

2019 Novel Coronavirus



JANUARY 24, 2020

**Planning documents for patients requiring
Airborne Isolation + Contact Isolation + Eye
Protection**



MASSACHUSETTS
GENERAL HOSPITAL

CENTER FOR
DISASTER MEDICINE

Resource Guide

How to use this document:

This document is a compilation of resources to support your organization's planning for high consequence infectious diseases (HCIDs) requiring airborne isolation + contact isolation + eye protection for healthcare workers and other staff who encounter the patient. Pathogens that fall in to this category include Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and the 2019 novel coronavirus.

“Easy to use resources and templates to enhance your organization’s ability to follow the CDC’s Identify, Isolate, and Inform algorithm.”

Guidance from the Centers for Disease Control and Prevention and your state and local Departments of Public Health supersede the information in these documents. The information included is meant to serve as a template and facilitate planning and preparedness activities.

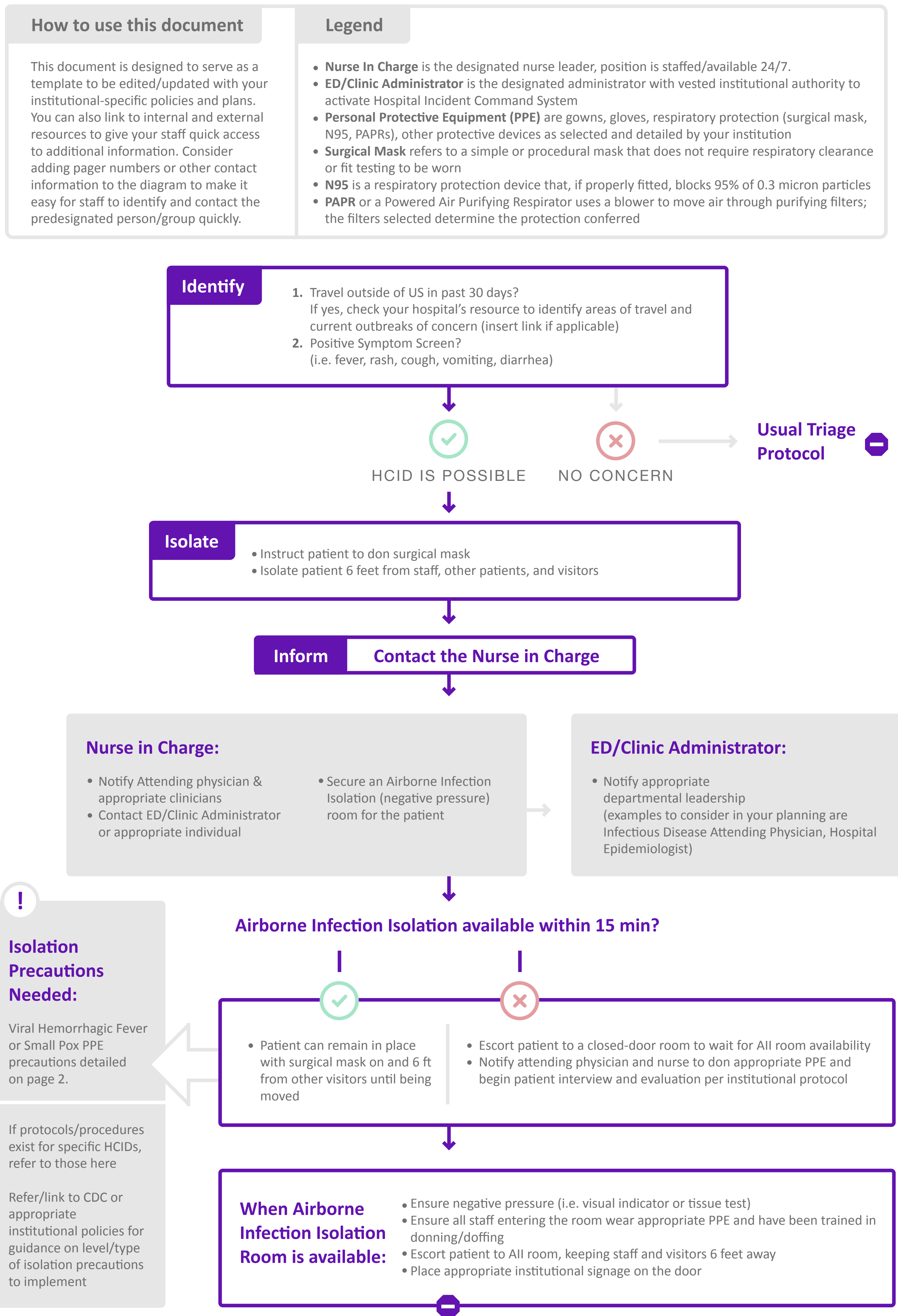
When developing plans, policies, and procedures for your organization we suggest including representatives from the following groups: clinicians (all levels), infection control, infectious disease, supply chain/materials management, emergency preparedness, laboratory, environmental services, occupational health, and key organizational leadership positions.

