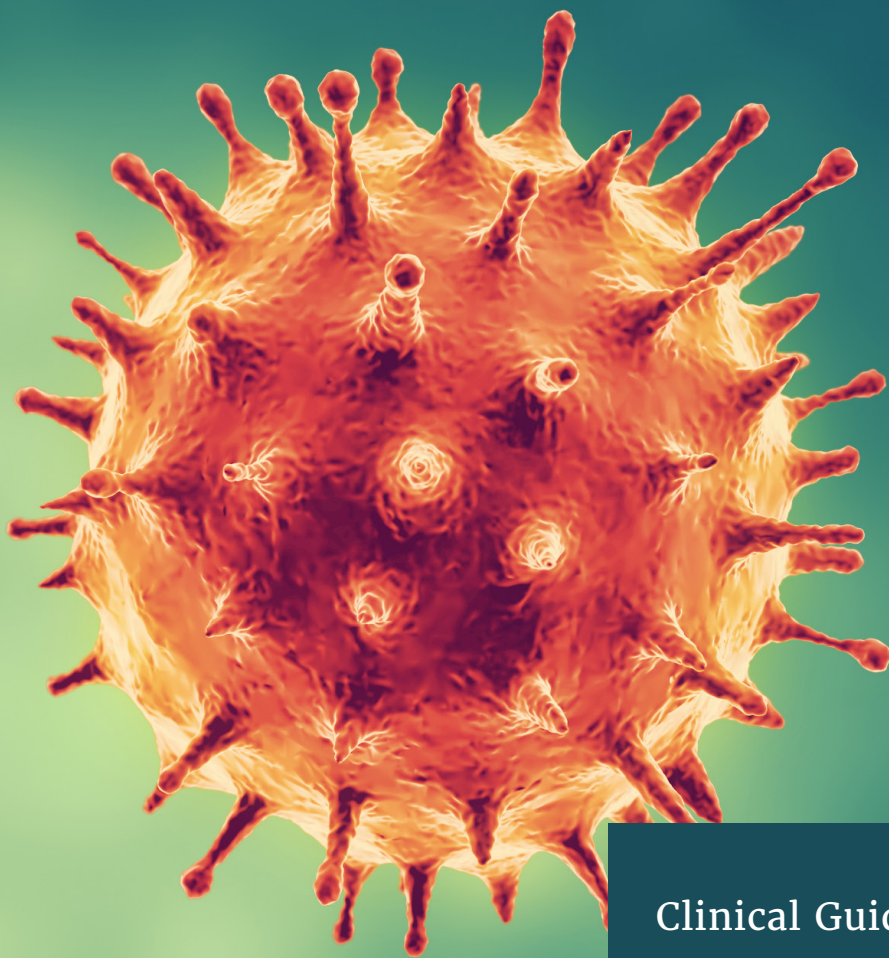


# Australasian College for Emergency Medicine

acem.org.au



## Clinical Guidelines

for the management of COVID-19 in  
Australasian emergency departments

v5.0

23 December 2020

**G764**

# About

## This guide

The COVID-19 pandemic will stretch hospital resources all over the world. These guidelines are a framework for all Emergency Departments to work from as we plan and respond to the pandemic.

With our states, countries, metropolitan, rural and regional emergency care facilities all at different stages of community impact, and with markedly different workforce, infrastructure and resources available, local implementation of these guidelines will differ.

However, there are general principles of COVID-19 and non-COVID-19 emergency care that will apply to all workplaces:

- There is no patient emergency more important than the safety of our healthcare workforce.
- Appropriate, judicious use of personal protective equipment (PPE) is paramount.
- Planning for the increased numbers of patients requiring critical care services is important.
- Special consideration should be given to vulnerable people, both patients and staff, such as those who are older or have comorbidities, as well as Indigenous populations.

## The Australasian College for Emergency Medicine

The Australasian College for Emergency Medicine (ACEM) is the not-for-profit organisation responsible for training emergency physicians and advancement of professional standards in emergency medicine in Australia and New Zealand.

**Our vision** is to be the trusted authority for ensuring clinical, professional and training standards in the provision of quality, patient-focused emergency care.

**Our mission** is to promote excellence in the delivery of quality emergency care to all of our communities through our committed and expert members.

## Contributors

ACEM would like to thank **Safer Care Victoria** for their collaborative efforts in the development of this document.

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ACEM would also like to thank **Associate Professor Sarah Winch**, healthcare ethicist from the **University of Queensland**, for contributing to the development of this document.

# Acknowledgment

The Australasian College for Emergency Medicine (ACEM) acknowledges the Wurundjeri people of the Kulin Nation as the Traditional Custodians of the lands upon which our Melbourne office is located. We pay our respects to ancestors and Elders, past, present and future, for they hold the memories, traditions, culture and hopes of Aboriginal and Torres Strait Islander peoples of Australia.

In recognition that we are a bi-national College, ACEM acknowledges Māori as tangata whenua and Treaty of Waitangi partners in Aotearoa New Zealand.

# Disclaimer

These Guidelines have been developed to assist clinicians with decisions about appropriate healthcare in Emergency Departments in Australia and Aotearoa New Zealand during the COVID-19 outbreak. They are a framework for planning and responding to this pandemic, including the assessment and management of patients.

The Guidelines are targeted at clinicians only. Patients, parents or other community members using them should do so in conjunction with a health professional and should not rely on the information in these guidelines as professional medical advice.

The Guidelines have been developed by an expert team of practising emergency physicians, by consensus and based on the best evidence available. The recommendations contained do not indicate an exclusive course of action or standard of care. They do not replace the need for application of clinical judgment to each individual presentation, nor variations based on locality and facility type.

The Guidelines are a general document, to be considered having regard to the general circumstances to which they apply at the time of their endorsement.

It is the responsibility of the user to have express regard to the particular circumstances of each case, and the application of the Guideline in each case.

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The Guidelines have been prepared having regard to the information available at the time of preparation and the user should therefore have regard to any information, research or other material which may have been published or become available subsequently.

Whilst we have endeavoured to ensure that professional documents are as current as possible at the time of their creation, we take no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

# Executive summary

Pandemic modelling for COVID-19 has governments and communities working towards a common goal of 'flattening the curve' in order to give healthcare services the best opportunity to meet the coming acute demand of COVID-19 infected patients. Whilst the usual medical, mental health and trauma presentations may reduce, they will continue. This requires workforce planning that includes consideration of long-term sustainability, as well as a significant and unprecedented period of surge.

Emergency Departments (EDs), already operating over capacity, have the potential to be overwhelmed by both sheer numbers of mild to moderately unwell patients, as well as resource-intensive critical patients (who may or may not benefit from critical interventions) and staff shortages due to quarantine requirements when exposed to COVID-19 infected patients.

These Guidelines are a framework for all in EDs to work from as we plan and respond to the pandemic. With our states, countries, metropolitan, rural and regional emergency care facilities all at different stages of community impact, and with markedly different workforce, infrastructure and resources available, local implementation of these guidelines will differ.

However, there are general principles of COVID-19 and non-COVID-19 emergency care that will apply to all workplaces:

- There is no patient emergency more important than the safety of our healthcare workforce.
- Appropriate, judicious use of personal protective equipment (PPE) is paramount.
- Planning for the increased numbers of patients requiring critical care services is important.
- Special consideration should be given to vulnerable people, both patients and staff, such as those who are older or have comorbidities as well as Indigenous populations.

In this COVID-19 healthcare response, we must use the challenges of delivering equitable, safe, timely, rational, effective, patient-centred healthcare, to create opportunities in healthcare community building, communication and system reform. Our goal is to create a 'living' document for the generic planning and implementation that is occurring in duplication across multiple sites concurrently. To enable continual refinement of the document we hope you will share your feedback, resources, challenges, wins and local solutions here:

**[ACEM COVID-19 Suggestions - Click here](#)**

The next six months are going to be tough, but our skills, expertise, humanity, compassion, training, unity and strength will get us through it. Amid all of this, maintaining our wellbeing, both physical and psychological, remains more important than ever.

Please continue to look after yourselves and each other, our precious emergency healthcare resource.

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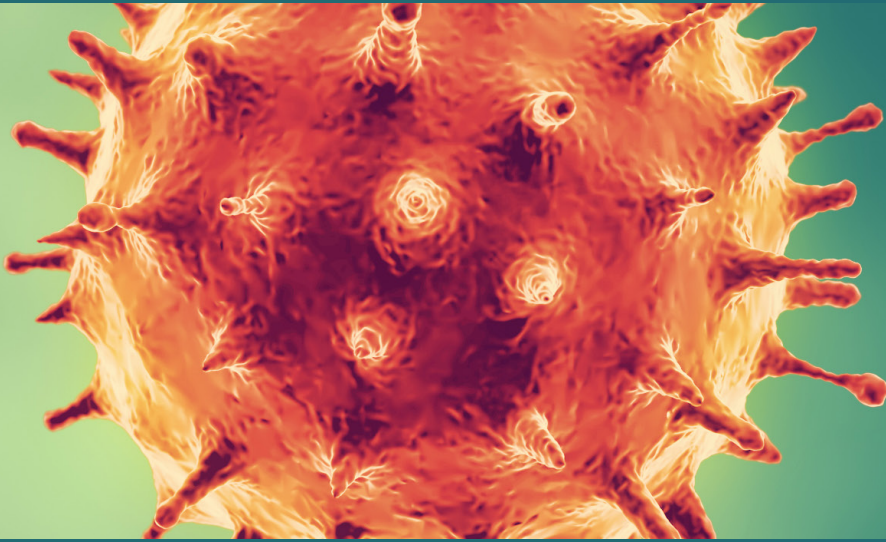
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# Section 1

## Pandemic Planing



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor editorial changes only
v2.3	24 April 2020	Addition of Resources
v4.2	24 August 2020	S1.0 – Addition of point 7 under “We recommend the following..”

# 1. Pandemic planning

---

All hospitals and health services should have a pandemic plan, which includes all aspects of the health service including EDs and critical care areas. The Australian Health Sector Emergency Response Plan for Novel Coronavirus COVID-19, and the New Zealand Pandemic Action Plan contain the essential aspects of pandemic planning to guide hospitals in managing the COVID-19 pandemic (links below). Pandemics require whole-of-hospital and whole-of-healthcare responses with integration of ED plans into both of these.

We **recommend** the following:

1. That the ED leadership are actively involved with the Hospital Incident Management Team (HIMT), or equivalent, which should have been activated during the Preparedness / Standby (Aus) / Keep it out/ Stamp it Out (NZ) phases of pandemic planning. Active involvement of the ED in the HIMT and broader hospital planning, through direct membership or consultation, will facilitate collaboration with all areas of the hospital, which is essential for the complete and integrated, whole-of-hospital response to a pandemic.
2. That the hospital pandemic plan is consistent with state and federal guidelines and that, where possible, these plans are used without modification.
3. That the hospital pandemic plan should include all aspects of the standard Health Incident Management Plan. These will have differing titles in different jurisdictions but should include:
  - (a) Command, Coordination, Control.
  - (b) Planning, including structural elements and staffing required for different stages of pandemic response.
  - (c) Recovery.
  - (d) Communications (both external and internal).
  - (e) Operations (business as usual plus pandemic response including clinical protocols, infection control).
  - (f) Logistics (supplies and workforce).
  - (g) Intelligence (data gathering).
  - (h) Investigation.
  - (i) Finance.
4. The ED should not duplicate activities undertaken by the HIMT, but should provide input to ensure the plan fulfils the needs of the ED and its patients, whilst supporting the rest of the healthcare sector in managing the pandemic.
5. FACEMs should develop clinical guidelines in conjunction with relevant colleagues, including infection control, to ensure a consistent approach to patient care.
6. Code Brown should **not** be the primary response to a pandemic. Unlike a mass casualty event, time is available and should be used for planning and preparation, in order to avoid or delay the need for a Code Brown response. If Code Brown is used, there should be a clear, defined benefit over and above that of the hospital's pandemic plan.
7. EDs have a robust system to cope with sick leave due to exposed staff having to be isolated, so that the department is still able to cope with the workload.

