



Covid-19: Doctors are told not to perform CPR on patients in cardiac arrest

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Healthcare staff in the West Midlands have been told not to start chest compressions or ventilation in patients who are in cardiac arrest if they have suspected or diagnosed covid-19 unless they are in the emergency department and staff are wearing full personal protective equipment (PPE).

The guidance from the University Hospitals Birmingham NHS Foundation Trust says that patients in cardiac arrest outside the emergency department can be given defibrillator treatment if they have a “shockable” rhythm. But if this fails to restart the heart “further resuscitation is futile,” it says.

If a patient with suspected covid-19 is in cardiac arrest they should be given cardiac compressions and be ventilated only if they are in the emergency department and the person attending them is wearing aerosol generating procedures (AGP) PPE. That means wearing an FFP3 mask, full gown with long sleeves, gloves, and eye protection.

The advice rests on the premise that performing cardiac compressions risks virus particles being released into the air that could infect staff.

In an email to staff, Nick Crombie, associate medical director and trauma anaesthetist at the trust, acknowledged that there was unease about the new policy. But he said that the covid-19 pandemic was a major situation that required action that would be unthinkable in different circumstances.

“Every patient we see could potentially not only harm us but, remotely, our families. In this situation, we are the front line and we have to get into the mindset of putting our own safety first. We HAVE to be safe,” he wrote. “This is not about lack of PPE or money.”

The Birmingham guidance differs from Resuscitation Council UK’s advice only in the number of shocks recommended: one instead of three.¹ The council’s guidance also says that staff should put on full PPE for aerosol generating procedures before initiating CPR in patients with covid-19.

The picture is complicated by the latest advice from the Department of Health and Social Care for England and public health bodies in England, Wales, Scotland, and Northern Ireland updated on 27 March. This says that “chest compressions and defibrillation (as part of resuscitation) are not considered AGPs” and can be carried out without full PPE “while awaiting the arrival of other personnel who will undertake airway manoeuvres.”²

This goes against current international consensus. The World Health Organization lists CPR as an aerosol generating procedure.

Jerry Nolan, a member of the Resuscitation Council UK’s executive committee and chair of the European Resuscitation Council, said that the Birmingham guidelines were particularly restrictive. He said that resuscitation experts all over the world were currently wrestling with advice for managing covid-19 patients. A systematic review of the evidence had been completed by the International Liaison Committee on Resuscitation and will publish its findings imminently, he said. However, “there was no high quality science one way or the other” as to whether chest compressions could lead to infection with covid-19.

Nolan added, “But a consensus is evolving that chest compressions are highly likely to be generating, at the very least, droplets and probably airborne particles.”

Audit data from 2018-19 show that 24% of people who have a cardiac arrest in UK hospitals survive, although Nolan said that in cases where the heart can be shocked survival rates can be 50% and where the heart cannot be shocked it is around 10-15%. “However, we have no idea of outcomes in covid-19 patients, and where severe hypoxia causes cardiac arrest—which would be most covid-19 patients—survival would be much worse,” he said.

Nolan acknowledged that as the covid-19 pandemic evolved the Birmingham policy might become appropriate “depending on how bad things become.”

“Healthcare staff are extremely stressed about managing covid-19 patients and they need clear advice,” he told *The BMJ*. “Unexpected cardiac arrest among these patients may not be common, but I think we must do all we can to plan ahead and, where appropriate, implement do-not-attempt cardiopulmonary resuscitation decisions or closely track these patients and intervene before they have a cardiac arrest.

“If someone with covid-19 has a cardiac arrest caused by viral pneumonia, then the chances of survival are very small. The problem is for the many patients who are awaiting test results and who are treated as though they have covid-19. If it turns out they don’t have covid-19, and they have a cardiac arrest from a potentially reversible cause but no resuscitation attempt is made, that would be distressing.”

Andrew Goddard, president of the Royal College of Physicians, told *The BMJ*, “Cardiac arrest in a patient with covid-19 will

have a number of possible causes, many of them unrelated to covid-19. It would be a mistake to treat patients as having a single diagnosis at this time.”

A spokesperson for University Hospitals Birmingham NHS Foundation Trust said, “These are guidelines, and our clinical staff are empowered to make individualised, context dependent judgments when opportunities to deliver timely cardiopulmonary resuscitation do arise. Not commencing chest compressions on any patient is one of the most difficult decisions a clinician could ever make. We are therefore focused on the prevention of cardiac arrest and the early reversal of complications from which there is a meaningful probability of recovery in these difficult circumstances.”

A spokesperson for Public Health England said that the national guidance had been reviewed by the New and Emerging Respiratory Virus Threats Advisory Group, which advises the health department, “and it is their expert consensus that chest compressions and defibrillation are not APGs.”

- 1 Resuscitation Council UK. March 2020. COVID-19 resources: healthcare settings. <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/covid-healthcare-resources>.
- 2 Department of Health and Social Care, Public Health Wales, Public Health Agency Northern Ireland, Health Protection Scotland, Public Health England. COVID-19: Guidance for infection prevention and control in healthcare settings. March 2020. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876569/Infection_prevention_and_control_guidance_for_pandemic_coronavirus.pdf.

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