Planning Documents:

- *Identify, Isolate, and Inform Algorithm*
 - This document guides healthcare workers in screening for recent travel history at portals of entry (Emergency Department, OB triage). This can be done by clinicians or others depending on decisions made at your institution. The goal is to establish an epidemiological risk (exposure to the pathogen) and couple that information with symptoms.
- *Current Infectious Disease Outbreaks of Concern*
 - This document should be maintained by an Infection Control Practitioner or an Infectious Disease Provider with specialty knowledge of HCIDs.
- *Cough Etiquette and Travel History Signage*
 - Having highly visible documents at portals of entry to the facility help patients and visitors with respiratory symptoms to self-isolate by applying a mask and washing their hands-- it is ideal to co-locate signage with access to masks and alcohol-based hand rub (ABHR). Additionally, asking patients to notify staff if they have traveled recently assists in the identification of possible cases.
- *Policy for Managing Patients with HCIDs Requiring Airborne Isolation + Contact Isolation + Eye Protection*
 - This policy template provides language for sections of a policy or procedure on managing confirmed or suspected cases and establishes a topical outline of sections that should be considered for inclusion in a policy.
- *2019 Novel Coronavirus First Steps Guide*
 - This document provides clinicians with easy access to CDC guidance (need to ensure it is updated as appropriate) with information on internal and external resources and references.
- *PPE Doffing (N95)*
- *PPE Doffing (PAPR)*
 - Doffing is the most important part of safely utilizing personal protective equipment (PPE) in these patients. These checklists demonstrate the appropriate doffing sequence when using either an N95 Respiratory or a Powered Air Purifying Respiratory (PAPR). Adaptation will need to be made based on your organization's PPE. Here we demonstrate single-use disposable gowns designed to break away.

Identify - Isolate - Inform Algorithm

To be completed at initial patient contact



Ebola Virus Disease or other Viral Hemorrhagic Fevers *(Page 2)*

Identify

The patient has been identified as a Person Under Investigation (PUI) or confirmed with Viral Hemorrhagic Fever

Isolate

- The patient has been masked
 - Staff not in PPE must remain >6ft from patient
 - Transport to private room with bathroom or commode; Airborne Infection Isolation (AII) room preferred & required for aerosol generating procedures
- Only staff trained in PPE will enter room
 - Discuss with identified institutional representative (may be an assigned attending physician, or local or state public health) for guidance on determination of level of PPE required and plan for patient

Inform

UNPLANNED ARRIVAL OF PATIENT

AMBULANCE EMS/REFERRAL/AMBULATORY WALK-IN ARRIVAL

- The **nurse in charge** will assign roles to ED/clinic staff as soon as patient identified:
 - Retrieve the institutional EVD protocol including prepared checklist for plan and assign Site Manager
 - Page a nursing supervisor or other designated individual to coordinate the initial response
 - An appointed Site Manager receives appointment from the nurse in charge; obtains the hospital outlined EVD protocol and Site Manager checklist/toolkit

- Job Action Sheets/Checklists should include:
- **Attending physician** to contact appropriate institutional leadership
 - Notify **Hospital Security** to secure perimeter of the ED/Clinic and specified area of treatment.
 - Ensure **ED/clinic staff** are ready to safety receive the patient in a designated negative pressure room.
 - **Trained Observer:** Oversee PPE donning/doffing for ED staff
 - **Doffing Buddy** in doffing area in appropriate to assist with doffing
 - **ED/Clinic Administrator** notifies necessary departments of the EVD Patient Arrival

PLANNED ARRIVAL OF PATIENT

AMBULANCE ARRIVAL/TRANSFER

- Job Action Sheets/Checklists should include:
- **Attending physician** to contact appropriate institutional leadership
 - A **Site Manager** is assigned per the hospital EVD protocol and retrieves Site Manager checklist/toolkit
 - Notify **Hospital Security** to secure the perimeter of the ED/clinic and the specified area of patient treatment
 - Notify the appropriate institutional and departmental **leadership**.
 - Activate appropriate **personnel** to support management of patient.

