NUlirt Electronic Order Entry Instructions for Collecting and Handling Laboratory Specimens from Nebraska Patients with Suspected COVID-19

Testing at Nebraska Public Health Laboratory

STREAMLINED COVID-19 TEST ORDERING AT NEBRASKA PUBLIC HEALTH LAB (NPHL) FOR SELECT PATIENTS

We are enabling direct on-line ordering of the COVID-19 PCR test at NPHL without telephone pre-approval or PUI number given by public health. Patients tested at NPHL are **REQUIRED** to meet the priority requirements below:

In-patients: Any in-patient will be tested.

Out-patients: Persons in these groups with a clinical diagnosis of COVID-19 can be tested at NPHL. Please alert NPHL at nphl@unmc.edu if more than 25 specimens are being collected.

- Healthcare workers
- Public Safety/First Responders (EMS, law enforcement, firefighters)
- Residents and staff at nursing homes
- Residents and staff at group homes, homeless shelters, and daycare facilities
- Individuals > 65 years old, and anyone with underlying conditions

Specimens NOT accepted by NPHL:

- Pre-surgical patients
- Dialysis patients
- OB & patients in labor

Providers can seek NPHL testing for patients who fail to meet these requirements based on special circumstances that warrant rapid turnaround time should contact a state/local public health authority for telephone pre-authorization. For all other patients, order COVID-19 testing through the commercial laboratories. Those with best turn-around-times are in state, including NeMedicine, CHI, Physicians Laboratory, Bryan Medical Center (Lincoln), or Regional West (North Platte). (ADD OTHERS)

On-line ordering of the COVID-19 test should be completed using the NUlirt online ordering system at NPHL. Laboratories MUST work with ordering physicians that send specimens to their onsite lab to be entered into NUlirt. Physicians must complete a written COVID-19 order, including demographics and all criteria above. This form must accompany patient specimen. Specimen should NOT be accepted unless the physicians written orders with full documentation of symptoms, as per routine laboratory requirements. Laboratories are NOT allowed to falsify criteria if unknown, per CLIA regulations[i].

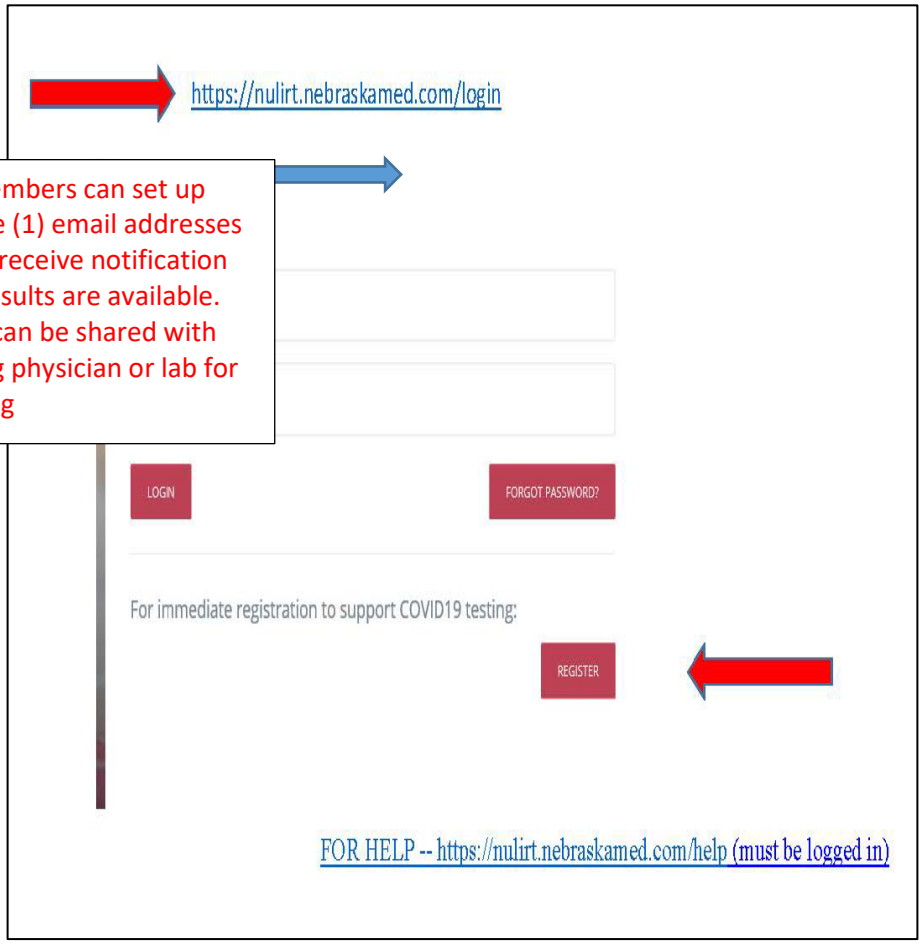
NUlirt Entry Instructions

Access NUlirt here (https://nulirt.nebraskamed.com) using your existing NUlirt account. If you are a new user, follow the link to register and create a new account. If you are having issues getting access to NUlirt, reach out to the NUlirt support group via email nulirtsupport@nebraskamed.com. There are also client service representatives available to assist with ordering through the NUlirt system at 402-559-2440; or toll free: 1-866-290-1406.

