

The CHEO logo is displayed in purple text within a white rectangular box. A vertical blue line is positioned to the left of the box. In the background, there is a large, faint, light gray watermark of a stethoscope.

Guidelines for Resuscitation of Patients During COVID-19 Pandemic

Version 5
4/28/2020

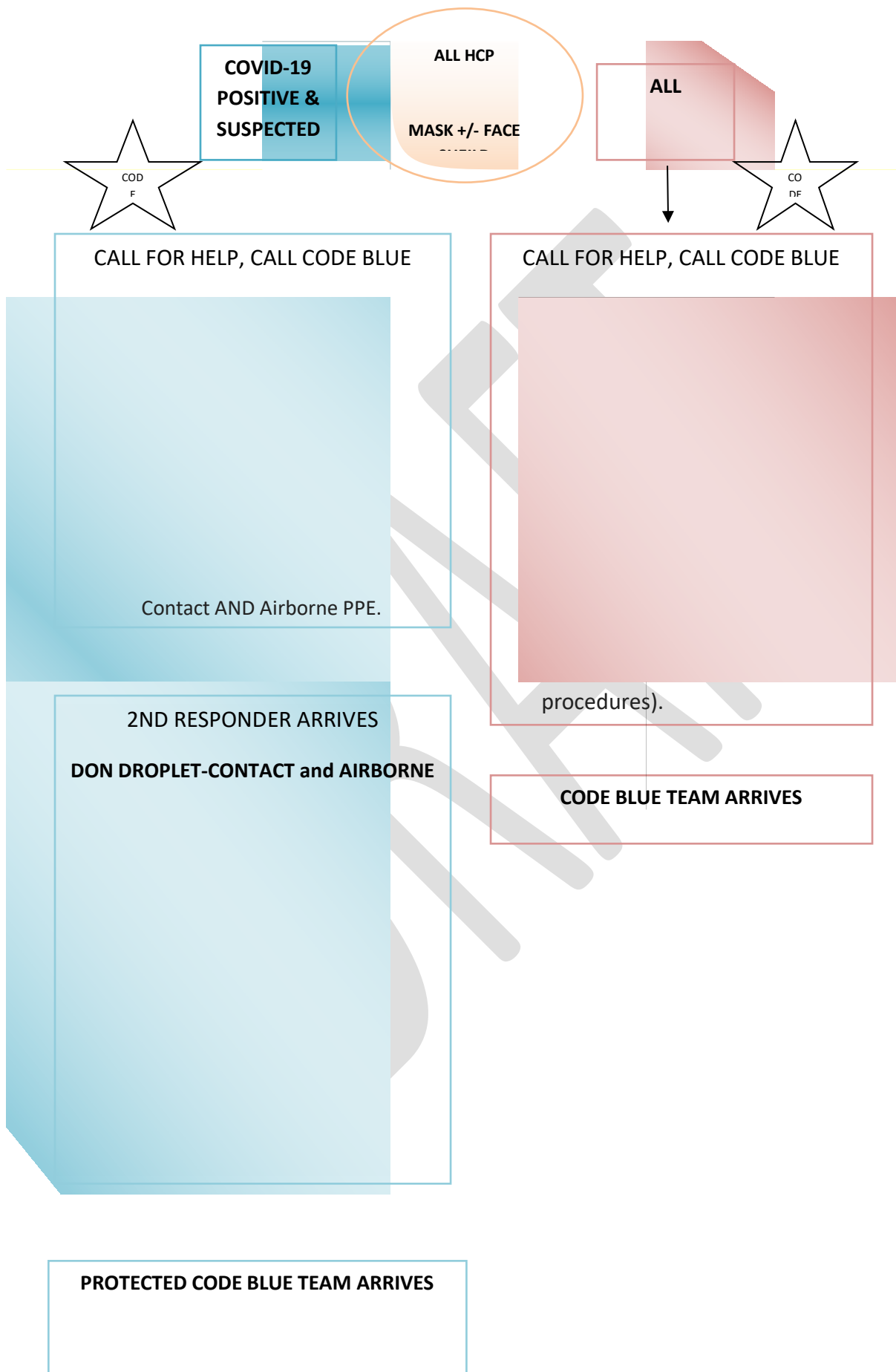
Resuscitation for Patients During COVID-19 Pandemic