Current Infectious Disease Outbreaks of Concern

Last Updated **01/22/2020**

How to use this document

This document provides front-line clinicians with the tools to take a targeted travel history for patients who may be at risk for HCIDs. It is not intended to be exhaustive or replace a full travel history, but is focused on HCIDs circulating as of the date above.

For the diseases listed below, clinicians should ask whether the patient has 1) a history of travel to an affected area within the appropriate timeframe **and** 2) symptoms that are possibly consistent with the disease of concern. (Click on the link to the right to see the case definitions to be used for any of the infections listed).

[➤ For questions or concerns regarding these diseases](#)
[➤ For routine \(non-HCID\) Infection Control guidance](#)

[illegible]

Abbreviations. MERS: Middle East Respiratory Syndrome

Content Experts:



ATTENTION PATIENTS

If you have any of the following symptoms:

- Cough
- Fever

Please use hand sanitizer and put on a mask.

Have you traveled outside of the United States in the last 30 days? Please Tell the Nurse.

AVISO A PACIENTES

Si tiene cualquiera de los siguientes síntomas:

- Tos
- Fiebre

Utilice un desinfectante de manos y póngase una mascarilla.

Avísele a la enfermera si usted viajó fuera de los EE. UU. en los últimos 30 días.

تنبيه للمرضى
إذا كان لديك أي من الأعراض التالية :

- السعال
- الحمى

يرجى استخدام المطهر اليد ووضع على قناع
هل سافرت خارج الولايات المتحدة في آخر 30 يوماً؟
من فضلك أخبر الممرضة

病人請注意

如果你有任何以下症狀：

- 咳嗽
- 發燒

請使用洗手液並戴上口罩
請告訴護士您過去30天有沒有在美國以外旅行？

POLICY FOR HIGH CONSEQUENCE
INFECTIOUS DISEASES REQUIRING
AIRBORNE + CONTACT + EYE PROTECTION
ISOLATION PRECAUTIONS

- I. Policy
This policy directs the isolation and care for patients known or suspected to be infected with highly pathogenic organisms transmitted by both the airborne route and by direct or indirect contact with the patient, with environmental surfaces, or with contaminated patient care equipment. It utilizes a combination of **Airborne Isolation + Contact Isolation + Eye Protection**.
- II. Diseases that fall in this category include:
Severe Acute Respiratory Syndrome (SARS)
Middle East Respiratory Syndrome (MERS)
Avian Influenza
Other pathogens, as directed by Infection Control
- III. Procedure
When a patient meeting the criteria to be a person under investigation (PUI) for one of these conditions is identified, staff must contact **XXXXXX** to activate the appropriate response. **XXXXXX** will respond as needed to the location and provide support, review procedures with staff and provide just in time training (JIT).
- IV. Hand Hygiene
HAND HYGIENE IS THE SINGLE MOST IMPORTANT MEANS OF PREVENTING THE SPREAD OF INFECTION. Hands must be disinfected with an alcohol-based hand rub before and after providing care that involves touching the patient or the patient's environment. Hands must also be disinfected after removing gloves, gowns, or respiratory protection devices and after touching inanimate objects in the immediate vicinity of the patient, or touching contaminated items or surfaces. If hands are visibly soiled, wash hands with soap and water, dry hands, and apply an alcohol-based hand rub.
- V. Patient Placement – Airborne Infection Isolation Room (All)
Patients must be placed in an Airborne Infection Isolation Room (All), preferably with an anteroom. Doors into the room must be kept closed at all times to ensure adequate negative pressure. For rooms that require activation of negative pressure airflow, pressure conversion switches must be switched to “negative”. **Negative pressure must be validated daily when in use and documented.** Methods of validation include use of a visual indicator e.g. tissue test, or observation of ball-in-tube device. Both ball-in-tube device, and tissue should be pulled into the room when the door(s) are closed. If there is an anteroom, air should flow from the corridor into the anteroom and from the anteroom into the patient room.
- VI. Personal Protective Equipment (PPE)
Correct use of PPE is critical to preventing staff exposure. **XXXXXX** staff will be deployed to the unit to review correct donning and doffing procedures with

staff when this protocol is initiated and will periodically monitor staff to ensure compliance with donning and doffing protocols. Doffing checklists are available to guide correct doffing sequence.

