It may reduce the possibility of infection to disinfect the daily articles, clothes and other personal objects, such as keys, mobile phone.

The simplest disinfection method is to spray 75% medical alcohol on the surface or wipe it with a proportioned disinfectant for daily learning supplies, keys, mobile phones and other personal items. Coats should be hung on the balcony or ventilation place

nearby window after taking off. The virus cannot be survive for a long time if it leaves human body. Coats can also be washed in a drum washing machine with high temperature boiling function, which is also effective in sterilization.



9 How to keep healthy living habits at home?

People should keep healthy living habits to improve immunity and prevent virus infection.

(1) Do not share towels, toothbrushes and gargle cups with families. Preferably eat separately by using personal dishes.

(2) Please keep a proper distance with other people and cover your mouth and nose with a disposable tissue when you cough or sneeze. If a cough or sneeze sneaks up on you and no tissue is available, cover your mouth and nose by your upper sleeves or a bended elbow. No spitting. Use paper tissues to blow your nose. Throw

away the used tissue into a closed bin immediately.

(3) Pay attention to eye hygiene. Avoid using electronic devices or watching TV for long hours. Children should be limited to use iPad or smart phoneless than 15 minutes each time and no more than one hour per day during holidays. Take a 10-minute brief break to have a rest and look out into the distance after using electronic devices every 30-40 minutes. It is recommended that screen time should be no more than 2 hours per day for children, including smart phones, computers, TV and other electronic devices.

(4) Get enough sleep and don't stay up late. Primary school students need 10 hours of sleep per night, junior students need 9 hours, senior students 8 hours, while adults 7 hours per night.

10 Why we need to bar the consumption of wild animals?

There have been new epidemic and pandemics emerged around the world in recent history, including SARS, highly pathogenic avian influenza, Ebola, MERS, etc.

Originating from animal sources is the common feature of these diseases.

Current researches show that bats are most likely the source of infection of 2019-nCoV. The virus may be transmitted to some kind of wild animals through bats, and then humans who contacted with these animals would be infected possibly.

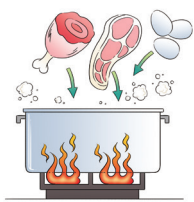
Farm-raised animals like pigs, cattle, sheep and common poultry such as chickens, ducks and geese have been vaccinated. Animals will not infect human if they don't carry the virus. It is likely that human have not been exposed to some virus from wild animal before. Once mutation occurs, the virus could easily be transmitted to human and cause infection because human may not have the immunity to it. As a result of the virus' evolution and adaption to human, it can spread easily person to person and pose a pandemic threat. The rapid development of globalization and high-efficiency global transport network may enable the contagious disease spread from a small village to the whole world and become a global public health concern.

Therefore, the most effective and easy way to prevent the epidemic disease is to stay away from wild animals, minimize the invasion to wild animal habitat, and ban the consumption of wild animals.

11 How to pay attention to our diets?

Do not eat wild animals and dead animal meat or aquatic products of unknown origin. Avoid eating food left overnight. It should be reheated and cooked thoroughly before you eat it. Do not go to restaurants without a Food Sanitation Permit when dining out.

It is important to make sure that food is thoroughly cleaned and cooked before eating, especially meat and eggs. There may have parasites, bacteria, or viruses in raw meat and thus it has a certain risk of infection if not thoroughly cooked. People with a chronic condition or those immunocompromised individuals may have influenza-like symptoms, such as diarrhea, vomiting, and septicemia, etc. after eating undercooked meat or eggs. Stay extra safe: If the burger's not hot enough and you have to cook it longer. High heat cooking helps to sterilize and disinfect the food.



Use separate plates and cutlery for cooked and raw foods. For example, chopsticks used to pick up raw

food in hot pot should not be used for cooked foods. Containers, cutting boards and utensils should be separated to avoid cross contamination.

12 How to boost immunity to prevent respiratory diseases?

We need to follow these tips in boosting immunity:

(1) Stay positive and optimistic. Stress and negative emotions can suppress the immune system, resulting in a lower immune response against cold and other diseases.

(2) Regular physical exercises. Aerobic exercises, including sit-ups, push-ups, high knee march, run in place, and jump rope, are suitable to workout at home. Exercising 30-45 minutes and 5 days per week can help to strength your immunity. Put on trainers and control the intensity and voice when exercise at home to avoid disturbing your neighbors.