VERSION 5 April 28, 2020

Key Points

- Our priority at CHEO is to protect our Health Care providers and provide evidence-based care.
- AT THIS TIME, CHEO WILL CONTINUE TO FOLLOW **A RISK ASSESSMENT STRATEGY FOR COVID-19.**
- **ALL COVID-19 SUSPECTED AND POSITIVE PATIENTS WILL FOLLOW A PROTECTED FIRST 5 AND CODE BLUE RESPONSE.**
- ALL OTHER PATIENTS FOLLOW USUAL** CODE BLUE RESPONSE.
**This may change over time and this protocol will be updated.
- PROTECTED CODE BLUES MINIMIZE THE NUMBER OF PEOPLE NEEDED INSIDE ROOM TO SAFELY PERFORM RESUSCITATION.
- BAG-MASK VALVE (BMV) VENTILATION, INTUBATION AND CHEST COMPRESSIONS WITH BMV ARE AEROSOL GENERATING MEDICAL PROCEDURES.
- AT THE START OF EVERY CHANGE OF SHIFT, HEALTH CARE PROVIDERS FROM EACH DISCIPLINE ON THE CODE BLUE TEAM WILL BE IDENTIFIED AND NOTIFY PICU. PICU CF will post these names on the white board.

Figure 1: Initial Response



A. Personal Protective Equipment Principles

- Full coverage of mucous membranes
- Hair secured – to avoid touching / contaminating
- Body coverage against contact with respiratory droplets
- Avoid respiratory secretions on face – high risk of contamination of mucous membranes given close proximity
- Don PPE one at a time with an observer, if possible.
- Keep door closed at all times; keep both doors closed if in negative pressure room

Recommendations

- a. Fit–tested and seal checked N95 respirator if patient is suspected or confirmed COVID 19 positive
- b. If patient is not suspected or confirmed COVID 19 positive, wear procedure mask
- c. Full face shield
- d. Gown
- e. Gloves

B. WARD HEALTH CARE PROVIDER RESPONDERS

PATIENT CONFIRMED COVID-19 POSITIVE OR COVID-19 SUSPECTED:

Personnel

First Responder

Droplet-Contact precautions policy directs that all healthcare providers entering the room will already be wearing a procedure mask and face shield or procedure mask with visor.

Patient has cardiorespiratory event warranting CODE BLUE Team activation:

1. Call for help
2. Check for pulse
 - a. If no pulse, start chest compressions. No BMV. Stay in room until 2nd responder in combined Droplet-Contact and Airborne PPE arrives
 - b. If pulse, but not breathing, apply O2 via simple face mask. NO BMV.
 - i. **Leave room, don combined Droplet-Contact and Airborne PPE as quickly as possible**
 - ii. Return to room and check for pulse
 - iii. If no pulse, start chest compressions
 - iv. If pulse present, support breathing

3. Ensure no one enters room without combined Droplet-Contact and Airborne PPE

Second Responders

1. Don combined Droplet-Contact and Airborne PPE and assist first responder in resuscitation (BMV with HEPA filter and CPR, 15:2 for 2 rescuers) until code blue team arrives.
2. Enter room and close door (s) behind them.
3. Stay in room once code blue team arrives to become documenter

HCA

1. Bring ward resus cart to room
2. Bring CPR stool to room

PSC

1. Identify the patient for which the code has been called and print 8 labels

ALL PATIENTS WHO ARE NOT CONFIRMED OR SUSPECTED COVID-19:

(including those not on additional precautions)

Universal mask policy demands all health care providers should be wearing a procedure mask.

Patient has cardiorespiratory event warranting CODE BLUE Team activation:

1. Call for help
2. Check for pulse
3. If no pulse, start chest compressions
4. If pulse, but not breathing, start BMV5. Will not automatically need Droplet-Contact AND Airborne PPE. Follow usual hospital procedures.

Second Responders

1. Don required PPE if patient isolated and relieve first responder doing chest compressions until code blue team arrives.
2. Stay in room once code team arrives to become documenter.

