COVID-19: DETAILED FLOW INTRA-OPERATIVE CARE OF COVID+ OR PUI SURGICAL PATIENT: ROOM PREPARATION BEFORE PATIENT ARRIVES AND FOLLOWING PROCEDURE

DOCUMENT TYPE: PROCEDURE

Purpose

The flow of surgical patients at BCW Hospital who have tested positive for COVID-19+ require detailed planning for the appropriate location of care, equipment, and personal. This procedure outlines the roles and responsibilities for the surgical team members to ensure appropriate equipment, supplies and personal for each area of the peri-operative environment.

Site Applicability

BCW Hospital gynecology and obstetrical surgical services.

Practice Level/Competencies

The gynecology and obstetrical surgery team members may only perform these steps.

Equipment & Supplies

See the following appendices for equipment and supplies:

- Appendix 1: Nursing Equipment Checklist For COVID-19+/Suspect COVID-19 Patients - Cesarean Section
- Appendix 2: Checklist For Anesthetic Equipment And Medications To Bring To The OR
- Appendix 3: Anesthetic Emergency Drugs And Equipment To Be Kept In The OR
- Appendix 4: Equipment And Medications To Be Kept In The Anesthetic Machine
- Appendix 5: BCWH COVID-19 Airway Management Checklist
- Appendix 6: COVID-19 Specific Anesthesia Recommendations

Intraoperative Care

Team	Team huddle prior to sending for case for surgical sign in • Confirm roles • Review risk of GA and Personal Protective Equipment (PPE) • Identify specific equipment required for the case, e.g. significant Postpartum Hemorrhage (PPH) risk Identify roles ☐ Scrub team ☐ Circulating RN inside OR ☐ Resource RN outside OR (runner) ☐ Baby RN, Peds, NICU

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<table>
<tr><td>Room preparation</td><td>Designated COVID ORs
Obstetrics : TACC OR 2 (OR 1 if required)
Pre-op TACC HAU 614 (or existing labour room)
Door to CORE from OR taped to prevent access
Automatic door turned off
Gynecology: OR C
Pre-op isolation room
COVID-19 ORs have been stripped of any non-essential equipment

Infection Prevention and Control (IPAC) precaution (droplet and contact/airborne) signage posted on OR doors

Hallways between admission area (TACC 614/isolation room) and OR cleared of extra equipment, stretchers

Signage to instruct proper donning and doffing posted inside and outside ORs Designated areas for donning and doffing created

N95 masks stored on TACC LDR; Charge nurse to access</td></tr>
<tr><td>Surgery and Anesthesia Equipment and Drugs</td><td>Anesthetic carts removed and replaced with stainless steel table for drugs, spinal tray, intubation equipment

Designated Glidescopes for COVID+ and/or suspected cases
To reside inside gyne OR C
To reside immediately outside of TACC OR 2
Anesthesia/AA to prepare kit of routine drugs for OR and equipment for OR – see appendices 2, 3, and 4

For OB cases identified as increased risk PPH, PPH drugs (hemabate, ergometrine) on ice (in Ziploc) in OR. PPH equipment (Bakri supplies, B-Lynch sutures, immodium) stored in OR 2 in closed container</td></tr>
<tr><td>Patient Care</td><td>All preoperative care to occur in TACC 614 (or existing labour room) for Obstetrics, or isolation room for Gynecology

Patient to don surgical mask prior to transport directly into OR</td></tr>
</table>

<table>
<tr><td>Team</td><td>Essential OR staff only
Anesthesia, AA, Surgeon and assist
RNs – scrub, circulating, baby, ‘runner’ outside room
Peds/NICU
For caesarean section, support person, midwife, family physician permitted in OR if regional anesthesia. Must don surgical mask

Circulating RN in OR designated as ‘buddy’ to observe doffing

Communication between circulating RN and runner RN by Vocera</td></tr>
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<table>
<tr><td>Infection Control</td><td>Donning of PPE to occur prior to arrival of patient

Patient stretcher (contaminated) must be left in corridor, rails up and covered with clean sheet. Droplet/contact precaution sign to be placed on stretcher

Non - Aerosol Generating Medical Procedures (AGMP)

Gyne OR with planned regional anesthesia where risk of conversion to General Anesthesia (GA) is rare e.g. Hysteroscopy or D&E
Droplet/contact precautions for all staff
Caesarean section with planned regional anesthesia

