Code Blue Initiation and Response: Adult

Site Applicability:

VCH Acute Care Sites

Practice Level

Profession	Basic Skill	Advanced Skill (requiring additional education)
All Health Care Providers	• Initiation of code blue response • Initiation of Basic Life Support (BLS) including Cardio Pulmonary Resuscitation (CPR) is a basic skill for those competent in the provision of BLS	
RT	• Membership on a designated code blue team	• Endotracheal intubation requires additional education and certification by the RT department
RN		• Membership on a designated code blue team requires specialized knowledge about life threatening emergencies including the provision of advanced cardiac life support (ACLS)

Clinical Indication

A code blue is initiated by any health care professional to provide a coordinated response, and summon additional resources, to any life-threatening situations such as cardiac arrest, respiratory arrest, choking, anaphylaxis, hemorrhaging, or seizures.

Policy Statements

Health care providers with CPR in their job description must maintain competency with current Heart and Stroke Foundation of Canada CPR and ECC standards and guidelines.

Staff members caring for a patient must be aware of their patient's code status, and discuss with the Most Responsible Provider any lack of clarity among orders concerning code status (e.g. Medical Order for Scope of Treatment (MOST)) and the patient's own directives such as an advance care plan, advance directive, or Provincial No CPR form.

Cardiac and respiratory arrests are managed in accordance with the guidelines established by the Heart and Stroke Foundation of Canada guidelines.

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CPR and a code blue response are initiated by any health care provider for a witnessed or unwitnessed cardiac arrest unless there is a do not attempt CPR order.

A code blue response may be initiated for patients with code status orders (e.g. MOST) in response to a life-threatening situation when initiating a code blue response aligns with the patient's code status.

If the code blue involves a patient, the patient's chart must be brought to the patient's side. For sites with CERNER electronic health record (EHR) the patient's chartlet and workstation on wheels (WOW) must be brought to the patient's bedside.

The patient's chart or EHR must be matched against the patient's wrist band using at least two unique identifiers. The patient's chart or electronic health record must be checked during a code blue to verify the patient's documented code status.

The resuscitation record is a legal document and must be completed in full and signed by all participating health care providers at the end of the code blue.

Need to Know

Teams specifically designated to respond to a code blue, as a minimum, will consist of:

- A designated physician;
- A designated RN; and
- RT where available
- Other participating personnel can include:
  - First and second responders
  - Nursing staff as required
  - Nursing unit assistant
  - Security
  - Patient escort
  - Other designated site responders
  - Other Allied Health clinicians as required, such as Social Worker

Equipment and Supplies

Standard items for responding to a code blue include:

- Appropriate personal protective equipment (PPE), refer to Infection Prevention and Control for more information about donning and doffing PPE
- BLS equipment and supplies, including bag valve mask, oral airways, automated external defibrillator (AED) if available, and CPR board
  - Oxygen and oxygen supplies
  - Suction equipment and supplies
  - Advanced airway equipment and supplies
  - ACLS supplies, medications and equipment, including monitor/defibrillator
  - Resuscitation record

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Protocol

Please see Algorithm

All healthcare workers (HCW) should perform a point of care risk assessment (PCRA) prior to an AGMP to select the appropriate personal protective equipment (PPE) and environmental controls.

1st Responder (Staff who first discovers the patient)

- Identifies emergency situation requiring a code blue response
- Calls for assistance, this may include pressing 'code blue' button if immediately accessible
- Initiates appropriate BLS interventions within their individual abilities and competence
- Assess for respiratory effort by visual inspection. DO NOT feel or listen for breath sounds or auscultate chest.
- Confirm absence of a pulse by assessing a femoral or brachial pulse.
- If the patient is pulseless and CPR appropriate:
  - Cover the patients' nose and mouth with either **(before initiating CPR)**
    - An oxygen mask if available (6L/min if a simple face mask or equivalent is used or 15L/min if non-rebreather mask is used); OR
    - A medical mask; OR
    - A cloth
- Complete PCRA to identify risk of respiratory infection (including COVID-19 and Influenza). Review isolation/precaution signs at door entrance.