(3) Get enough sleep. Adequate sleep helps the increase of the T cells and B cells to facilitate the fighting against the virus and bacteria. Adolescents need 8-10 hours of sleep each night.

(4) Maintain a balanced diet. Take vitamins and mineral supplements daily. No picky eating or overeating.

13 What should we do when there is a suspect case of COVID–19 around?

If you suspect that you have been around someone who has got COVID-19, you should wear a mask and keep a safe distance away (one meter or more). Avoid close contact with those suspected. Suggest those people to wear a mask and go to the nearest designated hospital's fever clinic for test and treatment.

14 How to take care of yourself when going out during the epidemic?

On January 29, 2020, the Joint Prevention and Control Mechanism of the State Council issued guidelines for public transportation disinfection, which include the advices for travelers on how to protect themselves against the virus.

Firstly, wear masks and gloves. Travelers are advised

to wear medical surgical masks (or other higher level masks) and discard them at the end of the trip. Travelers are also suggested to wear gloves if possible. Disposable gloves cannot be reused. Reusable gloves should be disinfected and cleaned after use by steaming or boiling for 30 minutes, or soaking in 500mg/ L chlorine containing disinfectant for 30 minutes.

Secondly, keep good hand hygiene. Travelers should pay attention to hand hygiene. Wash hands after the trip. Alcohol-based hand sanitizer can be used. Hand sanitizer containing chlorine or hydrogen peroxide can also be used under special conditions. If there are visible pollutants, wash your hands with hand sanitizer under flowing water before disinfection.

Thirdly, adopt social distancing practices. Travelers are required to keep certain distance away each other when taking public transportation.

Finally, support work of the public transport staff. Follow the instruction and guidance of public transport staff and enhance self-protection measures. If there are any suspected or confirmed case around, follow the instructions of the staff and undergo a self-quarantine for medical observations. Follow the official arrangements for screening, medical checks and investigation. Do not leave without permission.

15 What should people do before returning to their place if they have a history of residence or travel in a high-risk area?

According to epidemic prevention and control measures, people with a history of live or travel to epidemic area are required to undergo a 14-day quarantine at home or in designated facilities for medical observations after they return.

(1) Timely report to the school, company and local residents. Do not go outside arbitrarily during self-quarantine period especially crowded public places. Avoid taking public transportation.

(2) Monitor the symptoms and signs for 14 consecutive days after leaving the epidemic area. Temperature should be measured as twice a day in the morning and afternoon respectively. At the meantime, observe whether there is any suspicious symptom of the novel coronavirus infection.

(3) Seek medical help and report if there is any suspicious symptom. You will be not allowed to return to your company until the disease is recovered.

16 What should students pay attention to before and after returning to campus?

Students have no suspicious symptoms or history of

live or travel to epidemic area can return to campus when the winter holiday ends. It is necessary to visit the hospital and report to the school if there are any suspicious symptoms.

(1) On the return trip to campus

Medical surgical masks or N95 masks and gloves should be worn on during the whole trip when taking public transportation.

Maintain good hand hygiene and reduce touching the public transportation. Clean your hands by using alcohol-based hand rub or soap and flowing water before eating, after toilet, touching the public places and using the hands to cover the cough. Avoid touching the mouth, nose and eyes when you are unsure whether your hands are clean or not. Always remember to cover your mouth and nose by tissues or your bended elbow when sneezing or coughing.

(2) After returning to campus

Students and teachers shall wear face masks properly when talking to each other face-to-face. Try to narrow the scope of activities and cut nonessential going out to avoid contacts.

Links

Once feeling sick on the return trip, students should

go to hospital as soon as possible. It is advised that students voluntarily report a history of live or travel to epidemic area and people that close contacted to collaborate with doctors in following medical investigation.

Keep the ticket information of the flight, high-speed train, and coach bus etc. properly to collaborate with the investigation of close contacts.

17 How to collaborate with school or company to prevent and control the epidemic?

Schools and companies will collaborate with healthcare facilities to manage the close contacts and disinfections. Everyone needs to measure temperature twice a day. It will be timely reported to epidemic management staff when any suspicious symptoms noted.