Droplet/contact precautions for Circulating RN, Resource ‘runner’ RN, and Peds/NICU. If converts to GA must fully doff then don N95 (can be done inside OR > 2 M from patient)
N95 for Surgeon, surgical assist, anesthesia, AA, scrub nurse in whom re-donning of N95 in the event of conversion to GA is not feasible
NICU/Peds team to don N95 in the event of neonatal resuscitation of critically ill or immunocompromised mother (eg. intubated for COVID, SpO2 <94% on room air, end organ support, HIV with CD4 < 200)

Aerosol Generating Medical Procedure (intubation): airborne precautions

addition of N95 to above for all staff including Peds/NICU
Applies to Gyne OR and ALL Caesarean sections under GA
Chart to remain outside OR; duplicate anesthetic record inside OR
General principle to minimize opening/closing of OR doors

Doffing of PPE to occur inside OR, > 2 metres from patient with exception of N95 mask/re-usable respirator and goggles to be removed outside OR

Doffing to be observed by Circulating RN ‘buddy’

All team members apart from anesthesia and AA/ RN assist to leave OR prior to extubation

Doors to OR to remain closed for 20 minutes following extubation</td></tr>
<tr><td>Anesthesia</td><td>General principle to maintain neuraxial anesthesia whenever possible

For GA: Surgeon, surgical assist, RNs, Peds/NICU to remain inside OR > 2 M from patient during intubation
Anesthetic considerations and airway management if GA (appendices 2-6)
ONLY Anesthesia plus AA/nurse assist to remain in OR for extubation</td></tr>
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<table>
<tr><td>Neonatal Care</td><td>Asymptomatic support person may remain in OR for Caesarean with regional anesthesia. Must don surgical mask

Options for disposition of baby

Regional anesthesia:
Resuscitation as needed in OR. No Golden Hour
Babe may remain in OR skin to skin with support person or in FHOL
General anesthesia:
Immediate resuscitation in OR as needed, then transfer immediately to NICU via FHOL. No Golden Hour
If no resuscitation or additional intensive care required, baby RN to transfer baby to HAU/labour room via clean FHOL/crib for skin to skin with support person
Skin to skin with mother in OR is NOT recommended due to falls risk for baby, and concern for horizontal transmission
</td></tr>
</table>

After Procedure

<table>
<tr><td>Patient Care</td><td>Patient to use droplet precautions (surgical mask) for all transfers

If regional anesthesia, patient can transfer immediately back to HAU or Gyne isolation room/PACU (1P36) as appropriate

If GA, patient to recover in OR with anesthesia and AA/RN for 20 minutes after extubation

Minimize in and out of room to ensure efficient air exchange
Additional Resource RN to support OR PACU nurse
Vocera for communication between PACU RN and Resource RN
If O_2 required, use of mask (avoid nasal prongs) with flows less than 5 L per min to minimize aerosolization
Surgical mask to be placed over O_2 mask

20 minutes post extubation, patient to be transferred to designated recovery area

OB: HAU
Gyne: isolation room or cohort in Gyne PACU (1P36) area
</td></tr>
<tr><td>Room Cleaning</td><td>After Neuraxial:
Cleaning with PPE droplet and contact precautions may occur immediately after patient exits OR
After GA:
PPE with droplet and contact precautions may occur 20 minutes after extubation</td></tr>
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Version History

DATE	DOCUMENT NUMBER and TITLE	ACTION TAKEN
29-Apr-2020	C-06-12-60633 COVID-19: Detailed Flow-Intra-Operative Care of COVID + or PUI Surgical Patient	Developed by BCW Maternal Newborn Program Approved by Professional Practice Director
4-Aug-2020	“	Approved by Professional Practice Director

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Appendix 1: Nursing Equipment Checklist For COVID-19+/Suspect COVID-19 Patients - Cesarean Section