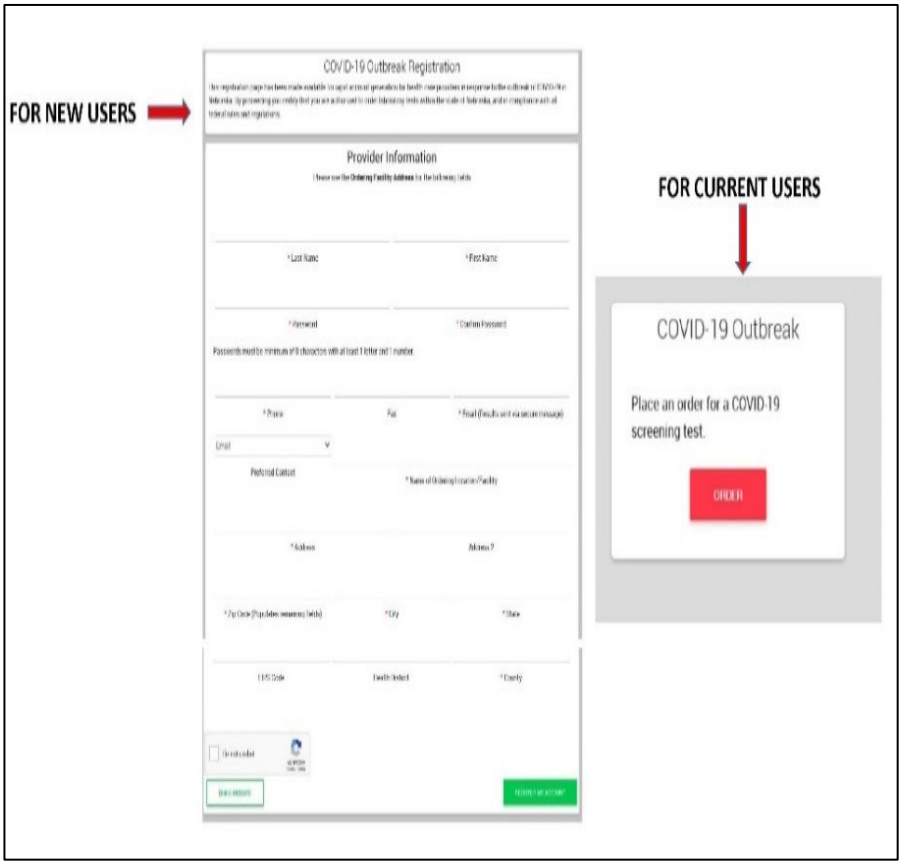
These recommendations are subject to revision depending on COVID-19 lab testing capacity at NPHL and commercial laboratories.

https://nulirt.nebraskamed.com/login

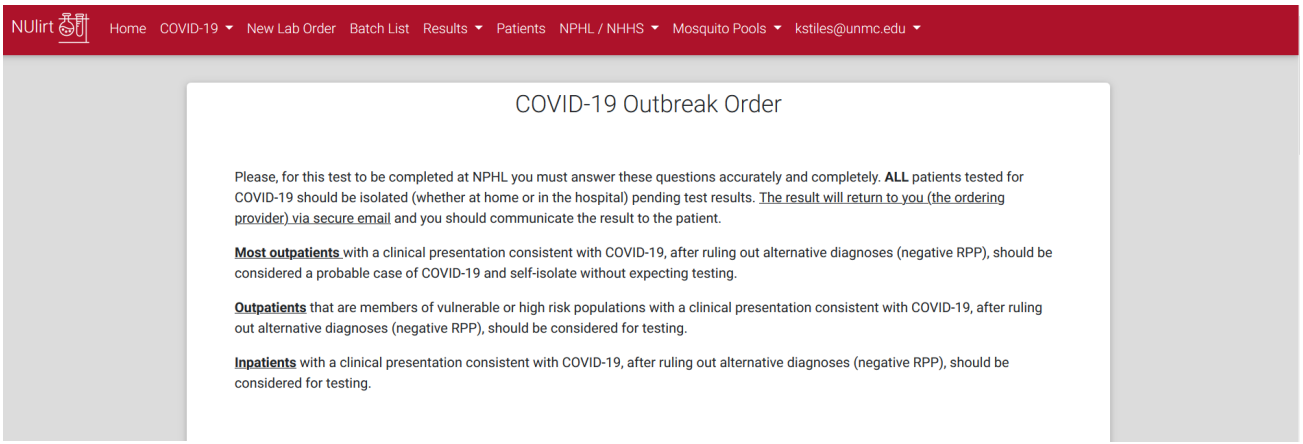
New accounts will be set up for each location. Multipole users can be granted access. If problems, call NUlirt IT at (248)469-3113

