COVID-19 INTUBATION PROTOCOL
VERDUN HOSPITAL
UPDATED 19/03/2020

GENERAL PRINCIPLES
• LIMIT INS AND OUTS OF THE ROOM
• LIMIT EXPOSED PERSONNEL
• FAVOR ELECTIVE INTUBATION FOR PATIENTS AT RISK OF DETERIORATION
• PROCEED IN NEGATIVE PRESSURE ROOM IF POSSIBLE
• No BiPAP / HFNC (Ex: Optiflow) FOR PRE-OXYGENATION
• No bagging
• ALWAYS KEEP VENTILATION CIRCUIT CLOSED
• VIDEO-LARYNGOSCOPY FIRST
• END-Tidal CO2 MANDATORY (no CXR POST-INTUBATION)
• ONLY "fit tested" PERSONNEL MAY PARTICIPATE
• 2 PHYSICIANS IF AVAILABLE
• HEAD NURSE MUST VERIFY CHECKLIST ONCE PER SHIFT

ACTIVATION CRITERIA
• PATIENT BROUGHT BY PARAMEDICS IN RESPIRATORY DISTRESS WITH SUSPECTED OR CONFIRMED COVID-19
• PATIENT WITH SUSPECTED OR CONFIRMED COVID-19 AND:
  - saturation <90% WITH 4L/MIN NASAL CANULA OR FiO2 >0.5
  - DETERIORATION AFTER 1 HOUR OF TREATMENT WITH NON-REBREATHER MASK
  - DETERIORATION AFTER 1 HOUR OF TREATMENT WITH HFNC: ROX INDEX < 4.88
    *ROX INDEX = (SpO2 / FiO2) / RESPIRATORY RATE
  - PHYSICIAN ORDERS TO INTUBATE

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VERDUN HOSPITAL, MONTREAL, CANADA

TRANSLATED BY Dr Dat Nguyen-Dinh CCFP(EM)
CHECKLIST

INSIDE NEGATIVE PRESSURE ROOM
☐ CARDIAC MONITOR / VITAL SIGNS MONITOR
☐ CARDIAC ELECTRODES / WIRES / CHEST LEADS
☐ DEFIBRILATOR AND MULTIPADS
☐ SATURATION FINGER SENSOR
☐ 2 FULL OXYGEN TANKS / OXYGEN SOURCE
☐ NASAL CANULA
☐ NON-REBREATHER MASK
☐ WALL SUCCION
☐ ELECTRICAL OUTLETS / POWER SUPPLY
☐ IV POLE AT HEAD OF GURNEY / BED
☐ 2 INFUSION PUMPS
☐ 1L NS (CHECK EVERY 24H)
☐ GURNEY / BED
☐ CALL BELL
☐ 2 BEDSIDE TABLES
☐ 2 LARGE TRASH BINS
☐ SHARP CONTAINER
☐ BIN FOR CONTAMINATED REUSABLES
☐ CHECK NEGATIVE PRESSURE PARAMETERS
☐ CHECK COMM/CAMERA SYSTEM
☐ HAND SANITIZER DISPENSER (CHECK IF EMPTY)

OUTSIDE NEGATIVE PRESSURE ROOM
☐ HAND SANITIZER DISPENSER (CHECK IF EMPTY) AT EXIT
☐ TRASH BIN (CLOSED WITH FOOT HANDLE)
☐ ISOLATION GOWNS
☐ SPLASH RESISTANT GOWNS
☐ FACE SHIELD / GOGGLES
☐ SURGICAL / PROCEDURES MASK
☐ N95 MASKS
☐ LONG SLEEVE GLOVES
☐ SHORT SLEEVE GLOVES

