

# BIDMC COVID-19 Preparedness

## Operating Room Staff In-situ Interprofessional Simulation Training

### Scenarios

1. Preoperative huddle and OR set up for a **suspected/COVID-19+ patient**
2. **Donning & Doffing PPE**
3. Transfer of **suspected/ COVID19+ patient** from the ICU to the OR
4. Airway management with **enhanced infection control measures** (*previously: symptomatic/low risk/ruled-out patients*)
5. **GI:** Management of a GI procedure/ERCP (incl. prone positioning)

### Simulation Scenario 1

Preoperative huddle and OR set up for a suspected/COVID-19+ patient	
<b>Reference Materials</b>	<ol style="list-style-type: none"> <li>1. Standard Operating Procedure A, B, C: Guidance for Transport of Patients with Suspected or Confirmed COVID-19 to the Operating Room or Procedural Suite</li> <li>2. OR Workflow for the intubated patient</li> </ol>
<b>Theme/Goal</b>	<p>Know the required OR set up for suspected/known COVID-19 patient</p> <p>Perform a team huddle and complete preoperative checklist <b>before</b> transferring a patient from the ICU to the OR.</p>
<b>Location</b>	Designated OR (e.g.: West Campus OR-X, East Campus OR-X)
<b>Participants</b>	<p>Designated Team leader</p> <p>Anesthesia provider assigned for case</p> <p>Anesthesia tech</p> <p>Surgical attending</p> <p>Circulator and scrub nurse</p> <p>Outside door runners (anesthesia and nursing)</p> <p><i>RT is not required for the pre-operative huddle, only for a pre-transport huddle in ICU</i></p>
<b>Equipment</b>	<p>No equipment is required for the huddle</p> <p>If demonstrating a mock-up of the OR, a vacant OR is required</p>
<b>Facilitator</b>	Explains to the group the purpose of the scenario, the goals of the simulation and hands out workflow checklist for all participants to follow.
<b>Beginning of Simulation</b>	Team leader identified and is given script to read aloud “the situation”
<b>The situation:</b>	<p>“We are about to perform an exploratory laparotomy on a suspected/COVID-19+ patient. The patient is currently intubated on CVICU.”</p> <p>“For this exercise our goal is to perform a huddle &amp; review the workflow checklist to safely minimize risk of exposure and contamination while safely transferring the patient between the ICU and the OR.”</p>
<b>The content:</b>	Team leader now leads the group through each step of the <b>OR workflow checklist for the intubated patient.</b>
<b>End of simulation</b>	<p>Scenario ends all steps of workflow “huddle” have been completed.</p> <p>Option: can now proceed to simulation 2 (Donning/Doffing PPE).</p>

## Simulation Scenario 2

<b>Donning &amp; Doffing Personal Protective Equipment (PPE)</b>	
<b>Reference Materials</b>	1. BIDMC approved donning and doffing PPE guideline and poster.
<b>Theme/Goal</b>	To review and practice the recommended sequence of donning and doffing PPE
<b>Location</b>	Designated space that organizer deems suitable.
<b>Participants</b>	Varied
<b>Equipment</b>	PPE Posters PPE materials: cap, gowns, gloves, eye protection, shoe/boot covers
<b>Facilitator</b>	Explains to the group the purpose of the scenario, the goals of the simulation and hands out PPE poster for all participants to follow.
<b>Beginning of Simulation</b>	Facilitator begins demonstration of donning PPE.
<b>The situation:</b>	N/a
<b>The content:</b>	All participants perform each step in the sequence of donning and doffing PPE as demonstrated in the BIDMC approved poster.
<b>End of simulation</b>	Once all PPE is doffed appropriately. Option: the scenario can be interrupted in between the process of donning and doffing, to allow for the management/transfer of an infected patient.