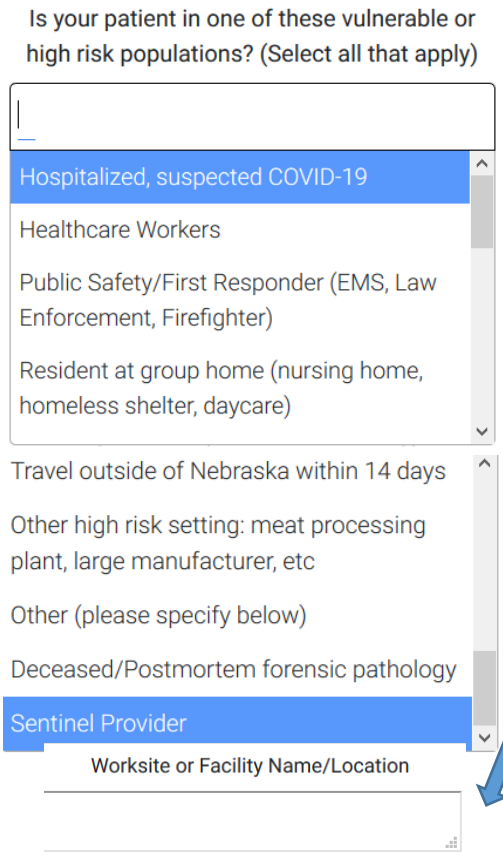


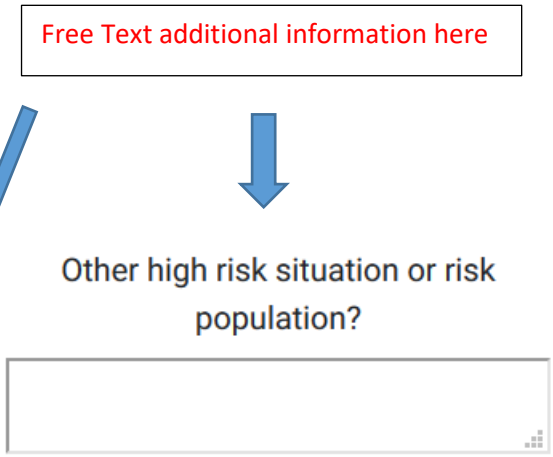
New members can set up only one (1) email addresses but will receive notification when results are available. Report can be shared with ordering physician or lab for reporting

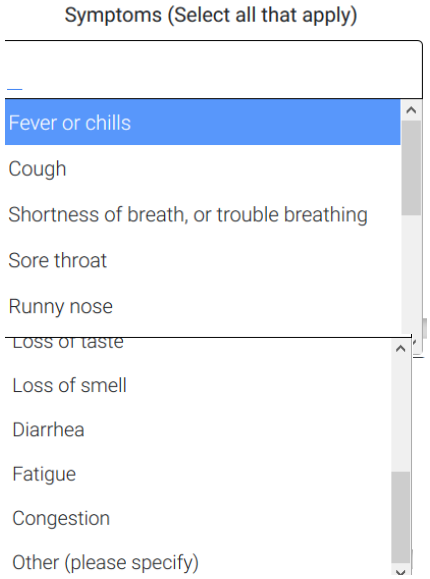


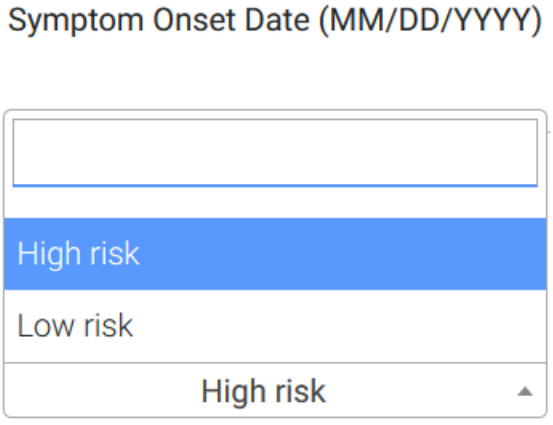
Click RED ORDER button to begin.


NUlirt
Home
COVID-19
New Lab Order
Batch List
Results
Patients
NPHL / NHHS
Mosquito Pools
kstiles@unmc.edu
COVID-19 Outbreak Order
Please, for this test to be completed at NPHL you must answer these questions accurately and completely. ALL patients tested for COVID-19 should be isolated (whether at home or in the hospital) pending test results. The result will return to you (the ordering provider) via secure email and you should communicate the result to the patient.
Most outpatients with a clinical presentation consistent with COVID-19, after ruling out alternative diagnoses (negative RPP), should be considered a probable case of COVID-19 and self-isolate without expecting testing.
Outpatients that are members of vulnerable or high risk populations with a clinical presentation consistent with COVID-19, after ruling out alternative diagnoses (negative RPP), should be considered for testing.
Inpatients with a clinical presentation consistent with COVID-19, after ruling out alternative diagnoses (negative RPP), should be considered for testing.


