### **COVID-19**

## **Prevention and Control**

Dr MING Wai-kit

Assistant professor in public health and epidemiology and PhD Tutor at the City University of Hong Kong;

Program leader of the MSc Public Health and Epidemiology postgraduate program at the City University of Hong Kong

5 March 2022

### **Data Sources**

- Hong Kong SAR government's disease-related information
- Various universities' disease-related information
- COVID-19 Prevention Handbook
- The latest medical literature

This material is only organised on the basis of current limited information. Please pay attention to the latest development every day.

## p.3 What are viruses associated with respiratory infection?

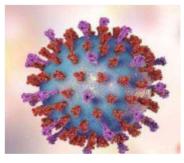
Viruses associated with respiratory infection refer to viruses taking the respiratory tract as the portal of invasion, proliferating in the epithelial cells of the respiratory tract, leading to local infection of the respiratory tract or lesions of tissues and organs other than the respiratory tract.

### p.4 What are the common viruses associated with respiratory infection?

Mainly include: <u>influenza virus</u> of the Orthomyxoviridae family, parainfluenza virus of the Paramyxoviridae family, respiratory syncytial virus, <u>measles virus</u>, mumps virus, Hendra virus, Nipah virus and human metapneumovirus, <u>rubella virus</u> of the Togaviridae family, <u>Rhinovirus</u> of the small RNA Viridae family, <u>SARS coronavirus</u> of the Coronaviridae family, etc. Moreover, Adenovirus, reovirus, coxsackie virus and ECHO virus, herpes virus, etc., can also cause respiratory infections.

## Etiological Characteristics and Preliminary Epidemiological Situation

- Coronaviruses are non-segmented single-stranded positive-stranded RNA viruses, belonging to the Orthocoronavirinae sub-family of Coronaviridae of Nidovirales. According to serotype and genomic characteristics of coronary, the virus sub-family is divided into four genera: alpha ( $\alpha$ ), beta ( $\beta$ ), gamma ( $\gamma$ ), and delta ( $\delta$ ).
- There are 6 coronaviruses known to have infected humans, including 229E and NL63 of the α genus, and OC43 and HKU1 of the β genus, Middle East respiratory syndrome-related coronavirus (MERSr-CoV) and severe acute respiratory syndrome-related coronavirus (SARSr-CoV).
- The coronavirus isolated from the lower respiratory tract of patients with unexplained pneumonia in Wuhan this time is **a novel**



### coronavirus.

• It is named because of the protuberances on the viral envelope, which are shaped like a corolla.

## WHO – SARS-CoV-2 Variants of Concern (VOC)

| WHO label                 | Alpha  | Beta  | Gamma   | Delta   | Omicron  |
|---------------------------|--|---|---|---|--|
| Transmissibility          | Increased transmissibility <sup>12</sup>   | Increased<br>transmissibility <sup>13,14</sup>  | Increased<br>transmissibility <sup>14,15</sup>  | Increased<br>transmissibility<br>14,16,17                             | Increased transmissibility. <sup>1–4</sup>   |
| Disease<br>severity       | Possible increased risk<br>of hospitalization <sup>18,19</sup> ,<br>possible increased risk<br>of severe disease and<br>death <sup>20,21</sup>                     | Possible increased<br>risk of<br>hospitalization <sup>19</sup> ,<br>possible increased<br>in-hospital<br>mortality <sup>22</sup>    | Possible increased<br>risk of<br>hospitalization <sup>19</sup> ,<br>possible increased<br>risk of severe<br>disease <sup>23</sup> | Possible increased<br>risk of<br>hospitalization <sup>24,25</sup>     | Possible reduced risk<br>of hospitalization<br>and severe disease 5-<br>8  |
| Risk of<br>reinfection    | Neutralizing activity<br>retained <sup>26</sup> , risk of<br>reinfection remains<br>similar <sup>27</sup>  | Reduction in<br>neutralizing activity<br>reported; T cell<br>response elicited by<br>D614G virus<br>remains effective <sup>28</sup> | Moderate reduction<br>in neutralizing<br>activity reported <sup>29</sup>  | Reduction in<br>neutralizing<br>activity<br>reported <sup>30–32</sup> | Increased risk of reinfection <sup>11,33</sup>   |
| Impacts on<br>diagnostics | Limited impact – S gene<br>target failure (SGTF), no<br>impact on overall result<br>from multiple target<br>RT-PCR; No impact on<br>Ag RDTs observed <sup>34</sup> | PCR or Ag RDTs  | None reported to<br>date  | No impact on RT-<br>PCR or Ag RDTs<br>observed <sup>35</sup>          | PCR continues to<br>detect Omicron.<br>Impact on Ag-RDTs is<br>under investigation:<br>Results are mixed as<br>to whether or not<br>there may be<br>decreased sensitivity<br>to detect Omicron.<br>1,8,36-38 |

Table 2: Summary of phenotypic impacts\* of variants of concern

\*Generalized findings as compared to previously/co-circulating variants. Based on emerging evidence, including non-peer-reviewed preprint articles and reports, all subject to ongoing investigation and revision.