Large-scale activities will not be allowed to be organized. Windows are opened often to help with ventilation in the classrooms, offices, dormitories, libraries, activity centers, canteens, auditoriums, and toilets etc. Hand hygiene should be addressed and hand sanitizers and disinfectants should be prepared.

All people should follow the instructions and arrangements of the administration, obey the rules, strictly regulate behaviors, and perform health management.

18 How to view the epidemic in a scientific and rational way?

Facing of the epidemic, some people are indifferent and neglect; while some people are overreacting. They check the progress of the epidemic repeatedly, browse or spread some news which has no reliable sources or evidence. Neither of the attitudes is commendable. We need to take a scientific and rational attitude towards the epidemic prevention and control. It is the most powerful weapon for us to fight against the epidemic.

Firstly, we should fully believe in the prevention and control of epidemic of governments, the scientific guidance of scientists, medical staffs and professionals. We also should be confident in defeating the virus and stay positive. Secondly, we should follow the correct information that released by the government and professional media. Do not believe or spread rumors.

19 How individuals adjust psychologically during the epidemic?

Facing of the epidemic, some individuals may appear stress response, presented as excessive anxiety, memory impairment, and lack of concentration etc. Therefore, individual psychological adjustment is needed.

Somehow self-psychological adjustment is as important as fighting against the epidemic.

First of all, we can offer ourselves positive self-suggestion that the epidemic will eventually pass. Secondly, we should maintain a normal life in the epidemic. Arrange our daily life properly and have a regular work and rest. Thirdly, we can draw attention to our hobbies (such as reading, painting, etc.) to effectively ease our stress.

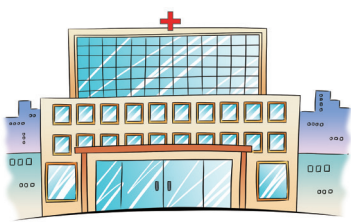
Students shall arrange the study time properly and make their attention as diverse and efficient as possible.

In addition, you can also have "cloud" communication with friends to maintain normal social interaction online. Family members should encourage each other. Stay healthy mentally and do not spread panic emotion.

Part III Methods of Treatment

1 What to do when there are suspicious symptoms of the COVID–19?

Do not be disconcerted if there are symptoms of fever, fatigue and dry cough because it does not mean the COVID-19. However, when a person has a fever (axillary temperature ⩾ 37.3 ℃), cough and short of breath with a history of live or travel in the epidemic area, or a history of contact with the patient who has fever or respiratory symptoms in the previous 14 days, or cluster-infected cases noted, the individual shall go to the local designed hospital's fever clinic.



2 What are the differences between the COVID–19 and the common pneumonia?

The COVID-19 is caused by the novel coronavirus named 2019-nCoV which is highly contagious. The main symptoms are fever, fatigue and dry cough. Some patients are mild and recover quickly. However, some patients are worse illness and develop to severe pneumonia. Complications include difficulty in breathing, coagulation disorders, and multiple organ failures.

The common pneumonia is caused by bacteria, virus and mycoplasma and so on. Generally, the condition of common pneumonia is milder and is lower infectious.

3 How to diagnose COVID–19?

The diagnosis of COVID-19 can be made according to the epidemiological history and clinical manifestations. If there is a history of living or traveling to epidemic area, a history of contact with the patient from epidemic area with fever or respiratory symptoms, a history of contact with patients with confirmed COVID-19, or cluster-infected cases, meanwhile with clinical manifestations, including fever, radiographic evidence of pneumonia and blood test result, suspected cases can be diagnosed with one of the histories plus two of the clinical manifestations.

The laboratory approach to test the novel coronavirus is the real-time reverse-transcription – polymerase-chain-reaction (RT-PCR) method. The sample of throat swab, nose swab and blood specimen can be tested. Suspected cases can be diagnosed as confirmed cases if the RT-PCR test positive or the specimen tested matches the corona virus by a whole-genome sequencing test.

4 What is the treatment of the COVID–19? Can it be cured?

There is no specific treatment for COVID-19 at present. However, patients with COVID-19 can receive supportive care to help relieve symptoms accordingly, which can effectively improve their condition. In addition, traditional Chinese medicine has somewhat an effect on the COVID-19. Up to now, part of the cases have been recovered and discharged from hospitals all over the country. There is no specific antiviral treatment available for COVID-19 currently. Based on the previous studies, α interferon nebulization can be used in the early stage of the disease. Lopinavir and Ritonavir can also be chosen. A few adaptive randomized placebo-controlled clinical trials have been conducted to evaluate the safety and efficacy of novel therapeutic agents in hospitalized adult patients diagnosed with COVID-19.