QUICK ACCESS STORAGE AREA
☐ COVID-19 VENOUS ACCESS KIT
☐ COVID-19 INTRAOSSEUS ACCESS KIT
☐ COVID-19 FOLEY KIT
☐ COVID-19 INTUBATION KIT
☐ COVID-19 CRICOTHYRODOTOMY KIT
☐ COVID-19 FEMORAL CENTRAL LINE KIT
☐ COVID-19 INDUCTION MEDICATION KIT
☐ PORTABLE VIDEOLARYNGOSCOPE (CHECK BATTERY)
ACTION SHEET
LEADER (HEAD NURSE)

ACTIVATE

1. READ ACTION SHEET AND EXECUTE STEPS
2. CALL RT AND GIVE ACTION SHEET
(SAME RT FOR TRANSPORT IF POSSIBLE)
3. ASSIGN RN FOR INTUBATION AND GIVE ACTION SHEET
4. ASSIGN MD FOR INTUBATION AND GIVE ACTION SHEET
(MOST EXPERIENCED INTUBATOR AVAILABLE)
5. ASSIGN 2 RNs FOR MEDICATION PREPARATION AND GIVE ACTION SHEET
6. CALL ANESTHESIA
7. ASSIGN SECOND MD FOR INTUBATION BACK-UP

VERIFY

8. PUT ON N95 MASK
9. CHECK PROPER PPE DONNING BEFORE INTUBATION TEAM ENTERS
   • HAIR TIED / NO BEARDS
   • N95 GOOD SEAL
   • FACE SHIELD WELL ADJUSTED
   • SPLASH RESISTANT GOWN (CHECK BACK)
   • LONG + SHORT GLOVES (CHECK WRISTS)
   • NO STETHOSCOPE
10. CHECK EACH PERSON ENTERS WITH DESIGNATED MATERIAL
   • RN FOR INTUBATION (ENTERS FIRST):
      □ COVID-19 VENOUS ACCESS KIT
      □ COVID-19 INDUCTION MEDICATION KIT
      □ +/- COVID-19 FOLEY KIT (IF NO FOLEY)
   • RT (ENTERS SECOND):
      □ TRANSPORT VENTILATOR (CHECK BEFORE ENTERING)
      □ VIDEO-LARYNGOSCOPE (CHECK BEFORE ENTERING)
   • MD FOR INTUBATION (ENTERS AFTER VENOUS ACCESS CONFIRMED)
      □ COVID-19 INTUBATION KIT
      □ +/- COVID-19 INTRAOSSEOUS KIT (IF NO VENOUS ACCESS)

STOP

11. DURING RSI, IS AVAILABLE AT COMM AND TAKES NOTES
   • IF FIRST PASS UNSUCCESSFUL: ACTIVATE SECOND INTUBATOR TO DON PPE AND ENTER WITH COVID-19 CRICOPTHYROTOMY KIT AND SECOND VIDEOLARYNGOSCOPE

TRANSFER

12. SUPERVISE TEAM DOFFING AT EXIT OF ROOM
13. REMOVE AND DISPOSE N95 MASK
14. ACTIVATE TRANSFER PROCEDURE
15. REFILL COVID-19 KITS FOR NEXT ACTIVATION
16. ACTIVATE DECONTAMINATION PROCEDURE
**ACTION SHEET**

