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衛生防護中心
Centre for Health Protection

Infection Control Branch

Infection Control Advice on Specimen Collection to Test for COVID-19

I. Preamble

Early detection of COVID-19 is important for control and preventing further spread of the disease. Concerned persons may need to save / take specimen according to surveillance criteria, and the following infection control measures should be taken during the process.

II. Specimen Types

1. Deep Throat Saliva (DTS) or sputum: to be collected by the client him/herself either at home as an early morning specimen (collect after getting up and before brushing teeth, eating or drinking) OR at designated specimen collection site as a spot specimen.
2. Throat swab (TS) / Nasal swab (NS) / **Combined Nasal and Throat Swab (CNTS)**: to be collected by staff on client at the designated specimen collection site.
3. Nasopharyngeal Swab (NPS): to be collected by staff on client at the designated specimen collection site.



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轄下執行疾病預防
及控制的專業架構
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Protection is a
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Department of Health for
disease prevention
and control

III. Test Arrangement

A. Saving Deep Throat Saliva (DTS) or sputum

- (a) Set up of the collection site within institutions / clinics
- i. Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation of the collection site.
 - ii. Collect specimen at a site/ room in the absence of other persons as far as practicable. In case other person(s) is/are present, the client should be at least 2 metres away from others.
 - iii. Minimize non-essential items in the immediate surroundings when collecting specimen.
 - iv. Environmental cleaning and disinfection of the specimen collection site should be performed after collection of specimen, pay special attention to frequently-touched areas.
- (b) Set up of the site in community centres
- i. An open space e.g. covered outdoor area at least 2 meters away from others or with an effective partition separating in between OR
 - ii. Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation of the collection site for indoor facilities.
- (c) How to collect specimen
- i. Prepare the items including specimen bottle, specimen bags and tissue paper. Check the correctness of personal details on the bottle and laboratory form.
 - ii. Perform hand hygiene.
 - iii. Open the specimen bottle and specimen bag.
 - iv. For DTS: hawk up an adequate amount of saliva from deep throat and hold it inside the mouth.
For sputum: take several deep breaths and cough up the sputum. Hold it inside the mouth.
 - v. Remove surgical mask. Spit the saliva or sputum into the specimen

bottle. Close the lid of bottle properly.

- vi. Perform hand hygiene.
- vii. Put on surgical mask.
- viii. Perform hand hygiene.
- ix. Screw tightly the lid of specimen bottle to prevent leakage and clean the surface of bottle with tissue paper.
- x. Put the specimen bottle into the 1st specimen bag, together with the completed laboratory form put into the 2nd specimen bag. Keep the bottle upright as far as possible.
- xi. Perform hand hygiene again.

(d) Infection control advice

If staff need to assist clients to collect specimen, please note the following:

- i. Keep the number of staff involved in the collection of specimen to a minimum.
- ii. Perform hand hygiene before and after collection of specimen, and whenever hands are visibly contaminated.
- iii. Hand hygiene can be achieved by hand washing with liquid soap and water for at least 20 seconds. If hands are not visibly soiled, 70-80% alcohol-based handrub can be used as an alternative.
- iv. The client should keep wearing surgical mask at all times, except for the moment when he/she spits the saliva or sputum into the specimen bottle.
- v. The staff helping the client to save specimen should put on personal protective equipment: surgical mask, disposable gloves, eye protection, (goggle or face shield) and gown.
- vi. Environmental cleaning and disinfection of the specimen collection site should be performed after collection of specimen, pay special attention to frequently-touched areas.

B. Saving Throat Swab (TS) / Nasal Swab (NS) / Combined Nasal and Throat Swab (CNTS):

- (a) Set up of the collection site within institutions / clinics
- i. Collect specimen in a designated room. Only essential persons for the specimen collection should stay in the room.
 - ii. If a single room is not available, set up a designated area at least 2 metres away from others with partitions to allow sufficient space for specimen collection.
 - iii. Donning area needs to be set up outside the specimen collecting room/area and doffing area needs to be set up inside the specimen collecting room/area. Posters for donning and doffing can be posted in corresponding areas as a reminder of proper procedure.
 - iv. Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation of the specimen collecting room/area.
 - v. Keep the door closed or keep the door way clear of people for 2 metres during specimen collection. If need to enter the room (e.g. for cleaning and disinfection), adequate PPE is needed.
 - vi. Minimize non-essential items in the specimen collection room/area.
 - vii. Consider posting signage outside the room/area when specimen is being collected and prior to proper cleaning and disinfection to alert others not to enter.
 - viii. Environmental cleaning and disinfection of the specimen collection site should be performed after collection of specimen, pay special attention to frequently-touched areas.
- (b) Set up of the site in community centres
- i. An open space e.g. covered outdoor area at least 2 meters away from others or with an effective partition separating in between OR
 - ii. Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation of the collection site for indoor facilities.¹

¹ Mobile HEPA units can be installed to increase ventilation rate in indoor area. Air outlet should not be blowing directly onto clients, specimens or the specimen collection area. Proper maintenance of filter is required.