C. REDUCED CODE BLUE TEAM PERSONNEL FOR CONFIRMED OR SUSPECTED COVID-19 PATIENTS

Inside room Personnel:

1. 1 MD lead (PICU Attending, Clinical Associate or Fellow)
2. 1 MD for Intubation (Most experienced airway professional available)
3. 1 PICU RN
4. 1 RT
5. Documenter (Ward RN)

Affix role labels to each person in the room

****IF CHEST COMPRESSIONS required, additional 2 providers needed (2 first responders stay in the room after code team arrives and continue to perform compressions)**

In Ante room or outside room:

The following members MUST be in Airborne/Droplet-Contact PPE ready to support team members inside room:

1. PICU RN
2. RT
3. MD

PPE not needed for these members while in anteroom:

1. PPE COACH to reinforce/support correct PPE practices (please put on STICKER to identify self as “PPE COACH”)
2. Pharmacist

The PICU RN, RT, MD in PPE in the anteroom should be READY to:

- provide support if someone needs to leave the room
- be ready to get whatever, hand in equipment, meds etc. that team requests
- facilitate communication with team inside and the rest of the team
- observe for breaches in PPE

Other: “Runner” to assist with supplies and activate others as needed – PPE not required. Print patient labels for bloodwork and requisitions.

**** Health care providers in the room are always able to ask for more help as required. It is highly recommended to limit the number of providers to the smallest group possible for effective patient care.****

D. EQUIPMENT FOR CONFIRMED OR SUSPECTED COVID-19 PATIENTS

- For all patients on isolation precautions, assemble equipment and supplies outside the room and pass them in when possible. Bring only essential equipment into the room. The Code Blue cart is kept in the anteroom if possible.
- **Defibrillator is removed from cart and brought into room. Pads applied to pt.** If shock required and pt. is intubated, you may disconnect or leave MIE connected to ETT. Ensure no free flowing O2 across pt. chest.
- “Code Blue Go-Bag” brought into pt. room.
- Medications and fluids prepared by team outside the room and passed into the room when possible.

- If needed the drawer with drugs can be removed and brought into the room.
- No equipment can leave the room until the end of the code blue and without appropriate cleaning.
- Use two-way radios for communication through closed doors
- PALS algorithm removed from binder and handed to code leader in room. Identify pt. rhythm and follow algorithm.

E. INTUBATION FOR CONFIRMED OR SUSPECTED COVID-19 PATIENTS

- Ideally, intubation should be performed in negative pressure room (located in ED Resus, Iso A/B/C, PICU rooms 1,2& 21, 4E rooms 6-11 and 5E rooms 7,8,9 and 4W rooms 7,8,9).
- If this is NOT feasible and patient requires intubation in a regular patient room, the door should be kept closed.
- If performing intubation during CPR, hold CPR during intubation to optimize intubation success.
- Maintain Airborne precautions in this room until air in the room has recirculated. (1 hour if in negative pressure or 2 hours in any other room); doors kept closed, all staff entering in this time period wears N95

Airway Equipment for confirmed or suspected COVID 19 patients

- The Ward Resus cart and the Code Blue cart are kept outside the room. Use intubation kit.

Airway/ Breathing

- Appropriate sized ETT and 0.5 size smaller in room & laryngoscope and two blade options.
- Oral airway
- Mask, MIE and suction present and tested
- **Ensure placement of HEPA filter between the elbow and oxygen tubing connector of MIE**
- PediCap/ ETCO2 monitoring on defibrillator for intubation verification

Medication

- PALS sheet verified
- Bring "Code Blue Go-Bag" in room
- 1:10,000 IV epinephrine prepared
- NS Fluid bolus prepared
- At least 2 doses of intubation medications (as per Team Leader) and appropriate neuromuscular blockade

Clinical Recommendations for Intubation for suspected or confirmed COVID- 19 patients:

- Brief Team pause prior to procedure with MD lead recap
 - Pt. age, weight, reason for intubation
 - Verify meds
 - Verify equipment
 - Patient and intubator appropriately positioned (bed at waist height of intubator, rolls positioned if needed)
- Pre-oxygenate with bag and mask, minimize bagging if possible (free flow O2 with MIE)
- **Perform rapid sequence induction**
- Inflate cuff, attach PediCap/ ETCO2 monitoring on defibrillator and connect MIE (with hepafilter)– this is now a closed system
- Intubator will hold ETT while RT secures it
- Prior to disconnecting ETT from MIE, pinch the ETT or consider using a clamp if available and attach to ventilator with EtCO2 and in-line suction when it becomes available.
- Avoid disconnection of patient and ETT as much as possible.
- Wipe all non-disposable equipment including laryngoscope with Oxivir and place into tied bag to ensure that contaminated supplies are contained.
- Avoid auscultation if possible. Assess bilateral chest rise and EtCO2

