



## PRACTICE

## COVID-19 GUIDELINE WATCH

## Covid-19 and cardiovascular disease

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Guideline: Diagnosis and management of cardiovascular disease during the covid-19 pandemic

Published by the European Society of Cardiology.

This summary is based on the version published on 21 April 2020 (<https://www.escardio.org/Education/COVID-19-and-Cardiology/ESC-COVID-19-Guidance>)

**Why is this guidance needed?**

Based on the evidence so far, cardiovascular risk factors and heart conditions are thought to increase the risk of poor outcomes from covid-19. Covid-19 may also be a risk factor for the development of cardiovascular disease.

The UK Government guidelines place individuals with chronic heart disease, such as heart failure, in the “clinically vulnerable” group, and therefore should only leave home for essential needs.<sup>1</sup>

**How was the guidance developed?**

The guideline was developed by a Europe-wide “group of experts and practitioners” who have cared for patients with cardiovascular conditions and covid-19.<sup>2</sup>

A full list of authors and reviewers of the guidance is available in the guideline, but full details of the guideline methodology, including information on patient and public involvement, are not included. Competing interests of the authors or reviewers of the guideline are not stated.

The organisation presents this as a “guidance document” rather than a “guideline,” as recommendations are based on limited evidence, observation, and anecdote. The guidance remains valid only for the duration of the pandemic, and should not supersede local or national guidance.

**What does the guidance cover?**

The guidance reviews the epidemiology and pathophysiology of covid-19 in relation to cardiovascular disease.

Current evidence suggests that cardiovascular presentation and outcomes in patients with covid-19 are comparable with patients with severe acute respiratory syndrome and Middle East respiratory syndrome. Poorer outcomes have been noted for patients with covid-19 and underlying cardiovascular disease.

Recommendations are provided for the diagnosis, management, and care of patients with cardiovascular conditions during the covid-19 pandemic, as well as the adjustments required if covid-19 is suspected or confirmed. To support decision making, the guidance includes algorithms for care provision.

The guidance does not cover advice for key workers with heart conditions or for pregnant women with heart conditions. Guidance for patients with congenital heart conditions is limited.

**What are the key recommendations?****Inpatient attendance**

- If cardiology assessment or intervention is considered urgent (eg, assessment in the emergency department, ST elevation myocardial infarction, or pacemaker insertion), care should not be delayed. The patient should be considered positive for covid-19 until proven otherwise and appropriate personal protective equipment measures taken. Full details of the level of protection according to risk status of the patient is provided within the guidance.

**Diagnosis of cardiovascular conditions**

- Biomarkers such as cardiac troponin T/I concentrations, B type natriuretic peptide (BNP), and N terminal B type (NT-proBNP) may be elevated in covid-19 patients, similar to their rise in other viral pneumonias. Without clinical symptoms or changes on ECG, mild elevations do not need further investigation, as these may be due to pre-existing cardiac conditions or acute illness.
- Marked elevation of cardiac troponin T/I has been shown to indicate poor prognosis in covid-19, which has led to consideration of the biomarker for prognostication. However, this is not currently recommended in practice as evidence is limited.
- No specific changes on ECG have been described for infected patients, and the ECG diagnostic criteria for cardiac conditions is therefore unchanged.
- Patients with suspected or confirmed covid-19, who are also at risk of cardiogenic shock (eg, large acute myocardial infarction or acute decompensated heart failure) should be identified early, and sepsis and myocarditis should be considered.

## Procedures

- Primary percutaneous coronary intervention (PPCI) pathways may be delayed during the pandemic by up to 60 minutes, but a maximum delay of 120 minutes should remain the target. Fibrinolysis can be considered as firstline treatment if this target time is likely to be breached and there are no contraindications.
- Transporting patients to the catheterisation laboratory carries risk of contamination, and therefore performing some procedures at the bedside should be considered (eg, intra-aortic balloon pump insertion).

## Management

- Tele-health should be used as much as possible for follow-up of patients with cardiac conditions.
- Patients with chronic coronary syndromes should continue to take aspirin for secondary prevention.
- Treatment for acute heart failure should be the same for all patients, regardless of infection status.
- No changes are recommended to the treatment of hypertension, unless a patient becomes acutely unwell. If a patient with hypertension is hospitalised and tests positive for covid-19, plasma potassium should be monitored. This is because of the increased risk of arrhythmias from hypokalaemia.
- Patients who receive hydroxychloroquine or azithromycin in combination with antiarrhythmic drugs are at risk of prolonged QT interval and torsades de pointes. If patients with atrial fibrillation or flutter are haemodynamically stable, rate control methods should be considered as an alternative. Full information on drug interactions are available in the guidance.
- In patients with haemodynamic instability, intravenous amiodarone is the antiarrhythmic medication of choice. However, there is a risk of QT prolongation if used in combination with hydroxychloroquine or azithromycin, and this should be weighed up with the benefits, if used together.

## What does other UK guidance say?

- Pregnant women with significant heart disease or heart transplant patients are part of the “clinically extremely

vulnerable” group and should follow “shielding” measures, according to Public Health England.<sup>3</sup>

- NHS England produced a specialty guide for the clinical management of cardiology patients, published on 20 March 2020. All urgent care should continue and elective procedures deferred, although this may need to be reviewed based on risk assessment of individual cases. Implantable cardioverter defibrillators and cardiac resynchronisation therapy pacemakers should have remote monitoring.<sup>4</sup>

## Anything else?

Despite original concerns that angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (ARBs) might increase susceptibility to severe infection, two large studies published this month (May 2020) found this not to be the case.<sup>5,6</sup> Therefore, these medications should not be discontinued unless the patient acutely deteriorates.

Current experimental treatments for covid-19 may have cardiac side effects, but these are not fully reported yet. The recommendations within the guideline are based on preliminary information that is rapidly evolving.

Competing interests: The author is a member of BMJ staff. No other interests declared.

Externally peer reviewed

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