



ARC SAC Answers COVID-19 and Resuscitation

Scientific Advisory Council

Question:

What are the implications of COVID-19 for resuscitation for lay rescuers, first responders, emergency medical services (EMS) personnel and other health care providers for both out-of-hospital and in-hospital resuscitation?

Answers:

1. Question: What is COVID-19 and how is it transmitted?

Answer: The SARS-CoV2 virus which causes COVID-19 is thought to spread mainly from person-to-person, between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs, sneezes or talks. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms. Additional spread can occur when droplets contaminate other nearby surfaces and are touched, leading to self-inoculation when a person inadvertently touches their own mouth, nose or possibly their eyes. This is not thought to be the main way the virus spreads, but we are still learning more about this virus.

2. Question: What is the risk of COVID-19 transmission with resuscitation?

Answer: There are currently no specific data on COVID-19 transmission in the setting of cardiac resuscitation. Based on studies of other disease transmission, it is reasonable to conclude that chest compressions and cardiopulmonary resuscitation have the potential to generate aerosols.

While there would be a risk of disease transmission when performing CPR on a person with COVID-19, compression-only CPR may be associated with a decreased risk of transmitting the virus compared to CPR with rescue breathing.

3. Question: What personal protective equipment (PPE) and transmission precautions should be used for resuscitation in EMS and in-hospital settings in the case of possible or confirmed COVID-19?

Answer: Follow current CDC guidance for PPE, which includes standard- and transmission-specific precautions. Current recommendations include:

- Glove use and thorough hand hygiene after care provision
- N95 respirator use when providing care to all suspected and confirmed COVID-19 patients. If N95 masks are not available, a simple surgical mask should be worn
- Eye protection; ideally full-face shield. Eyeglasses are not sufficient protection

- Liquid resistant gowns (if there is a shortage of gowns, they should be reserved for aerosol generating procedures and those activities with high contact or where splashes or sprays are anticipated)

As feasible, limit personnel in the resuscitation area to only essential personnel.

For aerosol generating procedures, including intubation, placement of supraglottic airways, bag-valve mask (BVM) ventilation, and continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) use, providers should use respiratory protection as described above, and the patient should be in an airborne isolation room if in-hospital. If out of hospital, first responders and EMS personnel should use respiratory and eye protection as described above. Heating, ventilation, and air conditioning (HVAC) should be maximized as much as possible (procedures performed outdoors, and/or ambulance ventilation systems running, and doors open when feasible in an ambulance).

When intubating the patient, strategies to maximize intubation success with minimal attempts and techniques to protect the person performing intubation and team should be employed.

- Intubation should be performed by the most experienced team member.
- Respiratory protection should be worn as described above.
- Prior to intubation ventilate with BVM with HEPA filter and a tight seal or as appropriate for patient pre-oxygenate with non-rebreathing mask and face mask.
- Rapid sequence intubation, including preoxygenation and use of paralytics to ensure apnea, and early ventilator use will minimize manual ventilation of patient's lungs and aerosolization from the patient's lungs.
- Video assisted intubation may reduce exposure of the person performing intubation.

Ventilatory equipment should have a high-efficiency particulate air (HEPA) filtration in the exhalation path per manufacturer recommendations.

In the setting of respiratory failure, it is appropriate to consider performing endotracheal intubation and ventilator use early to avoid aerosol-generating interventions such as non-invasive ventilation.

For cardiac arrest, patients should be intubated as soon as possible. This will usually occur after rhythm analysis and electrical therapy as indicated.

If equipment available, processes in place, personnel properly trained, and appropriate for the patient, consider using mechanical compression devices to reduce the number of personnel required for resuscitation.

4. Question: What are considerations for Emergency Medical Dispatchers, First Responders and EMS for resuscitation of possible or confirmed COVID-19 patients?

Emergency medical dispatchers should screen calls to identify possible COVID-19 patients. First responders and hospitals should be notified prior to arrival if COVID-19 is suspected or confirmed.

Answer: Emergency medical dispatchers should screen calls to determine possible COVID-19 patients. First responders and hospitals should be notified prior to arrival if COVID-19 is suspected or confirmed. Telecommunicator CPR should continue to be provided but follow the modifications described above for lay person CPR.

