



# **Preventing Spread of Coronavirus Disease 2019 (COVID-19) Guideline for Airlines Fourth Edition**

In order to prevent and control the spread of COVID-19 epidemic via aircraft, the fourth edition of *Preventing Spread of Coronavirus Disease 2019 (COVID-19) Guideline for Airlines* is developed by following the principle of “targeted and detailed prevention and control measures”. This Guideline is intended to put in place our working requirements aimed at preventing imported cases and domestic relapse, further refine the standards of risk level classification for domestic and international flights, optimize the personal protection requirements and quarantine plans with respect to the crew members, incorporate recommendations on the management of the crew flying abroad on duty, and reinforce the prevention and control measures for the flights carrying passengers who will transfer in China.

## **1. Standards Governing the Classification of Flight Risk Levels and Principles of Disease Prevention and Control**

Based on the epidemic development at the points of origin of the flights (including international and domestic), and on whether the aircraft is equipped with High-Efficiency Particulate Air (HEPA) filters, as well as on other indicators such as load factors, flight time and special nature of the flight mission, flights operated by transport airlines can be divided into three levels, namely high, medium and low-risk flights (see Attachment 1-3). Differentiated prevention and control measures should be implemented for different risk levels. Risk levels should be adjusted in real time in line with the development of the epidemic.

## **2. Personal Protection for Crew, Maintenance Personnel and Cleaners**

According to the flight risk levels, staff working on different posts should follow respective personal protection standards (see Attachment 4). In terms of personal protection, the following should be kept in mind:

2.1 The mask should be close to the face, covering the nose and mouth completely. When the mask is on or being removed, the crew must not touch the out layer of the mask with hands to avoid hands contamination. Once dampened by secretions or contaminated



by other contaminants, facial masks must be replaced immediately with new ones, and hands should be cleaned with sanitizer both before and after the replacement.

Flight crew members should wear masks while in the cockpit and crew rest area. Crew members flying high-risk flights should change their masks at least once every 4 hours (or whenever necessary).

2.2 All disposable protective equipment, after their use, should be placed in yellow medical waste bags. After the flight, they should be sprayed or sprinkled till fully soaked with chlorine-containing disinfectant (500mg/L-1000mg/L) before cleaning, and packed in a tightly knotted plastic bag for centralized disposal as medical wastes.

2.3 The crew can use alcohol-based disinfection wipes or non-alcohol rinse free hand sanitizer to clean and disinfect hands. When crew members are not sure whether their hands are clean, they should avoid touching their noses, mouths and eyes with their hands. When sneezing or coughing, one should try to lower the head or turn away from passengers and crew members nearby, and cover the mouth and nose with tissue or flexed elbow. After touching or disposing wastes, hands should be cleaned with soap or hand sanitizer under running water followed by hand cleaning and disinfection.

2.4 Reusable goggles should be promptly sterilized and dried every time after use. Goggles with an anti-fogging film should avoid being wiped with disinfectant. Instead, it is recommended that they be washed with clean water before being exposed to close-range direct ultraviolet lighting for over 30 minutes.

2.5 Crew members should reduce their entry/exit of the cockpit and use interncom system for communication whenever they can to avoid close contact. They should avoid two of them dining at the same time, do not have cold dishes or cold meat/fish, choose prepackaged food to the greatest extent possible, and use rinse free hand sanitizer to clean and disinfect hands before meals. Also, they should use an exclusive lavatory and reduce their visit to the lavatory.

### **3. Temperature Screening**

According to the risk levels of different flights, passengers' body temperature should be measured at different phases of flights.

#### **3.1 Low Risk Flights**

Non-contact infrared thermometer equipment (calibrated) should be used to measure the body temperature of passengers and the symptoms should be observed as required. Timely report and response should be made in case of ill passenger(s) found with such symptoms as fever ( $\geq 37.3^{\circ}\text{C}$ ), fatigue and dry cough, and cooperation should be provided in the



handover of the passenger(s).

### **3.2 Medium and High Risk Flights**

#### **3.2.1 Pre-enplaning**

Non-contact infrared thermometer equipment (calibrated) should be used to measure the body temperature of passengers and the symptoms should be observed before boarding. Timely report and response should be made in case of ill passenger(s) found with such symptoms as fever ( $\geq 37.3^{\circ}\text{C}$ ), fatigue and dry cough, and cooperation should be provided in the handover of the passenger(s).

#### **3.2.2 In-flight**

For flights longer than 4 hours, measurement of body temperature should be taken during flight operation. In case of ill passenger(s) found with such symptoms as fever ( $\geq 37.3^{\circ}\text{C}$ ), fatigue and cough, the event should be dealt with in compliance with the guidance for the handling of in-flight emergency events in this Guideline, and the crew should timely communicate with the destination airport, and cooperate in the handover of the passenger(s) after landing.

## **4. Advice for In-flight Service**

### **4.1 Low Risk Flights**

4.1.1 Normal meal service should be provided, while cold dishes, cold meat/fish and edible ice cubes should be cancelled. The cabin crew should clean and disinfect their hands before and after meals preparation.

4.1.2 Lavatory should be cleaned once every 2 hours (or after being used 10 times) during flight, and after disinfection, hands should be timely cleaned and disinfected.