PPE Recommendations:

- First responder to don Droplet PPE (minimum medical mask and eye protection)
- Do not unnecessarily delay chest compressions
- When second responder arrives to take over chest compressions:
  A) If patient **NOT suspected or negative** for respiratory infection (including COVID-19), continue code activities using Droplet PPE (minimum medical mask and eye protection)
  B) If patient status **unknown or positive** for respiratory infection (including COVID-19), first responder exits room to don Airborne/Droplet/Contact PPE (N95, eye protection, gown & gloves) before returning

- Provides a brief report to the responding code blue team or paramedics outlining:
  - patient status upon initiating code blue
  - interventions provided and patient responses
  - if known, events immediately leading up to code blue
  - if known, reason for hospitalization and brief medical history
  - Respiratory infectious disease status of the patient

2nd Responder

- Initiates a code blue to mobilize the designated code blue team or calls 911 as per location specific practices.

PPE Recommendations

- Second responder to don appropriate PPE before entering scene:

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A) If patient **NOT suspected or negative** for respiratory infection, (including COVID-19), don Droplet PPE (minimum medical mask and eye protection)
B) If patient **unknown or positive** for respiratory infection, (including COVID-19), don Airborne/Droplet/Contact PPE (N95, eye protection, gown & gloves) before approaching the scene

- Relieves first responder from chest compressions
- If Aerosol Generating Medical Procedures (AGMPs) are required, including manual ventilation and airway suctioning, ensure all responders in the room, or within 2M of the patient, are wearing
  A) If patient **NOT suspected or negative** for respiratory infection, (including COVID-19), don Droplet PPE (minimum medical mask and eye protection).
  B) If patient **unknown or positive** for respiratory infection (including COVID-19), don Airborne/Droplet/Contact PPE (N95, eye protection, gown & gloves)
- Initiates AGMPs as required, including manual ventilation using bag valve mask ventilation.

2nd or 3rd Responder

PPE Recommendations

- Second or third responder dons appropriate PPE before entering scene:
  A) If patient **NOT suspected or negative** for respiratory infection, (including COVID-19), don Droplet PPE (minimum medical mask and eye protection)
  B) If patient **unknown or positive** for respiratory infection, (including COVID-19), don Airborne/Droplet/Contact PPE (N95, eye protection, gown & gloves) before approaching the scene
- Connects/applies oxygen and provides suction as required within their individual abilities and competence.
- Brings BLS equipment and supplies to the location of the code, and/or ACLS cart as per site specific practices.
- Initiates use of AED as indicated within their individual abilities competence.
- Initiates two person CPR as indicated within their individual abilities and competence
- Assists 1st responder as needed
- Brings the patient's chart, or patient's chartlet and WOW for CERNER sites, to the bedside and matches it to the patient's wrist band using at least two unique identifiers and confirms the patient's code status and scope of treatment
- Initiates documentation on the resuscitation record
- Assists the code blue team as required
- Attends to the patient's family (if present) and/or other patient in the room
- Obtain additional resources as required
- Redirect excess staff to other patient care activities on the unit.

Patient's Primary Nurse

The nurse primarily caring for the patient should remain for the duration of the resuscitation efforts and provide a brief report to the responding code blue team or paramedics supplementing the report provided by the first responder outlining:

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- If known, events immediately leading up to code blue
- Current documentation code status (does not preclude the requirement to verify the patient's chart for documented code status)
- Reason for hospitalization and brief medical history
- Provides respiratory infectious disease status of the patient

Responsibilities of Team Members Designated to Respond to Code Blues (in some areas this may be referred to as the Code Blue Team) include:

All Team Members:

- Obtain patients code status and respiratory infectious disease, (including COVID-19), upon arrival
- Completes PCRA and dons appropriate PPE before entering scene:
  - A) If patient **NOT suspected or negative for** respiratory infectious disease, (including COVID-19), don Droplet PPE (minimum medical mask and eye protection).
  - B) If patient **unknown or positive** for respiratory infection, (including COVID-19), don Airborne/Droplet/Contact PPE (N95, eye protection, gown & gloves) before approaching the scene

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If patient unknown/confirmed for respiratory infection, including COVID-19:

- Minimize code team personnel (1 RT, 2 code team RNs, physician team leader, and airway expert). Any additional essential personnel should remain outside of the patient's room. If available, consider use of LUCAS device for chest compressions to limit staff exposure.
- If available, have one additional physician wearing Airborne/Droplet/Contact PPE (N95, eye protection, gown, and gloves) to be outside of room as backup if required.
- Prioritize early defibrillation; this may prevent need for airway and ventilator support.
- Pause chest compressions for intubation.
- Clamp the ETT prior to circuit disconnect, including prior to connecting to ventilator. Ensure a high efficiency hydrophobic filter is used when mechanically or manually ventilating the intubated patient.
- Best possible operator (1st choice: Staff Anesthesia. ICU Staff/Fellow/Clinical Associate if Anesthesia unavailable) manages the airway. Video laryngoscopy preferred.