Is your patient in one of these vulnerable or high risk populations? (Select all that apply)
Hospitalized, suspected COVID-19
Healthcare Workers
Public Safety/First Responder (EMS, Law Enforcement, Firefighter)
Resident at group home (nursing home, homeless shelter, daycare)
Travel outside of Nebraska within 14 days
Other high risk setting: meat processing plant, large manufacturer, etc
Other (please specify below)
Deceased/Postmortem forensic pathology
Sentinel Provider
Worksite or Facility Name/Location


Free Text additional information here
Other high risk situation or risk population?
Are you a sentinel provider? (If not familiar with this term, select "No")
No

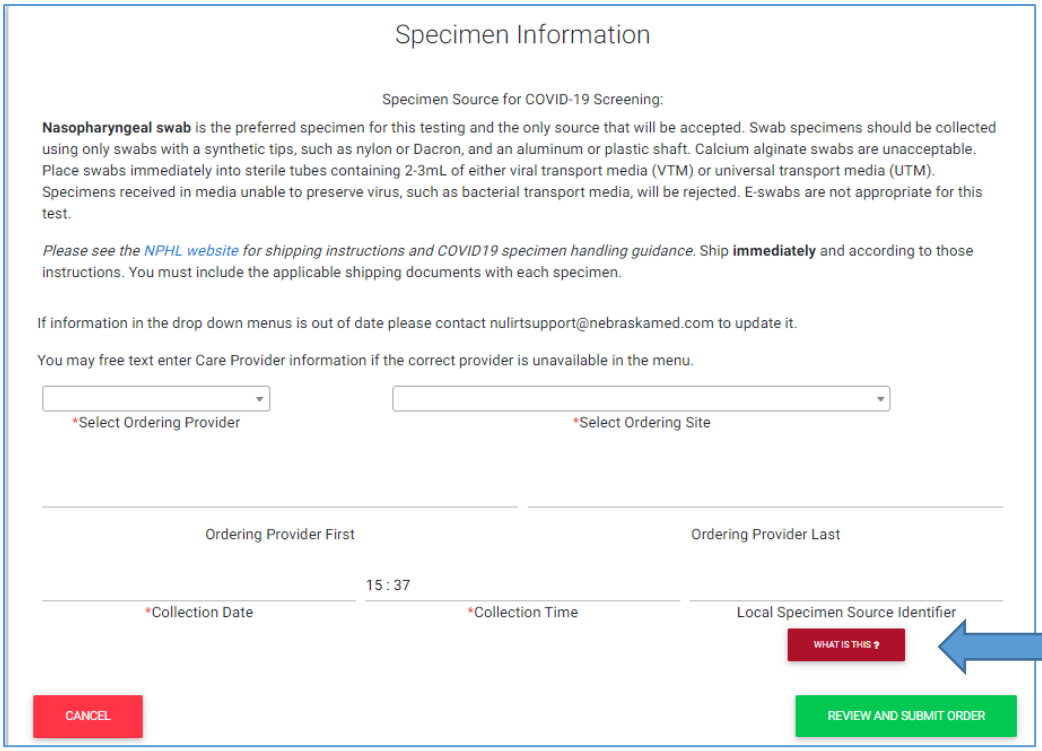

Symptoms (Select all that apply)
Fever or chills
Cough
Shortness of breath, or trouble breathing
Sore throat
Runny nose
Loss of taste
Loss of smell
Diarrhea
Fatigue
Congestion
Other (please specify)


Symptom Onset Date (MM/DD/YYYY)
High risk
Low risk
High risk

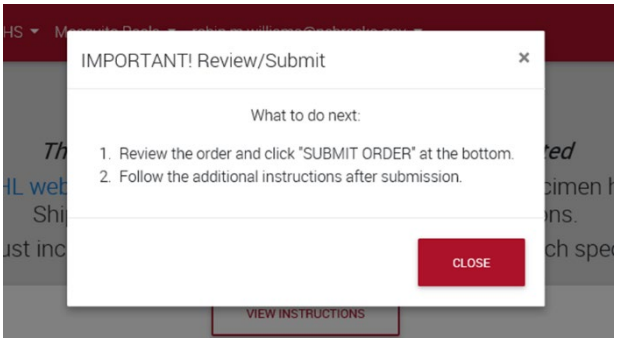
Complete patient information

Complete patient last name, first name and birth date. Ethnicity and primary race are required, as well as biological sex.

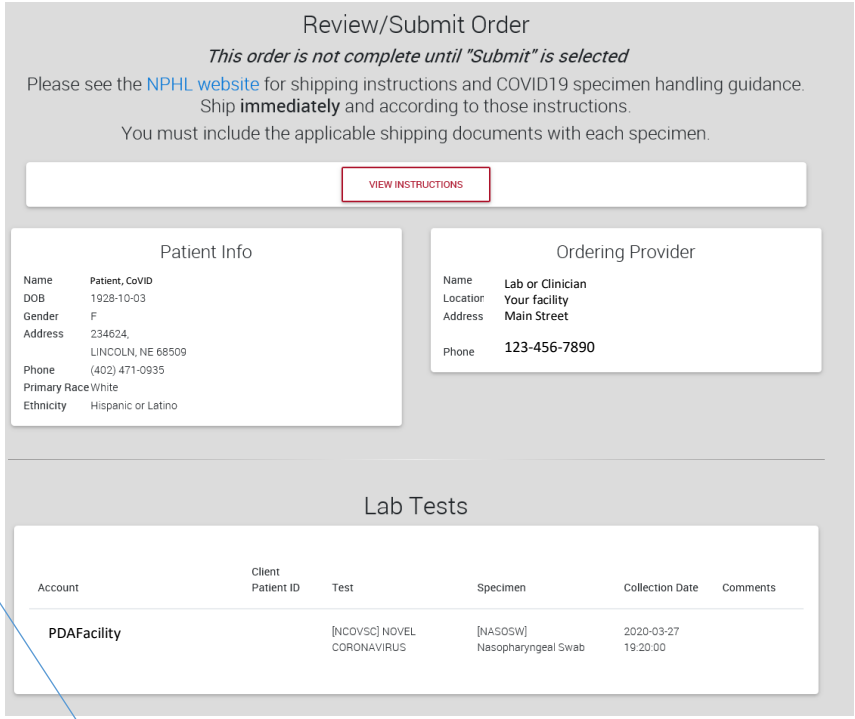
Address and phone number of an individual is required. Addresses for independent living and nursing centers can be entered for clients or dependents who resides at the residence. All information with a red asterisk * requires completion. Once the zip code is completed, usually the information will default and does not require completion.