4.1.3 The last three rows of seats on international flights should be reserved as a quarantine area for handling possible in-flight emergencies, and the rear lavatory on the right side should be designated for the exclusive use by those under quarantine.

### **4.2 Medium Risk Flights**

4.2.1 Food-preparation procedures should be simplified, pre-packaged food should be provided, and cold meal and edible ice cubes should be canceled.

4.2.2 Lavatory should be cleaned and disinfected once every 2 hours (or after being used 10 times) during flight, and after disinfection, hands should be timely cleaned and disinfected.

4.2.3 The last three rows of seats on international flights should be reserved as a



quarantine area for handling possible in-flight emergencies, and the rear lavatory on the right side should be designated for the exclusive use by those under quarantine.

### **4.3 High Risk Flights**

4.3.1 Flight attendants should be assigned to provide service in their designated areas, avoid close contact with passengers and only provide necessary in-flight service. Flight attendants could be designated to provide basic service for flight crew members when needed.

4.3.2 It is recommended to provide pre-packaged food and bottled water before or during passenger boarding. Except for special needs, catering service should not be provided onboard.

4.3.3 Lavatory should be cleaned once every hour (or after being used 5 times) during flight, and after disinfection, hands should be timely cleaned and disinfected.

4.3.4 Efforts should be made to arrange passengers to sit separately. The last three rows of seats should be reserved as a quarantine area for handling possible in-flight emergencies.

### **4.4 Flights Carrying Passengers with a History of Overseas Epidemiology within 14 Days**

If there are passengers on a domestic flight who lived or travelled abroad within the past 14 days or passengers on an international flight who have travelled to/from country(ies) seriously impacted by the epidemic (i.e. country(ies) with existing confirmed cases > 5000) within the past 14 days, the airlines concerned should make arrangement for them to board after all others have boarded, wear a mask throughout the flight, and sit at the back of the cabin at least two rows away from other passengers. Except for special circumstances, in-flight catering service should no longer be provided to them.

## **5. Routine Cleaning and Preventative Disinfection of Aircraft**

### **5.1 Routine Cleaning**

Wet process cleaning for aircraft should be applied during a stopover to avoid the onward spread of infectious substances, and a thorough cleaning upon the completion of the flight should be carried out. For detailed cleaning methods, please refer to Attachment 5. If conditions are limited, lavatory and galleys should be cleaned in priority.

### **5.2 Preventative Disinfection**

After flight, preventative disinfection should be carried out based on the different risk levels. Disinfection personnel shall only perform their duty if properly qualified or professionally trained.



### 5.2.1 Frequency

Preventative disinfection should be done on a regular basis, at least once a week, for low and medium risk flights.

For high risk flights, preventative disinfection should be conducted every time after flight, and the effect of post-flight disinfection should be assessed on a regular basis if conditions allow.

### 5.2.2 Rules of operation

- Separate rags and mops should be used for aisles, lavatories and galleys, and be marked with different colors. Different personnel should be assigned to each of the aforementioned areas when conditions allow.
- During disinfection, surfaces should be rubbed using rags soaked with disinfectant, and after a period of reaction, a regular cleaning process should be carried out to avoid erosive effect on cabin components due to long time exposure to the disinfectant.
- Disinfectant should be sprayed onto cabin floor from the front to the back, followed by disinfection of key areas. Once cabin disinfection is finished, disinfectant should be sprayed onto cabin floor again from the back to the front.
- Disinfection of key areas should proceed in the following order:

Aisles: Overhead bins, reading lights, air outlets, sidewall panels, windows, seats (tray tables, armrests, passenger control units, decorative panels), cabinets/lockers, bulkheads, magazine racks, cabin attendant seats.

Lavatories: The disinfection in lavatory should be progressed from contaminated to clean areas as follow: toilet bowls, waste bins, handbasins, lavatory sidewalls, door surfaces, doorknobs, ashtrays (if installed), and latches.

Galleys: Ovens, water boilers, coffee makers, galley facilities, lockers/drawers, and waste bins.

### 5.2.3 Disinfectants

Aircraft cleaning and disinfectant products to be used should be approved for airworthiness (refer to <http://www.fccc.org.cn/webs/xhg/list.aspx?classid=0202> for products list, same below) to avoid corrosion to aircraft components. Given the current epidemic development and information available, the following disinfectants are recommended to be used for wiping disinfection, at a concentration set out in the product users manual:

As far as preventative disinfection is concerned, it is recommended to use compound quaternary ammonium salt, double-chain quaternary ammonium salt, hydrogen peroxide or chlorine-containing disinfectant. For hydrogen peroxide, concentration should be no higher



than 3% and reaction time be 20 minutes; effective concentration of chlorine should be within the range of 250mg/L-500mg/L, and reaction time be 10 minutes.

## **6. Aircraft Routine Maintenance**

6.1 During ground operation and maintenance, aircraft auxiliary power unit (APU) should be used for ventilation, the use of bridge load air supply should be avoided. After arrival, doors of cabin and cargo hold should be opened for ventilation before maintenance work is performed, and natural ventilation time should be extended.

6.2 High Efficiency Particulate Air (HEPA) filters should be replaced in accordance with standards specified in the manufacturer's manual, in strict compliance with the prevention and protection requirements of the Aircraft Maintenance Manual, and based on the personal prevention and protection program for aircraft maintenance personnel. Used HEPA should be placed in a special plastic bag, disinfected with chlorine disinfectant and sealed.