**NURSE FOR INTUBATION**

<table>
<thead>
<tr>
<th>DONNING</th>
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<tbody>
<tr>
<td>1. <strong>READ SHEET AND EXECUTE STEPS</strong></td>
</tr>
<tr>
<td>2. <strong>DON PROPER PPE OUTSIDE NEGATIVE PRESSURE ROOM</strong></td>
</tr>
<tr>
<td>3. <strong>PRESENT SELF TO LEADER TO VERIFY PROPER DONNING</strong></td>
</tr>
<tr>
<td>4. <strong>ENTER FIRST IN NEGATIVE PRESSURE ROOM WITH:</strong></td>
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<tr>
<td>- COVID-19 VENOUS ACCESS KIT</td>
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<td>- COVID-19 INDUCTION MEDICATION KIT</td>
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<tr>
<th>PREPARE</th>
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<tr>
<td>5. <strong>ESTABLISH 2 LARGE BORE IVs</strong></td>
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<tr>
<td>6. <strong>CONFIRM VASCULAR ACCESS SUCCESSFUL TO LEADER</strong></td>
</tr>
<tr>
<td>- IF NO VASCULAR ACCESS POSSIBLE; TELL LEADER FOR I/O ACCESS</td>
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<tr>
<td>7. <strong>TAKE COMPLETE VITAL SIGNS AND INSTALL HEART MONITOR +/- DEFIBRILLATION PADS</strong></td>
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<tr>
<td>8. <strong>PREPARE LEVOPHED AND PROPOFOL INFUSION (READY TO START)</strong></td>
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<tr>
<td>9. <strong>POSITION PATIENT FOR INTUBATION</strong></td>
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<tr>
<th>STOP</th>
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<tbody>
<tr>
<td>10. <strong>TIME OUT: CONFIRM INTUBATION CHECKLIST BEFORE PROCEEDING</strong></td>
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<tr>
<th>INDUCTION</th>
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<tbody>
<tr>
<td><strong>ADULT DOSE</strong></td>
</tr>
<tr>
<td><strong>PROPOFOL 100MG OR KETAMINE 100MG</strong></td>
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<table>
<thead>
<tr>
<th>APNEIC OXYGENATION</th>
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<tbody>
<tr>
<td><strong>NASAL CANULA</strong></td>
</tr>
<tr>
<td><strong>AMBU WITH PEEP VALVE</strong></td>
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<table>
<thead>
<tr>
<th>INTUBATION</th>
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<tbody>
<tr>
<td><strong>VIDEOLARYNGOSCOPE WITH VISUALIZATION OF TUBE PASSING BETWEEN CHORDS</strong></td>
</tr>
<tr>
<td><em>NO BURP/SELLICK</em></td>
</tr>
<tr>
<td><strong>INFLATE CUFF BEFORE CONNECTING TO VENTILATOR</strong></td>
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<tr>
<th>CONFORMATION</th>
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<tbody>
<tr>
<td><strong>END TIDAL CO₂</strong></td>
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<tr>
<td><strong>+ BILATERAL CHEST RISE</strong></td>
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<tr>
<td><em>NO AUSCULTATION</em></td>
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<tr>
<td><em>NO CXR</em></td>
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<tr>
<th>RAPID SEQUENCE INTUBATION</th>
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<tr>
<td><strong>PLAN B</strong></td>
</tr>
<tr>
<td><strong>1ST PASS UNSUCCESSFUL → TELL LEADER IMMEDIATELY AND TRY BOUGIE</strong></td>
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<td><strong>BOUGIE UNSUCCESSFUL → INSTALL SGA (IGEL) AND BAG WHILE SECOND INTUBATOR ENTERS WITH CRICOTHYROTOMY KIT</strong></td>
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<td><strong>CICO SITUATION (CANNOT INTUBATE/CANNOT OXYGENATE) → CRIC. IMMEDIATELY</strong></td>
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<tr>
<th>STABILIZE</th>
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<tbody>
<tr>
<td>11. <strong>START PROPOFOL AND TITRATE LEVOPHED FOR MAP ≥ 65</strong></td>
</tr>
<tr>
<td><strong>SUGGESTED DOSING: PROPOFOL 150MG/H - AIM FOR DEEP SEDATION</strong></td>
</tr>
<tr>
<td>12. <strong>RETAKE VITAL SIGNS AND SET Q15MIN</strong></td>
</tr>
<tr>
<td>13. <strong>INSTALL PHYSICAL RESTRAINTS</strong></td>
</tr>
<tr>
<td>14. <strong>INSTALL FOLEY</strong></td>
</tr>
<tr>
<td>15. <strong>DRAW LABS AND SEND TO LAB PER CONTAMINATION PROTOCOL</strong></td>
</tr>
<tr>
<td>16. <strong>IF NEED CENTRAL ACCESS: STAY IN ROOM AND TELL LEADER</strong></td>
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<tr>
<td>17. <strong>IF IMMEDIATE TRANSFER: FOLLOW TRANSFER PROCEDURES</strong></td>
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<tr>
<td>18. <strong>AFTER PATIENT STABILIZED, SUPERVISE COLLEAGUE DOFFING AND FOLLOW DOFFING PROCEDURES FOR SELF</strong></td>
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</table>
**ACTION SHEET**
**MD FOR INTUBATION**