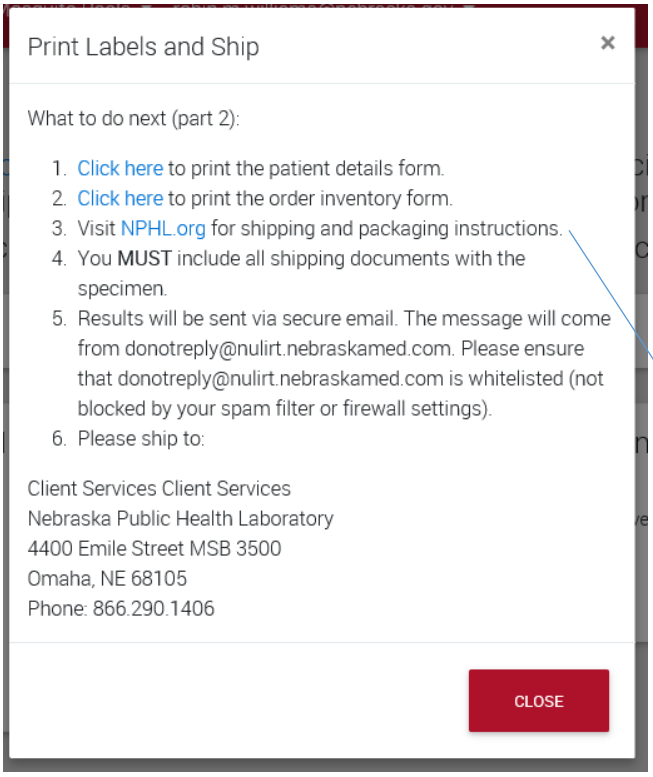


Click on "What's This? to define

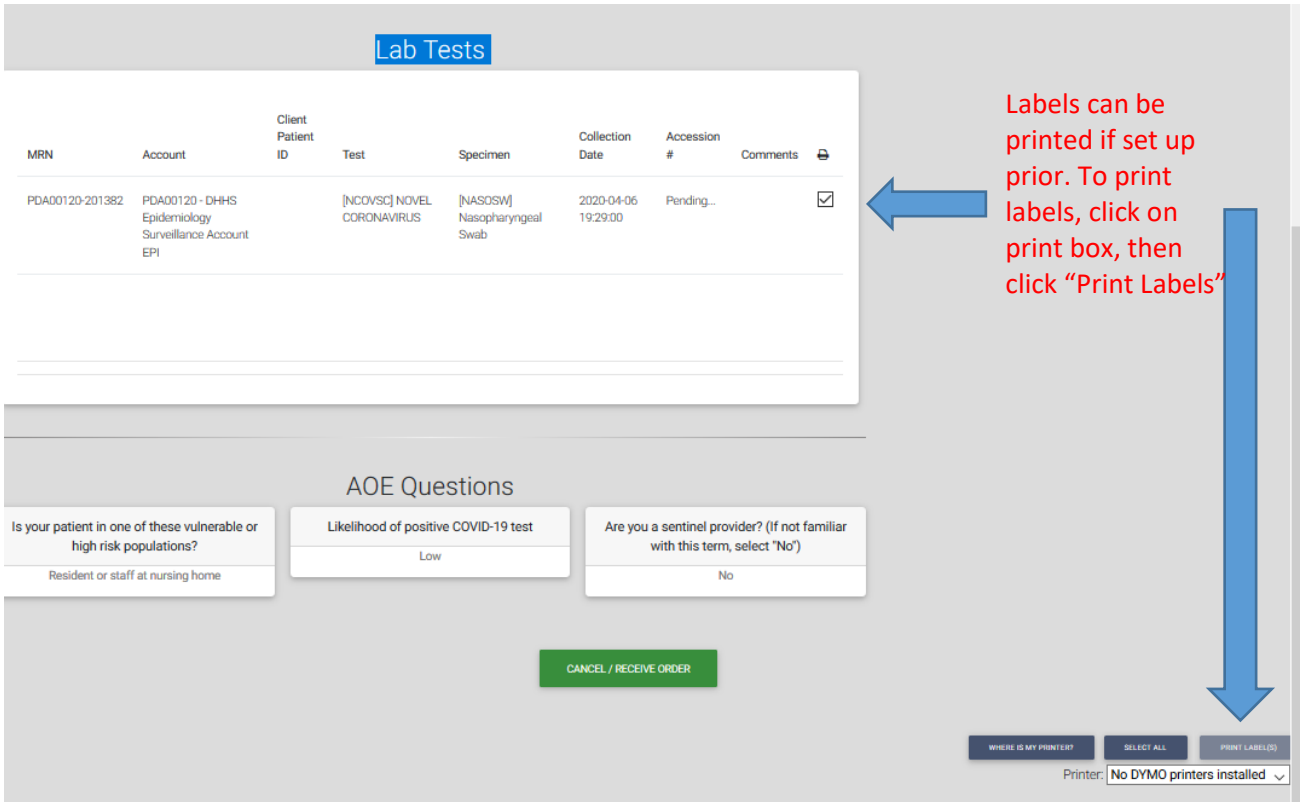


Complete information and click REVIEW and SUBMIT ORDER

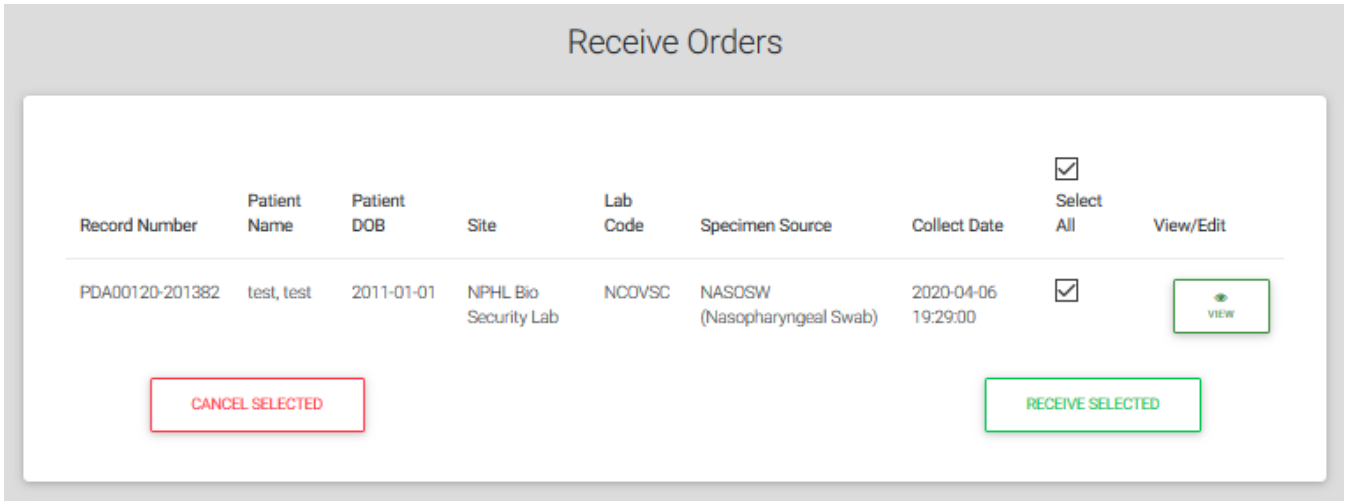


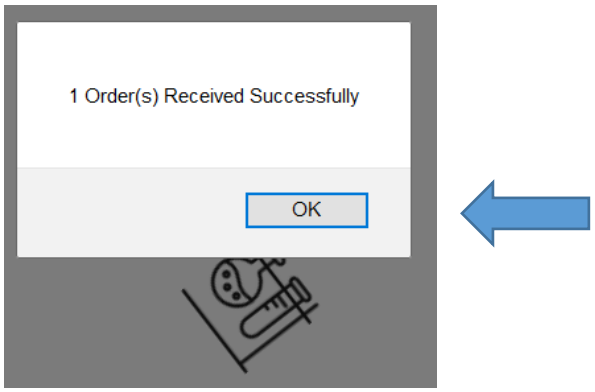


Print "patient details" or "order inventory form" to send with the specimen. These are a laboratory requirement to perform the test.



Receive in orders by "Select All" Click on "Received Selected"





Confirm order is completed, then return to Home in order to start a new order.

Respiratory Specimen Collection

Maintain proper infection control (https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html#a4) when collecting specimens or performing other aerosolizing procedures. Use appropriate PPE-following standard, contact, airborne precautions plus eye protection including eye protection such as goggles and/or disposable face shield, respirator-preferably N-95, N-99 or Powered Air Purifying Respirator (PAPR), a long-sleeved gown, and gloves. The surgical mask can be used when triaging the patient, however CDC recommends the respirator when possible to collect actual specimen due to the risk of aerosolization.

A video on PPE donning and doffing is available at: https://www.youtube.com/watch?v=bG6zISnenPg
A video for NP swab collection is available at: https://www.youtube.com/watch?v=hXohAo1d6tk

Collect one (1) Nasopharyngeal (NP) swab. NOTE: The oropharyngeal swab (OP) has been discontinued. Facilities must first perform a risk assessment to assess if collection or testing can be safely performed. If a facility is unable to safely collect or perform multiplex PCR, see notes below. Specimens should be collected as soon as possible once a PUI is identified to fit the CDC criteria regardless of the time of symptom onset.