6.3 After the task is completed, the maintenance staff should disinfect their hands and remove their protective equipment in the specified order before disinfecting their hands again thoroughly.

## **7. Handling of In-flight Medical Emergency Events**

### **7.1 Principles to be Followed during Handling**

If any passenger is found with suspicious symptoms during the flight, the emergency should be dealt with in accordance with the following procedures.

7.1.1 Before contacting ill passengers or touching contaminated substances (such as vomit, excretions or blood) or contaminated objects or surfaces, crew members should wear personal protective equipment (PPE) as described in attachment 4.

7.1.2 The passengers with suspicious symptoms should be seated in the window seats on the right side of the pre-set emergency quarantine area, so as to discharge, to the greatest extent possible, the exhaled air directly out of the aircraft.

7.1.3 The lavatory on the right side should be reserved exclusively for those under quarantine to avoid cross infection.

7.1.4 It is recommended that a flight attendant be designated to provide them with essential in-flight services. Except for the need to conduct operation for safety reasons, the flight attendant designated should refrain from close contact with other crew members.

### **7.2 Aircraft Concurrent Disinfection**



When contaminated with blood, respiratory secretions, vomit, excretions and other liquid contaminants, the aircraft cabin should be disinfected concurrently according to the following procedures in *Emergency Medical Equipment Installation and Training for Large Transport Aircraft* (AC-121-102R1 issued by CAAC):

7.2.1 Wear personal protections (PPE).

7.2.2 Prepare disinfectant: Put one surface disinfection tablet into 250-500ml clean water to make a 1:500-1000 disinfectant.

7.2.3 Cover the secretions, blood, vomit, excretions and other contaminants evenly with absorbent disinfectant for 3-5 minutes to enable them to be solidified.

7.2.4 Shovel the coagulated contaminants with portable pickup shovels into biohazard wastes bags.

7.2.5 Sterilize twice the contaminated area with pre-prepared disinfectant, make sure disinfectant stays on the contaminated surface for 3-5 minutes, then wash the area twice with clean water before drying the area with towels. Put those towels and other used disinfectants into biohazard wastes bags.

7.2.6 Clear and disinfect hands before removing protections in the following order: take off protective suits (aprons), gloves, apply skin disinfection wipe for hand cleaning and disinfection; then take off goggles, facial masks, and finally apply skin disinfection wipe to clean hands and other parts of the body that may have been exposed to contaminants.

7.2.7 Place all used protections and contaminated items inside a biohazard waste bag, seal the bag, and stick a "Biohazard Wastes" label close to the seal.

7.2.8 Keep the sealed biohazard waste bag in a proper place temporarily to prevent it from missing, being damaged or contaminating meals on board.

7.2.9 Inform ground departments at the destination to prepare for takeover.

### **7.3 Aircraft Terminal Disinfection**

If an aircraft is found to have carried passengers with suspicious symptoms, a post-flight terminal disinfection should be conducted.

7.3.1 After all occupants get off the aircraft, close cabin doors, and set the air conditioner wind flow to its highest to allow at least one complete air exchange in the cabin area.

7.3.2 Once the air exchange is finished, the sitting area of passengers with suspicious symptoms and lavatory should be disinfected before proceeding with the all encompassing terminal disinfection by following the general principle of thorough disinfection from out ring-to-center and top-down.





7.3.3 After disinfection, the passenger cabin should be cleaned in accordance with the post-flight cleaning requirements.

7.3.4 For the stop-over flights carrying passengers with suspicious symptoms, as a first move, their sitting areas should be disinfected during the stop-over, and after the flight is over, a terminal disinfection shall be conducted covering the whole cabin.

#### **7.4 Aircraft Cargo Hold Disinfection**

If animal remains or suspicious contaminants of a contagious nature are found in the cargo hold, post-flight terminal disinfection should be performed. The disinfection procedures are as follows:

7.4.1 When animal remains or suspicious contaminants of a contagious nature are found in the cargo hold, the contaminated area in which the animal remains or the contaminants were should be disinfected and cleaned as the first step, followed by a thorough disinfection of the remaining areas of the cargo hold.

7.4.2 The method of spray disinfection and enclosed disinfection should be used. Disinfection should be performed from the upwind to the downwind direction and from top to bottom.

7.4.3 Before disinfecting the inside area of the cargo hold, the personnel in charge of disinfection should spray around the door, close the door, enter into the cargo hold, and spray on the floor while moving forward till the whole floor is sprayed before disinfecting other areas of the cargo hold.

7.4.4 The personnel should disinfect the ceiling of the cargo hold by spraying disinfectant from left to right and vice versa, and then spray the cargo hold wall from top to bottom. While disinfecting the ceiling and the wall, the amount of disinfectant sprayed should not exceed the amount of the liquid that can be absorbed (the maximum amount of disinfectant the surface can absorb).

7.4.5 Upon completion, the cargo hold floor should be disinfected again by spraying while moving backward. After returning to the ground along the ladder, the ladder should be sprayed.

#### **7.5 Disinfectants**

Aircraft cleaning and disinfection products should be approved for their airworthiness. During terminal disinfection, the passenger cabin should be wiped while the cargo hold should be sprayed with disinfectant. The liquid concentration should be in line with what's specified in the product application instructions.