### DONNING

1. **READ SHEET AND EXECUTE STEPS**
2. **DON PROPER PPE OUTSIDE NEGATIVE PRESSURE ROOM**
3. **PRESENT SELF TO LEADER TO VERIFY PROPER DONNING**
4. **ENTER AFTER VASCULAR ACCESS CONFIRMATION WITH:**
   - Kit intubation COVID-19 intubation kit
   - +/- COVID-19 intrasosseous kit (IF NO VENOUS ACCESS)

### PREPARE

5. **INSTALL I/O PRN**
6. **IDENTIFY CRICO-THYROÏD MEMBRANE AND MARK WITH PEN**
7. **POSITION PATIENT FOR INTUBATION**

### TIME OUT: CONFIRM CHECKLIST BEFORE PROCEEDING

- Pre-oxygénation and patient position
- Videolaryngoscope functioning
- Levophed et propofol ready to start
- RT ready for intubation + ETCO2
- RN ready for induction
- Second intubator stand by outside with cric. kit and second videolaryngoscope

### INDUCTION

- **ADULT DOSE**
  - Propofol 100mg
  - Ketamine 100mg
  - Rocuronium 100mg

### APNEIC OXYGENATION

- Nasal canula
- Ambu with PEEP valve
  - No bagging

### INTUBATION

- Videolaryngoscope with visualization of tube passing between chords
  - No burp/SELLICK
  - Inflate cuff before connecting to ventilator

### CONFIRMATION

- End tidal CO2
- Bilateral chest rise
- No auscultation
- No CXR

### PLAN B

- 1ST PASS UNSUCCESSFUL → TELL LEADER IMMEDIATELY AND TRY BOUGIE
- BOUGIE UNSUCCESSFUL → INSTALL SGA (IGEL) AND BAG WHILE SECOND INTUBATOR ENTERS WITH CRICOPTHYRODOTOMY KIT
- CICO SITUATION (CANNOT INTUBATE/CANNOT OXYGENATE) → CRIC. IMMEDIATELY

### RAPID SEQUENCE INTUBATION

- **START PROPOFOL TITRATE LEVOPHED FOR TAM ≥ 65**
- Suggested dosing: **Propofol 150mg/h** - Aim for deep sedation

### STABILIZE

9. **VERIFY VENTILATOR SETTINGS - AIM 6cc/KG OF IDEAL BODY WEIGHT**
10. **INSTALL PHYSICAL RESTRAINTS**
11. **DISPOSE REUSABLE EQUIPMENT IN DESIGNATED DECONTAMINATION BIN**
12. **AFTER PATIENT STABILIZED, SUPERVISE COLLEAGUE DOFFING AND FOLLOW DOFFING PROCEDURE FOR SELF**

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**PROTOCOLE D’INTUBATION COVID-19 HÔPITAL DE VERDUN**

**DÉPARTEMENT DE MÉDECINE D’URGENCE ET SERVICE DES SOINS INTENSIFS**

MISE À JOUR 19/03/2020 - TRADUCTION ANGLAISE

***PLEASE NOTE THIS IS A WORKING DOCUMENT PENDING APPROVAL***
ACTION SHEET
RESPIRATORY THERAPIST

DONNING

1. READ SHEET AND EXECUTE STEPS
2. DON PROPER PPE OUTSIDE NEGATIVE PRESSURE ROOM
3. PRESENT SELF TO LEADER TO VERIFY PROPER DONNING
4. ENTER WITH NURSE IN NEGATIVE PRESSURE ROOM WITH:
   - TRANSPORT VENTILATOR (CHECK BEFORE ENTERING)
   - PORTABLE VIDEOLARYNGOSCOPE (CHECK BEFORE ENTERING)

