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Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons for Coronavirus Disease 2019 (COVID-19)

Summary of Recent Changes

Revisions were made on March 24, 2020 to reflect the following:

- Allowance for self- or healthcare worker-collected nasal swabs as an acceptable specimen type if NP swab is not possible
- Allowance for self- or healthcare worker-collected nasal turbinate swabs as an acceptable specimen type if NP swab is not possible
- Updated infection control link to COVID-specific guidance

Revisions were made on March 21, 2020 to reflect the following:

- A new document, Completing a CRE and Specimen Guidance [2 pages], has been posted that contains instructions for completing a supplemental guidance regarding specimen collection, storage, and shipping to CDC laboratories.

Revisions were made on March 19, 2020 to reflect the following:

- Allowance for OP as an acceptable specimen type if NP swabs are not available.
- Standard operating procedure for public health labs to create their own viral transport media [5 pages] in accordance with CDC's protocol.

Revisions were made on March 17, 2020 to reflect the following:

- Recommendation for collection for testing of lower respiratory tract specimens.
- Updated description of collecting a Nasopharyngeal swab.

Revisions were made on March 13, 2020 to reflect the following:

- Recommendation to collect and test a single upper respiratory nasopharyngeal swab (NP).

March 25, 2020

Health care providers should contact their local/state health department immediately to notify them of patients with fever and lower respiratory illness who they suspect may have COVID-19. Local and state public health staff will determine if the patient meets the criteria for testing for COVID-19. The state and local health department will assist clinicians to collect, store, and ship specimens appropriately, including during afterhours or on weekends/holidays. Clinical specimens should be collected for routine testing of respiratory pathogens at either clinical or public health labs. Note that clinical laboratories should NOT attempt viral isolation from specimens collected from persons suspected to have COVID-19 unless this is performed in a BSL3 laboratory. Testing for other pathogens by the provider should be done as part of the initial evaluation but should not delay testing for COVID-19.

Specimen Type and Priority

All testing for COVID-19 should be conducted in consultation with a healthcare provider, and only for patients demonstrating symptomatic disease. The guidance below addresses options for self-collection of specimens once a clinical determination has been made to pursue COVID-19 testing.

For initial diagnostic testing for COVID-19, CDC recommends collecting and testing an upper respiratory specimen. Nasopharyngeal specimen is the preferred choice for swab-based SARS-CoV-2 testing. When collection of a nasopharyngeal swab is not possible, the following are acceptable alternatives:

- An oropharyngeal (OP) specimen collected by a healthcare professional, or
- A nasal mid-turbinate (NMT) swab collected by a healthcare professional or by onsite self-collection (using a flocked tapered swab), or
- An anterior nares specimen collected by a healthcare professional or by onsite self-collection (using a round foam swab).

For NS, a single polyester swab with a plastic shaft should be used to sample both nares. NS or NMT swabs should be placed in a transport tube containing either viral transport medium, Amies transport medium, or sterile saline.

If both NP and OP swabs both are collected, they should be combined in a single tube to maximize test sensitivity and limit testing resources.

CDC also recommends testing lower respiratory tract specimens, if available. For patients who develop a productive cough, sputum should be collected and tested for SARS-CoV-2. The induction of sputum is not recommended. When it is clinically indicated (e.g., those receiving invasive mechanical ventilation), a lower respiratory tract aspirate or bronchoalveolar lavage sample should be collected and tested as a lower respiratory tract specimen.

Specimens should be collected as soon as possible once a decision has been made to pursue COVID-19 testing, regardless of the time of symptom onset. Maintain proper infection control when collecting specimens. See Biosafety FAQs for handling and processing specimens from suspected case patients.

General Guidelines

Store specimens at 2-8°C and ship overnight to CDC on ice pack. Label each specimen container with the patient's ID number (e.g., medical record number), unique specimen ID (e.g., laboratory requisition number), specimen type (e.g., serum) and the date the sample was collected. Complete a CDC Form 50.34 for each specimen submitted. In the upper left box of the form, 1) for *test requested* select "Respiratory virus molecular detection (non-influenza) CDC-10401" and 2) for *At CDC, bring to the attention of* enter "Stephen Lindstrom: 2019-nCoV PUI".

- Please refer to our instruction guidance for submitting CDC Form 50.34 found here: Completing a CRE and Specimen Guidance [2 pages]

I. Respiratory Specimens

A. Lower respiratory tract

Bronchoalveolar lavage, tracheal aspirate

Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

Sputum

Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

B. Upper respiratory tract

Nasopharyngeal swab (NP) /oropharyngeal swab (OP)

Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media. In general CDC is now recommending collecting only the NP swab. If both swabs are used, NP and OP specimens should be combined at collection into a single vial. OP swabs remain an acceptable specimen type.

Nasopharyngeal swab: Insert a swab into nostril parallel to the palate. Swab should reach depth equal to distance from nostrils to outer opening of the ear. Leave swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it.
Oropharyngeal swab (e.g., throat swab): Swab the posterior pharynx, avoiding the tongue.

Nasopharyngeal wash/aspirate or nasal aspirate

Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

II. Storage

Store specimens at 2-8°C for up to 72 hours after collection. If a delay in testing or shipping is expected, store specimens at -70°C or below.

III. Shipping

Specimens PUI's must be packaged, shipped, and transported according to the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations external icon . Store specimens at 2-8°C and ship overnight to CDC on ice pack. If a specimen is frozen at -70°C ship overnight to CDC on dry ice. Additional useful and detailed information on packing, shipping, and transporting specimens can be found at Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19).

For additional information, consultation, or the CDC shipping address, contact the CDC Emergency Operations Center (EOC) at 770-488-7100.

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