- Standard C/S bundles
- Dura Prep x 1
- Sponge packs x 3
- Sutures
  - 0 Vicryl CT x4
  - 2-0 Vicryl Rapide x2
  - 2-0 Vicryl SH x2
  - 3-0 Monocryl straight x1
  - 3-0 Monocryl cruved x1
- Staples x1
- Steri-strips x1
- Abdo pad x1
- Pool Suction x1
- Suction tubing (back-up) x1
- Yonker x1
- Cautery
- Cautery pad
- Gloves (extras in case of holes, etc.)
  o 5 ½, 6, 6 ½, 7, 7 ½, 8, 8 ½
- Foley 14F x1
- Foley Kit x1
- Foley Bag x1
- Sponge forcep x1
- Iodine bottle x1
- Short tubing 6 foot (for peds suction back-up) x1
- Suction catheter 10F (peds back-up) x1
- Blue pads x2
- Maternity pad x1
- Slidey board (no Hovermat) x1
- Placenta bag 11lbs x1
- PPH Back-up bag/tray
- Bakri
- B-lynch sutures x3
- Kelly retractor (for visualization) x1
- Sponge packs x3
- Suppositories
- Extra blankets / gown
- Recovery medications

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Appendix 2: Checklist For Anesthetic Equipment And Medications To Bring To The OR

- Spinal/CSE kit
- 2% chlorhexidine (Chloroprep)
- 0.75% bupivacaine
- Sterile gloves (x2)
- Epidural top-up medications
- Omnicell medications (Fentanyl, Morphine +/- Ketamine (intraoperative pain))
- Carbetocin collected by AA
- PPH grab bag/ice collected by AA
- Alcohol swab
- Ice
- Cotton ball
- Sterile dressing and tape if CSE
- If planned GA, TAP block kit
- Photocopy OR page of anesthetic chart
- Disposable pen

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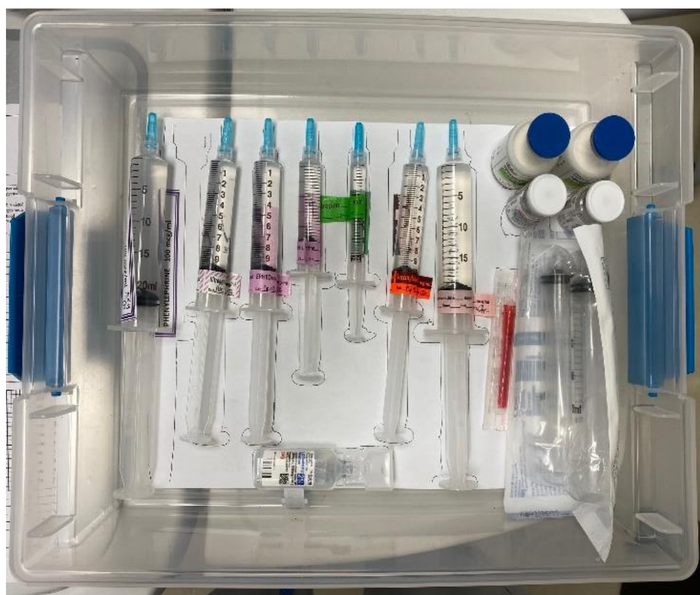
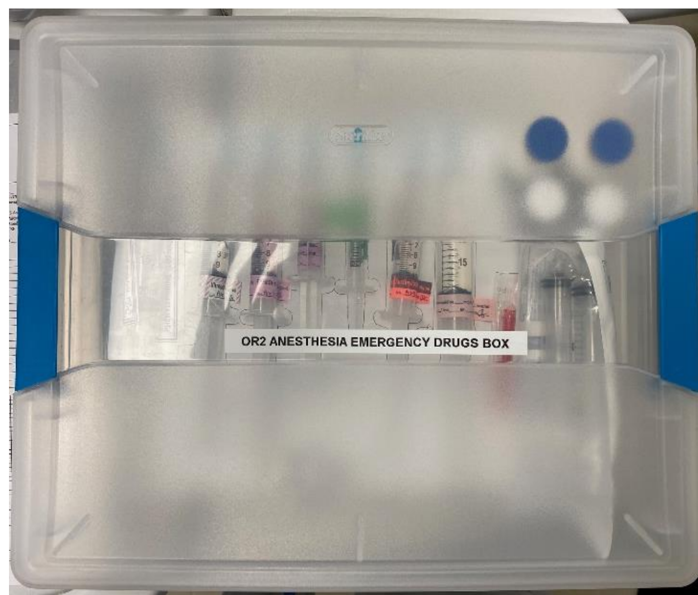
Appendix 3: Anesthetic Emergency Drugs And Equipment To Be Kept In The OR