All out-of-hospital cardiac arrest patients should be presumed to be COVID-19 positive and appropriate PPE should be worn during resuscitation efforts.

For all aerosol generating procedures, first responders and EMS personnel should use respiratory protection as described above. If performed in an ambulance, the rear doors should be open and ventilation system running when feasible.

EMS systems should put in place protocols to determine when to start resuscitation and termination of resuscitation in the setting of COVID-19. These should include Crisis Standards of Care with specific guidance regarding resuscitation. It is recognized that EMS Crisis Standards of Care protocols will often be based on governmental issues Crisis Standards of Care guidelines and executive orders.

For all on-scene cardiac arrest patients for whom return of spontaneous circulation (ROSC) is NOT obtained, EMS providers should consider termination of resuscitation (TOR) and follow local TOR protocols or contact medical control for guidance before a transport decision is determined. This discussion is important to help avoid transporting medically futile patients to the hospital and avoidable transmission of COVID-19.

5. Question: What are considerations for in-hospital Healthcare Professionals?

Answer: In the current COVID-19 pandemic, healthcare professionals should use personal protective equipment including respiratory and eye protection for aerosol generating procedures during resuscitation.

For possible or confirmed COVID-19 patients, consider immediate defibrillation before donning PPE or additional PPE in situations where the provider assesses that benefits may exceed the risks.

Healthcare institutions should as early as feasible discuss with patients or their legal proxies end of life decision making.

Healthcare institutions should put in place protocols regarding resuscitation of COVID-19 patients. These should include Crisis Standards of Care with specific guidance regarding resuscitation and use of ventilators. It is recognized that Healthcare Crisis Standards of Care protocols will often be based on governmental issues Crisis Standards of Care guidelines and executive orders.

6. Question: What are considerations for PPE for CPR performed by Lay Rescuers?

Answer: During the COVID-19 pandemic, personal protective equipment (PPE) such as gloves and face mask should be worn by Lay Rescuers while performing CPR, if available. We recognize that for lay responders, CPR is often performed for household members where there would have already been close contact and exposure.

If available and able, placing a face mask or cloth covering over the mouth and nose of the victim may reduce the risk of transmission to a non-household layperson.

7. Question: How should assessment of breathing and rescue breaths be performed by lay rescuers in children or adults?

Answer: When assessing for normal breathing, it is recommended that the lay rescuer looks for breathing but does not listen or feel, as this will minimize potential exposure.

While CPR with breaths has been shown to be beneficial when compared to compression only CPR, in the setting of COVID-19 and possible risk of transmission, it is currently recommended that no rescue breaths be performed for adult cardiac arrest patients with confirmed or suspected COVID-19 due to the risk of disease transmission. We recommend that adult victims of sudden cardiac arrest receive at least continuous compression-only CPR from lay responders until emergency personnel arrive. Compression-only CPR saves lives compared to no CPR.

Cardiac arrests that occur after a breathing problem, which is often the case in infants and young children, drowning, and drug overdoses, may benefit from standard CPR that includes compressions and rescue breaths. It is recognizing that in some of the cases the victim may also have COVID-19.

However, if a lay responder is unable or unwilling to provide rescue breathing with CPR, compression-only CPR should be initiated.

8. Question: Should automated external defibrillators (AEDs) be applied and used by Lay Rescuers?

Answer: Prompt use of AEDs saves lives for cardiac arrest victims. No studies to date have shown that defibrillation generates aerosols. In addition, the current methods of automatic external defibrillation employ hands free methods via adhesive pads that allow performance without direct contact with the patient.

If an AED is available, one should be applied and used consistent with manufacturer's guidelines while waiting for emergency personnel to arrive. If gloves are available, they should be worn. The device should be cleaned with disinfectant after use.

9. Question: What are considerations for compressions by Lay Rescuers?

Answer: Chest compressions and use if an AED is available is recommended for every cardiac arrest victim.

Whether or not a cardiac arrest victim is suspected of having COVID-19, 9-1-1 should be called and, if available, an AED should be used.

References:

Scientific Advisory Council

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Other

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