Nasopharyngeal

- ✓ NP collection kits can be obtained from NPHL by submitting an Incident Command form 213RR at http://nphl.org/documents/ics%20form%20213rr%20resource%20request%20form%20w%20Highlights.pdf . This must first be approved by the local health department, then submitted to the EFS8 Desk at DHHS.ESF8@nebraska.gov
- ✓ Kits supplied by NPHL may contain viral transport media or normal saline/PBS, both are acceptable.
- ✓ Only one NP swab is required as long as the viral transport medial (VTM) vial contains at least 1 mL of media. Collect 2-3 mL to perform both the multiplex Respiratory Pathogen Panel (RPP) or other test and the COVID-19 NPHL test if requested.
- ✓ Collect additional NP swabs (2 swabs) if:
  - Multiple tests are required from media if vial contains only 1mL
  - Rapid detection tests require extracting reagent be added to the original specimen.
- ✓ Use only swabs designed for NP collection, usually a mini-tipped synthetic fiber swab with thin plastic shaft. Acceptable collection devices are VTM, UTM, VCM or M4. Do not use calcium alginate swabs or swabs with wooden shafts used for bacterial cultures, as they may contain substances that inactivate some viruses and inhibit PCR testing. Any swab larger than the minitip flocked swab will make NP collection painful or impossible for the patient due to the size.
- ✓ HCP should stand to the side, not directly in front of the patient when collecting to avoid aerosols.
- ✓ Insert a swab into the nostril parallel to the palate. Do not sample the nostrils or tonsils.
- ✓ Gently hold, then rotate swab to absorb secretions.
- ✓ Slowly withdraw the swab.
- ✓ Place swab immediately into the sterile tube containing VTM.
- ✓ Aseptically cut swab shank off to permit tightening of the cap. If the swab has a break line, cover vial opening with gauze and hold away from HCPs and patients, to break off swab handle.
- ✓ Tighten cap on vial, make sure shaft of swab is short enough not to be in contact with lid, thus preventing a secure seal and leakage in transport.
- ✓ Confirm labels with patient ID.
- ✓ Label the specimen container (i.e., primary container) with patient's first and last name, date of birth, time and date of collection, source and collector initials.
- ✓ Ideally refrigerate specimen at 2-8°C immediately after collection or use frozen gel-packs to keep cold.
- ✓ Instruct couriers to transport on frozen gel packs. Courier arrangements are addressed below. If courier or FedEx arrangements cannot be made within 72 hours, the specimen should be frozen at -20°C, and shipped on Dry Ice. Write "Frozen Specimen" on the NULirt batch list or the NPHL Test Request form.
- ✓ Specimens can be kept frozen at -20°C for up to 30 days.

Lower Respiratory

- ✓ The induction of sputum is not recommended. However, patients for whom it is clinically indicated (e.g., those receiving invasive mechanical ventilation), a lower respiratory tract aspirate or bronchoalveolar lavage sample can be collected and tested in-house for bacterial or fungal pathogens.

- ✓ Consult infectious diseases/infection control if other specimen types such as sputum can be safely collected for in-house testing. Sputum can be obtained if PUI has a productive cough and can produce sputum.
- ✓ If the specimen is collected using an aerosol-generating procedure (such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation or bronchoscopy), the PUI should ideally be in an AIIR specified room. If this is not possible than they should be placed in a private room with the door closed. The exhaust from this room should not recirculate throughout the facility without HEPA filtration.
- ✓ Only the PUI and essential HCP should be in the room wearing appropriate PPE.
- ✓ Patient should rinse their mouth with water, then expectorate deep cough sputum directly into a sterile, leak-proof screw-cap collection cup or a sterile dry container.
- ✓ Lower respiratory specimens ordered for bacterial or fungal culture should be forwarded to the in-house laboratory. Specimen containers and reference laboratory order forms should be clearly labeled with "PUI for COVID-19."

Rapid Respiratory Panel (RPP) To Rule-Out Other Pathogens

Respiratory pathogen panel (RPP) and influenza testing are less important and no longer required as part of the algorithm for COVID-19 workup and testing. However, in situations where testing capacity is limited, using RPP as a triage test and performing COVID-19 testing only if negative remains a useful strategy to preserve testing capacity.

Packing, Shipping and Transport to NPHL

Packaging, shipping, and transport of PUI specimens to NPHL must follow shipping regulations for UN 3373 Biological Substance, Category B. All personnel who package and transport specimens (including couriers) need to be trained in safe handling practices and spill decontamination procedures.

Laboratories should be proactive and calculate the most efficient means of transporting specimens to NPHL, prior to the arrival of the first suspected PUI. Call NPHL Client Services at (866) 290-1406 to ask what the ground options are for your location. Client Services hours are 24/5 Monday-Friday, and Saturday/Sunday from 7am to 3pm. To make arrangements after 3pm on Saturday or Sunday, call the client services pager at 402-888-2086. If distance is problematic or if ground shipping is not sufficient, consider shipping by FedEx in an insulated Category B shipper using FedEx Priority shipping (NOT Overnight) for delivery by 10:30am to NPHL client services.