We **align** with the following resources:

1. [Australian Health Sector Emergency Response Plan for Novel Coronavirus COVID-19](#)
2. [Australian Government, Emergency Response Plan for Communicable Disease Incidents of National Significance: National Arrangements](#)
3. [New Zealand Pandemic Action Plan](#)
4. [Australian Department of Health National Communicable Diseases Plan](#)
5. [ACEM, Management of Respiratory Disease Outbreaks: including Severe Influenza, Pandemic Influenza and Emerging Respiratory Illness](#)
6. [United States CDC Checklist for Health Services](#)

This document should be read in conjunction with State and Territory Plans:

- [Victoria](#)
- [New South Wales](#)
- [Western Australia](#)
- [Tasmania](#)
- [Queensland](#)
- [Northern Territory](#)
- [ACT](#)

This document should be read in conjunction with relevant [ACEM standards](#) including:

- [G26 Guidelines for Infectious Disease and Biohazard Exposure in the Emergency Department](#)

## 1.1 Measures to decrease ED demand

We **recommend**:

1. Health services develop clear agreement with external stakeholders and ambulance services regarding transport and reception of patients (especially special populations such as frail older persons).
2. Hospitals develop procedures to defer patients to alternative health services (e.g. private hospitals) or defer time of presentation (e.g. electives).
3. Hospitals redeploy non-ED staff (within their scope of practice) to assess acute, low risk COVID-19 patients outside the ED (e.g. in clinics, in the community or on wards).
4. Hospitals support early redirection of patients seeking public health screening with mild respiratory symptoms to screening clinics (see below).
5. Hospitals improve telehealth support for a range of clinical services.
6. Use of pre-existing social and traditional media avenues (e.g. mobile apps) to inform patients of appropriate use of emergency services.
7. Other specialties urgently develop processes for patients to be reviewed without transit through the ED.
8. Algorithms of pre-hospital services are redirected away from the ED (e.g.13 Health).

We **advocate** for clinical care to occur in the most suitable setting - including residential aged care facilities (RACFs) - where safe and appropriate.

## 1.2 Measures to increase ED capacity

Optimising patient flow through the ED to inpatient service or to discharge will increase the ED capacity and ability to cope through the pandemic. With the bushfire crisis and now COVID-19, maldistribution of the emergency workforce to rural and regional centres has been problematic.

We **recommend**:

1. Urgent measures are required to increase ED staff, equipment and treatment spaces in the short term.
2. Health services actively increase work hours of existing staff for those willing to do so who are not full time and recruit additional healthcare staff in the short term.
3. Health services utilise other non-ED staff in the low risk COVID-ED for suitable cases (for example, orthopaedic registrars for limb injuries, gynaecology registrars for early pregnancy bleeding).
4. Health services consider changing or increasing the footprint of EDs and short stay units to meet demand.
5. Health services optimise patient flow in preparation for increased presentations. This is especially important for ICU and respiratory cases.
6. Tertiary paediatric hospitals take paediatric presentations away from other hospitals in order to increase capacity to treat unwell adults in those hospitals.

## 1.3 Measures to maintain healthcare system flow

The response to COVID-19 must be considered a health system response with a shared responsibility to staff, patients and risk. As such, guidelines and protocols should consider colleagues in other professions, departments, networks, societies and colleges.

We **recommend**:

1. That 'hub' hospitals maintain their support of, and accountability to, surrounding smaller facilities although specifics of that support will change with each pandemic phase.
2. There are agreed methods of medical evacuation of COVID-19 and non-COVID-19 patients from hub hospitals back to smaller facilities or community services.
3. Improved communication between hospitals and health services and key community services including RACFs and primary care.
4. Collaboration with private hospitals and other healthcare facilities.
5. Non-essential education and clinical support time is re-purposed to contribute to the pandemic response.
6. That health services assess their capacity to provide non-critical elective surgery during the pandemic.
7. That health services assess their capacity to provide non-critical outpatient clinics during the pandemic.
8. Escalation to hospital management or public health unit if there are obstacles to transfer of care on the basis of infection-control concerns.

## 1.4 Measures to improve communication

We **advocate** for the following:

1. A single 'point of truth' for rapid communication and dissemination of reliable clinical information that applies at state and national levels.
2. Coordination and clear lines of communication in critical care networks at a local, regional, state-wide and national level.
3. Agreed clinical pathways and thresholds for intervention are shared between all critical care services.
4. Agreed referral and communication (including telehealth) pathways between rural, regional and larger metropolitan sites.
5. Agreed communication pathways between frontline clinicians and governance networks to inform of rapidly changing policy.
6. Agreed public and private healthcare network communication strategies to coordinate response.

## 1.5 Section disclaimer

This section has been developed to assist clinicians with decisions about appropriate healthcare in Emergency Departments in Australia and Aotearoa New Zealand during the COVID-19 outbreak. It is a framework for planning and responding to this pandemic, including the assessment and management of patients.

**This section is targeted at clinicians only.** Patients, parents or other community members using it should do so in conjunction with a health professional and should not rely on the information in the guideline as professional medical advice.

The section has been developed by an expert team of practising emergency physicians, by consensus and based on the best evidence available. The recommendations contained do not indicate an exclusive course of action or standard of care. They do not replace the need for application of clinical judgment to each individual presentation, nor variations based on locality and facility type.

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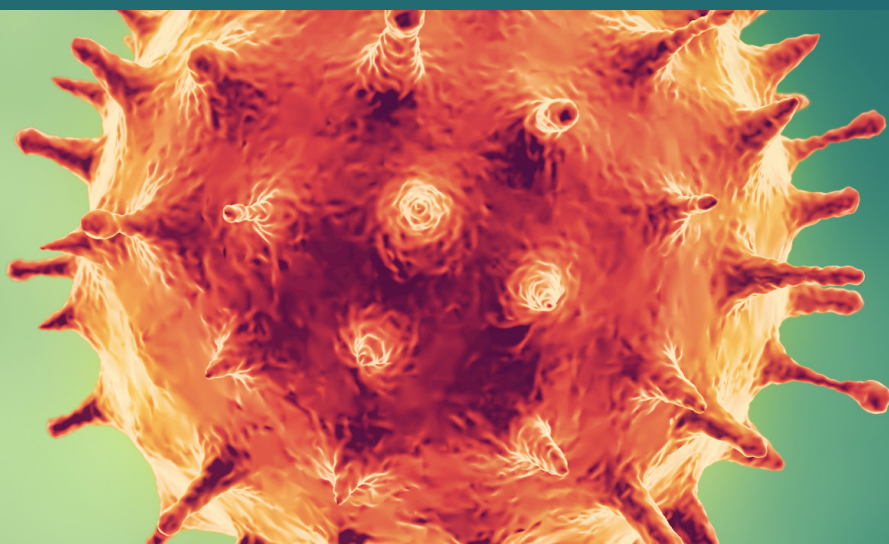
Whilst we have endeavoured to ensure that professional documents are as current as possible at the time of their creation, we take no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

## 1.6 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 2

## The new normal ED – living with COVID-19



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes to 2.1, minor editorial changes to 2.2
v2.3	24 April 2020	Minor changes, addition of Nitrous oxide use, addition of Resources
v3.0	1 May 2020	Minor editorial changes
v4.1	2 July 2020	Section title changed from 'Maintaining business as usual'. Addition of S2.1 – 2.7 Revisions to S2.8 Addition of S2.9
v4.2	24 August 2020	Revisions throughout the section Removal of S2.4 - Overcrowding

## 2. The new normal ED – living with COVID-19

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Since the COVID pandemic, there have been rapid changes to processes in Emergency Departments (EDs) and the healthcare system. There were initially reduced patient presentations in many areas due to community lockdown, fear and behaviour change, iHowever there has been a return to widespread overcrowding, which threatens safe ED function. ED clinicians will need to maintain vigilance over the long term in order to assess and manage the large numbers of possible or known positive COVID-19 patients attending EDs, regardless of community case numbers. ED patients require infection control and physical distancing measures to prevent disease transmission to other patients and staff. With ongoing outbreaks, chaotic and overcrowded EDs are a grave risk to patients, visitors and staff. Sadly, ED clinicians and their family members have already been infected in Australia

Overcrowding keeps patients from accessing the ward, denies them specialised nursing and medical care and puts their treatment plans on hold. ED bed spaces are one of the hospital's most precious and well-utilised resources but require continual onward flow of patients to be effective. From a patient's perspective, long waits in the ED create anxiety and frustration, damage the trust in the system and increase the risk of harm with these effects are amplified in the context of COVID19. Importantly, ED clinicians will need to assess and manage possible or suspected COVID-19 patients for an extended period, maybe years, even when community case numbers and transmission are low.

Emergency Medicine is a “person-centred” speciality that cares for patients at their most vulnerable and plays a significant role in advocating for them through the wider health system. We have a unique opportunity to restate and refocus the delivery of emergency medicine to its ultimate aims:

*emergency care of high quality, delivered in an environment where staff and patients are safe from harm, where the experiences of receiving and delivering care are positive, and where emergency care improves the health of our communities.*

Emergency Physicians have played a significant leadership role in managing COVID-19. The pandemic has shown their aptitude for rapid and pragmatic systems-level decision making, with the benefit of an understanding of both community and inpatient care across specialties. Many FACEMs have been involved in the pandemic planning and response at the highest levels. Given their unique perspective, it is essential that Emergency Physicians continue to have a strong voice.

We **align** with the following resources:

1. ACEM [Statement on Access Block](#).
2. [Emergency Department Crowding and Access Block Task Force](#), International Federation for Emergency Medicine.
3. [Position Statement on COVID-19: Resetting Emergency Department Care](#). The Royal College of Emergency Medicine, 6 May 2020.
4. Queensland Emergency Department Strategic Advisory Panel's [COVID Business as Usual \(BAU\) for Emergency Departments](#).
5. [Coronavirus disease \(COVID-19\) social distancing guidance](#). Australian Government Department of Health. Version 3, 26 March 2020.



## 2.1 Principles

EDs are faced with sustaining additional requirements to maintain patient, staff and public safety in the context of COVID-19. Ongoing Personal Protective Equipment (PPE) availability and utilisation for both patients and staff will be required long term. Additional capacity and redundancy to manage infections in staff and associated the isolation measures are required ([see Section 22](#)).

Given the required increased vigilance and workload, it is unsustainable for emergency clinicians to work in an overcrowded and under-resourced environment. Allowing this to continue is harmful for patients and clinicians and will lead to lower efficiency, staff burnout and increasing infections (see ACEM's [Access Block statement](#)). It is essential that there is a shared awareness and accountability from other specialties and executives to manage patient flow. **There can be no tolerance for the previous situation of over-capacity hospitals, overcrowded EDs and ramped ambulances in the COVID era.**

**The pandemic is a unique opportunity to optimise the delivery of patient care to put patient and staff safety first.** The successful models of care that have been developed to date in the pandemic must now be reviewed and implemented as standard practice, so that where appropriate, patients can minimise their time in or avoid the ED. Many EDs have introduced new safety processes, including regular 'safety huddles' to review infection control processes, streamlined pathways for common ED presentations, introduced and expanded community-based and "virtual" substitutive care programs, and enhanced the focus on staff training and wellbeing ([see Section 22](#)). Patient safety and system co-ordination are key principles in re-thinking ED function and design to provide patient-centred, safe care.

## 2.2 Framework

Every ED will need to develop a framework to address key priorities in the New Normal ED as we contend with the pandemic:

- ED design (see [Section 3](#))
- Protocols for appropriate reception, testing, pre-screening, and cohorting of patients (see [Section 5](#))
- Personal Protective Equipment (PPE) - what is appropriate to each pandemic stage according to community prevalence (see [Section 6](#))
- Streamlined pathways for common ED presentations to minimise overcrowding, including expedited admission processes and escalation strategies if delays or capacity is reached
- Staffing, training and a focus on staff wellbeing (see [Section 22](#))
- Public health messaging regarding the role of an ED

## 2.3 ED design in the New Normal ED

Every ED will need to reconsider its physical organisation considering the infection risk of COVID-19. Specific considerations include:

- Waiting room design to ensure appropriate physical distancing between all patients and support people in waiting areas, including 1.5m or greater between people and a maximum of 1 person per 4 square meters
- Physical distancing between patients in treatment areas
- Physical distancing between staff at workstations and break areas
- Appropriate signage to support physical distancing
- A suitable area to screen all ED presentations on arrival for COVID-19 symptoms and risk factors
- Use of masks for staff, patients and visitors to minimise infection risk in areas of community transmission. Masks can be used as an adjunct when maximal occupancy is being reached in non-infectious areas.