### **p.7**

### **Possible Route of Transmission**

- droplet transmission
- contact transmission
- There is scientific evidence of airborne transmission in certain environments.

## Clinical Characteristics of Pneumonia Caused by COVID-19 Infection

### **Clinical Manifestations**

• Fever, cough, runny nose, sore throat, fever and chills, nausea, vomiting, diarrhea, weakness of limbs and headache.

• Some patients even have breathing difficulties such as shortness of breath, while some will suffer from pneumonia or severe respiratory infections. These are more serious cases.

• Some patients have mild symptoms in the initial stage and may have no fever, and they usually recover after 1 week.

• Most patients have a good prognosis, while a small number of patients will be critically ill and even die.

### p.9 Clinical Characteristics of Pneumonia Caused by COVID-19 Infection

Symptoms: Patients infected with Omicron variant strains are more likely to have symptoms such as runny nose, sneezing, sore throat, headache and limb weakness.

Most <u>critically ill patients</u> are the elderly, those with underlying diseases and those who are obese. There are also fatal cases in children and adolescents group caused by Omicron variant strains.

## p.10 How to be well-prepared:

https://chp-dashboard.geodata.gov.hk/covid-19/zh.html https://www.coronavirus.gov.hk/chi/index.html#What\_is\_C OVID-19

• Centre for Health Protection's Health Advice on Home Quarantine (VIDEO)

https://www.youtube.com/watch?v=UYk1Z5XT20c

Important Contact Information

Home Affairs Department (HAD) <u>"StayHomeSafe" Scheme Hotline</u>

<u>1833 019</u>

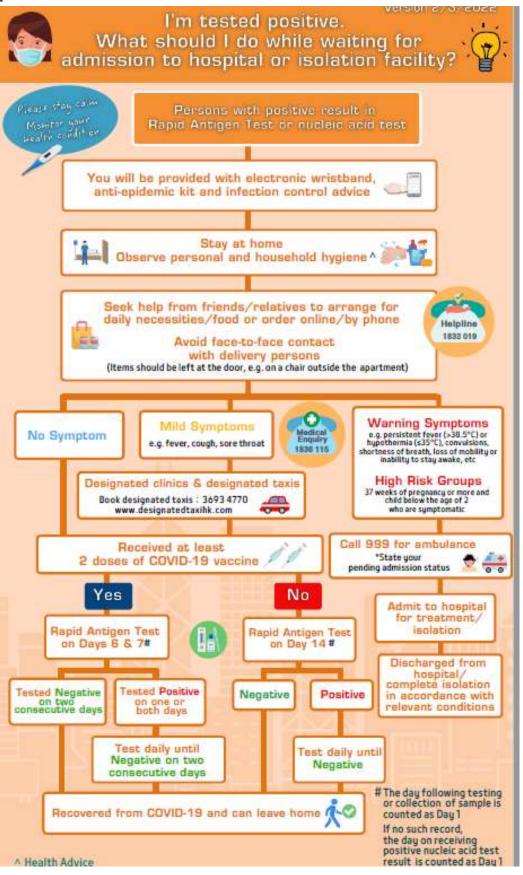
- If the result of the rapid antigen test is positive, patients should follow the instructions of the Centre for Health Protection and receive a nucleic acid test (Family members may collect and deliver the deep throat saliva samples on behalf of patients, or through the arrangement of testing companies) or register in the government-designated system after the launch of the relevant system.
- When using the rapid antigen test kit, you should complete all steps according to the instructions in the test kit. Please also handle the used test kit properly and dispose of it in a covered rubbish bin.