A. Donning (putting on) PPE:

These requirements apply to all staff entering the room of a patient. The following PPE is required to be donned prior to entry into the patient room. Donning in the following order is recommended.

1. Gown
A clean, nonsterile, disposable, isolation gown must be worn. Ensure that gown is tied in back and provides full coverage.
2. N-95 respirator or Powered Air Purifying Respirator (PAPR)*
 - a. All staff must wear approved respiratory protection (N-95 respirator or PAPR).
 - b. Before using an N-95 respirator or PAPR, staff must be medically cleared and trained in how to wear/use each device.
 - c. For N-95 respirators, staff must have been fit-tested within the past year to ensure proper size and fit.
 - d. A “fit-check” (also known as a “seal check”) should be performed before each N-95 respirator use.
 - e. If staff is unable to be fit-tested for an N-95 respirator, they must wear a PAPR.
3. The N-95 respirator and PAPR hood and hose must be discarded after each use.
4. Goggles/Face shield
All staff must wear goggles or face shield to protect mucous membranes from exposure due to splash or potential for hand contamination of eyes, nose or mouth. Goggles or face shield are not required if using a PAPR as the hood provides face protection.
5. Gloves
All staff must wear clean, nonsterile gloves. Gloves must be pulled over the sleeves/cuffs of gown.

B. Doffing (removing) PPE:

1. For Airborne Infection Isolation (All) room with anteroom:
Remove all PPE in anteroom. Make sure the door from the anteroom into the patient room is closed and negative airflow into patient room has been confirmed.
2. For All room without anteroom

Except for respiratory protection, remove and discard PPE (gloves, gown, face shield or goggles) just inside doorway before exiting to hall. **Remove respiratory protection (N-95 or PAPR) after leaving the patient room and closing door.**

3. **Doffing sequence if N-95 respirator is worn - See Doffing Checklist- N-95 Respirator (link here)** for removal sequence. Avoid touching face.

4. **Doffing sequence if PAPR is worn - See Doffing Checklist- PAPR (link here)** for removal sequence.

- a. PAPR hood and hose are discarded after use.
- b. The PAPR belt and blower motor must be wiped down with a hospital-approved disinfectant and be stored (plugged into charging cord). Don clean gloves to perform this step, then remove and discard and disinfect hands with an alcohol-based hand rub.

C. Strict Isolation PPE Donning and Doffing Video Link (**Link here**)

VII. Patient Care Equipment/Supplies

- A. Equipment (e.g., stethoscope, blood pressure cuff, thermometers) should be single-use or dedicated to use of the patient to avoid sharing with other patients. Reusable patient care equipment must be disinfected with a hospital-approved disinfectant before use for another patient.
- B. Supplies in the room of a patient should be kept to a minimum. Disposable items (e.g. adhesive tape, gauze etc.) must be discarded on discharge.

VIII. Patient Transport: Strict Isolation Requirements

- A. **Limit patient transported for essential purposes only.** Notify the receiving department that the patient is on **Airborne Isolation + Contact Isolation + Eye Protection.**
 1. If transport or movement outside of an All room is necessary, place a regular surgical mask on the patient for transport.
 2. If the patient is intubated, place a bacterial filter on the endotracheal tube or on the expiratory side of the breathing circuit of a ventilator or anesthesia machine.
 3. All staff involved should wear appropriate PPE in the isolation room while preparing the patient for transport. PPE should be removed per doffing procedures above when leaving the room.
 4. Wounds must be covered, and body fluids contained. The patient should wash or disinfect his or her hands before leaving the room if possible. The patient should wear a clean gown or robe or be covered by a clean sheet or drape for transport to another department or area.

