



## COVID-19

### Practical Guidance for Implementation

ILCOR publishes regular and ongoing consensus on science with treatment recommendations informed by rigorous and continuous review of scientific literature focused on resuscitation, cardiac arrest, relevant conditions requiring first aid, related education, implementation strategies and systems of care. These can be found on the [ILCOR Science Reviews website](#).

In response to the COVID-19 global pandemic, ILCOR undertook a systematic review of evidence examining the risk to rescuers from patients in cardiac arrest. The review was posted for public comment on 30<sup>th</sup> March 2020 and has now been finalised based on feedback received.

Key recommendations from that review are:

- We suggest that chest compressions and cardiopulmonary resuscitation have the potential to generate aerosols (weak recommendation, very low certainty evidence).
- We suggest that in the current COVID-19 pandemic lay rescuers consider compressions and public-access defibrillation (good practice statement).
- We suggest that in the current COVID-19 pandemic, lay rescuers who are willing, trained and able to do so, consider providing rescue breaths to infants and children in addition to chest compressions (good practice statement).
- We suggest that in the current COVID-19 pandemic, healthcare professionals should use personal protective equipment for aerosol generating procedures during resuscitation (weak recommendation, very low certainty evidence).
- We suggest it may be reasonable for healthcare providers to consider defibrillation before donning personal protective equipment for aerosol generating procedures in situations where the provider assesses the benefits may exceed the risks (good practice statement).

(Source)

ILCOR's Basic Life Support, Advanced Life Support and Paediatric Task Forces reviewed their existing guidance in light of that review and provide the following insights and interim measures as good practice statements.

ILCOR hopes this information will be of use to the regional resuscitation councils around the world who support and contribute to our work.

## Cardiac arrest recognition and call for help

### ILCOR COVID-19 Insights and Interim Measures

Resuscitation guidelines around the world use the combination of unresponsiveness and not breathing normally to indicate cardiac arrest. Responsiveness is usually assessed by shaking and shouting the person and assessing for a response. Breathing is usually assessed by opening the airway and looking, listening and feeling for breathing.

In the setting of COVID-19, we continue to suggest checking for responsiveness. When assessing breathing, look for breathing. Do not open the airway or place your face next

to the victims' mouth / nose.

Call emergency services if the patient is unresponsive and not breathing normally.

## Previous recommendations and underpinning evidence (Non-COVID)

We recommend that a lone bystander with a mobile phone should dial the EMS, activate the speaker or other hands-free option on the mobile phone and immediately begin continuous compression-only CPR, with EMS dispatcher assistance if required (strong recommendation, very-low-certainty of evidence).

[\(Source\)](#)

## Dispatcher recognition and initiation of CPR

### ILCOR COVID-19 Insights and Interim Measures

ILCOR consensus on science and treatment recommendations support the use of algorithms to enable the dispatcher to recognise cardiac arrest and to initiate telephone instructions for compression-only CPR.

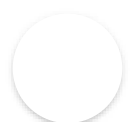
In the COVID-19 context, early dispatch recognition of cardiac arrest will in addition alert EMS staff about the need to put on personal protective equipment according to local policy.

Consistent with our previous recommendations, we continue to recommend that dispatchers provide instructions to perform continuous chest compressions (i.e. compression-only CPR) to callers for adults with suspected out of hospital cardiac arrest.

## Previous recommendations and underpinning evidence (Non-COVID)

We recommend that dispatch centres implement a standardized algorithm and/or standardized criteria to immediately determine if a patient is in cardiac arrest at the time of emergency call (strong recommendation, very-low-certainty evidence).

[\(Source\)](#)



We recommend that emergency medical dispatch centres have systems in place to enable call handlers to provide CPR instructions for adults, infants and children in cardiac arrest. (strong recommendation, very-low-certainty evidence)

(Source)

We recommend that emergency call takers provide CPR instructions (when required) for adults, infants and children in cardiac arrest. (strong recommendation, very-low-certainty evidence)

(Source)

We recommend that dispatchers provide instructions to perform continuous chest compressions (i.e. compression-only CPR) to callers for adults with suspected out of hospital cardiac arrest (strong recommendation, low-quality evidence).