Physician(s)

- **Team Leader:** One physician assumes role as team leader, directs care, and accepts primary responsibility for the overall management of the resuscitation procedure, and directs the code blue team's actions
- Performs or directs assisting physicians to perform specific procedures (e.g. establish central venous, endotracheal intubation, etc.)
- Notifies patient's attending physician and/or patient's family (or delegates this to another health care provider who is also attending the code blue)

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- Reviews and signs the resuscitation record and documents in the patient's health care record as appropriate.
- If cardiac arrest during intubation, secure the airway prior to starting chest compressions, otherwise rapid defibrillation of VT/VF and chest compressions take precedence.
- The Team Leader may hand over the role of leader to another physician. The change of leader will be made clear to the team at the time of handover.

RN(s)

- Ensures BLS interventions have been initiated and maintained including effective CPR when indicated
- Ensures defibrillator and ACLS supplies are at the patient's side
- Attaches the ECG monitor and leads and identifies the cardiac rhythm
- Provides emergency cardiac care as per British Columbia College of Nurses and Midwives limits and conditions until the Code Team physician arrives
- Assesses airway and assumes responsibility for maintaining airway when RT not available
- Ensures adequate intravenous access is established and obtains additional peripheral vascular access as required
- Assist with intraosseous access
- Directs team efforts, per site specific practices, until the Code Team physician arrives
- Provides interventions as ordered by a prescriber
- Assists the code blue team physician
- Assists the recorder as needed to document accurately on the resuscitation record
- Reviews and signs the resuscitation record

RT(s)

- Assesses the airway and assumes responsibility for maintaining the airway
- Assumes responsibility for ensuring adequate patient oxygenation and ventilation including SpO_2 and $EtCO_2$ monitoring
- Assists or performs endotracheal intubation or other definitive airway procedures
- Assists with confirmation of endotracheal tube placement
- Assists with CPR
- Obtains arterial blood gasses as required

Post Code

- As soon as possible after the code blue, when the patient's clinical status permits, team members and unit staff who participated with the code blue will ensure completion of code blue documentation (paper and electronic), sign the code blue record as required, and providers co-sign any verbal orders.

For patients suspected/confirmed to have respiratory infection, (including COVID-19):

- Avoid CXR, ECG, or any other test requiring additional personnel until patient transferred to ICU.
- Communicate with ICU prior to commencing transfer to ensure ICU has an appropriate space for the patient, and to determine the best timing for patient arrival in ICU.

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- Doff PPE appropriately, according to IPAC, and then don **new PPE BEFORE** transfer from nursing unit to ICU. PPE used during resuscitation is to be assumed to be heavily contaminated.
- Ensure the clearest path possible to ICU, and selecting a route to minimize exposure to other patients, visitors and staff.
- Ensure all contaminated equipment and supplies are cleaned and disinfected or disposed of appropriately.

Debriefing

A debrief will be held for code team members and unit staff who participated with the code blue within a short time period after the arrest as the patient's clinical status permits. The debrief provides the opportunity to discuss what went well, and to identify opportunities for system improvement. See Appendix A - Clinical Debriefing Tool.

VCH Employee wellness offers Critical Incident Services when required for sudden, unexpected, adverse events that causes a powerful emotional reaction that can overwhelm our ability to cope. http://employee-wellness.ca/critical.html

Expected Patient/Client/Resident Outcomes

Successful resuscitation or initiation of end of life care

Patient/Client/Resident Education

Ensure the patient (where appropriate) and family understands:

- To expect large number of staff with the patient
- Nature of emergency equipment
- Nature and purpose of interventions and procedures

Site Specific Practices

Refer to site specific SOPs:

- Code Blue – Emergency Box and Equipment
- Code Blue – Post Data Entry

CERNER (Electronic Health Record) EHR sites:

- Electronic order entry is preferable, but depending on the situation verbal orders may be used followed with back entry into EHR of relevant orders post code blue.
- If the arrest is a visitor or staff a custom "Code Blue-unknown" patient label should be used for requisitions; indicate patient's gender on label.