5 Why patients with COVID-19 are required to be isolated?

The infection source of the novel corona virus remains unknown. It can spread from human to human. Patients diagnosed with COVID-19 should be isolated to prevent the transmission of the virus. Epidemic of COVID-19 can only be controlled by isolating the source of infection, cutting off or interrupting transmission routes, and special care for the most susceptible people. Early detection and early isolation are the most effective measures for the epidemic prevention and control.

6 Why we need to prevent "super-spreader" events?

"Super-spreader" is an epidemiological term. Generally, a person might infect 2-3 people averagely in theory if there is no precaution. A super spreader will infect more than 10 people. It does not mean the virus mutates, instead, it is due to significantly large amount of the virus that the infected person spread to others. During

the SARS epidemic in 2003, there had super spreader infected dozens of people and even spread to other continents in the world. Therefore, we need to try to prevent "super-spread events"(SSEs) in the epidemic prevention and control.

7 Who are close contacts with patients?

People are defined as close contacts if they meet one of the following with COVID-19 patients including suspected and confirmed cases.

(1) People who live, study, and work or have close contact with the confirmed case;

(2) Medical staff, family members or other people who have similar close contact with the case without taking effective precautions when diagnosing, treating, nursing or visiting the confirmed case;

(3) Other patients and caregivers in the same ward with the confirmed case;

(4) People who take the same vehicle with the case and have close contact with the confirmed case;

(5) People who is evaluated as the qualified by the field investigators.

8 What is medical observation?

Medical observation refers to taking quarantine measures according to the longest incubation period of the infectious disease for the suspected cases and those who have a close contact with the confirmed or suspected cases. During the medical observation period, the health status from close contacts will be observed and recorded to see whether they are infected or not. This will not only facilitate the early diagnose and early treatment in the incubation and progress period of the infection, but also help to reduce and avoid the transmission of pathogens to healthy population. This is a medical protection measure for suspected patients, close contacts and people around them.

The following symptoms and signs should be observed:

(1) Fever. Measure the temperature twice a day.

(2) Cough.

(3) Short of breath or difficulty with breathing.

(4) Other early onset symptoms including chills, body ache, sore throat, headache, diarrhea, nausea or vomiting, and runny nose.

If there are abnormal clinical symptoms, such as fever and cough, timely report to doctors and go to designated hospitals for troubleshooting, diagnosis and treatment.

9 Who need medical observation?

People who have close contact with the confirmed patients and suspected patients need to receive the medical observation as well as suspected patients.

Putting close contacts under medical observation is a responsible attitude to protect the life security and health of people. It is also the universal approach to prevent and control the epidemic. The medical observation period of close contacts was set as 14 days in this COVID-19 epidemic. People will be discharged if there is no symptom and sign occurred.

10 Will the cured COVID–19 patients get reinfection rapidly?

Patients with COVID-19 infection usually have produced antibodies after an infection and remain safe in a certain period of time, which generally lasts for a few months. From the long term, the virus mutation or decrease of protective antibodies could be possible. People may get reinfection with the same virus. The novel coronavirus is a single-strand RNA virus which is easy to mutate. Therefore, it is difficult to form a persistent immunity. It is certain that COVID-19 patients who has been cured and discharged are now healthy, however, preventive measures such as wearing a mask and washing hands frequently are also required.

Part IV Dispelling Rumors

1 Are young people unlikely to be infected by 2019-nCoV?

Rumor

Older people who have weaker immune functions are more susceptible. Young people and children seem less vulnerable to corona virus. Therefore, do not take seriously.

Truth

There is no evidence to support it. The novel coronavirus is a new-found virus and people are generally susceptible to the virus. People from all age groups shall take steps to protect themselves from the virus. It is more important to pay attention to the prevention in children because their immune system are immature and are not strong enough. There have been COVID-19 infections reported in children nationally, even the youngest is only 1 month old. We can never rest on our oars!

