

BIDMC COVID-19 Preparedness

Operating Room Staff In-situ Interprofessional Simulation Training

Videos

Scenarios

1. Intubation & Extubation using Enhanced Infection Control Measures
2. Disconnection of Anesthesia Circuit in COVID-19 patient
 - i. Planned disconnection (general)
 - ii. Prone Positioning in the OR/Procedural Suite (incl. circuit disconnection)
3. Management of accidental extubation/ETT dislodgement
4. Pre-operative huddle
5. Pre-transfer huddle

Simulation Video 1.0

Intubation & Extubation using Enhanced Infection Control Measures	
Location	Inside an OR
Reference document	SOP: Airway Management Intubation checklist PPE posters
Director	
Participants required for scenario	1 Airway trained provider 1 Assistant (RT/trained provider) 1 Assistant for extubation
Equipment	Airway manikin Laryngoscope (McGrath) ETT + stylet Circuit + face mask + HME filter Pre-cut tape to secure tube Cassette cover / trash bag + tape Specimen bag Nasal temp probe NG tube Bite Block Oropharyngeal airway Laminated intubating checklist – color Relevant PPE for participants
Key points to address during video	<ol style="list-style-type: none"> 1. This is a new SOP for all patients having general anesthesia 2. The emphasis is on reducing contamination of the work area during intubation & extubation
Example Script	<p>Intubation Sequence</p> <p>Anesthesia provider should state the following:</p> <p>Introduction:</p> <ul style="list-style-type: none"> - Hello, my name is ***** from the BIDMC's department of anesthesia. - In this instructional video we will demonstrate our standard operating procedure for intubating patients [showing checklist]. Our main aim is to reduce the exposure to droplets and secretions and to minimize the contamination of our work environment. <p>Review of equipment & drugs:</p> <ul style="list-style-type: none"> - We will now go over the equipment that is required. - Since a rapid sequence induction is recommended for all patients, we will need to plan the following equipment & medications - Show drugs and intubation equipment (as listed above) <p>Sequence of intubation events in video:</p> <ol style="list-style-type: none"> 1. Anesthesia provider confirms set up equipment: <ul style="list-style-type: none"> - We have prepared our induction drugs, the laryngoscope and ETT. - They are all in close proximity to the patient, including the ETT - A large biohazard/specimen bag is available, we will use it to place the dirty laryngoscope into after intubation - A large plastic bag or cassette cover is available and fixed to the head of the bed (or an appropriate place) – demonstrate fixing this to the head of the bed in the video – we will use it to discard of contaminated disposables. - A regular trash bag and some tape can be used if the cassette covers are not available. - A few strands of tape to secure the ETT afterward have been pre-cut and are ready. - The circuit with the facemask attached is resting on the tube holder (Christmas tree) - The suction has been placed in the cassette cover.

	<p>2. Anesthesia confirms patient/staff are prepared:</p> <ul style="list-style-type: none"> - <i>If covid+ patient: there are a max of 3 people in the room</i> - "I can confirm that my assistant (<i>state name</i>) and I are both wearing the appropriate PPE" - "We have reviewed & communicated our plan and we are ready" - "We are wearing a set of double gloves" - "My assistant will be holding the large specimen bag, where I will place the dirty laryngoscope and facemask immediately after intubation." - <i>Drugs are going to be administered by (state name) – for scenarios with 3 people</i> <p>3. Anesthesia performs RSI & states:</p> <ul style="list-style-type: none"> - We have preoxygenated the patient - Drugs have been administered (<i>actors can decide what drugs</i>) - "We are now ready to intubate" - "I will now lower/turn off the fresh gas flow" - Anesthesia provider: <ul style="list-style-type: none"> o Performs laryngoscopy and inserts ETT o Places laryngoscope immediately into the specimen bag o Removes outer gloves - Assistant: <ul style="list-style-type: none"> o Inflates ETT cuff o Connects FM to circuit - Anesthesia provider: <ul style="list-style-type: none"> o Increased fresh gas flow & ventilates using reservoir bag o Confirmation EtCO2 o Secures ETT with precut tape <p>End sequence of intubation</p> <p>Extubation Sequence:</p> <p>1. Anesthesia provider readiness for extubation:</p> <ul style="list-style-type: none"> - The usual steps are performed as for any routine extubation - "The patient is reversed and the TOF confirms readiness to extubate" - "I have suctioned the oropharynx and removed the NGT/temp probe and placed it into the disposal bag" - My assistant is ready <p>2. Extubation:</p> <ul style="list-style-type: none"> - Anesthesia provider: <ul style="list-style-type: none"> o A blue chuck/towel is placed over the face (this is optional) o The ETT is removed o Everything is immediately placed into the disposal bag - Assistant: <ul style="list-style-type: none"> o Simultaneously places facemask over patient's mouth <p>End sequence of extubation</p>
End of Script	