5. The patient chart will be transported in a manner that prevents contact with the patient and/or contaminated linen.
6. **PPE should not routinely be worn when transporting the patient.**
Exception – If patient contact and/or contact with contaminated equipment will occur during transport (e.g., for ICU patients or patient transported in their bed) full PPE must be worn by those having direct contact with the patient and/or the bed or equipment during transport. PPE is removed per doffing procedure when contact with patient and/or contaminated equipment is completed. Every effort will be made not to touch clean surfaces (e.g., elevator buttons) with gloved or contaminated hands by team members in PPE. **There must be a member of the transport team, not wearing PPE, who has clean hands to interact with the environment.**

IX. Specimen Collection (all types)

A. Preparation

1. Collect appropriate tubes/containers, labels, plastic specimen transport bags, a clean chux (do not use one already in the room) and 2 clean emesis basins.
2. Place all items except chux into one of the clean emesis basins.
3. Disinfect hands and don personal protective equipment (PPE) as required.

B. Procedure

1. Bring emesis basin containing equipment and second emesis basin into room. Place chux on a clean, clear horizontal surface; do not place on patient bed. Place emesis basin with supplies and second emesis basin on the clean chux.
2. Follow standard procedures for patient identification and specimen collection.
3. Place specimen containers/tubes in one emesis basin.
4. Label all specimens at patient bedside.
5. Remove gloves and disinfect hands with alcohol-based hand rub, then don clean gloves.
6. With clean gloves, place labeled specimens into the clean specimen transport bag.
7. Wipe outside of bag with hospital-approved disinfectant wipe and place bag into the second clean emesis basin.
8. Carry bagged specimens out of room in the second emesis basin. Emesis basin may be placed on surface in anteroom or surface outside of room.
9. Remove PPE per doffing protocol and disinfect hands.
10. Bagged specimens may be transported to the lab per standard processes.

Note: If specimen is being sent to test for confirmation or rule out of diagnosis (e.g. MERS/SARS or Avian Flu), specimen should be delivered directly to the lab to avoid delays in processing.

X. Visitors

A. A policy for the management of visitors should be developed. Points to consider include:

1. Screening of visitors for symptoms of illness
2. Limiting number of visitors
3. PPE for visitors
4. Written instructions for patient and visitors

XI. Healthcare Worker Monitoring

- A. A list of healthcare workers entering the room of a patient will be maintained.
- B. Healthcare workers caring for a patient, and those that perform tasks associated with risk of exposure (e.g. staff involved in room cleaning) will be monitored for fever and other relevant symptoms for the length of the incubation period, specific to the infection, from their last date of potential exposure.
- C. They will be provided with a thermometer and written instructions after their first shift caring for the patient. They will be required to measure their temperature twice per day and document relevant symptoms. In the event of a temperature ≥ 100.4 or positive symptom screen, they are required to contact OHS immediately.
- D. HCW Exposure
 - 1. HCWs who report an unprotected exposure (i.e., entering the room without appropriate PPE) or possible exposure should be assessed by OHS as to whether exposure has occurred.
 - 2. If it is determined that an exposure did occur; post exposure follow-up will be conducted based on direction from public health authorities.

XII. Room Turnover Time and Discharge Cleaning

- A. After a confirmed case patient vacates room or is discharged, the room must remain in negative pressure with the door closed for 30-60 minutes, based on the number of air changes per hour (ACH) for the room, before staff enters the room without PPE or another patient is admitted to the room.
- B. Cleaning staff must wear respiratory protection and other PPE required for Strict Isolation when cleaning during this airing time. If cleaning is performed after the required airing time, respiratory protection is not required but gown, gloves and face protection are. Cleaning staff must follow correct doffing sequence when removing PPE.
- C. See [Airborne Infection Isolation Room List](#) for documentation of Airborne Infection Isolation Room (All) air changes per hour (ACH).
 - 1. Rooms with ≥ 6 air changes per hour (ACH) = 60 minutes
 - 2. Rooms with ≥ 12 ACH = 30 minutes

Updated **1/21/2020**

2019 Novel Coronavirus (2019-nCoV) **INFORMATION**

The Centers for Disease Control and Prevention (CDC) continues to closely monitor an outbreak of a 2019 novel coronavirus (2019-nCoV) in Wuhan City, Hubei Province, China that began in December 2019. Coronaviruses are a large family of viruses. Some cause illness in people; numerous other coronaviruses circulate among animals, including camels, cats, and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people such as has been seen with Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV) and Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV).