(Source)

## Bystander CPR

### ILCOR COVID-19 Insights and Interim Measures

The new ILCOR COVID-19 consensus on science and treatment recommendations advise:

We suggest that chest compressions and cardiopulmonary resuscitation have the potential to generate aerosols (weak recommendation, very low certainty evidence).

We suggest that in the current COVID-19 pandemic lay rescuers consider chest compressions and public-access defibrillation (good practice statement).

We suggest that in the current COVID-19 pandemic, lay rescuers who are willing, trained and able to do so, consider providing rescue breaths to infants and children in addition to chest compressions (good practice statement).

#### *Justification and Evidence to Decision Framework Highlights*

Outside of the COVID-19 pandemic, each year over 1 million people sustain an out of hospital cardiac arrest around the world. CPR and defibrillation provide these people with the only chance of survival. (Iwami 2020 in press)

In making recommendations, there is a need to carefully balance the benefit of early treatment with chest compressions and defibrillation (prior to donning personal protective equipment) with the potential harm to the rescuer, their colleagues and the wider community if the rescuer were to be infected with COVID-19.

In suggesting that lay rescuers consider compression only CPR and public access defibrillation, the writing group noted that the majority of out of hospital cardiac arrests occur in the home where those providing resuscitation are likely to have been in contact with the person requiring resuscitation; that accessibility to personal protective equipment for aerosol generating procedures is likely to be limited; there may be significant harm from delaying potentially lifesaving treatment if resuscitation is deferred until arrival of personnel with suitable personal protective equipment.

In suggesting that lay rescuers who are willing, trained and able to do so, consider rescue breaths in addition to chest compressions for infants and children, the writing group considered that bystander rescuers are frequently those who routinely care infants and children. In that case, the risk of the rescuer newly acquiring COVID-19 through provision of rescue breaths is greatly outweighed by improved outcome for infants and children in asphyxial arrest who receive ventilations.

[\(Source\)](#)

## Previous recommendations and underpinning evidence (Pre-COVID)

We suggest commencing CPR with compressions rather than ventilation (weak recommendation, very-low-certainty evidence).

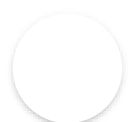
[\(Source\)](#)

We recommend that chest compressions be performed for all patients in cardiac arrest (good practice statement).

We suggest that those who are trained, able and willing to give rescue breaths as well as chest compressions do so for all adult and paediatric patients in cardiac arrest (weak recommendation, very-low-quality evidence).

[\(Source\)](#)

## Public access defibrillation



## ILCOR COVID-19 Insights and Interim Measures

Early defibrillation by bystanders prior to EMS arrival provides the patient with the best chances of survival. Early restoration of spontaneous circulation through defibrillation by bystanders will reduce the severity of brain injury and potentially reduce the likelihood that the person will require admission to critical care.

Our systematic review did not identify evidence that defibrillation generates aerosols. If it occurs the duration of an aerosol generating process would be brief. Furthermore, the use of adhesive pads means that defibrillation can be delivered without direct contact between the defibrillator operator and patient.

In the COVID-19 context, ILCOR continues to recommend the use of public access defibrillation to optimise outcomes from OHCA.

### Previous recommendations and underpinning evidence (Non-COVID)

We recommend the implementation of PAD programs for patients with OHCA. (Strong recommendation, low certainty evidence)

We suggest a short period of CPR until the defibrillator is ready for analysis and/or defibrillation in unmonitored cardiac arrest. (weak recommendation, low-certainty evidence)

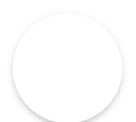
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### Cough CPR

## ILCOR COVID-19 Insights and Interim Measures

Coughing is aerosol generating and provides no benefit nor is feasible for a patient in cardiac arrest. Therefore, consistent with our current consensus on science and treatment recommendation, we advise against cough CPR for cardiac arrest.

### Previous recommendations and underpinning evidence (Non-COVID)



We recommend against cough CPR for cardiac arrest (strong recommendation, very-low-certainty evidence).

(Source)

## Advanced Airway Management During Cardiac Arrest

### ILCOR COVID-19 Insights and Interim Measures

Current recommendations to perform bag-mask ventilation or place an advanced airway for patients in cardiac arrest, with the decision depending in part on setting and provider experience, do not take into account the risk of transmission of an infection such as COVID-19.