Simulation Video 2.1

Disconnection of Anesthesia Circuit in COVID+ Patient (General)	
Location	Options: <ul style="list-style-type: none"> - Inside an OR - On ICU
Reference document	
Director	
Participants required for scenario	1 Airway trained provider 1 Assistant (<i>if simulating with an ICU ventilator, then this should be a respiratory therapist</i>)
Equipment	Manikin Ventilator + Circuit Kelly Clamp Emergency airway equipment: <ul style="list-style-type: none"> - Ambu bag - Facemask - HME filter - Standard intubation equipment: e.g.: laryngoscope Relevant PPE for participants
Key points to address during video	<ol style="list-style-type: none"> 1. Minimizing intentional circuit disconnections (for covid+ patients) 2. The importance of adequate sedation & paralysis to help avoid coughing 3. The sequence of turning the ventilator OFF/standby mode BEFORE disconnecting
Example Script	<p>Anesthesia provider should state the following:</p> <p>Introduction:</p> <ul style="list-style-type: none"> - Hello, my name is ***** from the BIDMC's department of anesthesia. - In this instructional video we will demonstrate the recommended sequence of steps for a planned disconnection of the breathing circuit, when taking care of a COVID19 patient. - Please note that we recommend avoiding circuit disconnection where possible, to reduce exposure and contamination. - This sequence can apply when disconnecting the circuit for transfer, re-positioning into prone, etc. - This sequence can also apply for accidental disconnections. <p>Review of equipment & drugs:</p> <ul style="list-style-type: none"> - We will now go over the equipment that is required. - Show drugs and equipment (as listed above) <ul style="list-style-type: none"> o 1 Kelly clamp (this should be attached to the patient's pillow if on a transfer) o 1 Ambu bag with an HMEF o Drugs for sedation and paralysis (<i>actor's preference!</i>) <p>Sequence of disconnection events in video:</p> <ol style="list-style-type: none"> 1. Anesthesia provider confirms set up equipment: <ul style="list-style-type: none"> - "We have our equipment ready" 2. Anesthesia confirms patient/staff are prepared: <ul style="list-style-type: none"> - "A maximum of 2 members are required to perform this task safely, to ensure we minimize exposure to other staff". - "I can confirm that my assistant (<i>state name</i>) and I are both wearing the appropriate PPE" - We have reviewed & communicated our plan and we are now ready" 3. Disconnection sequence confirmed & performed <ul style="list-style-type: none"> - "We will preoxygenate the patient with 100% oxygen, for 3 minutes" - "I have verified that the patient is appropriately sedated and paralyzed" - "The ETT is properly secured"

	<ul style="list-style-type: none">- "Let's review the sequence"<ul style="list-style-type: none">o First turn the ventilator OFF (<i>or onto standby mode, if ICU ventilator</i>)o Clamp the ETTo Disconnect the circuito Re-connect the circuito Remove the clampo Turn the ventilator back ON- We are now ready to perform this sequence.- Sequence is performed in the order listed above.
End of Script	