Documentation

Documentation for cardiac arrests must include:

- If the arrest was witnessed or unwitnessed
- If pulse was present or absent upon discovery
- If respirations were present or absent upon discovery
  - Use appropriate site specific designated code blue record to document code blue activities
  - The hard copy of the code blue record will be the source of truth

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- See Appendix B for Back Entry of Data into the EHR for CERNER sites

Related Documents

VCH:

- Medical Orders for Scope of Treatment (MOST) [D-00-11-30020]
- Code Pink – Obstetrical Emergency [D-00-12-30011]
- Code Blue: Team Composition and Coverage (VGH) [D-00-16-30237]
- Code Blue: ACLS Cart Areas of Coverage (VGH) [D-00-16-302378]
- VCH Infection Prevention and Control IPAC Best Practices and Guideline Aerosol Generating Medical Procedures

VA:

- Code Blue – Cardiac Arrest Management in the Operation Room [C-110]
- Cardiopulmonary Arrest Procedure in Preop, Post Anesthetic Care Unit (PACU), and Surgical Day Care at UBCH [C-100]
- Code Blue Response – GF Strong Rehab Centre [C-085]

VCH & PHC:

- Implantable Cardioverter Defibrillator (ICD) Deactivation at End of Life *(pending)*

References

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2. BC Centre for Disease Control. (2021). Infection Prevention and Control (IPC) Protocol During In-Hospital Code Blue for Adult Patients http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID19_ProtocolForCodeBlue.pdf
3. Providence Health Care. Decision support tools emergency cardiac care: Provincial guidelines and tools for Registered Nurses. Available from: http://www.heartcentre.ca/professionals/decision-support-tools [Accessed May 16th, 2017].
4. Kleinman ME, Brennan EE, Goldberg ZD, Swor RA, Terry M, Bobrow BJ, Gazmuri RJ, Travers AH, Rea T. 2015 American Heart Association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care Part 5: adult basic life support and cardiopulmonary resuscitation quality. Resuscitation. 2015. 132(18)(s2): S414-S415. http://circ.ahajournals.org/content/132/18_suppl_2/S414.full.pdf?download=true
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   Heart and Stroke Foundation. Modifications to Public Hands-Only CPR during the COVID-19 pandemic Guidance for the public to reduce the risk of virus transmission. 2020. https://www.heartandstroke.ca/articles/modification-to-hands-only-cpr-during-the-covid-19-pandemic

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Owners: *(optional)*	VCH
	Developer Leads: Practice Initiatives Lead, Professional Practice, Vancouver Acute, VCH Practice Initiatives Lead, Professional Practice, Coastal, VCH

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Appendix A: Clinical Debriefing Tool

Vancouver CoastalHealth

Clinical Debriefing Tool

Hi everyone, first off I'd like to thank you for staying. We are going to do a quick 5 minute debrief of the event and it would be great if everyone could take part in the discussion. The goal of this conversation is to improve our performance as a team and the care we provide to our patients.

1) What went well and why?

2) What needs to change for next time and why?

3) Were there any: systems, equipment, medication or process issues that should be taken forward? (If so, who will be accountable to ensure these issues are resolved and how?)

4) What are some takeaways from this discussion that we can use moving forward in our clinical practice for future cases?

5) Is there anything else anyone would like to discuss?
(Check in for emotions/feelings, arrange follow up if needed)

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Appendix B: Back Entry of Data into CERNER EHR

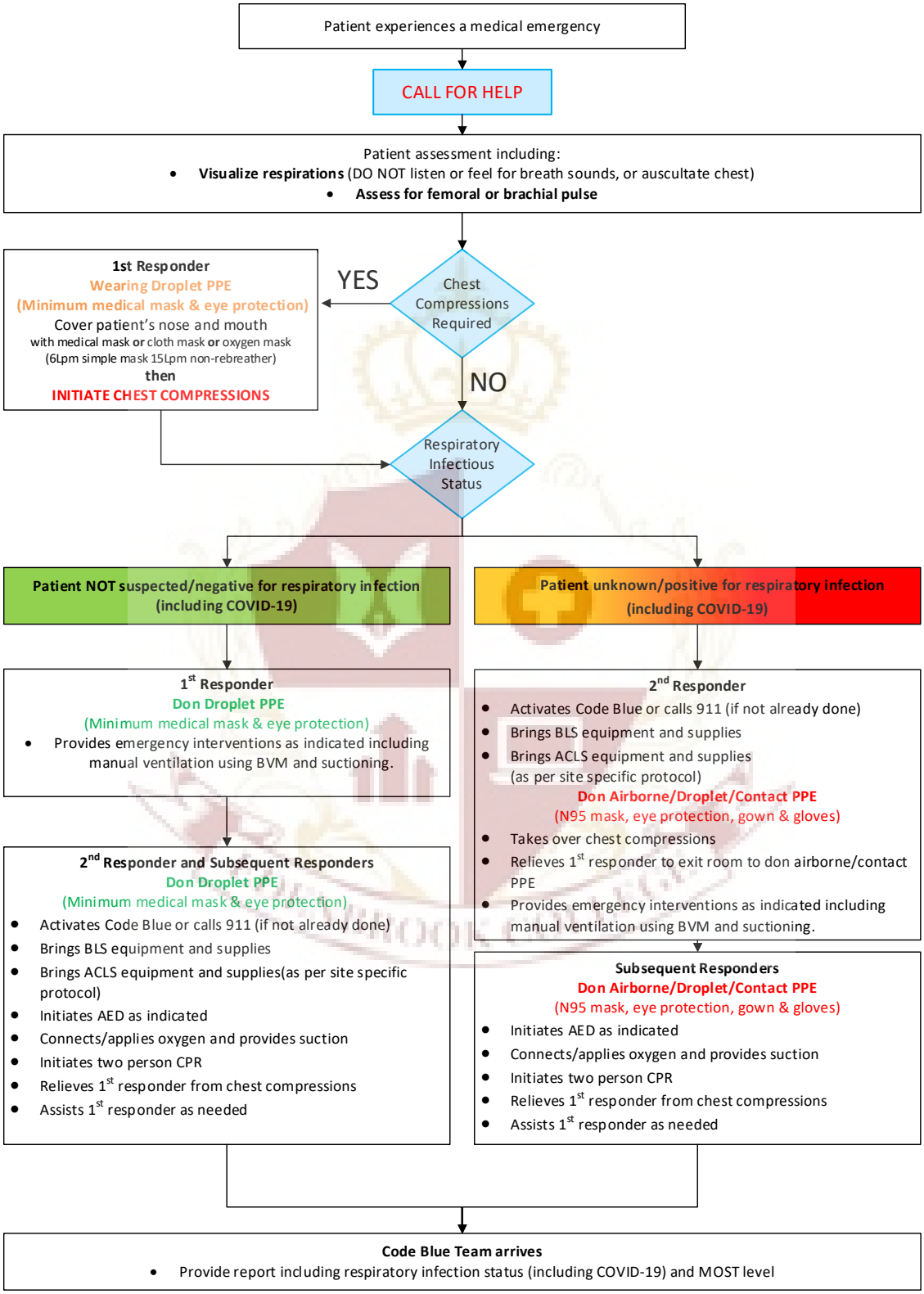
When is data to be entered?	Who is to complete back entry of data?	When is data to be entered?
All continuous infusion including fluids (e.g. NS) and medications (e.g. norepinephrine, heparin) are entered into the I&O.	Clinician*	Back entry of data elements should occur as soon as possible as the patient's condition permits. (Infusion information would be documented on the eMAR and in the IV drips section of iView) Back entry of ACLS meds (e.g. epinephrine) not required) Back entry of data elements not required if patient death occurs during the Code Blue.
All Point of Care test results such as capillary blood glucose, ABGs, electrolytes	Clinician	
All I&Os NG losses, fluid boluses, urine output, emesis	Clinician	
Code Blue Flag on iView to indicate Code Blue occurred	Clinician	
All adverse drug and intervention reactions during code (Medication orders can be entered using the Ad Hoc order functionality which alerts pharmacy that this medication has been administered, populates the eMAR but no dispensing of the medication is necessary)	Shared by Provider** and Clinician	
Orders – lab tests and medication orders	Provider	
Procedures – including lines, tubes, drains, devices.	Provider	
Resuscitation Note	Provider	
Transport during/post arrest to be included on paper code record and applicable data to be back entered as per Code guidelines	Clinician/Provider as applicable	

***Clinician** in this instance usually denotes a nurse, but can also be any health care professional that has documentation in their scope of practice.

****Provider** in this instance denotes a physician.

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Appendix C: Code Blue PPE Algorithm



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