F. INVESTIGATIONS FOR SUSPECTED OR CONFIRMED COVID-19 PATIENTS

- No Chest X-rays, EKGs, ECHOs during Code Blue
- Perform CXR once patient in PICU

G. TRANSPORT TO PICU FOR SUSPECTED OR CONFIRMED COVID-19 PATIENTS

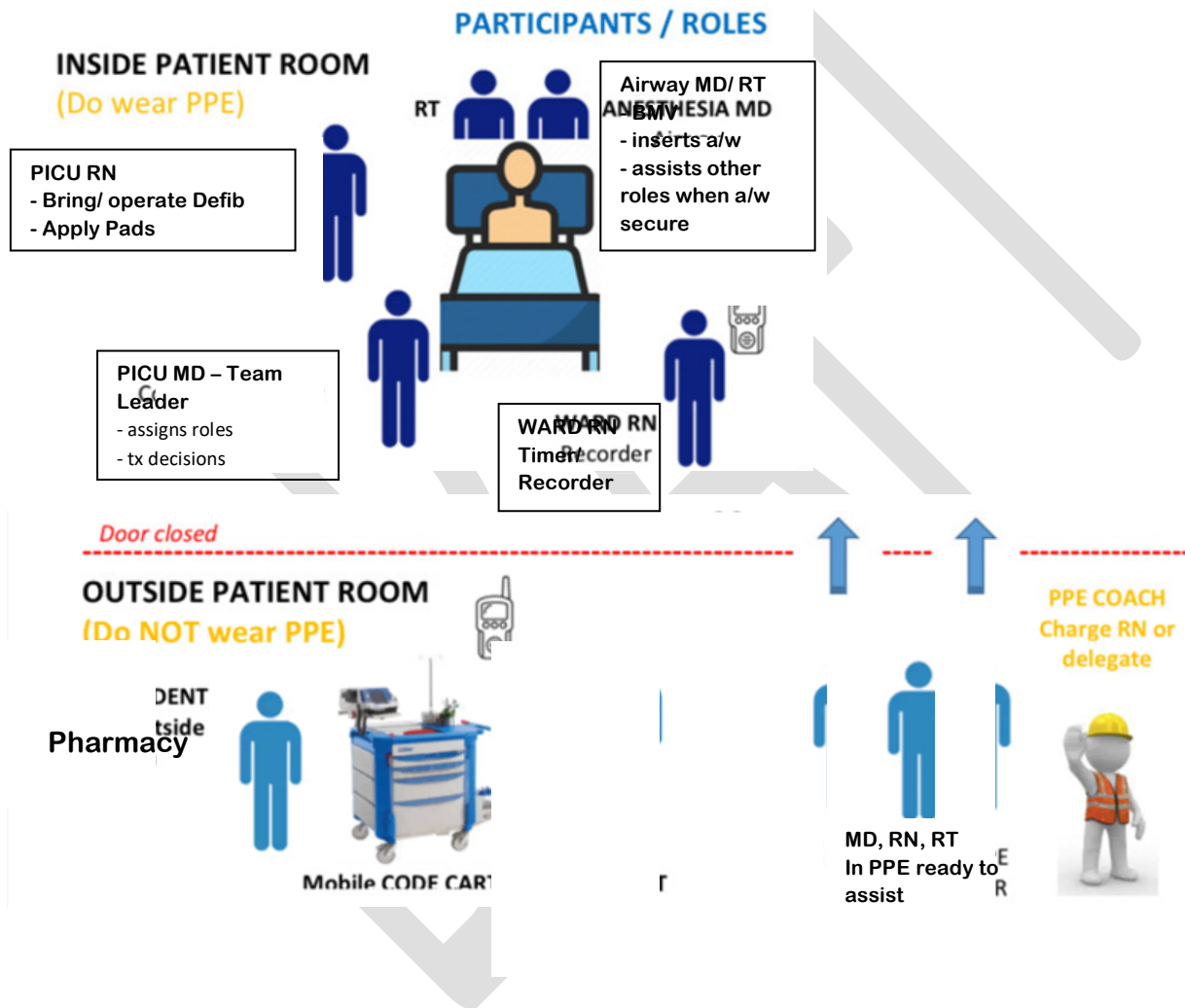
- **All team members must be in CLEAN full PPE (face shield, N95, gown, gloves) for transport**
- Clean team will consist of HCPs that did not provide patient care inside room
- CODE BLUE team will doff one at a time with an observer
- Identify clean health care worker whose role is to push elevator buttons, clear elevator and use phone outside of unit, if required.
- Leave ANY EQUIPMENT that was used in the room