- (c) How to collect specimen
- i. Procedure to collect TS
 1. Insert swab into the posterior pharynx and tonsillar areas.
 2. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, uvula, teeth, gums and lips.
 - ii. Procedure to collect NS (anterior nares specimen)
 1. Using a flocced or spun polyester swab
 2. When taking out the swab from the sterile package, only hold the swab by the handle. Never touch the swab tip.
 3. Tilt the head back slightly to straighten the nasal passage
 4. Gently insert the swab (~1-2 cm for adult) inside the nostril parallel with the nose bridge, or until resistance is felt. Gently rotate the swab and leaving in place for 10 to 15 seconds. Slowly rotate as the swab is withdrawn.
 5. Sample the other nostril with same swab.
 6. Insert the swab into specimen bottle with transport medium (if provided). Send for testing as soon as possible.
- (d) Personal Protective Equipment (PPE) of staff
- i. Staff responsible for taking the swab should be well trained.
 - ii. Adequate PPE include:
 1. Respirator
 2. Eye protection (goggle/ face shield)
 3. Gown
 4. Disposable gloves
 5. Cap (optional)
- (e) Infection control advice
- i. Keep the number of staff involved in the collection of specimen to a minimum.
 - ii. Perform hand hygiene before and after collection of specimen, and whenever hands are visibly contaminated.
 - iii. Hand hygiene can be achieved by hand washing with liquid soap and water for at least 20 seconds. If hands are not visibly soiled, 70-80% alcohol-based handrub can be used as an alternative.
 - iv. The client should keep wearing surgical mask at all times, except for the moment of swabbing. After swabbing, or in case of

sneezing or coughing, he or she should immediately put back the surgical mask.

- v. The staff collecting specimen should put on adequate PPE
- vi. Put on PPE properly before taking specimen. If to collect specimen from multiple clients, gloves need to be changed after each client with proper hand hygiene. In case any PPE item is visibly contaminated, it must be changed immediately.
- vii. Thorough environmental cleaning and disinfection of the specimen taking site should be performed with 1 in 49 diluted household bleach (mixing 1 part of household bleach containing 5.25% sodium hypochlorite with 49 parts of water) at the end of each session and when needed, leave for 15 – 30 minutes and then rinse with water and wipe dry. Highly touched areas need to be cleaned and disinfected more frequently.
- viii. Waste needs to be properly disposed, followed by proper hand hygiene.

C. Saving Nasopharyngeal Swab (NPS)

- (a) Set up of the collection site within institutions / clinics
 - i. If it is feasible, preferably to have at least 6 air-changes per hour (ACH). Fresh air intake should be maximized with at least 2 fresh air-change per hour (ACH). Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation.
 - ii. Mobile HEPA units can be installed to increase ventilation rate in indoor area. Air outlet should not be blowing directly onto clients, specimens or the specimen collection area. Proper maintenance of filter is required.
- (b) Set up of the site in community centres
 - i. An open space with good natural ventilation e.g. covered outdoor area far away from neighbours OR
 - ii. For indoor facilities, if it is feasible, preferably to have at least 6 air-changes per hour (ACH). Fresh air intake should be maximized with at least 2 fresh air-change per hour (ACH). Open the windows as far as feasible. Turn on the fans or maximize the fresh air intake of the air-conditioners to enhance the ventilation of the collection

- site for indoor facilities
- iii. Mobile HEPA units can be installed to increase ventilation rate in indoor area. Air outlet should not be blowing directly onto clients, specimens or the specimen collection area. Proper maintenance of filter is required.
- (c) How to collect specimen:
- i. Procedure to collect NPS
1. Insert minitip swab with a flexible shaft (wire or plastic) through the nostril parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from the ear to the nostril of the patient, indicating contact with the nasopharynx.
 2. Swab should reach depth equal to distance from nostrils to outer opening of the ear. Gently rub and roll the swab.
 3. Leave swab in place for several seconds to absorb secretions.
 4. Slowly remove swab while rotating it.
 5. Specimens can be collected from both sides using the same swab, but it is not necessary to collect specimens from both sides if the minitip is saturated with fluid from the first collection.
 6. If a deviated septum or blockage create difficulty in obtaining the specimen from one nostril, use the same swab to obtain the specimen from the other nostril
- (d) Personal Protective Equipment (PPE) of staff
- i. Same as for saving TS/NS/CNTS
- (e) Infection control advice
- i. Same as for saving TS/NS/CNTS