PREPARE

5. PREDETERMINE ET TUBE DEPTH PER PATIENT SIZE
6. PREPARE INTUBATION EQUIPMENT (FAVOR SIZE #8 TUBE)
7. PREPARE CONNECTING TUBES TO TRANSPORT VENTILATOR
8. POSITION PATIENT FOR INTUBATION
9. PRE-OXYGENATE WITH NASAL CANULA AND AMBU BAG + PEEP VALVE *NO BAGGING
   ***START O2 FLOW IN NASAL CANULA AFTER AMBU ON FACE

10. TIME OUT: CONFIRM INTUBATION CHECKLIST BEFORE PROCEEDING

RAPID SEQUENCE INTUBATION

INDUCTION
ADULT DOSE
PROPOFOL 100MG
OR
KETAMINE 100MG
+ ROCURONIUM 100MG

APNEIC OXYGENATION
NASAL CANULA
+ AMBU WITH PEEP VALVE
*NO BAGGING

INTUBATION
VIDÉOLARYNGOSCOPE WITH VISUALIZATION OF TUBE PASSING BETWEEN CHORDS
*NO BURP/SELICK
INFLATE CUFF BEFORE CONNECTING TO VENTILATOR

CONFIRMATION
END TIDAL CO2
+ BILATERAL CHEST RISE
*NO AUSCULTATION
*NO CXR

PLAN B

1ST PASS UNSUCCESSFUL → TELL LEADER IMMEDIATELY AND TRY BOUGIE
BOUGIE UNSUCCESSFUL → INSTALL SGA (IGEL) AND BAG WHILE SECOND INTUBATOR ENTERS WITH CRICOTHYROTOMY KIT
CICO SITUATION (CANNOT INTUBATE/CANNOT OXYGENATE) → CRIC. IMMEDIATELY

STABILIZE

11. CLAMP ET TUBE, INFLATE CUFF THEN CONNECT TO VENTILATOR (UNCLAMP)
12. CHECK/SECURE ET TUBE POSITION PER PREDETERMINED DEPTH
13. VALIDATE VENTILATOR SETTINGS - AIM 6CC/KG OF IDEAL BODY WEIGHT
14. INSTALL PHYSICAL RESTRAINTS
15. DISPOSE REUSABLE EQUIPMENT IN DESIGNATED DECONTAMINATION BIN
16. AFTER PATIENT STABILIZED, SUPERVISE COLLEAGUE DOFFING AND FOLLOW DOFFING PROCEDURE FOR SELF
# ACTION SHEET

**RN FOR MEDICATION PREPARATION**

| PREPARE | 1. **READ SHEET** AND EXECUTE STEPS  
2. **RETRIEVE** COVID-19 INDUCTION MEDICATION KIT  
3. **PREPARE** INDUCTION MEDICATION  
4. **IDENTIFY** SYRINGES  
5. **PUT** KIT ELEMENTS IN BAG  
6. **GIVE** KIT TO LEADER |

| DOSES | ☐ 1 AMP PROPOFOL 100ml (1g)  
☐ 1 SYRINGE PROPOFOL 200MG  
☐ 1 SYRINGE KETAMINE 200MG  
☐ 1 SYRINGE ROCURONIUM 200MG  
☐ 1 BAG OF NOREPINEPHRINE 4MG/250CC NS  
☐ 4 SYRINGES SALINE FLUSH 10CC |

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**PLEASE NOTE THIS IS A WORKING DOCUMENT PENDING APPROVAL**
**ANNEX I: EQUIPMENT LIST FOR COVID-19 KITS**