H. PPE RE-USE

- After appropriate doffing, ensure N95 and face shield placed in bin for decontamination

KEY PRINCIPLES

1. Appropriate PPE and ensuring safety of HCPs
2. Minimize number of people in the room
3. All procedures by most experienced provider

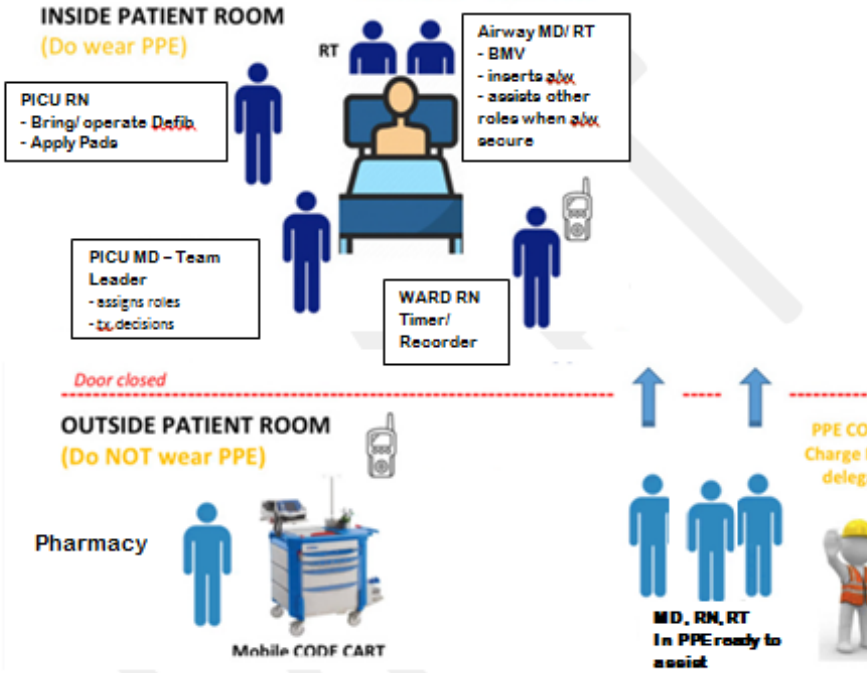


Adapted from: A. Shevell, A. Lehr, P. Prasertsan, G. Annic
 The Hospital for Sick Children Critical Care Response Team (CCRT)

KEY PRINCIPLES

1. Appropriate PPE and ensuring safety of HCPs
2. Minimize number of people in the room
3. All procedures by most experienced provider

PARTICIPANTS / ROLES



EQUIPMENT:

line suction catheter

MEDICATION:

TEAM PAUSE:

INTUBATION:

DONNING

GO SLOW

DOFFING

Consider

Ensure use of HEPA filter in

PREPARE LOCATION: Transfer pt to Negative Pressure room. Activate negative pressure.

PERSONEL:

EQUIPMENT:

MEDICATION:

- Fluid bolus prepared

DON PPE:

TEAM PAUSE:

- Position pt and intubator

INTUBATION:

CONSIDER

If hypoxic, immediately following
filter and capnostat

- Avoid disruption of ventilator

limb.

DOFF PPE:

Appendix D: Protected Code Blue Go-Bag Contents List

PROTECTED CODE BLUE GO-BAG – In Large Ziplok Bag

500 ml NS bag

6 of 10cc flushes

Spike for fluid bag

60ml syringe

4 blunt needles

Alcohol swabs

2 of each- 10cc, 5cc, 3cc and 1cc syringes

Epinephrine 1ml/10ml box

Transfer device

3-way stopcock

T connector for IV

SL connection

Butterfly needle

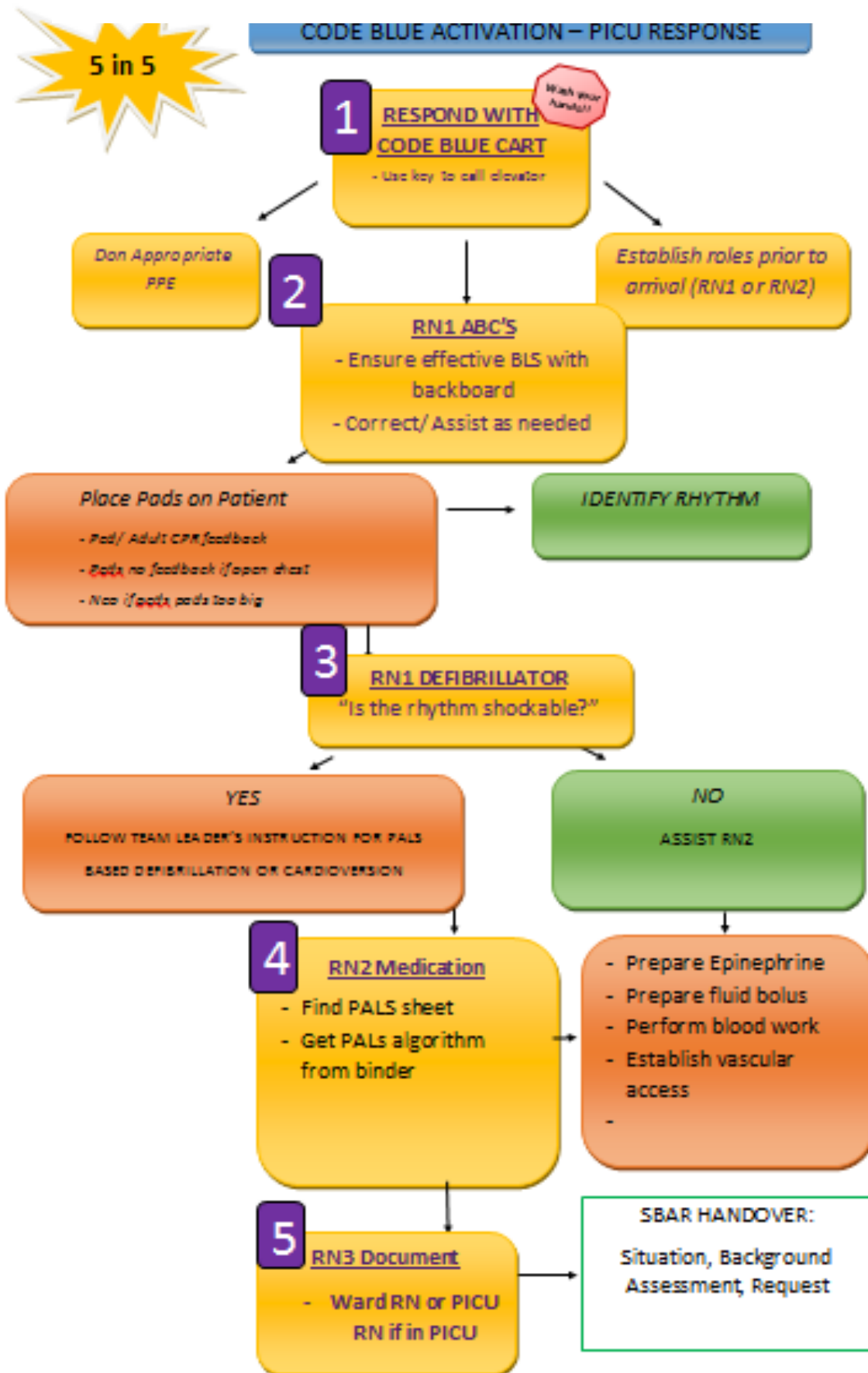
22G IV

2x24G IV

Chlorhexidine swabs

Tourniquet

Gas syringe, purple top and green top blood collector



**CONTENTS OF THIS CART MAY NOT BE ALTERED WITHOUT APPROVAL FROM
THE EARLY RESPONSE & RESUSCITATION COMMITTEE.
FOR USE IN EMERGENCY SITUATIONS ONLY.**

EXTERNAL CONTENTS

ITEM	AMOUNT	RESTOCK
Zoll Defibrillator ECG Cable / SpO2 probe (Clip) / EtCO2 Cable / One Step Pediatric Defib Pad (attached)		Pads 22090
Binder / Clipboard with Code Blue Records		
Compression Board		
Portable AC/DC suction (plugged in and charging, tubing attached)		Gomco G180
Basket with PPE (mask with face shields, gown) (Behind Suction Unit)	3 of each	Mask with shield 2911
Medium Gloves	1 box	1527
E Size Grab 'n Go O2 cylinder (Simple Mask attached)		5899
Carefusion Pump with 2 Channels	1 pump, 2 channels	
Code Blue Resource Binder		Pharmacy (labels) / CRamsay
PPE Bag (N95s: 18602, 1870+, 1730, 8210) (Face shields)	4 of each	
SIDE BIN		
One Step Adult Defib Pad	1	22095