- ✓ Place each specimen in leak-proof specimen bag (i.e., secondary container) with absorbent material. Seal.
- ✓ DO NOT use a pneumatic-tube system to transport these specimens in-house.
- ✓ Ideally, specimens should bed immediately refrigerate at 2-8°C upon collection. Keep refrigerated at all times, including transport.
- ✓ If frozen before shipment, transport on dry ice and document "Frozen Specimens" in NUlirt batch list.
- ✓ COVID-19 test code in NPHL's NUlirt Order Entry system is available, with complete documentation of patient demographics. Facilities are encouraged to sign-up on https://nulirt.nebraskamed.com. Orders placed through NUlirt can print as a batch list.
- ✓ Place NPHL batch list or requisition in the outside pocket of the specimen bag.
- ✓ Specimens sealed in secondary biohazard bags with appropriate paperwork, can be given directly to a NPHL ground courier only if that courier is exclusive (Lab Logistics). All other non-exclusive ground couriers (OnTrack), a certified Category B box marked UN3373 with Styrofoam and gel pack is required. FedEx and UPS also require a certified Category B box.
- ✓ If NPHL couriers are not routinely scheduled, specimens should be arranged by calling Client Services support. Main Line: (402) 559-2440, Toll-Free: (866) 290-1406 or Client Service Pager: (402) 888-2086.
- ✓ If NPHL ground courier is unable to transport to NPHL within a reasonable time, please call the NPHL emergency pager at (402) 888-5588 to arrange FedEx shipments.
- ✓ All couriers must transport to: **Nebraska Public Health Lab, 4400 Emile Street MSB 3500, Omaha 68105**

In-House Clinical Laboratory Testing

When indicated, clinical laboratories should continue to perform routine hematology, urinalysis, and clinical chemistry studies. Microbiology lab can perform diagnostic tests on blood, sputum, urine, or stool specimens.

Facilities must first perform a Risk Assessment to identify the tasks that create aerosols (below) and mitigate prior to testing in a clinical settings, also known as biosafety level-2 (BSL-2). One method of mitigation is to enhance biosafety precautions by implementing enhanced BSL-3 practices. Ideal BSL-3 practices include wearing respiratory protection (such as a fit-tested N-95 or N-99 respirator or surgical mask if N-95 not available although

this is not as protective), a face shield or goggles, and work in a Biological Safety Cabinet (BSC). To use the BSC, work slowly and methodically, from dirty to clean, and remove gloves immediately after every exit. See BSC just-in-time training at: https://www.youtube.com/watch?v=96-aZLom340

Not all enhancements may be possible, but all conceivable measures must be taken to protect the HCP. The following activities that involve manipulation of potentially infected respiratory specimens should be performed in a certified Class II BSC:

- ✓ Performing rapid diagnostic test kits such as those used for RSV, Strep A, and influenza kits (all respiratory specimens testing should be manipulated inside the BSC).
- ✓ Adding specimen aliquots to test analyzers e.g. multiplex PCR cartridges.
- ✓ Aliquoting, vortexing and/or diluting specimens.
- ✓ Inoculating bacterial or mycological culture media.
- ✓ Nucleic acid extraction procedures.
- ✓ Preparation and chemical- or heat-fixing of smears for microscopic analysis.
- ✓ Opening of sealed rotor centrifuge cups or centrifuged specimen containers in unsealed rotor cups.

BSC NOTE: Remove gloves upon every exit of the cabinet, use good glove-glove technic, move slowly not to aerosolize what has contaminated the gloves.

Facilities performing the following activities causing aerosolization but are unable to use a BSC must consider enhancing precaution when working on the bench. Upon performing a risk assessment consider using face shield or goggles and N95 or N-99 (or surgical mask if N95 are not available or in short supply although this is not as protective), and performed behind a Plexiglass tabletop splashguard if possible:

- ✓ Performing any rapid diagnostic test kit such as those used for RSV, Strep A, or influenza kits in a laboratory, clinic settings or doctor's office where a BSC is not available.
- ✓ Vortexing stools or other specimens without caps on an open bench top
- ✓ Loading and unloading of automated tests e.g. multiplex PCR panel
- ✓ Working with multi-plex instruments when kits or panels lodge, are stuck or broken and require additional manipulation
- ✓ Laboratorian is immunosuppressed or has a co-morbidity

Notes:

- If a facility is unable to safely collect specimens, notify the LHD for directions to alternate collection locations.
- Questions regarding testing or other usual circumstances should go through email at nphl@unmc.edu. However, NPHL will not give out results, the local health department should be notified for results.
- If a laboratory test confirms the presence of another respiratory pathogen such as the influenza virus, RSV, or *Streptococcus pneumonia*, but clinical suspicion remains high for either a co-infection or a secondary infection, then consideration for testing for the virus causing COVID-19 should be discussed with public health officials.
- Laboratory waste can be handled as all other medical waste. Use two red liner bags, tie with an overhand balloon knot, place waste and sharps waste inside double bags. Contact medical waste courier for specific requirements. Do not throw in regular trash.

[i] https://oig.hhs.gov/authorities/docs/cpglab.pdf

Recommendations for Reporting, Testing, and Specimen Collection Updated March 14, 2020; https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html, Criteria to Guide Evaluation and Laboratory Testing for COVID-19; https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html; Updated March 14, 2020
https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
https://emergency.cdc.gov/han/2020/HAN00430.asp Updated March 17, 2020
http://dhhs.ne.gov/Pages/News-Releases.aspx
https://www.biofiredx.com