Simulation Video 2.2

Prone Positioning in the OR/Procedural Suite (incl disconnection of Anesthesia Circuit) in COVID+ Patient	
Location	Options: <ul style="list-style-type: none"> - Inside an OR - In the GI suite
Reference document	
Director	
Participants required for scenario	1 Airway trained provider 1 Assistant (<i>if simulating with an ICU ventilator, then this should be a respiratory therapist</i>) 3 Staff members to assist in proning the patient
Equipment	Manikin (full size) Ventilator + Circuit Kelly Clamp Emergency airway equipment: <ul style="list-style-type: none"> - Ambu bag - Facemask - HME filter - Standard intubation equipment: e.g.: laryngoscope Stretcher Procedure bed / table Relevant PPE for participants
Key points to address during video	<ol style="list-style-type: none"> 1. Minimizing intentional circuit disconnections (for covid+ patients) 2. The importance of adequate sedation & paralysis to help avoid coughing 3. The sequence of turning the ventilator OFF/standby mode BEFORE disconnecting 4. The sequence for prone positioning in the OR/procedural suite
Example Script	<p>Anesthesia provider should state the following:</p> <p>Introduction:</p> <ul style="list-style-type: none"> - Hello, my name is ***** from the BIDMC's department of anesthesia. - In this instructional video we will demonstrate how to position a patient in the prone, specifically during a transfer onto an OR or a procedural table, when taking care of a COVID19 patient. - This will include the recommended sequence of steps for a planned disconnection of the breathing circuit. <p>Review of equipment & drugs:</p> <ul style="list-style-type: none"> - We will now go over the equipment that is required. - Show drugs and equipment (as listed above) <ul style="list-style-type: none"> o 1 Kelly clamp o 1 Ambu bag with an HMEF o Drugs for sedation and paralysis (<i>actor's preference!</i>) <p>Sequence of events in video:</p> <ol style="list-style-type: none"> 1. Anesthesia provider confirms set up equipment: <ul style="list-style-type: none"> - "We have our equipment ready" 2. Anesthesia confirms patient/staff are prepared: <ul style="list-style-type: none"> - "We will require approx 6 members to safely move this patient into the prone position" - "I can confirm we are all wearing the appropriate PPE" - "We have reviewed & communicated our plan and we are now ready" 3. Team members get into position <ul style="list-style-type: none"> - 1-2 staff members along the side of patient, ready to roll patient - 1 anesthesia provider at the head of the bed - 1 anesthesia assistant (<i>or RT if using ICU ventilator</i>), optional - 1-2 staff members on opposite side of the OR/procedural table, waiting to receive the patient

	<p>4. Disconnection sequence confirmed & performed</p> <ul style="list-style-type: none">- "We will preoxygenate the patient with 100% oxygen, for 3 minutes"- "I have verified that the patient is appropriately sedated and paralyzed"- "The ETT is properly secured"- "Let's review the sequence"<ul style="list-style-type: none">o First turn the ventilator OFF (<i>or onto standby mode, if ICU ventilator</i>)o Clamp the ETTo Disconnect the circuito Perform proningo Re-connect the circuito Remove the clampo Turn the ventilator back ON- We are now ready to perform this sequence.- Sequence is performed in the order listed above.
End of Script	

Simulation Video 3.0

Management of Accidental Extubation/ETT Dislodgement	
Location	Options: <ul style="list-style-type: none"> - Inside an OR - Inside GI procedural suite
Reference document	
Director	
Participants required for scenario	<p>1 Airway trained provider 1 Assistant (<i>if simulating with an ICU ventilator, then this should be a respiratory therapist</i>) 4 Staff members to assist in proning the patient 1 outside runner</p> <p>If the scenario taking place in a procedural unit like GI, you need: 1 endoscopist 1 interventional technician</p>
Equipment	<p>Manikin (full size) Ventilator + Circuit Kelly Clamp Emergency airway equipment:</p> <ul style="list-style-type: none"> - Ambu bag - Facemask - HME filter - Standard intubation equipment: e.g.: laryngoscope <p>Stretcher Procedure bed / table Relevant PPE for participants</p>
Key points to address during video	<ol style="list-style-type: none"> 1. Clear communication during the removal of the scope <ol style="list-style-type: none"> i. GI provider must communicate when removing scope, to allow anesthesia provider to hold the ETT securely (to reduce risk of extubation) 2. Correct communication during the emergency <ol style="list-style-type: none"> i. Identifying who calls for help, especially in remote locations like GI 3. The sequence of events during accidental extubation/ETT dislodgement <ol style="list-style-type: none"> i. Turning the ventilator OFF/standby mode ii. Repositioning the patient iii. Preparing for emergency re-intubation 4. Ensuring HME filter is between facemask and circuit/Ambu bag 5. Ensuring anyone who comes to help is wearing appropriate PPE
Example Script	<p>Anesthesia provider should state the following:</p> <p>Introduction:</p> <ul style="list-style-type: none"> - Hello, my name is ***** from the BIDMC's department of anesthesia. - In this instructional video we will demonstrate the recommended steps in the management of an accidental extubation or ETT dislodgement, in a patient with COVID19. - For this video, we will start with a patient in the GI suite, in the prone position, during a procedure that requires endoscopy - Note: This sequence can also be adapted for an accidental extubation in the supine position <p>Review of equipment & drugs that should be present in any case:</p> <ul style="list-style-type: none"> - We will now go over the equipment that is required. - Show drugs and equipment (as listed above) <ul style="list-style-type: none"> o 1 Kelly clamp