Ventilation with a bag-mask, supraglottic airway insertion and ventilation, or tracheal intubation and ventilation can all generate an aerosol and put rescuers at risk from virus transmission. The ALS Task Force suggests the following specific modifications to advanced airway management during cardiac arrest:

The duration of any aerosolizing procedure should be minimized and all providers performing these procedures or in proximity to the patient when they are performed should wear PPE appropriate for aerosol generating procedures. This should include, at a minimum, a N95 or comparable respirator, face shield, gown and gloves.

Minimize the number of rescuers involved in any resuscitation attempt – this will depend on local circumstances.

Use a viral filter (e.g. HME, HEPA) between the self-inflating bag and airway (mask, supraglottic airway or tracheal tube) to minimize the risk of virus spread.

Airway and ventilation interventions should be performed by the most skilled provider to ensure a high first attempt insertion success rate, and minimize aerosol generation.

Consider methods that enable providers to remain further from the patient's mouth, such as video laryngoscopy.

Pause chest compressions during airway interventions to minimize the risk of aerosol.

Risk of aerosol generation during ventilation is minimised if ventilation is delivered after tracheal intubation and cuff inflation, and insertion of a viral filter between tracheal tube

and self-inflating bag. Ensure an adequate cuff pressure to prevent leaks.

Prevention of aerosol generation with a supraglottic airway and bag-mask ventilation is less reliable than with a tracheal tube. In the lead up to tracheal intubation consider the following to reduce the risk of virus transmission:

1. A supraglottic airway may provide a better airway seal than a facemask.
2. For ventilation with a bag-mask or supraglottic airway, pause chest compressions for ventilation using a 30:2 compression to ventilation ratio.
3. Minimize the duration of bag-mask ventilation.
4. Use two hands to hold the mask and ensure a good mask seal for bag-mask ventilation. This requires a second rescuer – the person doing compressions can squeeze the bag when they pause after each 30 compressions.

## Previous recommendations and underpinning evidence (Non-COVID)

We suggest using bag-mask ventilation or an advanced airway strategy during CPR for adult cardiac arrest in any setting (weak recommendation, low to moderate-certainty evidence).

If an advanced airway is used, we suggest using a supraglottic airway for adults with out-of-hospital cardiac arrest in settings with a low tracheal intubation success rate (weak recommendation, low certainty of evidence).

If an advanced airway is used, we suggest using a supraglottic airway or tracheal intubation for adults with out-of-hospital cardiac arrest in settings with a high tracheal intubation success rate (weak recommendation, very low certainty of evidence).

If an advanced airway is used, we suggest a supraglottic airway or tracheal intubation for adults with in-hospital cardiac arrest (weak recommendation, very low certainty of evidence).

[\(Source\)](#)

## Mechanical Chest Compressions

ILCOR COVID-19 Insights and Interim Measures



CPR for a patient with confirmed or suspected COVID-19 could create a situation in which there is some increased risk to providers, especially if CPR is prolonged. The previous ILCOR treatment recommendation on mechanical chest compression suggests against routine use, and suggests that it is a reasonable alternative in select settings, including where there is increased risk to providers from conventional chest compressions.

COVID-19 could be considered such a situation, especially in settings where personal protective equipment is limited. Systems that already have mechanical chest compression devices and are familiar with their use might consider usage in settings of increased infection transmission risk if it helps to minimize personnel exposed.

## Previous recommendations and underpinning evidence (Non-COVID)

We suggest against the routine use of automated mechanical chest compression devices to replace manual chest compressions (weak recommendation, moderate-quality evidence).

We suggest that automated mechanical chest compression devices are a reasonable alternative to high-quality manual chest compressions in situations where sustained high-quality manual chest compressions are impractical or compromise provider safety (weak recommendation, low-quality evidence).

(Source 1)

(Source 2)

## Resuscitation in the Setting of Resource Limitation

### ILCOR COVID-19 Insights and Interim Measures

The ALS task force acknowledges that many healthcare systems are facing shortages of personnel and equipment, including ventilators, to treat critically-ill patients during the COVID-19 pandemic. Decisions on triage and allocation of healthcare resources, including the provision of CPR and other emergency care must be made by individual systems based on their resources, values and preferences.



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