Beth Israel Lahey Health

BILH Appropriate Specimen Type for Viral Pathogen Testing for Adults

***Purpose*:** To outline the optimal specimen collection technique based on clinical presentation and viral pathogen diagnostics

Guideline Statement: Nasopharyngeal swab (NP) offers the highest sensitivity for detecting SARS-CoV-2 and when feasible, remains the optimal collection technique for symptomatic patients with concern for respiratory viral infection. The use of NP swab is frequently limited by access to trained staff, supplies and patient acceptance. Given these factors, nasal (NA) swab is an acceptable alternate collection technique for symptomatic patients when NP swab is not feasible or for the purpose of asymptomatic screening for COVID-19. The use of nasal swab is not currently approved for cartridge-based *rapid* respiratory pathogen panel testing.

Appropriate Specimen Type for Viral Pathogen Testing by Symptoms for Adults:

Type of Patient	Type of Specimen	COVID-19 PCR	Rapid COVID-19 PCR (Cepheid/ Genmark)	POC COVID-19 (ID Now)	Influenza A/B PCR	Respiratory Pathogen Panel PCR
Symptomatic	Nasopharyngeal (NP)	Preferred	Preferred	Preferred	Preferred	Preferred
	Nasal (NA) ‡	Acceptable	Acceptable	Acceptable	Acceptable	No
	Oropharyngeal (OP) ‡	Acceptable	Acceptable	Acceptable	No	No
Asymptomatic without known exposure	Nasopharyngeal (NP)	Preferred	Preferred	Preferred	No	No
	Nasal (NA) ‡	Preferred	Acceptable	Acceptable	No	No
	Oropharyngeal (OP) ‡	Acceptable	Acceptable	Acceptable	No	No
Asymptomatic with close contact of a person with confirmed COVID-19	Nasopharyngeal (NP)	Preferred	Preferred	Preferred	No	No
	Nasal (NA) ‡	Acceptable	Acceptable	Acceptable	No	No
	Oropharyngeal (OP) ‡	Acceptable	Acceptable	Acceptable	No	No

‡ May not be available at all BILH sites pending ongoing lab validations. Please check with your local lab to determine if nasal and oropharyngeal swabs are an acceptable specimen for asymptomatic COVID-19 screening or influenza diagnostics based on the local supplies available.

There are frequently situations when NP swab may not be feasible either due to patient factors, technical limitations, access to trained staff or available supplies. **Nasopharyngeal swab remains the preferred specimen type for symptomatic inpatients or ambulatory patients who are unable to self-isolate.** Negative results should always be interpreted in the context of the clinical and epidemiologic history and patient's ability to self-isolate. **If a high suspicion for COVID-19 infection exists, referral for a NP swab or consideration of repeat testing in 24-48 hours to verify a negative result should be considered.**

The use of oropharyngeal swab is only recommended in adults when a NP or NA swab is not available or feasible due to patient or technical factors due to reduced sensitivity.

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Comparison of Common Specimen Collection Types for COVID-19 PCR:

The determination of optimal specimen collection for a clinical situation is based on patient factors, specimen collection technique and differences in analyzers. The FDA emergency use authorization (EUA) for COVID-19 testing is based on their use as diagnostic assays (i.e. use in symptomatic individuals) and fewer data are available to inform use for screening in asymptomatic individuals.

Patient Factors: The time to detectable RNA following exposure is unknown and thus the optimal time to test for COVID-19 following exposure is uncertain; five to seven days post exposure is recommended based on the average incubation period. For individuals who are symptomatic, testing after 10 days of symptoms is likely to lead to false negative results.

Specimen Collection Technique: Nasopharyngeal swabs, nasal swabs and oropharyngeal swabs are recommended by the CDC. Some data suggest that yields from nasopharyngeal specimens are higher than those of other upper respiratory tract specimens however results have been variable.

Analyzers: While there are some differences in the limit of detection, all analyzers in use at BILH have been determined to have acceptable limits of detection and have gained FDA EUA approval for diagnostic use and we do not preference one analyzer over another for clinical use.

If clinical suspicion persists despite a negative assay, self-isolation should be recommended and referral for repeat testing in 24-48 hours to verify a negative result should be considered.

Miscellaneous COVID-19 Specimen Types:

Please see below for alternate acceptable specimen types for use when there is a high clinical concern for COVID-19 with negative nasopharyngeal COVID-19 PCR testing.

Specimen Type	Role in Testing	Specimen Collection Site	Time to Obtain Testing	Location for Specimen to be Analyzed
Bronchoalveolar Lavage Specimen/ Tracheal aspirate	Symptomatic patients with suspected lower respiratory tract infection	• Inpatient Only	• Within 14 days of symptom onset	• BIDMC Abbott m2000 High-Throughput Analyzer • Quest Diagnostics • Mass DPH
Sputum	Symptomatic patients with suspected lower respiratory tract infection	• Inpatient Only	• Within 14 days of symptom onset	• Quest Diagnostics • Mass DPH

Note the following specimen types are not currently accepted at BILH, Quest Diagnostics or the Mass DPH: saliva and buccal swabs