**COVID-19 INTUBATION KIT**
- 1 ET tube size #6
- 1 ET tube size #7
- 1 ET tube size #8
- 1 intro pocket bougie (BOMIMED)
- 1 Guedel size #9
- 1 Guedel size #10
- 1 flexible stylet
- 1 CMAC/Glyedorescope stylet
- 1 Ambu
- 1 PEEP valve
- 1 large Ambu mask
- 1 mainstream END-TIDAL CO2 sensor
- 1 EZ cap
- 1 rigid succion
- 1 gel #4
- 1 ET tube fixator
- 1 tape roll
- 1 tube clamp
- 6 sterile gel pack
- 1 syringe 10cc
- 4 addipack
- 1 trachcare
- 1 ventolin+atrovent doser
- 1 midi
- 1 ventilation sheet + paper
- 1 physical restraints kit
- 1 nasal canula + extention
- 1 surgical marker/Pen

**KIT PONCTION VEINEUSE COVID-19**
- 1 tourniquet
- 1 tape roll
- 2 Jelco #18
- 2 Jelco #20
- 2 syringes saline flush 10cc
- 1 syringe 3cc with #20 needle
- 2 opsite
- 4 cottons
- 6 alcohol prep pads
- 2 ns lock
- 1 #20 needle
- 1 Luer adaptor
- 1 piccline barrel
- 1 hemoculture barrel
- 2 hemocultures (aerobic+anaerobic)
- 2 yellow tubes
- 1 blue tube
- 1 dark green tube
- 1 purple tube

**COVID-19 CRICOTHYRODOTOMY KIT**
- 1 ET tube size #6 with cuff
- 1 ET tube size #5 with cuff
- 1 ET tube size 5.5 without cuff
- 1 gel pack
- 1 intro pocket bougie (BOMIMED)
- 1 scalpel blade #15 (disposable)
- 1 tracheal canula size #4
- 1 hemostat

**COVID-19 INTRAOSSEOUS KIT**
- 1 EZ I-O drill
- 1 blue needle
- 1 yellow needle
- 1 tubing
- 1 fixator
- 1 syringe saline flush
- 1 inflatable pressure sleeve (for flushing)

**COVID-19 INDUCTION MEDICATION KIT**
**RECONSTITUTE BEFORE PROCEDURE**
- 1 amp propofol 10mg/ml (100ml)
- 1 amp propofol 10mg/ml (20ml)
- 1 amp ketamine 10mg/ml (20ml)
- 4 amp rocuronium 10mg/ml (5ml)
- 1 amp de norepinephrine 1mg/ml (4ml)
- 1 bag ns 0.9% 250cc
- Identification stickers
- 2 pump lines
- 6 alcohol prep pads
- 3 syringes 10cc
- 1 syringe 20cc
- 4 #20 needles
- 4 syringes saline flush 10cc

**COVID-19 FOLEY KIT**
- 1 foley kit
- 1 foley #16
- 1 pair sterile gloves stérile (S/M)
- 1 loris cleaning sheet
- 1 drainage bag

**COVID-19 INTRAOSSEOUS KIT**
- 1 EZ I-O drill
- 1 blue needle
- 1 yellow needle
- 1 tubing
- 1 fixator
- 1 syringe saline flush
- 1 inflatable pressure sleeve (for flushing)

**COVID-19 FEMORAL CENTRAL LINE KIT**
- 1 central line kit
- 1 pack chlorhexidine sponges
- 1 sterile ultrasound sleeve
- 1 sterile ultrasound gel
- 3 clave needlefree connector
- 1 syringe 10cc
- 1 #23 1/2 needle
- 1 tegaderm IV advanced
- 1 bag ns 0.9% 250cc
- 1000 units IV heparin
- 1 pick
- 1 3cc disposable syringe with needle
- 2 gauze 4x4
- 1 xylocaine 2% without epinephrine
- 1 pair sterile gloves size 7

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**PROTOCOLE D’INTUBATION COVID-19 HÔPITAL DE VERDUN**
**DÉPARTEMENT DE MÉDECINE D’URGENCE ET SERVICE DES SOINS INTENSIFS**
**MISE À JOUR 19/03/2020 - TRADUCTION ANGLAISE**

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