It is recommended to use hydrogen peroxide or chlorine-containing disinfectant for terminal disinfection. The concentration of hydrogen peroxide should be the same as that





used in preventive disinfection, and the effective concentration of chlorine should be 1000mg/L, for 30 minutes. Air conditioner should be turned off during disinfection operation, and passenger cabin or cargo hold should be fully ventilated after disinfection.

## **8 Quarantine Management for Crew Members**

According to the latest edition of *COVID-19 Prevention and Control Program* issued by the National Health Commission, the quarantine program should be implemented by taking into account of the features of crew members' working schedules and referring to the following guidelines.

### **8.1 Crew Members Quarantine Management**

8.1.1 If any crew member shows such symptoms as fever, fatigue and dry cough during off-duty hours, and has a history of epidemiology (such as a history of living, traveling and having contacts with locals in high-risk countries/regions), he/she should be dealt with in accordance with the requirements in the *COVID-19 Prevention and Control Program*. Crew members who performed duty on the same flight or had close contact with him/her that day or within the 2 days preceding the appearance of the above symptoms should be instantly put under centralized quarantine, and where conditions do not allow, they can be put under house quarantine and medical observation.

8.1.2 If any crew member shows such symptoms as fever, fatigue and dry cough during the duty hours, he/she should cease performing his/her duties immediately as long as flight safety is not compromised. It is recommended to put him/her under quarantine in the cabin quarantine area to avoid close contact with other crew members. After the flight has landed and the passengers and other crew members have deplaned, a special vehicle should be sent, carrying him/her to a designated medical facility for examination. Other crew members should be quarantined as per 8.1.1.

8.1.3 Where any passenger onboard shows such symptoms as fever, fatigue and dry cough, the flight attendants designated to provide onboard services for the symptomatic passenger should be under centralized quarantine after the flight has landed, and where conditions do not allow, they can be under house quarantine and medical observation while other crew members do not need to be quarantined for the time being. If the crew members having direct contact with the passenger have been personally well protected in accordance with this Guideline, they may not be quarantined as close contacts. All crew members need to monitor their health conditions and report promptly any abnormalities that may crop up.

8.1.4 Where an airline has been informed by local disease control or quarantine department that a flight operated by the airline did carry confirmed, suspected or asymptomatic case(s), the crew members involved should be quarantined as per 8.1.3.



8.1.5 Where crew members fly charter flights and other special mission flights (such as those used for emergency transportation of materials and medical teams) to/from countries/regions seriously impacted by the epidemic, they generally do not need to be under medical quarantine and observation after returning, provided that they can make good pre-return preparations by strictly observing the following requirements.

- No crew members should be allowed to disembark the aircraft (ground handlers should be requested to do external inspections, refueling, etc.);
- No ground personnel should be allowed to embark the aircraft;
- The doors should be closed immediately for the return trip upon completion of the transport of assisting medical personnel and materials, without cleaning, water refilling or waste disposal at the destination airport;
- Aircraft maintenance. If there is no aircraft malfunction after landing, the crew members or in-flight maintenance personnel may issue a release from within the aircraft without the need for making a short stop for maintenance; an external inspection can be completed by qualified local personnel from outside the aircraft, and under condition other than the aforementioned, operators should carry out remote training and provide remote guidance to local personnel. If there are malfunctions in the aircraft after landing and a release cannot be issued based on the Minimum Equipment List (MEL), the malfunctions must be addressed before the flight operation can continue; where a release can be issued based on the Minimum Equipment List (MEL) but a maintenance (item M) procedure has to be performed, crew members should conduct a joint evaluation with the maintenance department, and under the premises of ensuring safety, remote guidance, simplified maintenance and equivalent measures can be taken to allow the aircraft to fly back to the base; where a release can be issued based on the Minimum Equipment List (MEL) but a crew operation (item O) procedure has to be performed, the crew can, if the conditions allow, continue the flight after completing the item O procedure;
- Terminal disinfection of the aircraft should be performed after its return to the home base;
- Before the aircraft lands, the flight dispatcher should inform the crew members once again to make preparation for the return trip by following the above five bullet points.

## **8.2 Quarantine Period**

8.2.1 The medical observation period refers to 14 days after the last contact of the quarantined crew members with confirmed, asymptomatic, suspected or suspicious passengers or other crew members.



8.2.2 During this period, if the suspected or suspicious persons have been cleared by the disease control department, the quarantine and medical observation of the above-mentioned crew member can be removed.

### **8.3 Quarantine Measures**

8.3.1 Crew members under medical observation should report their body temperatures and health conditions to the relevant department of the airlines every morning and evening.

8.3.2 Crew members under centralized or house quarantine should stay in a relatively separate space which should be regularly cleaned and disinfected, and minimize their contact with other people living together.

8.3.3 Crew members under observation must not go out during the observation period. If they have to go out, they should report to the relevant department of the airline, wear a surgical mask and avoid crowded places.

8.3.4 The airlines concerned should keep a record of the health conditions of the crew members under medical observation, as well as the number of times they went out.