IV. Specimen Storage

- (a) It is preferred to have transport medium inside specimen bottle.
- (b) Specimens without transport medium must be transported to laboratory on the same day and as soon as possible.
- (c) Specimens with transport medium should be transported to laboratory within a reasonable timeframe as soon as possible.
- (d) Specimens pending for delivery should be stored properly in a designated

container at 2-8°C but not frozen before transport to laboratory.

- (e) Please check the corresponding laboratory for their specific requirement.

V. Transportation of Specimen

- (a) Arrange logistic for reception of specimen with the testing laboratory in advance
- (b) Triple package is required for specimen transport
 - i. A tightly screwed specimen bottle without leakage
 - ii. 2 clean sealable plastic specimen bags
 - iii. An outermost transport box that is robust and easy to clean, with lid/cover closed properly and securely during transport
- (c) Before transporting the specimens, check and make sure no leakage and the specimen bottles and bags are properly sealed.
- (d) Put them into a robust transport container that is securely closed and not easily overturned during transport. Handle the transport container gently with care during the whole transport process.
- (e) Transport containers
 - i. Should be of the material which can be cleaned and disinfected with 1 in 49 diluted bleach.
 - ii. Can only be filled up to 70% fullness.
 - iii. Must be handled gently with care during the whole transport process.
 - iv. Throwing, dropping or dragging the transport boxes on the floor is prohibited.
 - v. Should be thoroughly cleaned and disinfected after transportation.
- (f) Transport staff should be trained on infection control e.g. use of PPE and handling of biological specimen spillage.
- (g) A biological spill kit containing PPE, disposable absorbent materials, clinical waste bags, disinfectant and alcohol-based hand rub should be available during transport.
- (h) Use designated vehicle to transport.
- (i) Wear a surgical mask as necessary according to prevailing government and hospital policies. Glove can be used for handling of the specimen. However, wearing glove cannot replace proper hand hygiene (either

washing hands with liquid soap and water or using alcohol-based handrub)

- (j) No additional PPE is required for routinely handling of properly packaged specimens.
- (k) In case of accident during transportation, contact supervisor and related parties promptly.

VI. General Infection Control Advice

- (a) Clients or staff who have fever or mild respiratory symptoms or recent sudden loss of taste/ smell should seek medical advice as soon as possible.
- (b) No sharing of items with others unless thorough cleaning and disinfection can be ensured.
- (c) Staff need to perform hand hygiene:
 - i. To practise hand hygiene before and after performing procedures, before putting on personal protective equipment (PPE), after taking off PPE, before touching eyes, nose and mouth, after touching common objects and toileting, before and after handling specimens, after cleaning environment, upon entry or leaving the workplace.
 - ii. To use 70-80% alcohol based hand rub if no visible soil on hands. Wash with liquid soap and water in case visible soiling of hands have occurred.
 - iii. To wash or rub hands for at least 20 seconds. An adequate amount of alcohol-based hand rub of 3-5 ml (about the size of a one-dollar coin) should be used for hand rubbing.
- (d) Use of Mask
 - i. All staff and clients should be properly masked inside the premise. Clients should only remove the surgical mask during spitting of saliva into specimen bottle or taking of swabs and immediately put back on after the process of collection is completed.
- (e) Infection Control Practice When Taking Specimen
 - i. When collecting specimen for client, the staff should stand at the side instead of in front of the client.
 - ii. Tissue papers should be held by the client to cover his / her mouth and nose in case of sneezing and coughing.

- iii. Limit the number of staff member working in each specimen collection area. Apart from the one taking specimen, other staff member should keep a distance from the client during specimen collection.
 - iv. Re-useable items must be properly disinfected before removal from this area. Single-use items should be disposed of properly after use.
2. For donning and doffing of full set of personal protective equipment, please refer to the video demonstration at Centre for Health Protection (CHP) website: <https://www.chp.gov.hk/en/static/32975.html>
3. For other infection control advice please refer to the *Guidelines for Residential Care Homes for the Elderly or Persons with Disabilities for the Prevention of Coronavirus disease (COVID-19) (Interim)*
https://www.chp.gov.hk/files/pdf/advice_to_rche_rchd_on_prevention_of_nid_eng.pdf

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