- Emergency drugs in sealable plastic box (see photo, contents considered clean unless opened) – prepared by AAs:
  - Phenylephrine 100mcg/ml in 20mls
  - Nitroglycerine 100mcg/min in 10mls
  - Ephedrine 5mg/ml in 10mls
  - Phenylephrine 100mcg/ml in 5mls
  - Atropine 400mcg
  - Lidocaine 2%
  - Propofol 200mg x2
  - Tranexamic Acid 500mg x2
  - Succinylcholine 200mg in 10mls
  - 20 ml syringe x2
  - Blunt needle x2





- Glidescope
  - 6.5/7.0 ETT with stylet inserted and syringes attached
  - Size #3 and 4 blades
  - Plastic tape (for ETT)
  - Paper tape (for eyes)
  - Bougie

- One steel trolley available for spinal anesthesia and as workstation. Prepared for spinal anesthesia
  - Photocopy of anesthesia OR chart

Appendix 4: Equipment And Medications To Be Kept In The Anesthetic Machine

- Top of the anesthetic machine (see photo):
  - **Carbetocin (AA to collect)**
  - **Plasmalyte x 2L (AA to collect)**
  -
  - Save-a-day cardboard trays (x2) containing:
    - Ondansetron 4mg
    - Dexamethasone 10mg
    - Syringes: 2x 3ml, 1x 5ml
    - Blunt needles x1
    - Filter needles x2
    - Drug stickers (fentanyl, morphine, ondansetron, dexamethasone)
    - Roll of plastic tape
    - Clean surgical mask
  - Sealable plastic box 'OR Supplies' containing (contents considered clean unless opened):
    - Syringes: each size x3
    - Blunt needles x3
    - Filter needles x3
    - Blue needle x1
    - Saline syringe 10mls x1
    - Large orange medication sticker x2
  - Sealable plastic box 'OR2 IV Access' containing (contents considered clean unless opened):
    - IV access: 16g and 18g cannulae
    - Tourniquet
    - Chlorhexidine wipes x2
    - IV extension
    - Cannula dressing x2
    - Roll of plastic tape
    - Blood bottles (CBC, coagulation, renal)
    - Needle free blood draw device
    - Gauze
    - Saline syringe 10mls x1
    - Simple oxygen mask
  - Red anesthetic scissors

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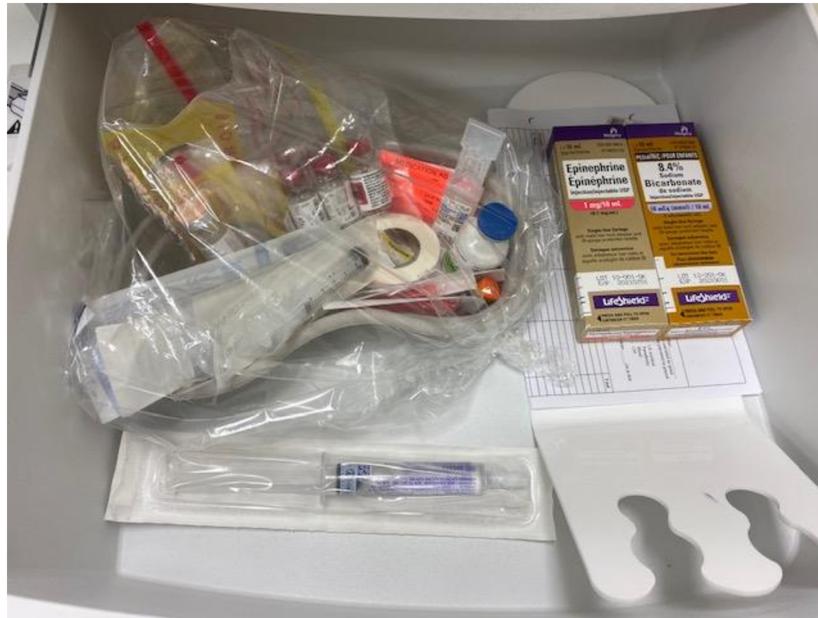
- Top drawer 'Airway Plan A' (see photo):
    - Stubby handle (**FULLY CHARGED**) with MAC #3 & #4 blades
    - McCoy #3 blade
    - Oropharyngeal airway green/yellow
    - 6.5 ETT with intubating stylet and 10ml syringe attached
    - Water soluble lubricant x2
    - iGel size #4
    - NOTE: bougie and 6.5/7.0 ETT with Glidescope