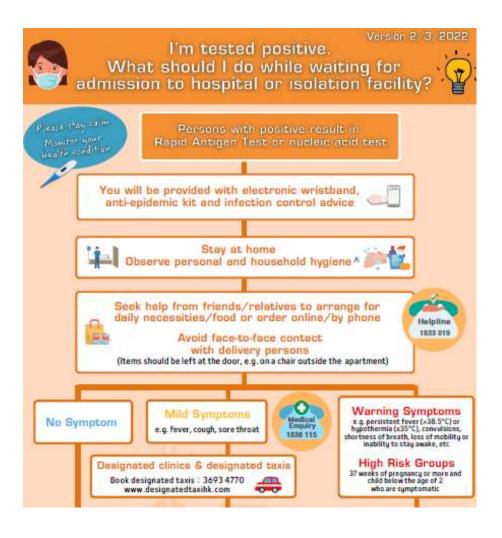
**People with positive or preliminary positive** COVID-19 nucleic acid test results will receive an SMS notification about the result, together with a **request to fill in an electronic form** (www.chp.gov.hk/cdpi) to submit information, including those on family members living in the same household. This is to facilitate the work of the CHP such as epidemiological investigation and arrangement of hospital admission, isolation and quarantine.

The determination of <u>close contacts</u> will take into consideration relevant details of the situation. In general, tracing period is counted from two days before symptom onset date of the confirmed case; for asymptomatic case, it is counted from two days before the date of collection of specimen which tested positive. Close contacts refer to:

- Persons who live with the confirmed case in the same household
- Persons who have had face-to-face close contacts with the confirmed case (especially when the confirmed case did not wear a mask, such as when having meals together)

In order to curb the spread of COVID-19, safeguard people's health and protect the healthcare system from collapse, the Government has launched the <u>"StayHomeSafe" Scheme</u>. Close contacts and household contacts of close contacts who are deemed appropriate after assessment will undergo home quarantine for 14 days and four days respectively.





## What should I do if I feel like I have been infected with the COVID-19 virus?

- Persons who are suspected of being infected with the COVID-19 virus should go to <u>designated medical institutions</u> for investigation, diagnosis and treatment. When seeking medical treatment, you should tell the details about the infection and medical treatment process truthfully, especially about your recent contact history with pneumonia patients or suspected patients, contact history with animals, etc.
- Please do remember to <u>wear a surgical mask throughout the</u> <u>diagnosis and treatment process</u> to protect yourself and others.

### p.18

## Appointments must be made by telephone before visiting designated clinics in various districts

### Who can visit the designated clinics?

For those who have received a notification of a preliminary positive result and awaiting hospital admission, if mild symptoms of infection (e.g. sore throat and fever) are present and the patients wish to seek relevant treatment, they may make an appointment by telephone for visiting a nearby clinic.

## Can I visit a designated clinic if I am tested positive by Rapid Antigen Test (RAT)?

No for the time being, but you may do so when the registration system is launched. Those who are tested positive by RAT may undergo testing as specified by the Government to confirm as necessary.

### **Opening hours?**

Designated clinics are open from Monday to Sunday, including public holidays, from 9 am to 1 pm and from 2 pm to 5 pm.

#### How to go to the designated clinics?

Answer: According to the information announced by the Government earlier today, the relevant authorities are exploring with the taxi industry the arrangement for the people concerned to visit designated clinics by designated taxis.

#### p.20

Details of designated clinics:

Designated clinics are open from Monday to Sunday, including public holidays, from 9 am to 1 pm and from 2 pm to 5 pm.

## If severe symptoms develop, can patients visit the designated clinics because accident and emergency departments are currently full?

It is not recommended. Designated clinics are for those who are tested preliminary positive and with mild symptoms of infection. Those in serious condition will be admitted to hospitals. When waiting at home, you should monitor your health condition and measure the body temperature every four hours. If you have fever and feel unwell, and experience shortness of breath and palpitations, **call 999** immediately for ambulance transfer to a hospital.

### p.21

### What kind of treatment is provided?

Doctors of the designated clinics will provide appropriate treatment according to the patient's clinical condition, mainly for mild symptoms of infection like sore throat and fever, and will transfer the patient to hospital for further treatment in case of serious conditions.

## Will I be admitted to hospital if I recover after receiving the treatment of a designated clinic?

Patients should still wait for hospital admission or transfer to a community isolation facility in accordance with the existing mechanism. Nevertheless, the authorities will further decide on ways of handling.

**Hospital Authority Hotline 1836115**. The Hospital Authority will answer enquiries on medical information and provide infection control advice for people pending admission to hospital upon getting preliminary positive result.

The hotline operates daily from 8 am to 10 pm.

Tested positive in rapid antigen test (RAT)

 $\downarrow$ 

Confirmed by tests specified by the Government  $\rightarrow$ 

1 Take deep throat saliva specimen collection packs (by other family members)

2 (Collect the packs at their doorstep preferably)

 $\downarrow$ 

Go to the closest designated clinic by telephone appointment

 $\downarrow$ 

Book the designated taxi fleet services through the hotline at 3693 4770

 $\downarrow$ 

Doctors will provide <u>appropriate treatment</u> according to the patient's clinical condition, mainly for mild symptoms of infection such as sore throat or fever. <u>If the patient is in serious condition, he/she will be sent to a hospital for further treatment</u>.

 $\rightarrow$  Mild  $\rightarrow$  Call Home Affairs Department ("HAD") "StayHomeSafe Scheme Hotline" at 1833 019

 $\rightarrow$  Pending admission  $\rightarrow$  For preliminarily confirmed patients pending hospital admission: call the **Hospital Authority hotline at 1836115**, which will answer enquiries on medical information and provide infection control advice (service hours: 8 am – 10 pm)

 $\rightarrow$  Call an ambulance to the hospital at once if the child/patient develops breathing difficulty, blue lips, chest pain, fast heartbeat, sudden change of sensorium or confusion, persistent high fever, convulsion, or poor oral intake.  $\rightarrow$ Call 999 (Ambulance & Emergency Department)



## How should we take care of our family member(s) if they showed COVID-19 symptoms?

• Follow the Centre for Health Protection's instructions to stay at home. The carer and the sick child/patient should stay away from other family members as much as possible. Whenever possible, the carer and the sick child should stay in the same room, close the door and avoid having contact with other family members. They should not leave home.

• Keep the patient from other family members at least 1 metre away.

• The carer must wear a surgical mask covering both mouth and nose. After use, the surgical masks should be disposed of.

• They should help the sick child to wear an appropriate-sized mask to reduce the possibility of cross-infection.

• Remember to clean both hands thoroughly with soap, etc. after coming into contact with the patient. Keep the living space of the patient well ventilated.

#### p.25

• If the environment does not allow hand washing and the hands are not visibly dirty, the carer may clean his/her hands with a 70-80% alcohol-based hand sanitiser.

• Arrange a dedicated toilet/bathroom for the sick child/patient if possible. If there is no dedicated toilet/bathroom for the child, other family members should take away their towels and personal hygiene items from the bathroom when not in use. The child should also be taught to cover the toilet before flushing and wash their hands thoroughly after using the toilet.

• Toilets used by the sick child/patient should be regularly cleaned with 1:49 diluted household bleach.

#### **p.26**

• Maintain good ventilation at home. Open more windows because good ventilation can effectively allow the virus to be diluted or carried away with the airflow. Use a HEPA filter if you have one at home.

#### **p.2**7

• Monitor the body temperature of the sick child/patient.

• Record the amount of oral intake and the frequency and amount of urination and bowel opening.

• Be aware of and record any new symptoms daily, such as cough, runny nose, sore throat and vomiting.

• Most importantly, be highly alert to any symptoms indicating deterioration in the patient's condition, such as pallor or difficulty in breathing.

# Points to note for persons tested positive/preliminary positive for COVID-19



### p.29

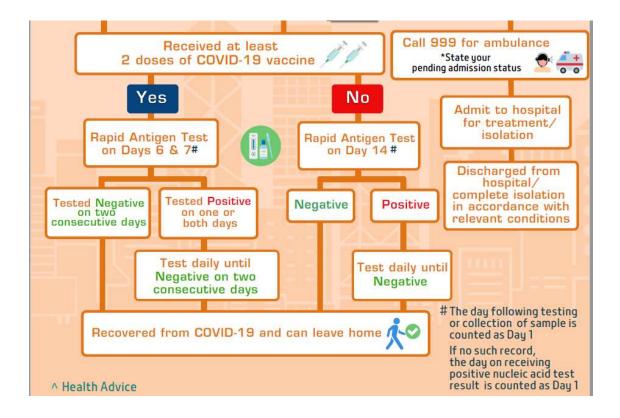
### Are face masks effective as long as they are worn?

Regardless of the type of face masks, the protective effect is limited and so they must be replaced regularly. It is advised that they are replaced every two to four hours.

### p.30

### When should the carer call an emergency ambulance?

• Call an emergency ambulance to the hospital at once if the sick child/patient develops breathing difficulty, blue lips, chest pain, fast heartbeat, sudden change of sensorium or confusion, persistent high fever, convulsion, or poor oral intake.











p.34Social Distancing MeasuresWork?Psychology?Family? Children attending school? Work from home?

p.35





Cityu

Department of Infectious Diseases and Public Health 市市城市大學 Cyblinger(Http:Kmg