- Cleaning and disinfecting of high touch surfaces regularly
- Meetings held via video conferencing, telephone or in suitably spaced areas. Outdoor meetings may be required.
- Restriction of visitor numbers and duration of stay
- Adequate ventilation of the ED
- A suitable number of negative pressure isolation rooms and single rooms
- Review of resuscitation bays for infection control considerations including storage, protected entry and exit, and communication strategies between staff who are inside and outside the room

## 2.4 Hospital level support

We **recommend**:

1. Each health service must develop pathways to manage possible and known COVID-19 patients, with staffing and physical resources to maximise patient and staff safety. We recommend that EDs review their processes for the reception and management of ED patients who:
  - Are unable to provide an accurate history, and therefore cannot have their risk of COVID-19 infection assessed; or
  - May require an aerosol generating procedure (see Table 1). In general, a safe approach is to use the same precautions (including PPE) as for patients with suspected and confirmed COVID-19
2. Adaptation of models of care that enhance patient flow and avoid access block. This includes:
  - Streamlined pathways for common ED presentations. Inpatient admissions should be expedited, with ED consultants having admitting rights for inpatient areas, and inpatient teams undertaking admissions on the wards. Robust hospital escalation strategies are required for when EDs reach capacity
  - Maintenance of critical illness pathways (for example STEMI, trauma, stroke, febrile neutropaenia) that are efficient and safe
  - Diversion of non-essential attendances to virtual models or to other providers
3. Implementation of new access measures that go beyond the 4-hour (National Emergency Access Target (NEAT); Australia) or 6-hour (Shorter Stays in Emergency Departments (SSED); New Zealand) targets to reduce overcrowding and promote good quality care. Such measures need to be across the whole healthcare system and should be incentivised at the local and jurisdictional levels. These include access measures for separate disposition streams (discharges, transfers, Short Stay Unit and inpatient admissions), include measures of efficiency of inpatient management and discharge processes and performance for each ED stream and inpatient unit against agreed benchmarks.

## 2.5 Emergency department support

We **recommend**:

1. Crowding of patients, visitors and staff in the ED waiting room, corridors and treatment spaces is unacceptable. Physical distancing requirements must be maintained in all working and waiting areas, including ambulance ramping/ awaiting offload areas. Waiting room occupancy needs to be measured and managed. Innovative strategies are required to allow geographically remote waiting and electronic call back where appropriate. Breaches of safe capacity should be built into hospital wide escalation responses.
2. Ramping (delayed ambulance offload) of unscreened patient cohorts is never acceptable. This mixes possible COVID-19 patients with other potentially vulnerable patients and risks patient, staff and community harm and fatalities ([see Section 5](#)).
3. Health systems require capacity to deal with surges in ED infectious presentations and local outbreaks, through well supported and implemented escalation policies.

4. ED facility design is reviewed to incorporate enhanced numbers of negative pressure isolation rooms and single rooms, appropriate waiting area design with adequate spacing, ventilation and signage and other environmental infection prevention and control mechanisms as a priority.
5. Funding and implementation of IT and environmental redesign solutions to facilitate safe access of staff and relatives to support patients, regardless of infectious status..

## 2.6 Healthcare system support

We **recommend**:

1. Providing support and creating accountability in healthcare networks for regional, rural and remote EDs, including the sharing of resources and workforce, and the use of telehealth and virtual models, and retrieval and repatriation services.
2. Continual development of and investment in community, telehealth and virtual models of care for patients accessing hospital care, including Virtual EDs, Residential Aged Care Facility (RACF) acute care support programs, Hospital in the Home (HITH) services, Outpatient Services, primary care and other providers. These programs may involve emergency clinicians but must be independent models of care with dedicated funding and resources.
3. Public messaging from Health Departments and Networks continue to ensure that seriously ill patients feel confident to present to EDs but also articulate the alternative community-based services that can be accessed for less urgent healthcare needs.
4. Adoption of measures to collect, analyse and optimise patient safety data for Emergency patients across their healthcare journey. Healthcare systems should monitor the impact of system changes to identify and respond to unintended consequences, such as delayed access to time-critical interventions, iatrogenic complications, ED and inpatient length of stay and increased mortality.
5. Governance structures which allow clinician engagement and input to ensure rapid implementation of improved models of care based on evolving evidence.
6. Funding structures that incentivise positive patient experience and outcomes rather than solely incentivising activity.

## 2.7 Community support

We **recommend**:

1. Increased access to community-based care for chronic disease management with sustainable case coordination and streamlined access to reviews with specialists as required.
2. Increased access to community-based care for minor illness and injury presentations (refer Section 14).
3. A community solution for care, housing and 'home' isolation options for people experiencing homelessness and those facing housing insecurity, including those living in poverty and overcrowded households.
4. A community strategy for care of vulnerable patients including older patients, those with mental health issues, and those with disabilities who are reliant on home carers to access healthcare, while as much as possible enabling the goal of people safely remaining in their own homes.

## 2.8 References

The following resources were used in the preparation of this section:

- Australasian College for Emergency Medicine (ACEM). [Policy on standard terminology](#) (P02). Melbourne: ACEM; 2019.
- Australasian College for Emergency Medicine (ACEM). [Emergency department design guidelines](#) (G15). Melbourne: ACEM; 2014.

- Australasian College for Emergency Medicine [Emergency Events Register](#).
- Staib A and Small N. [Emergency medicine's COVID future: Facing the triple challenge after flattening the curve](#). Emerg. Med. Australas. 2020. doi:10.1111/1742-6723.13566.
- Chu DK et al. [Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis](#). Lancet. 2020. 395(10242):1973-1987.
- Skinner C. [At a time of looming crisis, a vision for health system transformation](#). Croakey, January 2020.
- Javidan et al. [Report from the Emergency Department Crowding and Access Block Task Force](#). International Federation for Emergency Medicine, June 2020.

## 2.9 Section disclaimer

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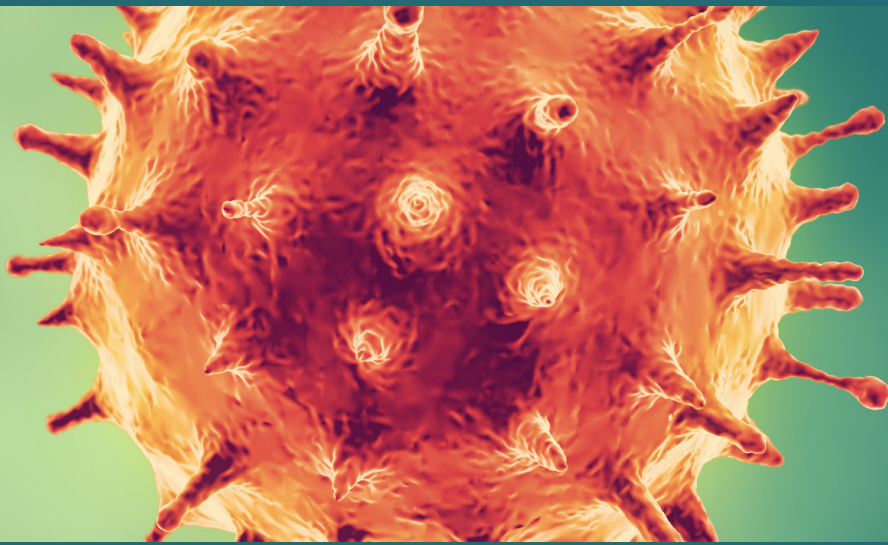
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## 2.10 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 3

## Emergency Department design layout



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes to 3.1, 3.3, 3.4 and 3.6
v2.3	24 April 2020	Addition of Resources
v4.2	4 September 2020	Revisions to S3.0 Addition of S3.1 – Waiting areas S3.2 - Additional paragraph S3.4 – minor revisions

### 3. Emergency Department design layout

The COVID-19 pandemic has mandated changes to ED layout and flow. This clinical redesign process is necessary to mitigate the risk of disease transmission.

Many of the requirements for ED layout have been considered in the earlier section 'The New Normal ED – Living with COVID-19'. This chapter provides more specific guidance on zoning and cohorting strategies.

As a principle, We **recommend** that EDs develop clear processes to identify and isolate patients who may be a source of disease transmission (see also triage section below). The likelihood of a positive diagnosis is increased in patients with clinically compatible symptoms (e.g. fever and cough) and/or epidemiological risk factors (e.g. contact with a confirmed case). Patients with severe acute respiratory illness are likely to have a higher viral load and pose a higher risk of disease transmission. An example of a simple risk stratification system linked to infection prevention and control procedures is provided below in **Figure 1**.

In the setting of high rates of community transmission, all patients should be considered as potentially infectious. Some will present with atypical symptoms (especially children and older persons), such that they fall outside of case definition criteria. For this reason, clinicians should exercise a high degree of suspicion and vigilance at all times.

**Figure 1. Example of a simple risk stratification system**

<b>Acute severe respiratory illness or anticipated to need aerosol generating procedure</b>	<ul style="list-style-type: none"><li>• PPE for aerosol generating procedures</li><li>• Negative pressure room if available, otherwise single room</li></ul>
<b>Clinical and / or epidemiological risk factors</b>	<ul style="list-style-type: none"><li>• PPE for droplet precautions</li><li>• Single room wherever possible, otherwise cohorted with patients of similar risk</li></ul>
<b>Other patients</b>	<ul style="list-style-type: none"><li>• Usual ED care in low-risk zone or other designated area</li></ul>

Note that risk stratification may change as the pandemic progresses

#### 3.1 Waiting areas

As per guidance in [Sections 2](#) and [Section 5](#), we recommend that all waiting areas:

1. Are of sufficient size to ensure appropriate physical distancing between all patients and support people, including 1.5m or greater between people and a maximum of 1 person per 4 square meters.
2. Include appropriate signage in support of physical distancing.
3. Are regularly cleaned and disinfected, with particular attention to high touch surfaces.

Depending on the physical infrastructure of the ED, it may be desirable to have a separate waiting area for patients who meet COVID-19 case definition criteria and will subsequently be allocated to a high-risk zone (see below). In the interests of patient safety, all patients in the waiting area should remain within view of the triage nurse.

Principles for ambulance reception areas are discussed in [Section 8](#).

### 3.2 Zoning

Patients meeting case definition criteria should be streamed into a dedicated 'high-risk' treatment zone within the ED with immediate isolation from other waiting patients.

We **recommend** that any high-risk zone is:

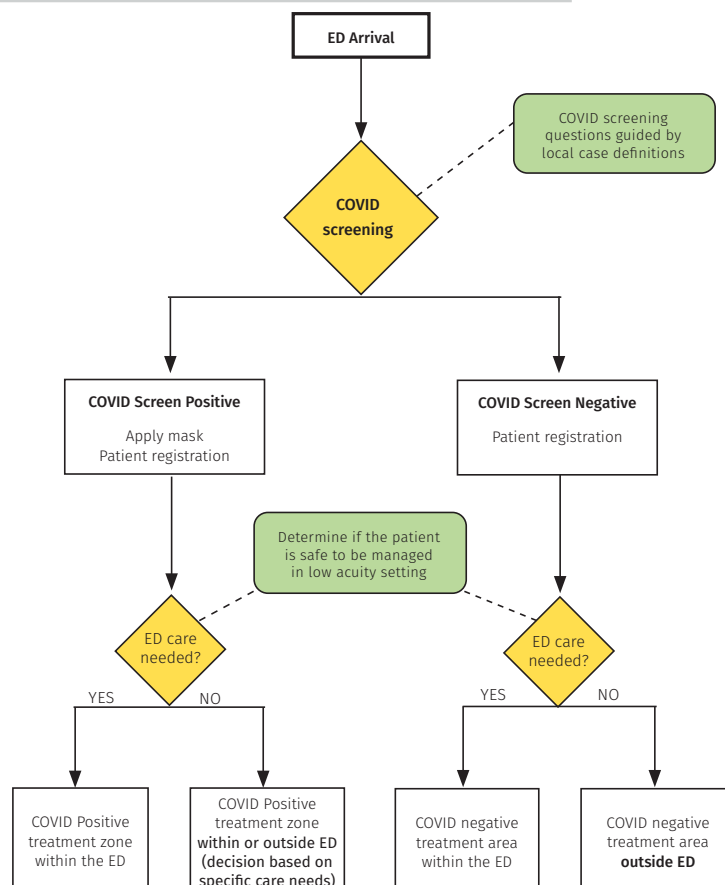
1. Clearly demarcated, with a minimum number of entry and exit points and designated areas for staff to don and doff PPE.
2. Described using neutral language, such as a 'hot' or 'red' zone.
3. Staffed by a team of dedicated clinicians separate from those looking after low-risk patients.

We **recommend** that staff working in this high-risk zone:

1. Wear appropriate PPE at all times (see specific recommendations in [Section 6](#)).
2. Are not permitted to bring food into this or any other clinical area.
3. Take regular, planned breaks to preserve health and wellbeing, especially in the setting of continuous PPE use.