- Middle drawer 'Airway Plan B' (see photo):
    - AirQ sizes 3.5 and 4.5
    - iGel size #3
    - Size 10 scalpel
    - 6.0 ETT for front of neck access (bougie on Glidescope)

- Lower drawer 'Emergency Drugs' (see photo):
    - Propofol 200mg x1
    - Rocuronium 50mg x3
    - Suggamadex 00mg (sealable bag)
    - Midazolam 2mg x1Epinephrine 1mg in 10mls x1
    - 2% lidocaine 10ms x1 and 8.4% bicarbonate (for ETT cuff inflation)
    - Drug stickers (rocuronium, midazolam, white blank stickers, orange medication sticker)
    - 10ml saline syringe x1
    - Syringes: 20mls, 10mls, 5mls x1
    - 3x blunt needles
    - Photocopy of Anesthesia chart (OR page)
    - ETT holder



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Appendix 5: BCWH COVID Airway Management Checklist

Item	☐
INTRODUCTION & ROLES	☐
EQUIPMENT:	
Facemask to be replaced with Ambu mask	☐
Ambu bag, Filter, & ETCO2 connectd	☐
IV Fluids Running	☐
Suction On & Positioned	☐
Oral Airway Ready	☐
Tube Prepped & alternante ready	☐
FROVA & Stylet Ready	☐
Syringe attached to ETT	☐
Laryngoscope Blade & Handle Working	☐
Glidescope on & Working	☐
iGel Ready	☐
Scalpel Ready	☐
Securing tape/Ties ready	☐
PREPARATION:	
Cardiac Monitors, BP Cuff q2min, O2 Sats	☐
Pre-Oxygenate	☐
Hemodynamics optimized	☐
Team wearing PPE	☐
Mouth Opening/Mallampati with Mask in Place	☐
Neck Mobility	☐
Induction Dose Ready	☐
Paralytic Dose Ready	☐
Pressors Ready	☐
Sedation Ready	☐
Patient Positioned Appropriately	☐
Plan	
1st Attempt	☐
2nd Attempt	☐
3rd Attempt	☐
Threshold for changing techniques & Operators	☐
Threshold for surgical airway	☐
CHECKLIST COMPLETE	

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Appendix 6: COVID Specific Anesthesia Recommendations

Neuraxial anesthesia

1. Prior to patient arrival, essential supplies should be consolidated and brought into the OR (appendix 2)
2. Neuraxial anesthetic technique at the discretion of the provider. Consider increased dose for spinal anesthesia
    a. If altered consciousness or clinical signs / symptoms consistent with meningitis, consider sending CSF for viral PCR
3. Consider carbetocin 100mcg at delivery, tranexamic acid 1g for patients at risk of PPH, and having the cell saver collection set up

General anesthesia

1. Use of PPE causes communication difficulties: complete BCWH COVID airway management checklist with closed loop communication (appendix 5)
2. Be mindful of cardiovascular instability
    - Consider invasive monitoring, 2 large bore IV or CVC (depending on vasopressor needs)
3. Do not use supraglottic airway devices for GA and avoid nebulizer medications
4. RSI induction. Ensure a tight seal during pre-oxygenation to avoid aerosolization. Do not use high-flow nasal oxygen
5. Avoid BMV. If BMV required, use small tidal volumes, low pressures.
6. Maximize first past success. Paralyze the patient. Succinylcholine may NOT provide long enough period of paralysis if difficulty encountered
7. Video laryngoscopy is preferable, by the most experienced anesthetist available
8. Emphasize early cuff inflation and fast attachment of filter to ETT post intubation. Do not ventilate until cuff is inflated
9. In case of difficult intubation, plan B is to use a 2nd generation supraglottic airway, plan C is to use FONA scalpel-bougie-tube
10. Remember extubation presents same risks as intubation
11. Consider techniques to prevent/reduce coughing e.g. lidocaine via the ETT cuff (9mls 2% lidocaine and 1 ml 8.4% sodium bicarbonate)
12. Closed suction only when applicable.
13. Filter should remain on the endotracheal tube during extubation. Every effort should be taken to limit the number of disconnections of the endotracheal tube
14. Patients that remain intubated will need consideration for transfer to St. Paul's ICU vs temporary management in the OR/HAU. Keep patient paralyzed and apneic to prevent coughing.
15. If extubation not feasible, manage as per ARDS/ARDSnet protocols.

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