### Simulation Scenario 3

Transfer of suspected/ COVID19+ patient from the ICU to the OR and Back	
<b>Reference Materials</b>	<ol style="list-style-type: none"> <li>1. Standard Operating Procedure A, B, C: Guidance for Transport of Patients with Suspected or Confirmed COVID-19 to the Operating Room or Procedural Suite</li> <li>2. OR Workflow for the intubated patient</li> </ol>
<b>Theme/Goal</b>	<p>Perform a transfer of COVID-19 positive patient using SOP guidance and practice using a shared mental model for safely transporting a high risk, unstable patient, minimizing opportunities for spread of contagion</p> <p><b>Note:</b> This scenario assumes that following simulation scenarios have already occurred: (Huddle + prep of the OR; donning PPE)</p>
<b>Location</b>	<ul style="list-style-type: none"> <li>- Designated OR (e.g.: West Campus OR-X, East Campus OR-X)</li> <li>- Any vacant ICU bed that is available (e.g.: CVICU); if ICU bed not available, use an empty OR as a mock ICU room</li> <li>- Requires transport through corridors and an elevator</li> </ul>
<b>Participants</b>	<p>Transport team</p> <ul style="list-style-type: none"> <li>- Team Leader (designated for case - will call/hold elevators/wipe down)</li> <li>- 1 anesthesia provider (head of bed)</li> <li>- 1 respiratory therapist (ventilator)</li> <li>- 1 surgical attending or resident (end of bed)</li> <li>- 1 extra member (depending on amount of infusions/equipment, this can be the circulating nurse, ICU nurse, anesthesia assistant etc.)</li> </ul>
<b>Equipment</b>	<p>Patient bed / stretcher            Manikin (intubated)            ETT + Kelly clamp            ICU ventilator or transport ventilator (with circuit tubing)            ICU brick + ICU cables            Transfer monitor (for purposes of SIM, please use OR transfer monitor)            Self-inflating Ambu bag (in case of vent malfunction – May be used for transfer in specific cases/location)            HME filter            Mock bolus drugs for transport            Fluid bag + tubing            ICU pole with 3 pumps            Oxygen tank            PPE for transport team</p>
<b>Facilitator</b>	<p>Explains to the group the purpose of the scenario, the goals of the simulation and hands out workflow checklist for all participants to follow.</p>
<b>Beginning of Simulation</b>	<p>Team leader identified and is given script to read aloud “the situation”</p>
<b>The situation:</b>	<p>“We are about to perform an exploratory laparotomy on a suspected/COVID-19+ patient. We have now completed the pre-operative huddle, we have donned the appropriate PPE, we are now ready to collect the patient from CVICU”</p>

	<p>“For this exercise our goal is to safely minimize risk of exposure and contamination while safely transferring the patient between the ICU and the OR.”</p>
<p><b>The content:</b></p>	<p>Team leader now leads the group to the patient’s location on ICU and begins <b>the pre-transfer huddle. Refer to the steps in the OR workflow for the intubated patient.</b></p> <p>Confirm the following with the team:</p> <ul style="list-style-type: none"> <li>- Required infusions are running</li> <li>- Emergency and intubation drugs are available</li> <li>- Sedation has been optimized to prevent awareness</li> <li>- Paralysis has been given (or considered)</li> <li>- We’re going to be using the ICU ventilator and it’s ready to go (<i>alternative: Ambu bag with HMEF for sites who do not have mobile ICU vents</i>)</li> <li>- Clamp ETT before any circuit disconnection</li> <li>- Transport monitor ready and has the monitoring brick from patient room</li> <li>- Confirm that the plan is to directly transfer into OR/procedure room</li> <li>- Call OR/procedural room to confirm patient is en-route</li> </ul> <p>Team leader now leads the group from the ICU to the OR.</p> <p>Focus points:</p> <ul style="list-style-type: none"> <li>- Team leader is overseeing the whole transport process and does NOT contact patient or surroundings</li> <li>- Team leader should verify/confirm: <ul style="list-style-type: none"> <li>o Each member has on the appropriate PPE</li> <li>o Equipment checked for transport</li> <li>o RT is prepared and happy to move ICU ventilator</li> <li>o Adequate oxygen level in tank</li> <li>o Enough power on IV pumps</li> </ul> </li> <li>- Patient’s ‘brick’ from ICU monitor should be placed onto transfer monitor</li> <li>- A direct transfer is performed: <ul style="list-style-type: none"> <li>o Directly into the OR, with no delays/waiting in the hallway</li> <li>o Ensure one team member is ahead to call and hold elevators/doors</li> <li>o Avoid obstacles during transfer</li> </ul> </li> <li>- ETT should not be disconnected from ventilator and if disconnection occurs, the ETT must be clamped immediately</li> </ul>
<p><b>End of simulation</b></p>	<p>Scenario ends once the patient arrives into the OR.  Option 1: can add the return journey back to the ICU.  Option 2: can add doffing of PPE to the end of the scenario.</p>