Chinese authorities report most patients in the Wuhan City outbreak have been epidemiologically linked to a large seafood and animal market, suggesting a possible zoonotic origin to the outbreak. Person-to-person spread may be occurring. Thailand and Japan have confirmed additional cases of 2019-nCoV in travelers from Wuhan, China. The first case was reported in the United states on 1/21/2020 in a patient in Washington State who had traveled to Wuhan.

The CDC Person Under Investigation (PUI) criteria is for 2019 Novel Coronavirus (2019-nCoV) is [here](#) and should be reviewed in case there are updates. The link also includes information on submitting information needed for public health authorities.

2019 Novel Coronavirus (2019-nCoV) Person Under Investigation (PUI). *The criteria are intended to serve as guidance for evaluation. Patients should be evaluated and discussed with public health departments on a case-by-case basis if their clinical presentation or exposure history is equivocal (e.g., uncertain travel or exposure).*

Clinical Features		Epidemiological Risk Factor
Fever¹ and symptoms of lower respiratory illness (e.g., cough, difficulty breathing)	and	In the last 14 days before symptom onset, a history of travel from Wuhan City, China. – or – In the last 14 days before symptom onset, close contact ² with a person who is under investigation for 2019-nCoV while that person was ill.
Fever¹ or symptoms of lower respiratory illness (e.g., cough, difficulty breathing)	and	In the last 14 days, close contact ² with an ill laboratory-confirmed 2019-nCoV patient.
<ol style="list-style-type: none"> 1. Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain fever-lowering medications. Clinical judgment should be used to guide testing of patients in such situations. 2. Close contact is defined as— a) being within approximately 6 feet (2 meters), or within the room or care area, of a novel coronavirus case for a prolonged period of time while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection); close contact can include caring for, living with, visiting, or sharing a health care waiting area or room with a novel coronavirus case.— or — b) having direct contact with infectious secretions of a novel coronavirus case (e.g., being coughed on) while not wearing recommended personal protective equipment. See CDC's Interim Healthcare Infection Prevention and Control Recommendations for Patients Under Investigation for 2019 Novel Coronavirus. Data to inform the definition of close contact are limited. Considerations when assessing close contact include the duration of exposure (e.g., longer exposure time likely increases exposure risk) and the clinical symptoms of the person with novel coronavirus (e.g., coughing likely increases exposure risk as does exposure to a severely ill patient). Special consideration should be given to those exposed in health care settings. 		

2019 Novel Coronavirus (2019-nCoV) Infection Control Guidance

1. Patients with suspected or confirmed 2019 Novel Coronavirus (2019-nCoV) are subject to **MGH's Strict Isolation Policy**.
2. As soon as 2019 Novel Coronavirus (2019-nCoV) is suspected, the patient should be given a surgical mask to put on, and the patient placed in an Airborne Infection Isolation Room. Validate negative airflow (check airflow into the room with tissue or observe ping pong ball indicator if present). If no All room is immediately available, place the patient (wearing a surgical mask) in a room with the door closed and arrange for movement of the patient to an All room as soon as possible.

3. Immediately implement the following Isolation Precautions as directed by Infection Control/CDC:
 - a. Airborne + Contact + Eye Protection (goggles or face shield). Place appropriate Isolation Signs on patient's room to alert others.
 - b. Clinicians must wear a respirator (either a fit-tested N95 mask or PAPR), gown, gloves and eye protection (e.g., goggles or a face shield) to enter the room for any suspected or confirmed case of 2019 novel coronavirus.
4. Limit staff in the room for any aerosol-generating procedures.
5. When removing protective equipment; remove in the following order and then perform hand hygiene. Use the doffing checklist provided.
 - o Gloves and Gown in a single step
 - o Goggles/Face shield
 - o N-95 Mask or PAPR (outside of the room)
6. Page the Infectious Disease Consult Pager (or other) and alert Infection Control.
7. If the patient is not on campus or is being seen in an ambulatory setting:
 - o Minimize contact with the patient
 - o Provide a mask for the patient to put on
 - o Escort the patient to a private room, maintaining a distance of 3-6 feet
 - o Notify XXXXX for further guidance in evaluation and management of the patient.