Design of the high-risk zone will depend on the available infrastructure and layout of the ED. An example of a flow diagram incorporating risk assessment and zoning appears in Figure 2 below:

**Figure 2. Example of a flow diagram incorporating risk assessment and zoning**



Within the high-risk zone, cohorting of patients may be required. This is discussed in section 3.4 below.

In the setting of significant rates of community transmission, it may be necessary to designate the entire ED as a 'high-risk' zone. In effect, this would require staff to use droplet precautions PPE for every patient interaction. This strategy may decrease the risk that staff inadvertently become 'close contacts' (resulting in furlough), and reduce complexity in processes.

### 3.3 Selection of specific treatment spaces

We recommend that all patients with suspected COVID-19 are treated in a space that:

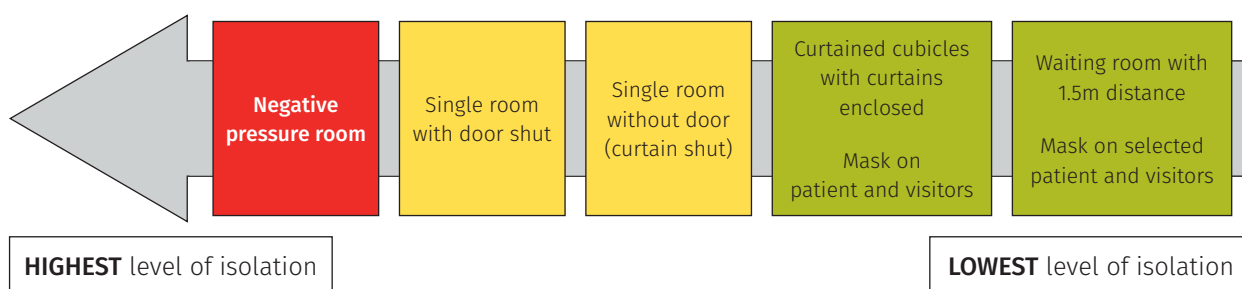
1. Is equipped to meet their specific care needs, as determined by the acuity of their presentation, goals of care and likelihood to benefit from treatment.
2. Offers the highest standard of infection prevention and control within the available resources.

Wherever possible, patients with suspected COVID-19 should be separated from those with confirmed infection. This requires a dynamic approach to flow and bed management.

### 3.4 Prioritisation of treatment spaces based on infection prevention and control needs

The hierarchy of isolated treatment spaces is summarised in Figure 3 below. While patients with suspected or confirmed COVID-19 should ideally be managed in a negative pressure room, this may not be feasible as patient numbers escalate.

**Figure 3. Hierarchy of isolated treatment spaces**



We **recommend** that, in the setting of a mismatch between the supply and demand for isolated treatment spaces, clinicians:

1. Assess the infection control risks posed by a particular patient on an individual basis (see example below).
2. Prioritise treatment spaces with a higher level of isolation for patients who pose the greatest risk of virus aerosolisation.

We **recommend** that, in order of priority, preference for treatment spaces with a high level of isolation is given to:

1. Patients with suspected or confirmed COVID-19 who are undergoing, or are likely to undergo, an aerosol generating procedure (as listed in **Table 1**) or are exhibiting aerosol generating behaviours.
2. Patients with suspected or confirmed COVID-19 receiving supplemental oxygen.
3. Other patients with confirmed COVID-19.
4. Other patients with suspected COVID-19.

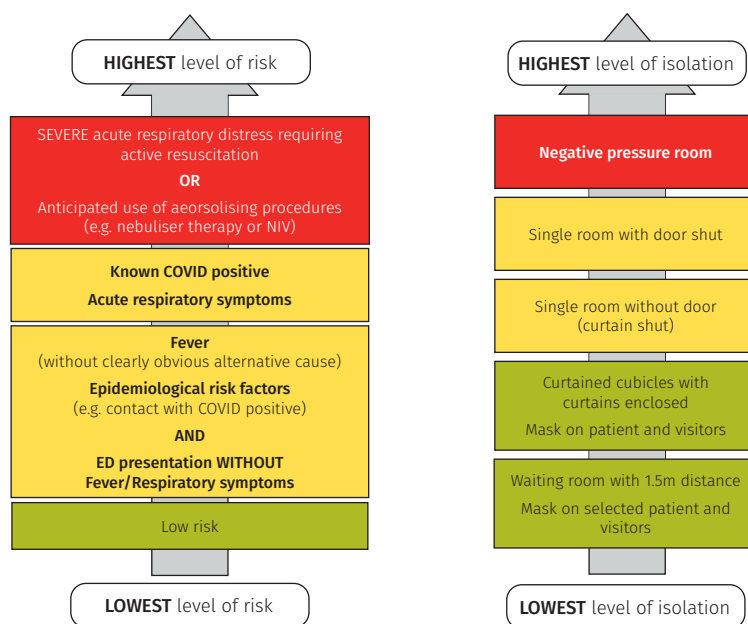
An example of this individual approach to risk assessment is as follows:

- A 60-year-old patient with severe acute respiratory distress and a decreased conscious state is high risk and should be placed in the highest level of isolation.
- A 24-year-old patient with a limb injury who has had contact with a confirmed COVID-19 positive case (but is currently asymptomatic) would also be appropriate for a single room, but is much lower risk of transmitting the virus.



The flow-chart at Figure 4 outlines an approach that balances risk of virus transmission and the level of isolation required.

**Figure 4. Example model of treatment space allocation based on transmission and clinical risk.**



Note that risk stratification may change as the pandemic progresses

We align with the following resources:

1. [ASID Interim Guidelines for the Clinical Management of COVID-19 in Adults](#)
2. [Australian Government Department of Health Interim advice on non-inpatient care of persons with suspected or confirmed Coronavirus Disease 2019 \(COVID-19\), including use of personal protective equipment \(PPE\)](#)
3. [WHO Coronavirus disease \(COVID-19\) technical guidance: Infection prevention and control](#)
4. [WHO Guidance on Natural Ventilation for Infection Control in Healthcare Settings](#)

**Table 1. Examples of aerosol generating procedures**

Aerosol Generating Procedures
<ul style="list-style-type: none"> <li>• Laryngoscopy</li> <li>• Tracheal intubation</li> <li>• Non-invasive ventilation</li> <li>• Positive pressure ventilation with inadequate seal</li> <li>• High flow nasal oxygen</li> <li>• Delivery of nebulised/atomised medications via simple face mask</li> <li>• Cardiopulmonary resuscitation (prior to intubation)</li> <li>• Tracheal suction (without a closed system)</li> <li>• Tracheal extubation</li> <li>• Nasopharyngeal and oropharyngeal swab collection in patients with severe symptoms</li> <li>• Induced sputum</li> <li>• Bronchoscopy</li> <li>• Front-of-neck airway procedures (including tracheostomy, cricothyroidotomy)</li> </ul>

Note: adapted from [SAS guidelines](#) and [Department of Health guidance](#)

### 3.5 Patient cohorting

In the event of overwhelming patient demand, it may be necessary to cohort patients with suspected and/or confirmed COVID-19 in an open or shared area of the ED (within the 'high risk' zone).

We **recommend** that, if cohorting is required, EDs implement the following strategies to optimise patient and staff safety:

1. Ensure the area is clearly demarcated.
2. Decrease passage by minimising entry and exit points and limiting the presence of non-essential personnel.
3. Physically separate patients to the extent that is possible, aiming for a distance of at least 1.5m between individuals.
4. Ensure all patients, where it is clinically safe to do so, are wearing a surgical mask.
5. Educate staff regarding standards and strategies for optimal PPE and infection prevention and control.
6. Arrange for this area to be cleaned regularly, in light of the virus' capacity to remain on surfaces for an extended period of time.
7. Investigate whether it is possible to adjust air-conditioning and ventilation flows to decrease the risk of aerosol transmission.

As discussed above, patients with suspected COVID-19 should ideally be cohorted separately from those with confirmed infection. When all patients in a shared treatment space have confirmed infection, they may be cohorted together without the same physical distancing requirements.

While the impact of co-infection with influenza on COVID-19 disease severity remains uncertain, efforts should be made to minimise nosocomial transmission of influenza wherever possible. This is particularly relevant during 'influenza season'.

We **recommend** that;

1. Hospitals use rapid influenza testing to identify patients with influenza and COVID-19 co-infection, and cohort this subgroup separately.
2. Staff working in high-risk zones or with cohorted patients practice robust but rational use of PPE. Although PPE should ideally be exchanged between each patient encounter, this may not be feasible in the context of limited resources and overwhelming demands for care (see specific recommendations in [Section 6](#)).

### 3.6 Temporary treatment spaces

It may be necessary for the ED to utilise temporary spaces for the care of patients. This is not an ideal solution, but is a safer option than crowding within the ED.

We **recommend** that, if an expansion of the ED footprint is required, EDs select an area that is in close proximity to the main department and can be rapidly fitted out to meet ED design standards (to the extent that is possible). Outpatient clinics and day treatment areas often represent a good option.

In exceptional circumstances, the use of temporary structures (such as tents and marquees) may be required. These areas should be set up using the same design and infection control principles discussed above.

### 3.7 References

The following resources were used in the preparation of this section:

- ASID [Interim Guidelines for the Clinical Management of COVID-19 in Adults](#).
- Australian Government Department of Health [Interim advice on non-inpatient care of persons with suspected or confirmed Coronavirus Disease 2019 \(COVID-19\), including use of personal protective equipment \(PPE\)](#).
- [WHO Coronavirus disease \(COVID-19\) technical guidance: Infection prevention and control](#).
- [WHO Guidance on Natural Ventilation for Infection Control in Healthcare Settings](#).
- van Doremalen, N, Bushmaker, T, Morris, DH et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. [Letter to Editor](#). New England Journal of Medicine. March 17, 2020. DOI: 10.1056/NEJMc2004973
- [G15 Emergency Department Design Guidelines](#), Australasian College for Emergency Medicine.
- Jefferson T, DelMar CB, Dooley L, Ferroni E, Al-Ansary LA, Bawazeer GA et al. [Physical interventions to interrupt or reduce the spread of respiratory viruses](#). Cochrane Database Syst. Rev. 2011, 7:CD006207

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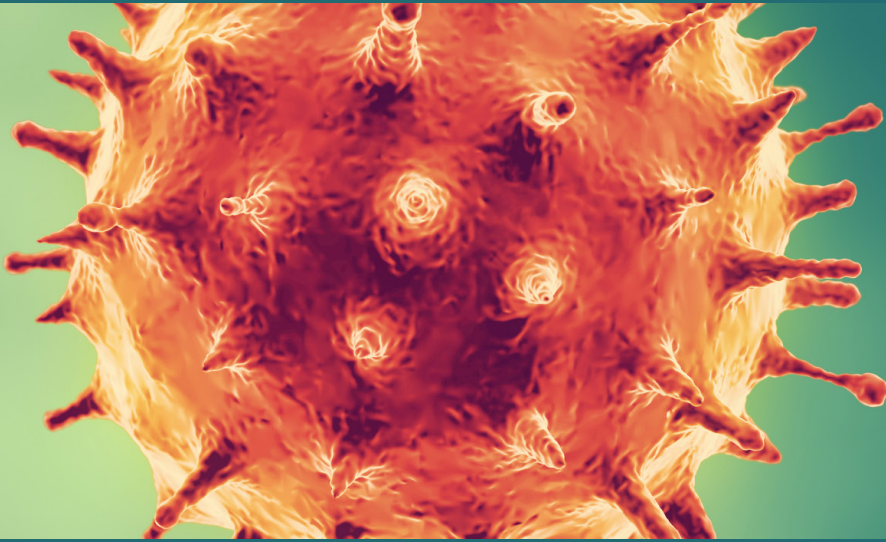
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# Section 4

## Assessment Clinics



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes to 4 and 4.1
v2.3	24 April 2020	Addition of Resources

## 4. Assessment clinics

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Risk assessment and consideration of testing for COVID-19 is not emergency care. Assessment clinics for community members concerned about the possibility of COVID-19 should be located away from the ED. These clinics are known by various names (such as fever, respiratory, COVID-19 or screening clinics) and are utilised for screening patients who are well and for assessing patients with mild respiratory symptoms. In some instances, they may include staff testing facilities.

Hospital based COVID-19 clinics are an interim model of care designed to:

- a. Provide a safe and streamlined approach to caring for patients with suspected COVID-19.
- b. Minimise infection risk to patients presenting for other reasons.

We **recommend**:

1. That hospital based respiratory assessment clinics are used only as an interim measure to manage patient surge.
2. Where a COVID-19 clinic is on the hospital campus, the staffing and resources should be separate from the ED, and ideally derived from other hospital services (such as outpatients).