2 Can Radix Isatidis defend against the COVID–19?

Rumor

After the rumors that the Radix Isatidis (called Banlangen in Chinese) may prevent SARS and H7N9 avian influenza, now there is a saying that Radix Isatidis could defend against the COVID-19.

Truth

There is no evidence to support it. As a common Chinese herbal medicine, Radix Isatidis has the effect of clearing away heat and detoxifying. It has a certain effect in treating febrile diseases such as wind colds and common colds, etc. However, there is no evidence for the effectiveness of preventing and treating COVID-19.

3 Can simmering vinegar prevent COVID –19?

Rumor

Rumors have been claimed that simmering vinegar indoor will disinfect and kill the virus in the air and thus prevent the air-borne disease. Someone even advocated that simmering vinegar and drinking Radix Isatidis are "golden partner" for prevention against 2019-nCoV infection.

Truth

It is totally wrong. One of the ingredients in the vinegar

is acetic acid. It is one type of the disinfectant that has been used in the hospital to wipe the surface of objects and instruments, rather than spray it into the air. More importantly, the concentration of acetic acid in a bottle of vinegar is only 5% at most which is not effective for disinfection at all.

Simmering vinegar cannot protect you from the infection with novel corona virus. Instead, it has some side effects. The vaporization of acetic acid may cause irritation to the respiratory mucosa, resulting in throat discomfort, nausea and dyspnea. It may cause respiratory diseases in children, elderly and people with a history of asthma.

4 Does smoking prevent viral infection?

Rumor

Internet rumors have been alleged that smoking could prevent viral infection. It is claimed that the tobacco particles can evenly cover the surface of lung cells, forming a "nano-scale mask" to block the invasion of virus for people.

Truth

This rumor has been circulated for more than ten years. In fact, smoking can not help to prevent the virus infection, neither cause irritation to the respiratory tract. The harmful substances in tobacco will damage lung

function and decrease immune function, resulting in an increase of the probability of respiratory virus infection. Secondhand smoke will also interfere with the health of people around. In addition, it will increase the risk of virus infection because you can't wear a mask when smoking and your hands will touch your mouth and nose possibly.

5 Can we drink spirits to fight against coronavirus?

Rumor

A picture has been spread on the internet recently which is the interview with Chinese Academician Zhong Nanshan. The subtitle at the bottom of the picture showed "drink spirits to fight against coronavirus".

Truth

This picture is a fake screenshots by Photoshop. Experts stated that the 75% alcohol is effective at killing the virus, so it can be used to disinfect the hands, commonly used items such as mobile phones, or often touched surfaces. However, spirits will only be absorbed and metabolized, and will not disinfect the virus at all.

6 Can salt water kill the virus?

Rumor

Rumors began to spread online recently saying that it is advised to use salt water gargling before going to the hospital or other public places and after back to

home in the letter named "Antivirus tips from Chinese Academician Zhong Nanshan". It has been claimed that salt water can kill the virus or bacteria that incubated in the throat and thus prevent the infection.

Truth

Academician Zhong Nanshan and his research team debunk the lies that salt water gargle helps to clean the mouth and throat and can help people recover from pharyngitis. However, the novel coronavirus infects the respiratory tract where salt water gargles does not reach to help. Furthermore, there is no evidence that salt water can kill the novel coronavirus.

7 Can taking antibiotics in advance prevent COVID–19?

Rumor

Rumors alleged that people should keep standby antibiotics at home. 2019-nCoV can be prevented by taking antibiotics in advance.

Truth

The current epidemic is caused by virus. Antibiotics can work against bacterial infections but not viruses. Antibiotics overuse or improper use, especially the combination of broad-spectrum antibiotics, should be avoided. In addition, improper prophylactic use of antibiotics will destroy the bacteria balance in the body and cause certain health risks.

Contributors
Liu Zhongmin, Wang Tao
Zhou Minjie, Li Jun
Shen Jian, Han Jing, Sun Feng, Shi Jiahua, Zhou Runv,
Bo Lulong, Chen Yalu, Wu Yue

Proofread by
Lu Hongzhou, Wang Tong

Translated by
Wang Tao, Shen Jian, Jiang Benran, Chen Fei

Profile

COVID-19 pneumonia was prevalent in China in January 2020 and now is spreading almost all around the world. This book aims to help the public better understand the knowledge about the novel coronavirus, and guide them to protect themselves effectively as well.