2019 Novel Coronavirus (2019-nCoV) Testing Guidance and Submission Forms

If the patient is determined to meet criteria for testing based on clinical presentation and epidemiological risk factors, **the State Epidemiologist must be contacted** by the ID consult (or the responding clinician, if ID is not involved) to review the case and obtain approval for testing and recommendations on what samples to obtain. Notify XXXXX who will assist in coordinating shipment of the samples to the State Lab. With guidance from public health authorities, various specimens may be requested. Viral cultures are not recommended.

- Link to state lab submission documents
- Provide internal guidance on collecting and sending specimens







2019 Novel Coronavirus (2019-nCoV) LINKS AND FACT SHEETS

- CDC 2019 Novel Coronavirus (2019-nCoV)

DOFFING CHECKLIST DISPOSABLE GOWN AND N-95 RESPIRATOR



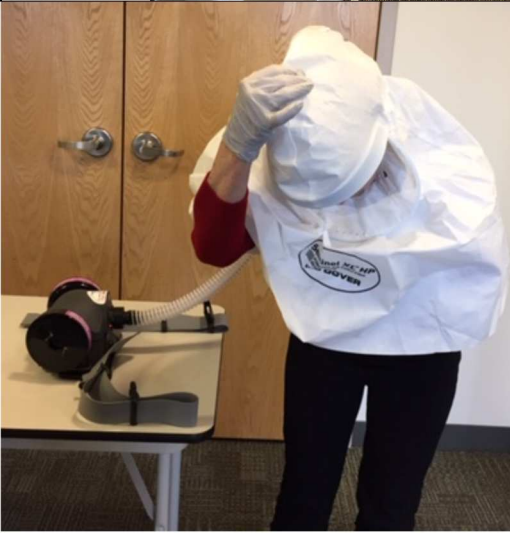
Except for Respirator, remove PPE at doorway or in anteroom if present.

Remove PPE in the following sequence. Avoid touching face.

#	Step	Location	Detail
1	Remove gown & gloves first - in a single step. Roll gown into itself, peeling off gloves at the same time. Hold gown away from your body and discard*.	Doorway (inside or outside patient room- with door closed) or Anteroom	
2	Remove and discard* face shield or goggles	Doorway (inside or outside patient room- with door closed) or Anteroom	<div> <p>Avoid touching front of face shield. Remove by grasping sides or back of strap then pull forward over head</p>  </div> <div> <p>Avoid touching front of goggles. Remove by grasping sides and pull away from your face</p>  </div>
3	Remove and discard* N-95 Respirator	Outside room	<div>  <p>Do NOT touch front of mask</p> </div> <div>  <p>Pull bottom strap first then top strap over head- without touching respirator</p> </div> <div>  <p>Discard in trash</p> </div>
4	Perform Hand Hygiene	Outside room	Alcohol-based hand rub (ABHR) or wash with soap and water (if indicated), dry, then disinfect with ABHR.
*Discard all PPE in regular waste			

**DOFFING CHECKLIST
DISPOSABLE GOWN AND PAPR**

Except for PAPR, remove PPE at doorway or in anteroom if present.
Remove PPE in the following sequence. Avoid touching face.

#	Step	Location	Detail
1	Gown and Gloves To facilitate gown and glove removal, remove belt from waist. Do not turn off blower. Hang blower motor & belt on a hook or place on stable surface.	Doorway (inside or outside patient room- with door closed) <u>OR</u> in Anteroom (with patient room door closed)	
2	Gown and Gloves Once blower motor & belt are secured, remove gown & gloves in a single step. Roll gown into itself, peeling off gloves at the same time. Hold gown away from your body and discard*.	Doorway (inside or outside patient room- with door closed) <u>OR</u> in Anteroom (with patient room door closed)	
3	PAPR – Outside room or in Anteroom Perform hand hygiene - don clean gloves. Lean forward, do not touch front of hood. Remove hood by reaching between inner and outer layers of hood aprons with one hand. Push within layers with one hand and pull from back of hood with other. Disconnect breathing tube from blower unit, shut off blower. Discard hood and hose. Belt and blower unit must be wiped down with hospital-approved disinfectant and stored. Plug blower into charging cord		
4	Remove gloves perform Hand Hygiene	Outside room	Wash with soap and water (if indicated), dry, then disinfect with