We **advocate** for:

1. Urgent increases in community-based approaches to screen well and mildly unwell patients.
2. Increased availability of community access to information that allows patients to determine if they meet criteria for testing.

### 4.1 Best practice in clinic location and design, when this approach is required

We **recommend**:

1. Clinics are located with access to EDs and only inside existing EDs where a separate waiting and treatment area can be clearly defined.
2. Clinics have a separate entrance that prevents patient transit through hospital areas.
3. Patients are physically separated according to social distancing recommendations, with special provision for paediatric patients who cannot be separated from carers.
4. Resuscitation equipment is available within clinics, and rapid activation/communication/ transport to another appropriate resuscitation space is available.
5. Existing infrastructure is used as a preference, where well-ventilated and secure sites are available.
6. There are attempts to minimise queueing of patients (such as through use of appointments).
7. Facilities adopt their relevant State or Territory guidelines for appropriate triage, PPE and infection prevention and control inside.
8. Staff entry and exit is maintained using a logbook.

### 4.2 Alignment with detailed guidelines

We **align** with the following regional guidelines:

1. Victorian Department of Health and Human Services Guidance on Acute Respiratory Assessment Clinics.

### 4.3 References

The following resources were used in the preparation of this section:

- Rojek, A, et al. [Early clinical response to a high consequence infectious disease outbreak at the Royal Melbourne Hospital Emergency Department – insights from COVID-19](#). Med J Aust. 16 March 2020

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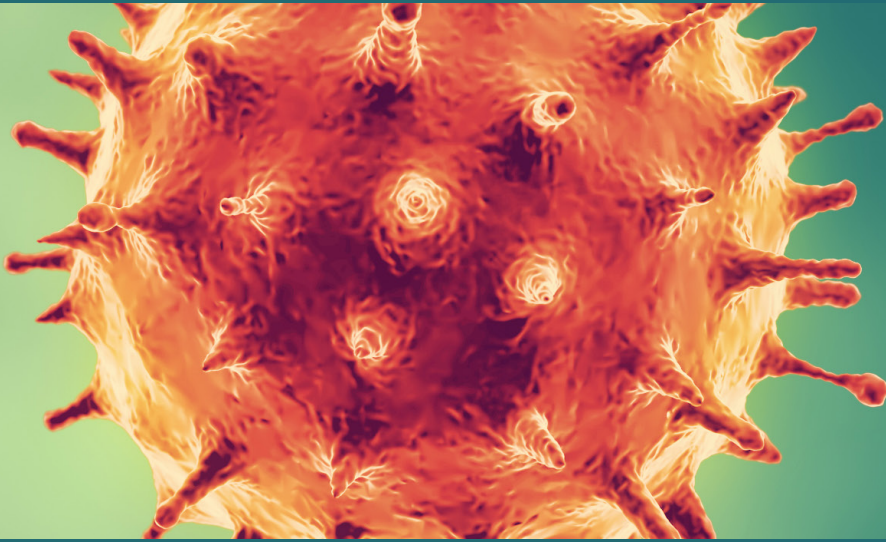
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# Section 5

## Triage and reception of patients



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes to 5.3, regarding pregnant staff
v2.3	24 April 2020	Addition of How to do disaster triage, addition of Resources
v3.0	1 May 2020	Minor alteration to Figure 7: change of 'Incident demand/source imbalance increases' to 'Incident demand/resource imbalance increases'



## 5. Triage and reception of patients

*When done properly, triage results in the best outcome for the greatest number of people. Without a triage plan in place, resources are likely to be wasted—and more people are likely to die.*

Pan American Health Organisation (PAHO)

We align with:

1. Institute of Medicine. 2013. **Crisis Standards of Care: A Toolkit for Indicators and Triggers.** Washington, DC: The National Academies Press. <https://doi.org/10.17226/18338>
2. European Centre for Disease Prevention and Control, **Technical report: Pandemic influenza preparedness in the EU,** 2007.
3. Hick, J. L., D. Hanfling, M. K. Wynia, and A. T. Pavia. 2020. **Duty to Plan: Health Care, Crisis Standards of Care, and Novel Coronavirus SARS-CoV-2. NAM Perspectives.** Discussion paper. National Academy of Medicine. Washington, DC. <https://doi.org/10.31478/202003b>
4. Institute of Medicine. 2009. **Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: A Letter Report.** Washington, DC: The National Academies Press. <https://doi.org/10.17226/12749>
5. **The Australian Health Sector Emergency Response Plan for Novel Coronavirus COVID-19**
6. **Emergency Response Plan for Communicable Disease Incidents of National Significance: National Arrangements**
7. **New Zealand Pandemic Action Plan**
8. Communicable Diseases Network Australia (CDNA) **National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Residential Care Facilities in Australia**

Given the highly infectious nature of COVID-19 it is imperative to ensure transmission of the virus is reduced as much as possible. Emergency Departments (EDs) are the first point of contact for many patients with suspected COVID-19 symptoms or disease.

During a pandemic, principles of triage include a triage system that:

- a. Is simple and easy to use and facilitates rapid processing of patients presenting to the ED.
- b. Will identify and isolate those at increased risk of disease, thus reducing potential for transmission to other patients and health staff.
- c. Can be easily taught and reliably applied by credentialed staff.

A pandemic is not a surge over a few days like a Mass Casualty Incident (e.g. plane crash) but an initial slow increase, then an exponential increase. Triage processes will thus need to be fluid and adaptable. There should be agreed trigger points when your ED will switch to disaster triage, and the Hospital Incident Management Team should have predetermined responses to a graded whole-of-hospital response when this occurs (also see ***Pandemic planning*** recommendations in **Section 1**).

Planning should include discussions regarding funding implications of changing from Australasian Triage Scale (usual) triage to disaster triage, and the development of hospital electronic information systems that are compatible with this change.

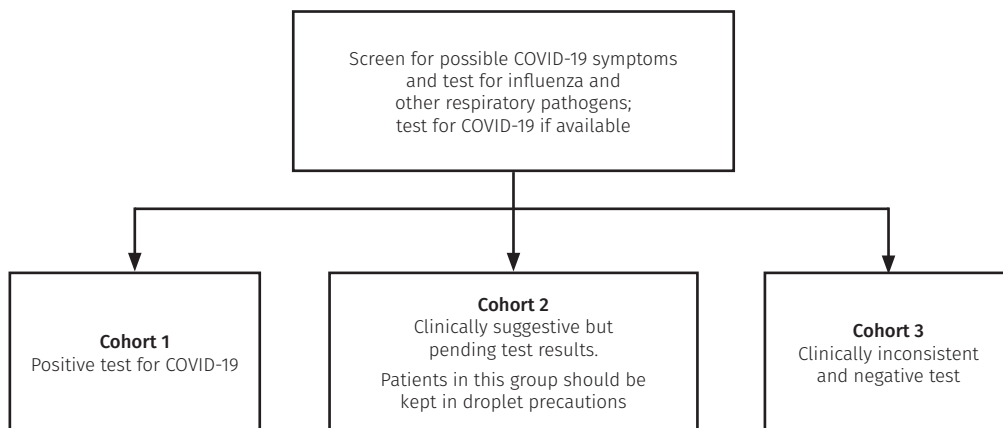
A 'whole of health service' approach, balancing capacity and safety, will be necessary to identify optimal ED configuration and direct streaming to inpatient areas. ED zoning will allow for the creation of high risk and lower risk areas within ED, according to risk factors and clinical features identified during patient screening (also see ***ED design layout*** recommendations in **Section 3**).

## 5.1 Triage – practical considerations

We **recommend**:

1. Staff comply with PPE recommendations according to current published guidance from relevant health jurisdictions. (see [Section 6](#) (PPE)).
2. Staff must be fully attired in appropriate level PPE prior to triaging any patient.
3. Well persons presenting from the community due to concern regarding COVID-19 risk, or requesting COVID-19 screening, should ideally be referred to community-based testing (also see *Assessment clinic* recommendations in [Section 4](#)).
4. Triage for ambulatory patients and those arriving by ambulance will follow the same process.
5. Identification of patient cohorts should occur consistent with the COVID-19 risk groups identified by features and testing as illustrated below (**Figure 5 and 6**).
6. Geographical re-configuration of EDs will be required to safely accommodate arriving patients according to both their COVID-19 risk status, and clinical priority:
  - (a) The movement of people shall follow the principle of establishing a contaminated zone, a potentially contaminated zone and a clean zone which are clearly demarcated, with buffer zones between the zones.
  - (b) Planning may include capacity to immediately stream higher dependency and critical COVID-19 high risk patients to negative pressure rooms within the hospital, with a COVID rapid response call to the facility Critical Care/Intubation team.
  - (c) Streaming out of the ED for specific patient groups who are clinically stable and have no or low identified COVID-19 risk may also be a component of the ED zone planning.
  - (d) Consideration of transport of patients and equipment from each zone should be part of the design.
  - (e) Procedures for clinical staff to don and doff their protective equipment should be standardised and observed.
  - (f) Flowcharts of different zones, donning and doffing areas, and staff walking routes should be displayed and communicated widely.
  - (g) A front of house pre-examination and triage area may be separately established to perform preliminary screening of patients, depending on the volume of attendances to the ED; otherwise, this function may be performed by the existing Triage. Provision to upscale to a separate front of house screening triage station should be planned and trigger points communicated.
  - (h) Flow of patients to zones within the ED will align with assessment of their likely COVID-19 status and clinical presentation, for example Australasian Triage Scale category, until a trigger point to commence disaster triage has been reached (see below).
7. It is noted that with significant progression of the pandemic and high community transmission, all arriving patients will need to be considered to be at risk for COVID-19.

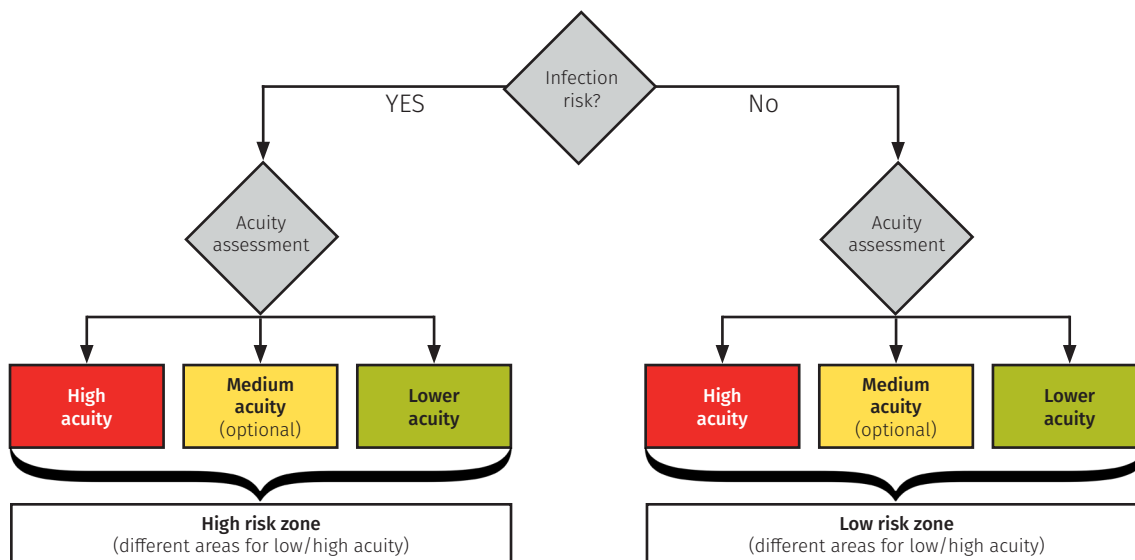
**Figure 5. Adapted from What US Hospitals Should Do Now to Prepare for a COVID-19 Pandemic**



Note: See Eric Toner, MD, and Richard Waldhorn, MD, [What US Hospitals Should Do Now to Prepare for a COVID-19 Pandemic](#) for more details

The triage process is based on COVID-19 infectious risk and clinical priority.