8.3.5 Once a crew member under observation shows any symptoms during medical observation (such as fever, chills, dry cough, cough, expectoration, nasal congestion, runny nose, sore throat, headache, fatigue, muscle soreness, breathing difficulties, dyspnea, chest tightness, conjunctival hyperemia, nausea, vomiting, diarrhea and abdominal pain), the airline concerned should report to the local public health department immediately and send the crew member to the designated medical care facility for diagnosis and treatment.

8.3.6 After the medical observation period, the crew member under observation should be released from medical observation if showing no signs of symptoms.

## **9. Prevention and Control Measures for Special Transport Missions (Charter Flights) to/from Countries/Regions Severely Impacted by the Epidemic**

Special transport missions to/from countries/regions seriously impacted by the epidemic (i.e. those with existing confirmed cases > 5000) should be conducted as per the following prevention and control measures. In principle, special transport support missions to/from other countries or regions should be conducted according to the multi-layered prevention and control requirements.

### **9.1 Assessment of Passengers' Fitness to Fly and Requirements of Masks Wearing**

Passengers should be assessed for their fitness to fly before enplaning, mainly to assess whether they are physically suitable for this specific flight. Health assessment should be done by the health department.



Before carrying passengers, relevant department of the airlines should check the health conditions of the passengers by screening. Confirmed or suspected cases or those who can pose potential health risks should not be transported on the same plane carrying healthy passengers, and in general, close contacts should not be transported on the same plane carrying healthy passengers either.

Passengers are required to wear a surgical mask or facial mask with better filtration effects throughout the journey, and in case of N95 masks, the ones without breathing valves should be used.

## **9.2 Temperature Screening**

### **9.2.1 Pre-boarding**

Non-contact infrared thermometer body temperature detection equipment (calibrated) should be used to examine the body temperatures of the pre-boarding passengers and observe any potential symptoms. If any suspicious passenger is found with such symptoms as fever ( $\geq 37.3^{\circ}\text{C}$ ), fatigue and dry cough, he/she should be verified immediately using a mercury thermometer. If confirmed as a passenger with fever, he/she should be handed over to the accompanying medical staff and should not be transported by air for the time being.

### **9.2.2 In-flight**

For long-haul flight exceeding 4 hours, the cabin crew and healthcare workers should examine the body temperatures of passengers during the flight. If any suspicious passenger is found with such symptoms as fever ( $\geq 37.3^{\circ}\text{C}$ ), fatigue and dry cough, the crew should notify the healthcare workers. If necessary, the crew should take some basic measures based on the guidance for the handling of in-flight emergency events, issue a timely notification to the destination airport, and provide cooperation in the transfer of passengers after landing.

## **9.3 Cabin Area Division**

In order to avoid cross-infection, the cabin area can be divided into clean area, buffer zone, passenger sitting area and quarantine area. Each area should be clearly labeled, and it is recommended that a disposable curtain be used for the physical separation of each area. The division should be made based on the following principles (and can be adjusted to take into account different aircraft types):

9.3.1 Clean area: it is recommended that the front half of the first and business class cabin be designated as a clean area for the exclusive use by crew members. No one wearing protective clothing should be allowed to enter the clean area. The boarding gate connecting the clean area should be reserved for the exclusive use by crew members.



9.3.2 Buffer zone: it is recommended that the rear half of the first and business class cabin be designated as a buffer zone available for use by crew members to wear and take off protective clothing.

9.3.3 Passenger sitting area: it is the sitting area for healthy passengers. Passengers should be seated with at least one empty seat between each other.

9.3.4 Quarantine area: the last three rows of seats should be designated as the emergency quarantine area (observation area).

9.3.5 Lavatories: the lavatory in the first class cabin is to be used exclusively by crew members and needs to be thoroughly disinfected after each use. The lavatory on the rear right side of the cabin is for the exclusive use by those under quarantine, and the surface area should be disinfected every hour during the flight, with the hands cleaned and disinfected right after the completion of disinfection.

#### **9.4 Personal Protection Measures for Crew Members**

##### 9.4.1 PPE

- Personal protection equipment (PPE) for cabin crew members: medical protective masks, double-layer disposable medical rubber gloves, goggles, disposable medical caps, disposable protective clothing, and disposable shoe covers. It's recommended that cabin crew wear disposable diapers and avoid using lavatory unless in special circumstances to reduce the risk of infection.
- Personal protection equipment for flight crew members: surgical masks and goggles. Disposable protective clothing and/or disposable shoe covers can also be worn if so required by a specific task.

##### 9.4.2 PPE wearing/taking-off procedure

Wear: clean and disinfect hands - wear hat - wear facial mask - wear the first layer of gloves - wear protective clothing - wear goggles - wear shoes cover - clean and disinfect hands - wear the second layer of gloves;

Take off: clean and disinfect hands - take off goggles - clean and disinfect hands - take off protective clothing (including taking off the second layer of gloves and shoes cover) - clean and disinfect hands - take off facial mask - clean and disinfect hands - take off hat - take off the first layer of gloves - clean and disinfect hands.

##### 9.4.3 Dining considerations

Cabin crew members should be divided into different groups while having simple meals in different hours of the day. To reduce the risk of exposure, others should refrain from walking around.



## **9.5 In-flight Service Considerations**

9.5.1 Flight attendants in different cabin areas should be managed separately and provide separate in-flight services. The flight crew working area, passenger sitting area and quarantine area on an aircraft should be served by different flight attendants. In principle, flight attendants are not allowed to leave the area they serve and passengers are not allowed to move across different areas. In addition, flight attendants should avoid close contact with passengers or other flight attendants.