ITEM	AMOUNT	RESTOCK
Sensor SAO2 Probe Neo/Adult for <3kg or >40kg	1	22110
Sensor SAO2 Probe Infant 3 – 20kg	1	22115
Sensor SAO2 Probe Ped/Slender Adult 10 – 50 kg	1	22135
Disposable ECG Leads	1	0091
Small Sharps Container		
Purell		

DRAWER 1: MEDICATIONS

ITEM	AMOUNT	RESTOCK
Adenosine 3mg/mL (2mL)	3	Pharmacy
Amiodarone 50 mg/mL (3mL)	3	Pharmacy
Atropine 0.4mg/mL (1mL)	3	Pharmacy
Calcium Gluconate 10% (10mL)	3	Pharmacy
Dextrose 10% (D10W) 500ml bag	1 bag	
Dopamine 0.8 mg/mL bag (250mL)	1	Pharmacy
Epinephrine (1:10,000) 0.1mg/mL prepackaged syringe (10mL)	2	Pharmacy
Epi Kit for Anaphylaxis (<i>Epi 1mg/mL ampoule, 1mL syringe, 1 filter needle blunt 18G 1 ½ inch, 1 safety Glide Needle 23G 1 inch</i>)	2	Pharmacy
Fentanyl 50mcg/mL (2mL)	1	Pharmacy

ITEM	AMOUNT	RESTOCK
Hydrocortisone 50mg/mL (100mg)	2	Pharmacy
Ketamine 10mg /mL (20mL)	1	Pharmacy
Lidocaine Cardiac 20mg/mL (5mL vial)	2	Pharmacy
Magnesium Sulfate 50% (10mL)	1	Pharmacy
Midazolam 1mg/mL (10mL)	1	Pharmacy
Naloxone 0.4mg/mL (1mL)	2	Pharmacy
Propofol 10mg/mL (20mL)	1	Pharmacy
Rocuronium 10mg/mL (5mL)	2	Pharmacy
Salbutamol Inhaler (100mcg/puff)	1	Pharmacy
Sodium Bicarbonate 8.4% (50mL vial)	1	Pharmacy
Sodium Chloride 3% (250mL bag)	1	Pharmacy
Succinylcholine 20mg/mL (10mL)	2	Pharmacy
Sterile Water for Injection 10mL	2	
ASA Chew Tab 80mg	2	Pharmacy
Nitroglycerin Spray 0.4mg	1	Pharmacy
0.9% Normal Saline Flush (10cc syringe)	10	
Broselow Pediatric Emergency Tape	1	
Calculator	1	

DRAWER 2: IV EQUIPMENT

ITEM	AMOUNT	RESTOCK
23, 25, long butterfly needles	2 each	2495, 2496
25G Safety Glide Needles	2	
23G Safety Glide Needles	2	
18G Safety Glide Needles or 18G Sharp Needles (to needle chest)	2 (in labelled bag)	
18G Blunt Needles	10	
18G Blunt Filter Needles	5	
Labels	20	
Filter Needles	5	
Chlorhexidine swabs	10	
3 way stop cock	1	3599
Luer Activated Universal Vial Adaptor	2	0055
Blood transfer set	1	
Vacutainers	2	
Fluid Dispensing Connector (Green double connector)	3	0027
Tourniquets	3	3068
10cc Syringe	2	2456
5 cc, 3cc, 1cc Syringes	5 each	2454, 1987, 1986
60cc Syringe	1	1989
30 cc Syringe	2	2745
T-Connectors	2	

ITEM	AMOUNT	RESTOCK
Vented bag spike	2	0054
Luer Lock Valves (One link)	2	12030
Insyte/IV access cannulae Sizes 16G, 18G, 20G	2 each	
Insyte/IV access cannulae Sizes 22G, 24G	4 each	
ABG Syringes	2	00155
Capillary Blood Gas Kit (blood work tubes, magnet, flea)		
Lavender top container (regular and micro)	1 reg, 2 micro	5676
Red top blood containers	2	5680
Green top containers (regular and micro)	1 each size	
(CONTINUED OVER)		
Coag. Blood container (Blue top)	2	5678
Nova StatStrip	1 container	2660
Lancet genie purple	2	5715
Lancet genie yellow	2	5714
¼" Steri-Strips	1 pack	
Tegaderm IV (small and large)	3 each size	
Bio Hazard Bags	2	
Arm Boards (small and medium)	2 each	