**Figure 6. COVID-19 infectious risk and clinical priority.**



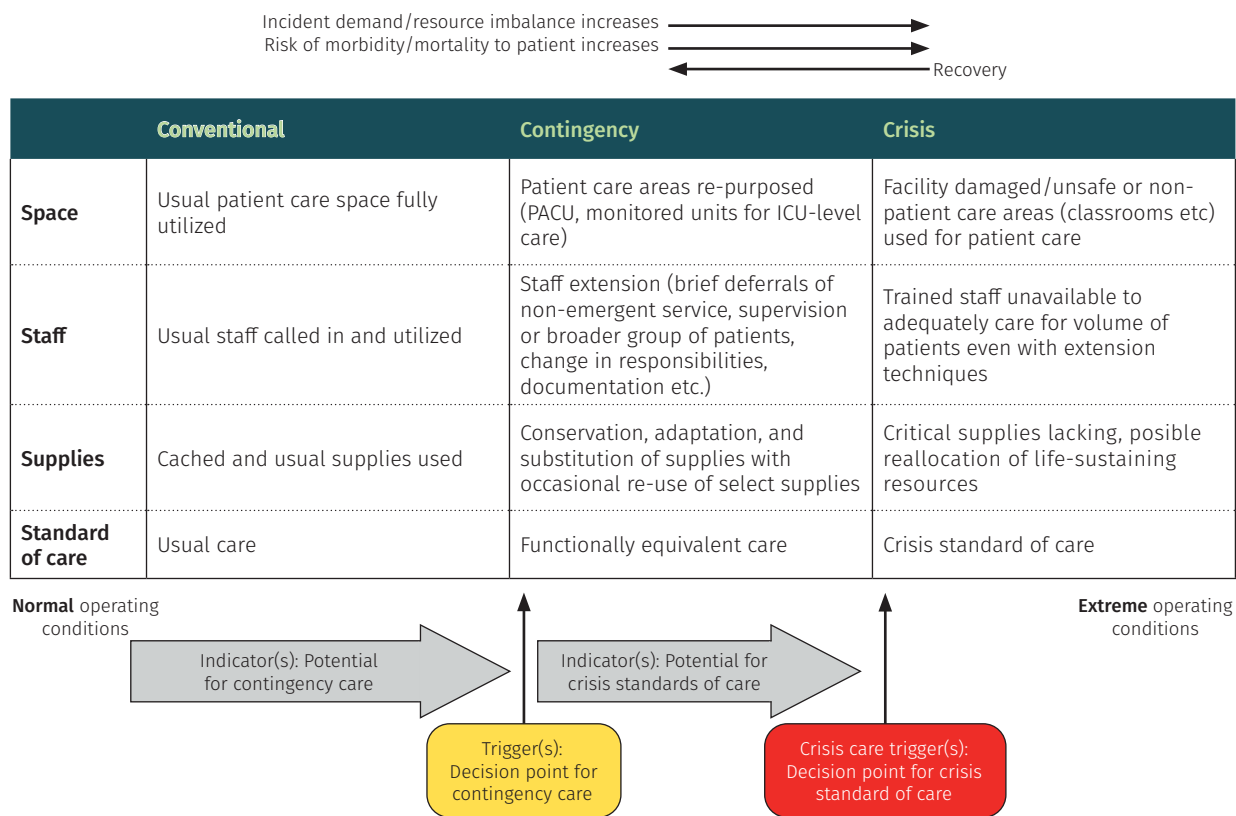
## 5.2 The role of disaster triage

A disaster from a pandemic is different from a Mass Casualty Incident (MCI) where an event results in a number of casualties vastly exceeding local resources and capabilities in a short period of time.

A pandemic follows a bell curve, reaching the peak number of patients halfway through (usually in five to six weeks), whereas an MCI tapers off quickly. In terms of resource allocation, an ED needs to prepare differently in a Pandemic. This involves an increasing response over a few weeks, keeping in mind that staff and resources may become less available as the situation continues.

A schema for thinking about ramping up to disaster triage and response is illustrated below in **Figure 7**.

**Figure 7. Adapted from: Institute of Medicine. 2013. Crisis Standards of Care: A Toolkit for Indicators and Triggers. Washington, DC: The National Academies Press**



Adapted from: Institute of Medicine. 2013. Crisis Standards of Care: A Toolkit for Indicators and Triggers Washington, DC: The National Academies Press.

This requires an ED and whole of health service plan to identify capacity at each stage and trigger points for moving to the next. For example, stages of disaster triage activation may include consideration of:

- a. Conventional service levels, where a service has suitable space, staff, resources sufficient to deliver usual care.
- b. Contingency service levels where a service has adapted by enhancing space, staff and resources and engaging with other hospital and community services to enhance capacity.
- c. Crisis service levels where enhanced resources are overwhelmed and agreed crisis standards of care must be applied. This will necessitate the commencement of disaster triage.

### 5.3 Stages in disaster/crisis care

<b>Phase 1</b>	<b>Definition</b>	Planning and preparedness - implementation of screening, enhanced PPE availability and training
	<b>Purpose</b>	To ensure that the hospital has the capacity to manage the increase in patients in staff/space/equipment
	<b>Minimum standard</b>	<ul style="list-style-type: none"> <li>• Rapid diagnosis according to WHO guidelines.</li> <li>• Protocols for diagnosis and criteria for lab testing.</li> <li>• Availability of special protection measures for staff.</li> <li>• Isolation capacity available.</li> </ul>

<b>Phase 2</b>	<b>Definition</b>	Facility contingency and disaster plans have been activated - demand on ED significantly increased and at risk of overwhelming resources despite additional capacity
	<b>Purpose</b>	To ensure that critical resources are appropriately redirected to manage surge of patients
	<b>Minimum standard</b>	<ul style="list-style-type: none"> <li>• Define contingency standards of care.</li> <li>• Activate disaster triage.</li> <li>• Reallocation of staff, equipment and materials.</li> <li>• Decide on level of services to be continued.</li> <li>• Staff support and backup cover for vital staff functions.</li> <li>• Ensure supplies.</li> </ul>

<b>Phase 3</b>	<b>Definition</b>	ED and facility capacity completely overwhelmed - extreme operating conditions, unable to maintain safe patient care to an acceptable standard, unable to restore capacity
	<b>Purpose</b>	To ensure that critical resources are appropriately redirected to manage ongoing surge of patients and provide greatest benefit to greatest number of patients (see - <a href="#">Ethics section</a> )
	<b>Minimum standard</b>	<ul style="list-style-type: none"> <li>• Define crisis standards of care.</li> <li>• Continue disaster triage.</li> <li>• Decide on level of services to be continued.</li> <li>• Defined criteria for access to intensive care and ventilation.</li> <li>• Staff support and backup cover for vital staff functions.</li> <li>• Ensure supplies, obtain additional staff and capacity.</li> </ul>

## 5.4 How to do disaster triage

We recommend following the Major Incident Medical Management System (MIMMS) system of triage which is that of Sieve and Sort. It measures various physiological parameters that identify the priorities for treatment. For details on this please see [here](#).

When the hospital is overwhelmed and reverts to disaster triage, then all models of care previously described are subsumed in favour of disaster triage and crisis care models.

We **recommend**:

1. Triage during the COVID-19 pandemic should adopt the key principles of:
  - (a) Reducing the transmission of infection to healthcare staff and other patients.
  - (b) Ensuring adaptability in response, and anticipate the need to transition to disaster triage.
  - (c) Simplicity and reproducibility to facilitate training.
2. Alignment of triage with geographical re-configuration of EDs (zoning) to safely accommodate arriving patients according to both their COVID-19 risk status, and clinical priority.
3. EDs and Health Services should plan for and identify disaster phases and responses to surges in ED and facility demand, such that appropriate care is provided to patients for as long as possible. Implementation of disaster triage and crisis care models should align with the principles of decision making described in accepted ethical frameworks (see [Section 19](#) - Ethics in decision making).

We **do not recommend**:

1. Ramping of ambulance patients, or queuing of waiting patients at close proximity to each other, within any area of the ED. Priority should be given to enhanced patient flow out of the ED, or bypassing ED, to reduce the risk of crowding and the spread of infection.

We **advocate** for:

1. Early consideration of Triage Models of Care to divide your ED into infectious/noninfectious areas (or COVID-19 and non COVID-19 zones).
2. Mobilisation of resources to staff these areas, with consideration of staff that are older than 60 and those with pre-existing medical conditions that puts them at higher risk of acquiring COVID-19 infection and developing respiratory and other complications. (Guan, W, et al. [Clinical Characteristics of Coronavirus Disease 2019 in China](#). New England Journal of Medicine. 28 Feb 2020. DOI: 10.1056/NEJMoa2002032. Special consideration should be given to pregnant staff as recommended by the [Royal Australian and New Zealand College of Obstetricians and Gynaecologists](#) (RANZCOG)'s statement, 'A message for pregnant women and their families', 29 March 2020.
3. Ensuring higher risk and lower risk zones within the ED have separate access to radiology/pathology, clearly defined entry and exit paths for safe transfer to inpatient areas, and for discharge home, to minimise risk to staff and patients.

## 5.5 References

The following resources were used in the preparation of this section:

- AHRQ (Agency for Healthcare Research and Quality). 2005. [Altered standards of care in mass casualty events. Prepared by Health Systems Research](#), Inc. under contract no. 290-04-0010. AHRQ Publication No. 05-0043. Rockville, MD: AHRQ.

## 5.6 Section disclaimer

This section has been developed to assist clinicians with decisions about appropriate healthcare in Emergency Departments in Australia and Aotearoa New Zealand during the COVID-19 outbreak. It is a framework for planning and responding to this pandemic, including the assessment and management of patients.

**This section is targeted at clinicians only.** Patients, parents or other community members using it should do so in conjunction with a health professional and should not rely on the information in the guideline as professional medical advice.

The section has been developed by an expert team of practising emergency physicians, by consensus and based on the best evidence available. The recommendations contained do not indicate an exclusive course of action or standard of care. They do not replace the need for application of clinical judgment to each individual presentation, nor variations based on locality and facility type.

The section is a general document, to be considered having regard to the general circumstances to which it applies at the time of its endorsement.

It is the responsibility of the user to have express regard to the particular circumstances of each case, and the application of the section in each case.

The authors have made considerable efforts to ensure the information upon which it is based is accurate and up to date. However, the situation is rapidly evolving, and a certain amount of pragmatism needs to be employed in maintaining such a 'living document'. Users of this section are strongly recommended where possible to confirm that the information contained within the document is correct by way of independent sources. The authors accept no responsibility for any inaccuracies, information perceived as misleading, or the success or failure of any treatment regimen detailed. The inclusion of links to external websites does not constitute an endorsement of those websites nor the information or services offered.

The section has been prepared having regard to the information available at the time of preparation and the user should therefore have regard to any information, research or other material which may have been published or become available subsequently.

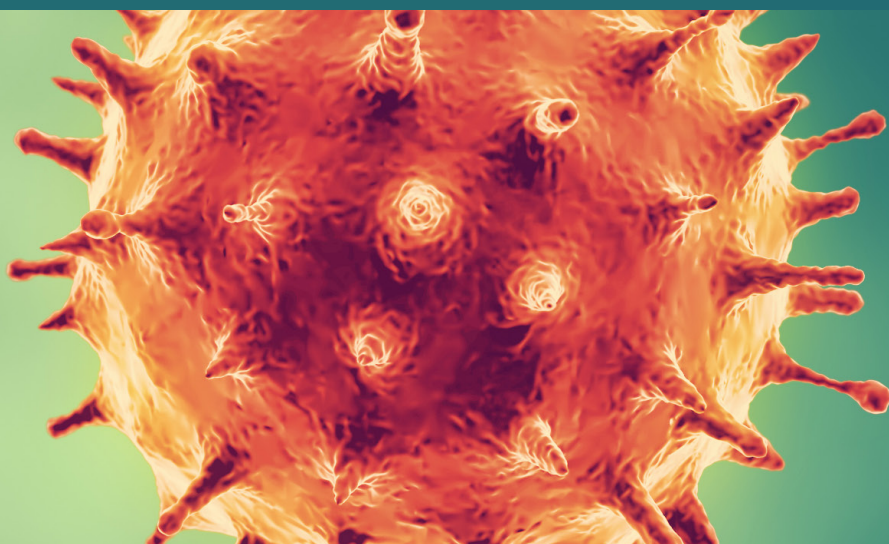
Whilst we have endeavoured to ensure that professional documents are as current as possible at the time of their creation, we take no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

## 5.7 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 6

## Personal protective equipment (PPE)



Version	Date	Pages revised / Brief Explanation of Revision
V1	25 March 2020	Approved by ACEM
V2	03 April 2020	S6.0 – addition of introduction paragraphs S6.1 – addition of 6.1: Infection control and prevention S6.2 – addition of 6.2: PPE recommendations for Emergency Departments S6.3 – addition of 6.3: PPE in specific clinical situations S6.8 – addition of 6.8: References This update was published as a roll-up of V2.0-2.2.
V2.1	06 April 2020	S6.3 – additions to 6.3: PPE in specific clinical situations S6.5 – additional recommendations to 6.5: PPE use in high-risk zones S6.8 – addition to 6.8: References This update was published as a roll-up of V2.0-2.2.
V2.2	07 April 2020	S6.1 – addition of 6.1: General measures to limit COVID-19 transmission in the workplace Minor editorial changes only This update was published as a roll-up of V2.0-2.2.
v2.3	24 April 2020	S6.0 Additional paragraphs. Addition of Resources
v3.0	1 May 2020	S6.9 - included additional reference
V4.2	August 2020	Update to transmission, fit testing, addition of precautionary principles to PPE, update to PPE recommendations; additional references and update to all references
V4.2	4 September 2020	S6.0 – addition of introduction paragraphs Addition of S6.1 and S6.2 S6.3 to S6.9 – significant revisions S6.10 – additional references included Removal of 'International experience on PPE' (listed as S6.7 in previous versio
V5.0	23 December 2020	Update to masking and transmissions



## 6. Personal protective equipment (PPE)

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The COVID-19 virus (SARS-CoV-2) is primarily transmitted between people through respiratory droplets and contact routes. Limited and contradictory evidence exists about transmission of COVID-19 particularly with reference to airborne transmission via aerosols, with most authorities believing it to be rare. Others point to growing scientific theoretical and experimental evidence, and circumstantial evidence suggesting airborne spread, and believe the precautionary principle – an approach to issues with “potential for causing harm when extensive scientific knowledge on the matter is lacking” should apply when considering PPE recommendations for health care workers (HCW).