9.5.2 Only pre-packaged food and bottled drinking water should be provided, which are placed in the back pocket of the front seat before boarding. Except for special needs, catering service will no longer be provided during the flight.

## **9.6 Handling of In-flight Medical Emergency Events**

9.6.1 If there are any suspicious passenger on board showing such symptoms as fever, fatigue or dry cough, an arrangement should be made to sit him/her in the quarantine area.

9.6.2 Once the cabin is found to have been contaminated with blood, secretions, excretions, vomit and other liquids, it should be disinfected instantly following the specific procedures in 7.2 - Aircraft Concurrent Disinfection under Article 7 - Handling of In-flight Medical Emergency Events.

9.6.3 For other considerations, please refer to the relevant description in Article 7 - Handling of In-flight Medical Emergency Events.

## **9.7 Procedure for Crew Members Deplaning after Operation**

9.7.1 After landing, the aircraft should park at a remote stand (no bridge docking allowed), and a special lane should be set aside for crew members, in order to avoid mixed flow with passengers. Passengers should disembark through the rear cabin door, while the crew should disembark through the front cabin door.

9.7.2 After all passengers have deplaned, flight crew members should open the cockpit door and have their protective equipment changed in the clean area before deplaning.

9.7.3 After all flight crew have deplaned, the cabin crew should enter into the buffer zone one after another to take off their protective clothing and other equipment, then enter into the clean area to wear new protective equipment before deplaning. Crew members should be picked up by special vehicle(s).

9.7.4 Crew members should pay attention to hand cleaning and disinfection before and after changing their protective equipment.

9.7.5 All the discarded protective equipment of crew members shall be placed in special yellow medical waste bags and be centrally disposed of as medical wastes.



## **9.8 Aircraft Disinfection**

Terminal disinfection should be performed after landing, by referring to the specific procedures as detailed in 7.3 - Aircraft Terminal Disinfection under Article 7 - Handling of In-flight Medical Emergency Events.

All wastes in the cabin should be centrally disposed of as medical wastes.

## **10. Recommendations on Prevention and Control Measures for the Flights Originating from Countries/Regions Severely Impacted by the Epidemic**

It is recommended that the flights originating from the countries severely impacted by the epidemic (i.e. those with existing confirmed cases > 5000) be operated by referring to Article 9 – Prevention and Control Measures for Special Transport Support Missions (Charter Flights) to/from Countries/Regions Severely Impacted by the Epidemic. If all passengers can provide valid health certificates (for example, provide the negative results of their COVID-19 nucleic acid tests made within the past seven days), the flights can be operated by referring to the aforementioned prevention and control measures for the high-risk flights.

## **11. Recommendations on the Management of Crew Flying Stationed Abroad on Duty**

11.1 While flying abroad on duty, crew members should be supervised by the Pilot-in-Command (PIC). They should not visit crowded places and should cut unnecessary outings. If they do need to go out, they should report to the PIC who should report on a daily basis the crew whereabouts to the relevant department of the airline.

11.2 The chief flight attendant should keep a daily record of the body temperature of the crew, keep a close watch on their health status, and timely report any abnormalities that may arise.

11.3 While staying abroad, crew members should avoid gathering for meals and be encouraged to dine separately. It is recommended to order take-out meals which should be picked up by a designated person, so as to avoid crowd gathering resulting from simultaneous picking up by several people. If crew members are required to dine in a canteen where the distance between seats should be increased to the greatest extent possible (at least 1 meter apart), they should not sit next to each other or facing each other, nor be allowed to have conversation.

11.4 While staying abroad, crew members should have themselves well protected except when being indoors alone. They should avoid going to places with poor ventilation for





physical exercise. Also, they should wear masks and goggles while taking elevators (no direct contact with elevator buttons) or having contact with others, and keep a distance of more than 1 meter whenever possible.

11.5 Their rooms should be ventilated frequently and the use of central air conditioning system should be avoided to the extent possible. Attention should be paid to maintaining clean and hygiene by removing garbage on a daily basis and leaving no kitchen waste indoors, so as to avoid potential indoor air pollution and the spread of pathogenic microorganisms. After checking in, crew members should first of all disinfect the frequently touched surfaces (such as door handles, power switches and seat armrests).

11.6 After returning from public places, they should have their hands cleaned and disinfected in a timely manner to reduce the risk of spread of pathogenic microorganisms through indirect contact and digestive tract.

11.7 Transport airlines should communicate information on epidemic development by informing crew members of the changes in local epidemic development in a timely manner. Also, they should provide crew members with a sufficient amount of protective equipment covering a full variety.

11.8 Overseas stations (offices) should provide necessary support by providing food and daily necessities so as to cut the unnecessary outings of the crew.

## **12. Matters Deserves Attention Regarding Psychological Self-regulation for Front-line Personnel of Airlines**

As the epidemic situation in China has gradually stabilized, the stage where front-line staff of airlines may suffer collective stress reaction has passed with concern for the coronavirus continuing to decline, however psychological status is going to diversify at the moment among different population groups, leading to a more complicated phase for emotion change. Therefore, airlines should enhance emotional care and guidance for front-line employees, by fully recognizing their hard work during the outbreak, timely commending those with outstanding contributions to the fight against virus and avoiding discrimination of those quarantined or confirmed with COVID-19 infection, so as to help build and strengthen employee' psychological sense of security. For staff with overreacted emotions or resistance behavior during work to contain the epidemic, they should be viewed from a humanistic perspective with enough understanding and comfort.