DRAWER 3: AIRWAY EQUIPMENT

ITEM	AMOUNT	RESTOCK
Oral Airway Sizes 3, 4, 5, 6, 7, 8, 9, 10, 11	1 each	3104,3112, 3131, 3132, 3133, 3134, 3135, 3136, 3137
Fiber Optic LED Laryngoscope Handle	2	RT Dept
Miller Blades Sizes 0, 1	1 each	RT Dept
Mac Blades Sizes 1, 2, 3, 4	1 Each	RT Dept
2 C Batteries	2	2223
Tonsil Tip Suction	1	2094
Magill Forceps (Adult, Ped & Infant)	1 of each	
Adult Stylette	1	2464
Pediatric Stylette	1	2463
Hemostat / ETT Clamp	1	RT Dept
1" cloth tape	1	2247
1" Transpore tape	1	1903
2" Blenderm tape (pink)	1	2954
Masticol	3	
Scissors	1	
Flashlight	1	2100

DRAWER 4: AIRWAY EQUIPMENT

ITEM	AMOUNT	RESTOCK
DISS Oxygen flowmeter, nipple and tubing attached	1	3979 (tubing)
Quick Connect Oxygen flowmeter	1	
MIE Bag Adult & Pediatric	1 each	3872 / 3867
Electrostatic Filter Small	1	3967
Filter barrierbac w/etCO2 port	1	2112
O2 Tubing	1	3979
King Mask Sizes 2, 3, 4, 5, 6	1 each	2904, 2908, 2909, 2912, 2913
Suction Catheters 6, 8, 10, 12, 14, 18	2 each	2820, 2407, 2408, 2409, 2413, 2139
Inline Suction Catheters 8, 10, 12, 14	1 each	2416, 2417, 2018, 2055
Un-Cuffed ETT Sizes 2.5, 3, 3.5, 4, 4.5, 5, 5.5,	1 each	2626, 2400, 2716, 2717, 2403, 2404, 2405
Cuffed ETT Sizes 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8	1 each	2977, 2976, 2978, 2916, 2917, 2918, 2919, 2525, 2406, 2920, 2921
In-line Aerochamber	1	
PediCap ETCO2 Detector	1	2657
Adapter Airway ETCO2 Defib Ped/Adult	1	22120
Adapter Airway ETCO2 Defib Neonatal/Ped	1	22125

DRAWER 5: NG / SUCTION / MISC.

ITEM	AMOUNT	RESTOCK
Nasogastric Tubes 5, 8, 10, 12, 14, 16	1 each	
Muco	2	
Oral 10 cc Syringe	1	14040
Saline Addipacks	5	
4 x 4's	4	1936
0.9% NaCl (1L bag)	2	
60cc Syringe	2	
IV Tubing (Admin Set Primary 3 Port 127")	2	12075
Secondary Med Set with Duo-Vent Spike	2	
Syringe Pump Tubing	2	
Blood Set Non Vented 180 Micron 122"	1	12085
Blood Component Set	1	3540
Sphygmomanometer	1	
Blood Pressure Cuffs (infant, child, youth, adult)	1 each	
EZ-IO Power Driver (in yellow carrying case)	1	
EZ-IO 15mm IO needles set (in kit)	2	0214
EZ-IO 25mm IO needles set (in kit)	2	0215
EZ-IO Stabilizer (in kit)	1	
Paper Record ECG 80mm Fanifold 200s	1	221005

DRAWER 6: INVASIVE LINES / PROCEDURE EQUIPMENT

ITEM	AMOUNT	RESTOCK
4 Fr Double Lumen CV Catheter (5cm)	1	
Minor Suture Tray (with 4-0 gut, 2-0 silk (or other non-absorbable), 11 & 15 scalpel blades)	1	
Self-Inflating (Ambu) Bag (Adult & Ped)	1 each	
BD Valve Pneumostat Chest Drainage	2	2149
Sterile Glove (for pneumostat drainage)	1	
Non Latex Gloves Sizes 6-8	1 each	
Surgical Masks	1 box	
Chlorhexidine	1	
Chest Tubes #12, #16, 20 Fr Thal-Quick	1 each	3299, 1052, 3298
Stethoscope	1	
IV Go Bag (contents listed on bag)		