Transmission may occur through fomites in the immediate environment around the infected person, through contact with surfaces in the immediate environment or with objects used on the infected person (e.g. stethoscope or thermometer). Despite consistent evidence as to SARS-CoV-2 contamination of surfaces and the survival of the virus on certain surfaces, there are no specific reports which have directly demonstrated fomite transmission (WHO July 9 2020).

Airborne transmission may be possible in circumstances where procedures that generate aerosols are performed.

Aerosol generating procedures (AGPs, see Table 1 in [Section 3](#)) include endotracheal intubation, bronchoscopy, open suctioning, administration of nebulized treatment, non-invasive ventilation, manual bag-mask ventilation, turning the patient to the prone position, disconnecting the patient from the ventilator, tracheostomy, insertion of intercostal catheter and cardiopulmonary resuscitation.

The additional possibility of exhaled aerosols transmitted over a short-range by an infectious individual during normal talking or coughing, particularly in crowded and inadequately ventilated spaces over a prolonged period of time, is theoretically plausible and some outbreak reports related to indoor crowded spaces have suggested the possibility of aerosol transmission combined with droplet transmission.

There are several documented occurrences in which SARS-CoV-2 appears to have been transmitted over long distances or times. These transmission events appear uncommon and have typically involved the presence of an infectious person producing respiratory droplets for an extended time (>30 minutes to multiple hours) in an enclosed space with inadequate ventilation. However, it is currently believed that most infections are spread through close contact and that airborne transmission is not the primary route of transmission. The risk of infection is known to be much lower outside where ventilation is better.

There have been no reports of faecal-oral transmission, urine, bloodborne or intrauterine transmission of the COVID-19 virus to date. Further studies are needed to determine whether it is possible to detect COVID-19 virus in air samples from patient rooms where no procedures or support treatments that generate aerosols are ongoing.

Coronaviruses can survive on surfaces for many hours but are readily inactivated by cleaning and disinfection.

### 6.1 Window for transmission

Evidence suggests that SARS-CoV-2 RNA can be detected in people 1-3 days before symptom onset, with the highest viral loads around the day of symptom onset, followed by a gradual decline over time. Detection of viral RNA does not necessarily mean that a person is infectious to others. In studies using culture of patient samples, viable virus has been isolated from an asymptomatic case, those with mild to moderate disease up to 9 days after symptom onset, and for longer from severely ill patients.

Community prevalence of COVID-19 and its influence on the possibility of health care worker (HCW) infection within EDs is related to a number of factors. These include the rate at which infections actually occur in the community (infectivity), the rate of removal of infection from the population by either recovery or death, and an individual's susceptibility to the infection.

Where community transmission rates are high, it is more likely that HCW will be at risk of transmission from asymptomatic or minimally symptomatic individuals, both patients and co-workers, or themselves transmit infections acquired within the community to patients and co-workers. The impact of HCW infections

goes beyond the potentially devastating consequence to an individual, to workforce depletion caused by quarantine and isolation of symptomatic health-care workers, and potential spread to patients.

With suppression of virus transmission and eventual success in sustained absence (the timeframe being unclear at this time) of new cases in a community, the risk of a HCW encountering a patient who is infected and has the potential for COVID-19 transmission to others, is thought to be low.

Guidance for PPE use will thus depend on the local context in terms of community prevalence and transmission, and other measures in place to contain transmission. These factors should be reviewed by EDs, infectious disease and infection control and prevention experts with jurisdictional guidance, to determine recommendations for PPE.

The objective of any review of PPE guidance will always be to maintain the safety of HCW within their workplace using the precautionary principle, and then to ensure the rational use of PPE. As understanding of COVID-19 transmission evolves, PPE guidance should be regularly reviewed, with a strategy to implement the most protective regime of PPE for HCW with step down only when there is clear evidence of safety. Extended use strategies should be used where PPE supply concerns exist, and supply concerns alone are not a trigger for downgrading PPE guidance. EDs routinely encounter new and unknown patients where it is not possible to fully ascertain infection risk, therefore decisions to downgrade PPE use should be approached in a cautious manner.

## 6.2 Face masks

Experimental and epidemiological data support community masking to reduce the spread of SARS-CoV-2. The prevention benefit of masking is derived from the combination of source control and personal protection for the mask wearer.

There is observational and epidemiological evidence on face masks in community settings. Studies have suggested that wearing masks on public transport and in workplaces where social distancing is less feasible may be useful at reducing transmission. International experience has demonstrated that universal masking coupled with other measures and high adherence can limit or mitigate large scale community outbreaks. The World Health Organization has issued guidance to advise that to prevent COVID-19 transmission effectively in areas of community transmission, governments should encourage the general public to wear masks in specific situations and settings as part of a comprehensive approach to suppress SARS-CoV-2 transmission. Fabric masks, if made and worn properly, can serve as a barrier to droplets expelled from the wearer into the air and environment. However, masks must be used as part of a comprehensive package of preventive measures, which includes frequent hand hygiene, physical distancing when possible, respiratory etiquette, environmental cleaning and disinfection.

In areas with any COVID-19 community transmission, HCW in clinical areas should wear a surgical mask throughout their entire shift. In settings where aerosol-generating procedures are performed, they should wear an N95 or equivalent respirator. In regions with high community transmission, European authorities and the Centres for Disease Control and Prevention USA recommend airborne precautions for any clinical situation involving the care of possible, suspected or confirmed COVID-19 patients, and adopting a precautionary approach along similar lines has been advised in regions of higher transmission in Australia.

N95 or equivalent respirators may only provide airborne protection if they properly fit to the individual's face preventing unfiltered air to be drawn inside the mask. Fit testing is performed to determine whether a specific type, model and size of respirator is a suitable fit for an individual and that it is worn correctly to achieve a facial seal. Fit-testing is best performed by personnel trained in occupational health and safety. HCW's performing AGPs should be identified and fit-tested.

Fit checking describes the process that HCWs perform each time a respirator is donned to check that a good facial seal is achieved i.e. the respirator is sealed over the bridge of the nose and mouth and that there are no gaps between the respirator and face.

Fit-testing and fit-checking are part of a hospital's respiratory protection program.

### 6.3 General measures to limit COVID-19 transmission in the workplace

All staff working in health facilities (including staff with no patient contact) should adhere to simple measures that will limit COVID-19 transmission. These include avoiding touching their face or shaking hands with others, practicing respiratory hygiene and cough etiquette, meticulous hand hygiene including before and after touching objects or files that may have been in a clinical area, social distancing > 1.5m where possible, and not coming to work if they have symptoms of an acute respiratory infection.

Recommended precautions also include avoiding indoor crowded gatherings as much as possible, in particular when physical distancing is not feasible, and ensuring good environmental ventilation in any closed setting.

Workforce reconfigurations of split teams, or creating smaller 'sub teams' and establishing social distancing protocols within teams, have been described; a strategy with two medical teams working on alternate seven day periods was associated with reduced infection rates among the healthcare workforce.

Strategies for redeploying HCWs identified as higher risk away from frontline roles should be implemented.

Hospitals should have a plan for the very few healthcare workers who do not pass a fit-test. Respirators including PAPR may be an option. If a HCW fails fit-testing for all available respirators, they should be deployed away from areas with COVID-19 patients or where AGPs are performed.

### 6.4 Infection control and prevention

PPE is one part of a package of measures to prevent transmission of COVID-19. Other controls, the implementation of which will vary according to the level local community transmission, include:

- Use telehealth where appropriate to provide care to reduce the need for patients to attend health facilities.
- Screening at entry to health facilities; limit and monitor points of entry; limit visitor numbers.
- Administrative controls such as policies, appropriate infrastructure, triage and placement of patients, physical distancing guidance, staff to patient ratios and staff training.
- Environmental and engineering controls aimed at reducing the spread of pathogens and the contamination of surfaces and inanimate objects such as adequate spacing between staff and patients, patients and patients; correct cleaning and disinfection procedures; well ventilated isolation rooms.
- Standard precautions, including hand hygiene (5 Moments) for all patients.
- Patients and health workers should observe respiratory hygiene and cough etiquette.
- Universal source control measures including:
  - The use of surgical masks by health facility staff to reduce transmission of infection between staff, as well as from patients or visitors to staff.
  - Patients and visitors wear facemasks when entering or moving around health facilities.
- In addition to using standard precautions, individuals including family members and visitors should use contact and droplet precautions before entering the room of suspected or confirmed COVID-19 patients.
- Equipment should be either single-use and disposable, or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect it between use for each individual patient.
- Keyboards, phones, pagers and other mobile devices should be protected from contamination and cleaned regularly.

## 6.5 PPE recommendations for Emergency Departments

### Contact and droplet precautions

Use for clinical care **in regions with low community transmission for suspected COVID-19 patients** (according to current epidemiological and clinical criteria). NOT suitable for AGPs on suspected or confirmed COVID-19 patients, or clinical management of confirmed COVID-19 patients.

**We recommend** that clinical staff should:

- Use a surgical face mask.
- Wear eye protection (goggles) or facial protection (face shield) to avoid contamination of mucous membranes.
- Wear a clean, non-sterile, long-sleeved gown.
- Use gloves.
- The use of boots, coverall,\* and apron is not required during routine care.
- Consider use of a hair cover.
- Practice appropriate donning, doffing and disposal of all PPE and hand hygiene. A trained PPE observer should check technique.

### Airborne Precautions

Use for clinical care **in regions with high community transmission for suspected COVID-19 patients** (according to current epidemiological and clinical criteria), and **when performing AGPs on suspected or confirmed COVID-19 patients** at any community transmission level; **for all confirmed COVID-19 patients**.

**We recommend** that clinical staff should:

- Perform procedures in negative-pressure rooms, or an adequately ventilated single room.
- Use a particulate respirator# such as N95, P2, or equivalent.†
- Always perform a seal ('fit') check of the respirator.
- Wear eye protection (goggles) or facial protection (face shield) to avoid contamination of mucous membranes.
- Use gloves.
- Wear a clean, non-sterile, long-sleeved gown. If gowns are not fluid-resistant, use a waterproof apron for procedures expected to create high volumes of fluid.
- Use a hair cover or hood.
- Limit the number of persons present in the room to the absolute minimum.
- Practice appropriate donning, doffing and disposal of all PPE and hand hygiene. A trained PPE observer should check technique.

### PPE for clinical care of patients without any current epidemiological and clinical criteria who are at low risk for COVID-19

**We recommend** that clinical staff should:

- Use a surgical face mask.
- Practice hand hygiene.
- Use gloves for patient contact and additional standard precautions as indicated.
- In areas of high community transmission, use eye protection.

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\* Note on use of coverall: There is some evidence that doffing and disposal of coveralls between patients increases the risk of contamination. The use of an apron, which can more easily be doffed, over coveralls is recommended. There is low- to very low-certainty evidence that covering more parts of the body leads to better protection; it is also associated with difficult donning or doffing and less user comfort.

# Do not use P2/N95 respirators with a valve. This may expose others to infection.

† Note on powered air purifying respirators (PAPR): PAPR should only be considered where a clinician cannot find an N95 mask that fits adequately; has facial hair that cannot be removed; is likely to be performing multiple AGPs, for example as part of the intubation team when there are multiple patients who are likely to require intubation; AND a PAPR is available along with adequate training in its use. The use of a PAPR with coverall may protect against the risk of contamination better than a N95 mask and gown (risk ratio (RR) 0.27, 95% confidence interval (CI) 0.17 to 0.43) but is more difficult to don (non-compliance: RR 7.5, 95% CI 1.81 to 31.1).