### Simulation Scenario 4

<b>Airway management with enhanced infection control measures</b>	
<b>Reference Materials</b>	1. Standard Operating Procedure: Guidance for Management of Anesthesia & Airway Devices with enhanced infection control measures
<b>Theme/Goal</b>	Practice routine airway management, while adopting techniques to minimize exposure/contamination to pathogens.
<b>Location</b>	Any vacant OR (e.g.: West Campus OR-X, East Campus OR-X)
<b>Participants</b>	2-3 team members: 1-2 anesthesiologists 1 nurse <b>Note:</b> this can also be a larger group rotating through the various positions
<b>Equipment</b>	Airway manikin Airway tray (laryngoscope + blade, mask, suction) ETT Laryngoscope: McGrath/Mac blade Biohazard bags (1x large or 2x small) Large cassette cover or large plastic bag Appropriate PPE (surgical facemask + eye protection) Gloves
<b>Facilitator</b>	Explains to the group the purpose of the scenario, the goals of the simulation and hands out workflow checklist for all participants to follow.
<b>Beginning of Simulation</b>	Team leader identified and is given script to read aloud “the situation”
<b>The situation:</b>	“This is patient Y, a 50 y.o female with a fractured neck of femur who requires a hemiarthroplasty. She has no comorbidities, NKDA, no known exposure to patients with respiratory symptoms. She has declined a spinal and requires a GA for surgery.”  “For this exercise our goal is to perform a routine intubation (RSI) adopting additional methods to improve our overall infection control practices.”
<b>The content:</b>	Candidates perform all steps for intubation and extubation, as per checklist Focus points: <ul style="list-style-type: none"> <li>- Immediately following intubation used laryngoscope should be placed into a specimen bag and sealed.</li> <li>- ETT cuff should be inflated BEFORE applying PPV</li> <li>- Outside/dirty gloves disposed of immediately after securing ETT</li> <li>- Used airway equipment (ETT, temp probe, bite block, OPA, NG/OG tube, suction) should be disposed of immediately in the cassette/plastic bag</li> </ul>
<b>End of simulation</b>	Once all used airway equipment has been disposed of appropriately.