### **12.1 Building a Psychological Health Service System for Employees**

12.1.1 A working team on psychological care should be set up, which works with the three social support systems of information, material and emotion to ease the psychological stress of frontline staff.



12.1.2 Psychological health assessment should be carried out for front-line staff, with the focus on confirmed patients, close contacts (including those with fever) and those involved in epidemic handling and rescue, while others affected by epidemic prevention and control measures are considered normal group. In the meantime, airlines need to work with local and industrial service resources on psychological health to provide self-service epidemic-related psychological stress tests and professional mental health assistance channels for the use by employees, and encourage those with abnormal emotions to seek professional help.

12.1.3 Science-based duty shift, on-duty and quarantine arrangement should be made for front-line staff, and to timely learn and help solve their life difficulties, and ensure good logistic support.

## **12.2 Methods of Psychological Self-regulation for Front-line Personnel**

### **12.2.1 Having a good understanding of own emotional experience**

It is normal to have certain negative emotions during the epidemic, and these unusual emotions can in turn serve as a reminder to protect ourselves in a more timely and effective manner. Even if we find that we have some emotional experiences we are not familiar with, we needn't to be stressful. It is normal to have these psychological changes. If we allow these reactions to occur and accept what is happening, rather than denying and rejecting them, positive changes will naturally ensue.

Where our negative emotions cannot be relieved through self-regulation, resulting in extreme fear and anxiety, even affecting our sleep and diet, it's recommended to seek professional help.

### **12.2.2 Acquiring the epidemic information with a proper attitude**

The huge amount of information about the epidemic will leave us with a strong sense of anxiety and helplessness. We should avoid being influenced by emotionally charged information. We'd better to seek information from formal media and official websites, and never fall victim to certain rumors. Also, we should develop a proper plan on when to get information online, and in particular try to avoid exposure to influx of information at the time when we feel most fragile (such as right before bedtime). And last, we should avoid the vicarious trauma caused by information overload. We need to leave enough time for ourselves to listen our inner voice and be aware of our emotional changes. That can help us to turn panic into appropriate personal protection.

### **12.2.3 Friendly and mutual social support**

Social connection can calm us down. Communicating with others is the most effective way to relief our stress. On the one hand, through frequent communication with family and friends by telephone and the Internet, we can encourage each other, share our feelings and reinforce mutual psychological support; on the other hand, by making contact with



colleagues in similar situations, we can lend our ears to each other and renew our connections, in a bid to building a psychological anti-epidemic alliance.

#### 12.2.4 Maintaining a stable and healthy lifestyle

Maintaining a regular working and resting schedule and having a sense of self-control are the good panacea for anxiety and panic. Although our ranges of activities are restricted, we still can take a positive look at life. We should, to the greatest extent possible, maintain our regular schedule and follow our usual daily routine, allowing us to return to our normal life. In addition, we should develop good living and hygiene habits, keep a healthy diet, have enough sleep, and never try to ease our tension through the use of tobacco and alcohol.

### **13. Proper Use of Personal Protective Equipment (PPE)**

In order to provide guidance to front-line staff in civil aviation on how to correctly wear masks, hats, gloves, goggles and other protective equipment, and properly sanitize hands, our Office made a video, downloadable from the website [ams.caac.gov.cn](http://ams.caac.gov.cn) under Prevention and Control of Public Health Emergency.



## Attachment 1

### Scoring Recommendations on the Rating of Epidemic Risk Level Classification for Domestic Flights

Factors	Scores		
	1	2	3
Confirmed Cases in the Place of Origin (N)	0-50	51-100	>100
Passenger Load (%)	0-60	61-80	>80
Duration of Flight (hours)	0-4	>4	—

Note:

1. Cases in the place of origin should be defined by provinces/municipalities/autonomous regions (data source: National Health Commission).
2. Epidemic risk level classification of flights will be updated on weekly basis.
3. Epidemic risk level classification of transfer flights will be counted on the basis of the segment with higher scores; and the epidemic risk level classification of stop-over flights will be counted on the basis of the duration the total flight distance.
4. Passenger load of cargo flight will be counted as 0.
5. Flights without High Efficiency Particulate Air (HEPA) filtering system should be deemed as high-risk flights.
6. Risk levels can be upgraded accordingly in case of emergencies and special flights.
7. According to the sum of scores, risk levels can be divided into high, medium and low.

Low risk flights: 3-4

Medium risk flights: 5-6

High risk flights: 7-8



## Attachment 2

### Scoring Recommendations on the Rating of Epidemic Risk Level Classification for International Flights

Factors	Scores					
	1	2	3	4	5	6
Prevalence Rate in the Place of Origin (/million)	0-10	11-25	26-50	51-100	101-150	>150
Passenger Load (%)	0-60	61-80	>80	—	—	—
Duration of Flight (hours)	<4	4-8	>8	—	—	—

Note:

1. Prevalence rate in the place of origin: number of confirmed cases/population in million
2. International origin cases should be defined by countries or regions (data source reference: WHO and websites of state authorities).
3. Origin cases of Japan only include those confirmed in the Japanese home islands.
4. Epidemic risk level classification for international flights will be updated on daily basis.
5. Epidemic risk level classification of transfer flights will be counted on the basis of the segment with higher scores; and the epidemic risk level classification of stop-over flights will be counted on the basis of the duration the total flight distance.
6. Passenger load factor of cargo flight will be counted as 0.
7. Risk levels can be upgraded accordingly in case of emergencies and special flights.
8. According to the sum of scores, risk levels can be divided into high, medium and low.

Low risk flights: 3-6

Medium risk flights: 7-9

High risk flights: 10-12



### Attachment 3

#### Populations of Countries (Regions) in 2020 (unit: million)

China	1400	Republic of Korea	51	Switzerland	9
United States	327	Spain	46	Austria	9
Brazil	211	Canada	37	Israel	8
Japan	127	Malaysia	32	Denmark	6
Iran	82	Australia	25	Norway	5
Germany	82	Netherland	17	Czech	5
United Kingdom	67	Belgium	11	Qatar	3
France	65	Sweden	10	Hong Kong (China)	8
Italy	60	Portugal	10	Taiwan (China)	24



**Attachment 4**

**PPE Recommendations for Aircrew, Maintenance and Cleaning Personnel**

<b>Personnel Type</b>	<b>Flight Risk</b>	<b>Surgical Mask</b>	<b>KN95/N95 Mask</b>	<b>Medical Mask</b>	<b>Goggles</b>	<b>Disposable Protective Suit</b>	<b>Disposable Medical Rubber Gloves</b>	<b>Disposable Shoe Covers</b>	<b>Disposable Medical Cap</b>
Flight Crew	Low and Medium	√							
	High		√		√				
	Special Transport Missions			√	√				
Cabin Crew	Low and Medium	√							
	High		√		√		√		
	Special Transport Task			√	√	√	√**	Boot Covers	√
	Emergency Handling			√	√	√*	√**		
Maintenance Staff	Replacing HEPA		√		√	√	√	√	
Cleaning Staff	Low and Medium	√					√	√	√
	High		√		√		√	√	√

\* Could be replaced with the protective apron in the universal precaution kit (UPK) under special circumstances as an interim emergency handling measure.

\*\* Double layer disposable rubber gloves





**Attachment 5**

**Aircraft Cleaning Types**

Area	Cleaning Items	Stopover Time		Post-flight
		<60min	>60min	
<b>Flight Deck</b>	Clean tray tables and cup holders	On Request	√	√
	Clean stowage areas and racks	On Request	√	√
	Wipe seats	On Request	√	√
	Clean floor/vacuum carpet	On Request	On Request	√
	Clean flight deck windows inside	On Request	On Request	√
	Clean door and walls	On Request	On Request	√
	Empty ashtrays (if installed)	√	√	√
<b>Cabin</b>	Dispose of wastes from closets	√	√	√
	Dispose of litter and newspapers	√	√	√
	Dispose of wastes in seat pockets	√	√	√
	Clean tray tables	On Request	On Request	√
	Clean cabin crew seat tables	On Request	On Request	√
	Clean interphone mic	On Request		√
	Clean cabin windows inside			√
	Vacuum cloth-covered seats		On Request	√
	Wipe leather-covered seats		On Request	√
	Clean overhead bins outside and latch handle surfaces	On Request	On Request	√
	Dispose of wastes in overhead bins		On Request	√
	Clean PVC floors			√
	Vacuum carpet		On Request	√
	Replace pillows, headrest covers and blankets			√
	Clean in-seat monitors and service control unit panels			√
	Clean seats and armrests	On Request	On Request	√
Remove passenger seat cushions and vacuum them			√	
Remove stains from carpets			√	



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	Clean seat rails, air outlets, ceiling, sidewalls, closets, bulkheads and magazine racks			√
<b>Galleys</b>	Empty waste bins and insert waste bags	√	√	√
	Clean bulkheads, trolley brake blocks, ceiling and ventilation grids (air-conditioning outlets)	On Request	On Request	√
	Clean faucets, sink and surfaces	On Request	√	√
	Clean retractable tables	On Request	√	√
	Clean ovens inside and outside	On Request	On Request	√
	Clean service trolleys	On Request	√	√
	Clean PVC floors	On Request	On Request	√
<b>Lavatories</b>	Empty waste bins and insert waste bags	√	√	√
	Clean toilet	√	√	√
	Clean basin, faucets and surfaces	√	√	√
	Clean mirrors	√	√	√
	Clean baby care table	√	√	√
	Clean board surfaces, interior and exterior door, handles and locks	√	√	√
	Clean PVC floors	√	√	√
	Replenish soap dispensers	On Request	√	√
	Replenish toiletry items	On Request	√	√
<b>Crew Rest Areas</b>	Dispose of waste from closets		√	√
	Dispose of litter/newspapers		√	√
	Remove sheets, and other items		√	√
	Clean pillows and blankets		√	√
	Clean control consoles (reading lights and air conditioning) and interphone mic		√	√
	Vacuum carpet			On Request
	Clean cabin crew seats		√	√
	Clean cabin inside window glass		√	√