## 6.6 PPE in specific clinical situations

	No PPE	Surgical Mask	Surgical Mask	Contact and Droplet PPE	Airborne PPE
			<ul style="list-style-type: none"> <li>Use gloves, and consider eye protection for patient contact (low community transmission)</li> <li>OR</li> <li>Contact and droplet PPE (high community transmission)</li> </ul>	<ul style="list-style-type: none"> <li>Surgical mask</li> <li>Eye protection</li> <li>Gloves</li> <li>Gown / apron</li> <li>Consider hair cover</li> </ul>	<ul style="list-style-type: none"> <li>N95/P2 respirator</li> <li>Eye protection</li> <li>+/- face shield</li> <li>Gloves</li> <li>Long sleeved gown +/- apron</li> <li>Hair cover or hood</li> </ul>
<b>Staff not directly in contact with patients</b>	✓ In regions with low/ no community transmission	✓ In regions with higher community transmission			
<b>&gt; 1.5m distance at all times*</b>					
<b>Limited, short duration patient contact (clinical support staff)</b>			✓ Depending on low or high community transmission		
<b>COVID assessment clinic</b>				✓ (risk assessment†)	✓ (risk assessment†)
<b>Triage</b>				✓ (risk assessment†)	✓ (risk assessment†)
<b>Clinical staff in direct contact with patients</b> Assess COVID risk status and AGP likelihood			✓ Patients screened negative or minimal for COVID risk and no respiratory symptoms (risk assessment†)	✓ Fever or acute respiratory infection or, screened suspected or definite COVID, no AGPs Regions with low community transmission	✓ Severe acute respiratory infection (or undifferentiated case requires AGPs + admission) or suspected COVID-19 in high community transmission regions; confirmed COVID-19 in any region
<b>Performing Aerosol Generating Procedures (AGPs)</b>				✓ No or minimal COVID risk, low or no community transmission	✓ Suspected or confirmed COVID, or region of high community transmission
<b>Prolonged direct clinical care in higher risk patient environments</b>				✓ Clinical ED areas with cohorted fever or acute respiratory infection or, suspected COVID no AGPs  Regions of low community transmission (risk assessment†)	✓ Clinical ED areas with cohorted severe acute respiratory infection (or undifferentiated case requires AGPs + admission) unknown or suspected COVID-19 in regions of high community transmission, and, confirmed COVID-19 in all transmission regions (risk assessment†)
<b>Resuscitation Team</b>				✓ No AGPs (risk assessment†)	✓ Likely AGPs (risk assessment†)
<b>Trauma Team</b>				✓ No AGPs (risk assessment†)	✓ Likely AGPs (risk assessment†)
<b>Paediatric patients with AGPs</b>				✓ (risk assessment†)	✓ (risk assessment†)

\* Consider mask use to reduce possibility of infection between staff and / or site visitors, particularly as COVID-19 becomes more widespread in the community. In regions with high community transmission, face masks should be used by all health facility employees in clinical and non-clinical areas, and by all patients and visitors to the health facility in accordance with local guidance.

† Risk assessment: undertake risk assessment according to levels of community transmission, in conjunction with jurisdictional guidance, to determine need for airborne PPE; optimise environmental and administrative controls, minimise exposure of higher risk staff and duration of exposure of all staff to higher risk environment.

## 6.7 General recommendations

We **recommend** that all relevant staff are provided:

1. Adequate and ongoing training in PPE use, and broader infection prevention and control procedures.
2. Opportunities to be fit tested for N95 masks.
3. Clearly demarcated donning and doffing areas before entering a room, high-risk zone or cohorted area.
4. Clear pathways for notification and management of breaches in PPE.
5. A trained PPE observer or buddy to check correct technique.

## 6.8 Rational use of PPE use in high-risk zones

We **recommend** that staff working in high-risk zones or with cohorted patients with probable or definite COVID-19 practice robust but rational use of PPE. Although PPE should ideally be exchanged between each patient encounter, this may not be feasible in the context of limited resources and overwhelming demands for care.

After performing an AGP or otherwise being exposed to body fluids or contamination, all PPE should be doffed and discarded.

“Extended use” is generally accepted as up to 4 hours continuous use.

We **recommend** that clinicians observe the following principles in relation to the extended use of face masks:

- Practice ‘extended use’ rather than ‘reuse’ of N95 masks wherever possible.
- Discard N95 masks following use during aerosol generating procedures (see *Table 1* in [Section 3](#)).
- Discard N95 masks contaminated with blood, respiratory secretions or other bodily fluids.
- Discard N95 masks following close contact with, or exit from, the care area of any patient co-infected with an infectious disease requiring contact precautions.
- Consider use of a cleanable face shield over an N95 mask and/or other steps (e.g. masking patients, use of engineering controls) to reduce surface contamination.
- Perform hand hygiene with soap and water or an alcohol-based hand sanitiser before and after touching or adjusting the mask (if necessary for comfort or to maintain fit).
- Discard any mask that is obviously damaged or damp, or becomes hard to breathe through.
- Observe strict adherence to hand hygiene practices, and proper PPE donning and doffing technique.

We **recommend** that clinicians observe the following principles in relation to the rational use of gowns:

- Gown use should be prioritised for performing aerosol-generating procedures associated with definite risk of pathogen transmission and for activities that involve holding the patient close (e.g. in paediatric settings), or when other extensive direct patient contact is anticipated
- Gowns may also be worn during the care of more than one patient in a single cohort area only, provided that the gown does not come into direct contact with any patient.

## 6.9 Alignment with regional guidance

We **recommend** that EDs align their internal PPE procedures with guidance from the relevant government authorities for the following:

1. Patient PPE.
2. Staff clothing and personal items.
3. PPE for aerosol generating procedures.
4. PPE for clinical encounters.
5. Cleaning of rooms.
6. Cleaning and reuse of disposable equipment.
7. PPE following patient death.
8. Infection Prevention and Control (IPC) in non-clinical areas such as lunchrooms.

We **align** our recommendations with:

1. Selection, use and maintenance of respiratory protective equipment standard AS/NZS 1715: 2009.
2. The NHMRC Australian [Guidelines for the Prevention and Control of Infection in Healthcare](#), 2019.
3. [The World Health Organisation IPC](#) and [PPE](#) recommendations.

Exemplar documents:

1. [COVID-19 assessment and streaming matrix](#). Victoria State Government Health and Human Services.

## 6.10 References

The following resources were used in the preparation of this section:

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World Health Organisation (WHO). [Transmission of SARS-CoV-2: implications for infection prevention precautions – scientific brief](#). 9 July 2020.

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World Health Organization (WHO) Guidelines. [Infection prevention and control of epidemic and pandemic-prone acute respiratory infections in health care](#). 2014.

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Department of Health, Australian Government. [Guidance on use of personal protective equipment \(PPE\) in nonpatient healthcare settings, during the COVID-19 outbreak](#). 11 May 2020.

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Victoria State Government Department of Health and Human Services. [Coronavirus disease 2019 \(COVID-19\) – Infection prevention and control guideline](#). Version 3. 8 August 2020.

Victoria State Government Department of Health and Human Services. [Coronavirus disease 2019 \(COVID-19\) – A guide to the conventional use of PPE](#). 6 August 2020.

Victoria State Government Department of Health and Human Services. Coronavirus 2019 (COVID-19) – PPE and levels of protection. July 2020.

The NHMRC [Australian Guidelines for the Prevention and Control of Infection in Healthcare](#), 2019.

Verbeek JH, Rajamaki B, Ijaz S, Sauni R, Toomey E, Blackwood B et al. [Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff](#). Cochrane Database of Systematic Reviews 2020.

International Liaison Committee on Resuscitation (ILCOR). [Consensus on Science with Treatment Recommendations \(CoSTR\): COVID-19 infection risk to rescuers from patients in cardiac arrest \[Draft for public comment\]](#). Online resource.

Australian Society of Anaesthetists. [N95 vs PAPR for AGPs](#). 27 March 2020.

US Department of Health and Human Services. Centres for Disease Control and Prevention. [Optimizing Supply of PPE and Other Equipment during Shortages. Updated 16 July 2020](#)

US Department of Health and Human Services. Centres for Disease Control and Prevention. [Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 \(COVID-19\) Pandemic](#). Updated 15 July 2020.

US Department of Health and Human Services. Centres for Disease Control and Prevention. Scientific Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2. Updated Nov. 20, 2020

Klompas M, Morris CA, Sinclair J, Pearson M, Shenoy ES. [Universal Masking in Hospitals in the Covid-19 Era](#). NEJM. Published online: 1 April 2020;382:e63.

Greenhalgh T, Schmid MB, Czypionka T, Bassler D, Gruer DB. [Face masks for the public during the covid-19 crisis](#). BMJ. 2020;369, m1435.

Regli A, von Ungern-Sternberg. [Fit-testing of N95/P2-masks to protect health care workers](#). Med J Aust 2020; [Preprint, 12 August 2020].

Greenhalgh T, Howard J. [Masks for all? The science says yes](#). fast.ai. 13 Apr 2020.

MacIntyre CR, Ananda-Rajah M, Nicholls M, Quigley AL. [Current guidelines for respiratory protection of Australian health care workers against COVID-19 are not adequate and national reporting of health worker infections is required](#). Med J Aust. 2020 [Preprint, 14 July].



Greenberg, N. [Mental health of health-care workers in the COVID-19 era](#). Nat Rev Nephrol. 2020. 16:425–26.

Bielicki JA, Duval X, Gobat N, Goossens H, Koopmans M, Tacconelli E et al. [Monitoring approaches for health-care workers during the COVID-19 pandemic](#). Lancet Infect Dis. 2020 [Published Online July 23].

## 6.11 Section disclaimer

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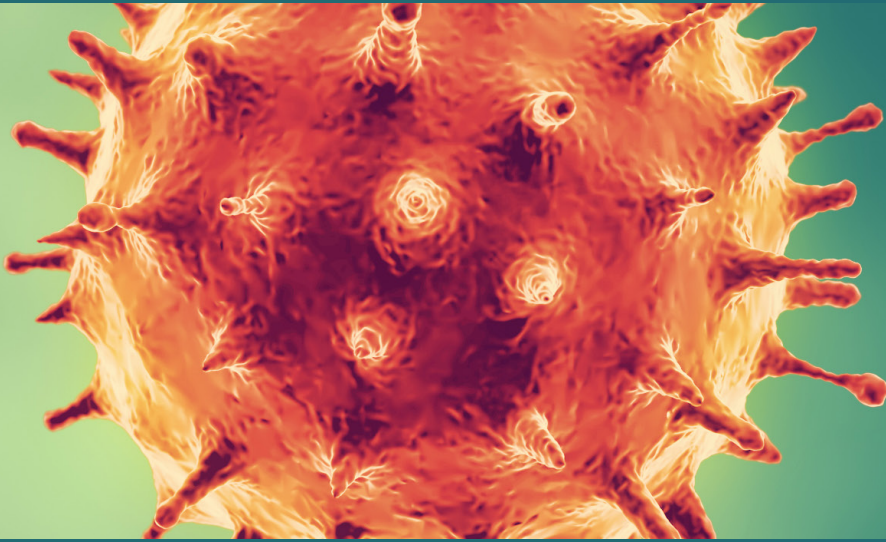
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## 6.12 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 7

## Transport of Patients



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor editorial changes only
v2.3	24 April 2020	Addition of Resources

## 7. Transport of patients

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Transport of patients with suspected or confirmed COVID-19 exposes patients to the usual risks associated with transport and clinicians to additional infective risks. During a pandemic, limited clinical resources, transport assets and intensive care resources at receiving facilities may impact responses to requests for aeromedical and ground based patient transport. Mission planning will need to account for extra time in preparation, don and doffing, cleaning of the clinical gear and decontaminating air assets.

This section deals with both inter and intra facility transport of patients.

We **align** with:

1. NSW Air Ambulance Aeromedical Transport of a COVID-19 Patient.
2. MedSTAR CPG Advanced Airway Management.
3. Australian Government Department of Health, [Coronavirus \(COVID-19\) information for aeromedical retrieval of patients](#).

We **recommend**:

1. The health and safety of all aeromedical staff as well as the service providers is paramount. All operational staff must be current and competent in infection control procedures and able to safely don and doff following their respective service guidelines.
2. Where possible do not use air assets and travel by road.
3. