Cardiac Arrest (Code Blue) Response for Patients Requiring Airborne Precautions

Site Applicability:

SPH and MSJ Acute Care

Practice Level

- All health care staff

Guideline

General Principles:

1. REDUCE NEED FOR CPR:

   Patients with a contagious infection requiring airborne precautions, including (but not limited to) a COVID-19 like illness, who are at risk of acute deterioration or cardiac arrest, should be identified early. Clinicians should take appropriate steps to prevent cardiac arrest and avoid unprotected CPR. This includes early referral to CCOT or ICU for at-risk patients. Staff should also identify early, the patients for whom a 'do not attempt resuscitation' (DNAR) and/or other similar decision is appropriate.

2. AIRBORNE PPE FIRST:

   CPR ***with*** bag-mask ventilation and/or intubation are aerosol-generating procedures. The minimum personal protective equipment (PPE) requirements to assess a patient, start chest compressions and establish monitoring of the cardiac arrest rhythm are **Airborne Droplet and Contact PPE** (i.e., eye protection, N95 mask, gloves and gown).The intubation team (physician airway operator and RT/AA) will don the Airborne Droplet and Contact PPE.

3. STAFF & PATIENT SAFETY:

   The need to don PPE may delay CPR in patients with Airborne Precautions but is necessary for staff safety. Review of the processes involved (including the availability of PPE kits on resuscitation trolleys), along with training and practice, will minimize these delays. Use observer to guide PPE donning and doffing.

NOTICE: this guideline refers to code blue events in patients who also require airborne precautions.

These will include patients who are suspected or confirmed to have contagious respiratory infections such as, but not limited to: infectious pulmonary tuberculosis, SARS-CoV2 (COVID-19), Rubeola (Measles), or Varicella (Chickenpox).

First responders/ward staff:

1. **PROTECTIVE SPACE:** Recognize cardiac arrest by looking for the absence of signs of life and the absence of normal breathing. Feel for a carotid pulse if trained to do so. DO NOT listen or feel for breathing by placing your ear and cheek close to the patient's mouth. Consider treatment of acutely reversible causes (e.g., naloxone for suspected opiate overdose).
2. **FIRST RESPONDER SAFETY FIRST**: If there are any doubts about the diagnosis of cardiac arrest, the default actions are to:
    - FIRST put on the appropriate PPE as per the patient's isolation requirements (i.e., either Airborne PPE or Airborne, Droplet and Contact PPE).
    - SECOND place a simple oxygen mask with oxygen running, to cover the face, supply supplementary oxygen, and contain the spread of infectious respiratory scretions. If an oxygen mask is not immediately available, cover the mouth with a surgical mask, or simply drape a cloth over the mouth and nose.
    - THIRD start chest compressions only, WITHOUT BREATHS, until help arrives.
3. **WHEN CODE TEAM ARRIVES**:
    - One nurse (i.e., CCOT RN or Charge Nurse) is responsible to:
        - Set up a donning and doffing areas near the entry of the room and act as an donning/doffing observer;
        - Manage crowd control to restrict attendance in the room to essential staff only to apply oxygen and perform CPR.
    - Another staff member (ideally primary care nurse) should be available outside the room to brief the code team when they arrive; **including notification if the patient is on additional isolation precautions, including but not limited to Airborne for suspected and/or confirmed infectious pathogens.**
    - A third staff member should don be available outside the room to offer additional assistance/fetch supplies and PPE as needed.

Code team:

1. **TEAM COMPOSITION:** The Code team consists of RT, 2 code RNs, Physician Team leader and a Physician Airway Operator. At MSJ one physician may fulfill both roles.
2. **ADDITIONAL EQUIPMENT:** The code blue cart includes N95 masks for intubation. The code team may bring the "Code Blue/Intubation PPE Cart" as needed.
    - **If CPR is in progress**, the code team don PPE (Airborne, Droplet and Contact PPE) while first responders continue CPR
    - **If CPR is not in progress but needed**, first responders don Airborne, Droplet and Contact PPE and begin CPR while the Code Team don PPE
    - **If CPR is not in progress and not needed**, perform code blue activities with appropriate PPE as per the patient's isolation precaution requirements.
    - **If CPR is not in progress, and not needed but plan to intubate**, intubation team puts

on PPE required for intubating and extubating as per the B-00-07-13080 - Aerosol Generating Medical Procedures (AGMP) in the context of COVID - Infection Prevention and Control while rest of code team stabilizes the patient. Only intubation team will remain in room during intubation.

2. **EARLY DEFIBRILATION:** Apply monitor and pads. Defibrillate shockable rhythms rapidly - the early restoration of circulation may prevent the need for airway and ventilatory support.
3. **VENTILATION:** The goal is for rapid intubation without bagging an unsecured airway. The code team may consider two-person bag-mask technique with the use of an oropharyngeal airway while preparing for rapid intubation. Apply small tidal volumes with bag-mask ventilation. Install a high efficiency hydrophobic filter inbetween facemask and Ambu bag or between facemask and breathing circuit.
4. **INTUBATION:** Airway interventions must be carried out by experienced individuals in accordance with the provincial document **COVID-19 Positive and Presumed Positive Adult CPR Protocol**. The most experienced health care worker familiar with airway techniques should attempt the intubation to maximize chances of first pass success. Video laryngoscopy is preferred. CPR should be paused during the intubation attempt at the direction of the airway operator, and all staff other than airway team should stand back 2 meters from patient if possible. CPR resumes at direction of airway operator when cuff is up and tube position is confirmed.
5. **MECHANICAL CPR DEVICE:** Consider early application of the LUCAS devise in order to limit the exposure of staff during CPR. One ward nurse should remain in the room to assist the Code Team to help turn the patient to facilitate applying the LUCAS device. Once the LUCAS is successfully deployed, non-essential staff should leave the room and safely remove PPE with an observer.
6. **REVERSIBLE CAUSES:** Patients may have a cardiac arrest that is caused directly by COVID-19 illness or because of a co-existing illness. It is important to attempt to identify and treat any reversible causes (e.g. severe hypoxemia) before considering stopping CPR.

Transport of patient who achieves return of spontaneous circulation (ROSC)

1. **DON NEW PPE:** PPE should be presumed to be contaminated. Contaminated PPE (especially gloves and gown) should be safely doffed and new PPE donned prior to transporting the patient to critical care area. Potential accidental circuit disconnect carries the risk of aerosol generation, therefore airborne precautions should be maintained.
2. **CLEAR A PATH:** A staff member should clear the hallways, and the team should use the shortest route to the destination.
3. **EQUIPMENT:** Ensure appropriate disposal or cleaning of contaminated equipment:
    - If CPR with bag-mask ventilation and/or intubation has occurred, the equipment and room needs to be terminally cleaned as per usual for Airborne, Droplet and contact procedures.

      Thoroughly clean and disinfect any equipment with hospital-grade disinfectant before taking it out of the room.

- For the code blue cart, return to ICU/HAU for cleaning and restocking as per usual protocols
- Once cleaned, the room must be left undisturbed for a period of time depending on the air exchanges per hour. If the air exchange rate is not known, then leave undisturbed for 1 hour.

Transport of patient who does not survive the code blue event

If CPR and/or intubation occurred in the room, the room must be considered contaminated. If the deceased patient was intubated during the code, either the airway operator, or the RRT will remove the endotracheal tube (ETT) prior to doffing PPE.

- The Code Team Member may collect a naso-pharyngeal or tracheal aspirate samples for COVID-19 or other respiratory pathogens at this time.
- During that time period, all staff must don Airborne, Droplet, and Contact PPE to clean the room, prepare the body for transport to the morgue, as per B-00-12-10019 Death (Adult): Care of the Patient guideline and the BCCDC Guidelines for Deceased persons; and remove, clean and disinfect any equipment.

DEBRIEF the team.

This should include a risk assessment for any potential exposure for staff or other patients in multi-bed rooms. **If staff were potentially exposed,** then contact occupational health and safety for follow-up care. **If other patients were exposed**, then contact infection prevention and control to follow-up with the appropriate process for contact tracing, screening and isolation.

Related Documents

1. B-00-07-10060 - Cardiac Arrest (Code Blue): Initiating and Responding
2. B-00-13-10080 - Code Blue Team Responsibilities and Response to Cardiac Arrest Calls (SPH)
3. B-00-13-10082 - Code Blue Team Responsibilities and Response to Cardiac Arrest Calls (MSJ)
4. B-00-07-10091 – Personal Protective Equipment (PPE) for Airway Management Procedures
5. B-00-12-10019 – Death (Adult): Care of Patient.
6. BCCDC (Sept. 27, 2021) – Infection Prevention and Control (IPC) Protocol During In-Hospital Code Blue for Adult Patients.
7. BCCDC (Sept. 11, 2020) – Deceased Persons: Provincial guidance to ensure the safety of workers handling COVID-19 supsected or positive decedents. URL: http://www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/deceased-persons
8. B-00-07-13035 – Low Level Cleaning and Disinfection (Infection Control)

References

1. Resuscitation Council UK (Sept. 21, 2020). Resuscitation Council UK position on COVID-19 guidance in September 2020 [URL: https://www.resus.org.uk/about-us/news-and-events/resuscitation-council-uk-position-covid-19-guidance-september-2020]

2. COVID-19 Positive and Presumed Positive CPR Protocol (2020) Downloaded from: https://www.bcemergencynetwork.ca/wp-content/uploads/2020/03/CPR20March2023202200.pdf on June 20, 2022.

Persons/Groups Consulted:

Cardiac Arrest Committee

CNS Critical Care

Infection, Prevention and Control

Professional Practice

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