	<ul style="list-style-type: none"> ○ 1 Ambu bag with an HMEF ○ Drugs for sedation and paralysis (<i>actor's preference!</i>) <p>Sequence of events in video:</p> <p>1. Start with patient currently under general anesthesia and stable:</p> <ul style="list-style-type: none"> - Prone position - ETT in place - Bite block in place - Monitors ON, ventilator ON - If in GI suite: dim the lights - EGD in situ <p>2. Accidental extubation:</p> <ul style="list-style-type: none"> - End of procedure is announced by GI provider "Ok, thank you, we're done" - GI provider pulls the scope out of the mouth - Anesthesia provider is not holding the ETT securely - Low pressure alarm sounds. - ETT is found outside of the patient's mouth <p>3. Anesthesia provider initiates emergency management</p> <ul style="list-style-type: none"> - Announces: "we have an emergency" and says "open the door" - Door opens - [Addresses nurse by name] "activate code blue" - If the patient was in the prone position: <ul style="list-style-type: none"> ○ Outside runner pushes in stretcher (<i>if patient was in prone position</i>) ○ All team members inside get ready to help to re-position the patient into a supine position - Runner prepares PPE for CODE team that will join <p>4. Emergency airway management (two options need to be filmed)</p> <p>Option 1:</p> <ul style="list-style-type: none"> ○ Switching the ventilator over to manual ○ Anesthesia circuit is used to oxygenate ○ Place a facemask over the patient ○ HME filter is between facemask and circuit <p>Option 2:</p> <ul style="list-style-type: none"> ○ ICU ventilator is placed on standby ○ Ambu bag is used to oxygenate ○ Place a facemask over the patient ○ HME filter is between facemask and Ambu bag <p>5. Emergency re-intubation:</p> <ul style="list-style-type: none"> - Anesthesiologist administers RSI drugs - Performs re-intubation using enhanced infection control measures (McGrath)
End of Script	

Simulation Video 4.0

Pre-operative/procedure Huddle	
Location	Should simulate the inside of an OR
Reference document	Perioperative workflow document for the intubated patient SOP: Transfer of a COVID-19 patient PPE posters STOP posters
Director	
Participants required for scenario	1 Team leader 1 Anesthesia provider for the case 1 Anesthesia technician 1 Surgical attending 1 Circulating nurse 1 Scrub nurse 2 Outside runners (1 nursing, 1 anesthesia)
Equipment	Laminated checklist for intubated/unintubated patient Laminated STOP & PPE posters
Key points to address during video	<ol style="list-style-type: none"> To complete the workflow checklist for the intubated COVID-19 patient coming to the OR Emphasis on the fact that a team huddle should take place ASAP after a COVID-19 case is booked and BEFORE a patient is brought to the OR The emphasis is on sharing the mental model between the entire team
Example Script	<p>Introduction:</p> <ul style="list-style-type: none"> Hello, my name is ***** from the BIDMC's department of anesthesia. In this instructional video we will demonstrate our standard operating procedure for performing a preoperative huddle for the management of a COVID-19+ patient [show workflow]. Our main aim is to engage in a shared mental model with the entire perioperative team in order to safely manage and transfer this patient and to ensure enhanced infection control measures are performed to reduce the risk of transmission to staff. <p>Beginning of scenario:</p> <ul style="list-style-type: none"> The team gather inside the OR that has been designated for the case A team leader has already been identified Team leader announces: "We have an exploratory laparotomy on a COVID19 positive patient who is currently intubated in ICU" "This is our pre-operative huddle & we will now go through the steps of the checklist" [Show workflow checklist] "I will be the team leader for this case" "Can we confirm names and roles please" [Team members introduce themselves and roles] "We need to confirm the appropriate PPE for each team member" [Refer to the STOP and PPE posters posted on the door] Team leader addresses the anesthesia technician by name and says: <ul style="list-style-type: none"> [Name], have we covered the anesthesia machine and Omnicell? Do we have the backup airway equipment ready on a designated cart? Team leader addresses the anesthesia provider by name and says: <ul style="list-style-type: none"> [Name] do we have all the required anesthetic medications and equipment inside the OR Do we have a set of "clean" emergency drugs ready outside the OR?

	<ul style="list-style-type: none"> - Team leader addresses the surgical attending by name and says: <ul style="list-style-type: none"> o [Name] do you have the equipment you wish to use ready inside the OR? o Is there any other equipment you need ready and available outside the OR? - Team leader addresses the circulating staff by name and says: <ul style="list-style-type: none"> o [Name] is the setup inside the OR complete o Have you identified and prepared the additional materials that may need to be used outside the OR? - Team leader addresses the runners name and says: <ul style="list-style-type: none"> o For this case we will have 2 runners outside the OR: o [Name] is the circulating nurse runner o [Name] is the anesthesia runner - Team leader addresses the whole team and says the following: <ul style="list-style-type: none"> o "Can we confirm that we have complete the H&P and obtained all consents for this case?" o Surgical attending & circulating nurse reply: "H&P and surgical consent is complete" o Anesthesia provider states: "anesthesia consent was obtained by phone from the patient's healthcare proxy this morning". - Team leader addresses the whole team and says the following" <ul style="list-style-type: none"> o "As the patient is currently on the ICU ventilator, we will be transferring the patient with the ICU ventilator and using it throughout the case" o In case of accidental extubation/circuit disconnection we will bring an Ambu bag, an HME filter and a kelly clamp. o We will also need to take an extra ETT, a McGrath and an i-gel. - "Let's now confirm our transfer team" <ul style="list-style-type: none"> o Myself, the team leader, I will call/hold elevators/wipe down o Respiratory therapist (ventilator) o Anesthesiologist (head of bed) o Surgical attending or resident (end of bed) o <i>We might need 1 extra member (depending extra equipment & staffing levels)</i> - "Let's confirm the location of the patient and the route we are going to take" - [Circulating nurse confirms bed location XXX] - "When we arrive onto ICU we will have a brief pre-transfer huddle that includes the RT" - Team leader allocates final roles: <ul style="list-style-type: none"> o Contacting EVS to inform them of case start <p>End of Scenario</p>
End of Script	

Simulation Video 5.0

Pre-transfer Huddle	
Location	Should simulate the inside of an ICU room
Reference document	Perioperative workflow document for the intubated patient SOP: Transfer of a COVID-19 patient PPE posters STOP posters
Director	
Participants required for scenario	1 Team leader 1 Anesthesia provider for the case 1 Surgical attending or resident 1 Respiratory therapist 1 additional member (if transporting a lot of equipment, can circulating/ICU nurse)
Equipment	Laminated checklist for intubated/unintubated patient Laminated STOP & PPE posters
Key points to address during video	1. To complete the workflow checklist for the intubated COVID-19 patient coming to the OR OR 2. Emphasis on the fact that a transfer team huddle should take place up on the ICU 3. The emphasis is on sharing the mental model between the entire team
Example Script	<p>Introduction:</p> <ul style="list-style-type: none"> - Hello, my name is ***** from the BIDMC's department of anesthesia. - In this instructional video we will demonstrate our standard operating procedure for performing a pre-transfer huddle for the management of a COVID-19+ patient [show workflow]. - Our main aim is to engage in a shared mental model with the entire perioperative team in order to safely manage and transfer this patient and to ensure enhanced infection control measures are performed to reduce the risk of transmission to staff. <p>Beginning of scenario:</p> <ul style="list-style-type: none"> - Team leader states: "ok thank you everyone, let's now just confirm we are ready for the transfer by going through the pre-transfer huddle" - [Show workflow checklist] - "I will be the team leader for this case, and I will help hold open doors and call for elevators" - "Can we confirm names and roles please" - [Team members introduce themselves and roles] - "We need to confirm the appropriate PPE for each team member" - [Refer to the STOP and PPE posters posted on the door] - Team leader confirms the route: <ul style="list-style-type: none"> o "We will be going to West-OR 17, using the Rosenberg patient elevator" o "Could [name] please call the OR and let them know we are ready and on our way" - Anesthesia providers confirms the following" <ul style="list-style-type: none"> o "The infusions we need are running, we have emergency drugs and intubation equipment ready" o "I have deepened his sedation to prevent awareness" o " I have given rocuronium to ensure paralysis" o "We have the clamp attached to the pillow" o "We have an HME filter, if required" o I have transported the patient's brick onto our transport monitor"

	<ul style="list-style-type: none">- RT confirms the following:<ul style="list-style-type: none">o "The ICU ventilator is ready to go"o "We have enough oxygen in the tank"o We will aim to avoid any circuit disconnections <p>End of Scenario</p>
End of Script	