

Endoscopy Guidelines for Suspected or Positive COVID-19

Review the document entitled 'CSH Perioperative Guidelines for Suspected or Positive COVID-19'

General Endoscopic Guidelines for Suspected or Positive COVID-19 Patients:

- To preserve vital resources, N95 respirator can be repeatedly or continually worn for multiple cases as long as they are covered during procedures with a surgical mask or full face shield.
 - Masks should only be handled by the ties to prevent contamination, whether discarding or retaining the mask
 - Masks should only be used by one person and never shared
 - Masks should be stored in a breathable bag/container and in an area that is secure. Handle the mask by the ties and take caution when retrieving the mask to prevent contamination
- If the patient has been or will be intubated, follow 'CSH Perioperative Guidelines for Suspected or Positive COVID-19'

Upper Endoscopic Guidelines for Suspected or Positive COVID-19 Patients:

- A negative pressure room will be used, when available, for upper endoscopy.
- Staff will use the following Personal Protective Equipment:
 - Impervious gown
 - Gloves
 - Gloves must cover the wrist and cuff of the gown
 - Double glove for moderate to high risk or Positive COVID-19 patients
 - Shoe covers
 - Hair cover
 - Bouffant preferred – must cover all hair
 - Any beard must be covered either by mask, face shield or beard cover
 - Eye protection (e.g., face shield, goggles)
 - N95 respirator or powered air purifying respirator (PAPR)
- Following the procedure:
 - PPE will continue to be worn while in the procedure room
 - Terminal cleaning to occur after sufficient time has elapsed for enough air changes to remove potentially infectious particles (see Appendix A)
 - A surgical mask will be placed on the patient prior to transfer
 - Staff must wear PPE (e.g., gown, gloves, standard mask, eye protection) when transporting the patient back to their room

Lower Endoscopic Guidelines for Suspected or Positive COVID-19 Patients:

- Staff will use the following Personal Protective Equipment:
 - Impervious gown
 - Gloves
 - Gloves must cover the wrist and cuff of the gown
 - Double glove for high risk or positive COVID-19 patients
 - Shoe covers
 - Surgical mask unless patient is coughing
 - If patient is coughing, an N95 or PAPR will be worn
 - Eye protection (e.g., face shield, goggles)
- Following the procedure:
 - PPE will continue to be worn while in the procedure room
 - A surgical mask will be placed on the patient prior to transfer
 - If the patient has coughed or is positive for COVID-19
 - Terminal cleaning to occur after sufficient time has elapsed for enough air changes to remove potentially infectious particles (see Appendix A)
 - A surgical mask will be placed on the patient prior to transfer
 - Staff must wear PPE (e.g., gown, gloves, standard mask, eye protection) when transporting the patient back to their room

Airborne Contaminant Removal

Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency

ACH § ¶	Time (mins.) required for removal 99% efficiency	Time (mins.) required for removal 99.9% efficiency
2	138	207
4	69	104
6+	46	69
8	35	52
10+	28	41
12+	23	35
15+	18	28
20	14	21
50	6	8

+ Denotes frequently cited ACH for patient-care areas.

§ Values were derived from the formula: $t_2 - t_1 = - [\ln (C_2 / C_1) / (Q / V)] \times 60$, with $t_1 = 0$

where

t_1 = initial timepoint in minutes

t_2 = final timepoint in minutes

C_1 = initial concentration of contaminant

C_2 = final concentration of contaminant

$C_2 / C_1 = 1 - (\text{removal efficiency} / 100)$

Q = air flow rate in cubic feet/hour

V = room volume in cubic feet

$Q / V = \text{ACH}$

¶ Values apply to an empty room with no aerosol-generating source. With a person present and generating aerosol, this table would not apply. Other equations are available that include a constant generating source. However, certain diseases (e.g., infectious tuberculosis) are not likely to be aerosolized at a constant rate. The times given assume perfect mixing of the air within the space (i.e., mixing factor = 1). However, perfect mixing usually does not occur. Removal times will be longer in rooms or areas with imperfect mixing or air stagnation.²¹³ Caution should be exercised in using this table in such situations. For booths or other local ventilation enclosures, manufacturers' instructions should be consulted.