## Simulation Scenario 5

<b>Management of a COVID+ patient in the GI suite</b>	
<b>Reference Materials</b>	<ol style="list-style-type: none"> <li>Standard Operating Procedure: Guidance for Transport of Patients with Suspected or Confirmed COVID-19 to the Operating Room or Procedural Suite</li> <li>Workflow/checklist for UNintubated patient</li> </ol>
<b>Theme/Goal</b>	<p>Understand the required set up for suspected/known COVID-19 patient inside the procedural room</p> <p>Practice performing a team huddle and completing a pre-operative checklist before transferring a patient from the ICU to the OR</p>
<b>Location</b>	<ul style="list-style-type: none"> <li>- EAST campus GI suite with or without fluoroscopy</li> <li>- This scenario may require transport through corridors and an elevator</li> </ul>
<b>Participants</b>	<ul style="list-style-type: none"> <li>- Team Leader (designated for case)</li> <li>- 1 anesthesia provider assigned + 1 anesthesia runner + 1 anesthesia technician</li> <li>- 1 proceduralist + 1 fellow (optional)</li> <li>- 1 interventional technician</li> <li>- 1 GI nurse + 1 nurse runner</li> <li>- 1 ICU nurse (optional)</li> </ul>
<b>Equipment</b>	<p>Patient bed / stretcher            Manikin (preferably a full body manikin, intubatable/intubated)            ETT + Kelly clamp            ICU ventilator /Anesthesia machine [update according to current SOP]            Self-inflating Ambu bag            HME filter            Mock bolus drugs            Fluid bag + tubing            Infusion pump</p>
<b>Facilitator</b>	Explains to the group the purpose of the scenario, the goals of the simulation and hands out workflow checklist for all participants to follow.
<b>Beginning of Simulation</b>	Team leader identified and is given script to read aloud “the situation”
<b>The situation:</b>	<p>“Mr. EGD is an 82 y/o m with HTN, DM2 with a new onset of obstructive jaundice. He is scheduled for an ERCP + stent. He has tested positive for COVID19. His current vitals are WNL, he has a mild cough.”</p> <p>“Can we please all gather together for a pre-op huddle”</p>
<b>The content:</b>	<p>Team leader now leads the group through the various stages of the scenario.</p> <p><b>1. Huddle</b></p> <ul style="list-style-type: none"> <li>- Timing of the huddle: should take place ASAP when a COVID patient is scheduled</li> <li>- Location of the huddle: in GI</li> <li>- Participants in the huddle: Full team (as above)</li> <li>- Team leader goes over workflow/checklist</li> </ul> <p>Focal points for huddle:</p> <ul style="list-style-type: none"> <li>- <b>Patient PPE:</b> patient will be brought into GI3/4 wearing a surgical mask</li> <li>- <b>H&amp;P + Consents:</b> confirm if they are complete, if not, designate who is responsible to complete them, using tele-communication</li> <li>- <b>Confirm plans &amp; equipment</b></li> <li>- HARD STOP will be performed after the patient arrives and all documenting is complete.</li> </ul> <p><b>2. PPE Donning</b> (Led aprons under PPE)</p> <p><b>3. Hard stop:</b></p> <ul style="list-style-type: none"> <li>- Participants:               <ul style="list-style-type: none"> <li>o Advanced GI fellow</li> <li>o Procedure nurse - initiates sequence</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Intubator</li> <li>○ Anesthesiologist for case</li> <li>○ RT</li> </ul> <p><b>4. Intubation</b></p> <p>After HARD stop performed  → <b>GREEN LIGHT GIVEN FOR INTUBATION &amp; PROCEDURE</b></p> <ul style="list-style-type: none"> <li>- Intubation <b>**note:</b> the intubation is not the focus of this simulation<b>**</b></li> <li>- Staff members <b>inside</b> the patient's room during intubation: Intubator, RT (if ICU vent used)</li> <li>- Staff members waiting <b>outside</b> the patient's room: GI fellow, procedure anesthesiologist, RN</li> </ul> <p><b>5. <b>**If transfer is required** Follow transport checklist + equipment</b></b></p> <ul style="list-style-type: none"> <li>- Transfer patient onto procedure table (<b>scenario can ask for prone positioning if desired</b>): <ul style="list-style-type: none"> <li>○ RT/ anesthesia: verify ambu with HME filter available</li> <li>○ Place bite-block for endoscopy</li> <li>○ Clamp tube</li> <li>○ Turn off vent</li> <li>○ Disconnect circuit</li> <li>○ Position patient</li> <li>○ Reconnect circuit + unclamp</li> <li>○ Doublecheck – Is the tube properly secured</li> <li>○ If prone positioning: pre oxygenate 100% for 3 minutes before flip</li> </ul> </li> <li>- RT doffs PPE and relieved. RT pager number given for transport back to ICU/Extubation site</li> <li>- Bed/stretchers: linens stripped off inside room and bed then pushed out – cleaned immediately</li> </ul> <p><b>6. GI Procedure</b></p> <ul style="list-style-type: none"> <li>- Pre procedure time-out, as usual</li> <li>- Procedure: <ul style="list-style-type: none"> <li>○ Consider glycopyrrolate to reduce secretions</li> <li>○ Endoscopy considerations for COVID19 patients</li> <li>○ Communicate before scope extraction – Avoid ETT dislodgment <b>“END OF CASE HARD STOP”</b></li> </ul> </li> <li>- Procedure end: RT + anesthesiologist prepare circuit for supine positioning</li> <li>- Team moves patient to stretcher</li> <li>- Transport back according to checklist</li> </ul>
<p><b>Escalation</b></p>	<p><b>Option 1: Emergency scenario 01:</b>  <b>Tube dislodgement</b> while in supine position (some of the actions can be performed simultaneously):</p> <ul style="list-style-type: none"> <li>- Switch vent to standby.</li> <li>- Place Ambu with HME filter on patient</li> <li>- Open door, ask runner to call anesthesia stat, Page RT stat and prepare PPE for arriving team.</li> <li>- Paralyze and intubate PT according to current SOP (McGrath, avoid positive pressure ventilation)</li> <li>- Have a contingency plan (i-gel)</li> </ul> <p><b>Option 2: Emergency scenario 02:</b>  Tube dislodgement during procedure, while in prone position (some of the actions can be performed simultaneously):</p> <ul style="list-style-type: none"> <li>- Switch vent to standby.</li> <li>- Proceduralist evacuates airway</li> <li>- Open door, ask runner to call anesthesia stat, Page RT stat and prepare PPE for arriving team</li> <li>- Runner brings in stretcher for turning patient supine</li> <li>- All team aids in positioning patient supine</li> <li>- Place Ambu with HME filter on patient</li> <li>- Paralyze and intubate PT according to current SOP (McGrath, avoid positive pressure ventilation)</li> <li>- Have a contingency plan (i-gel)</li> </ul>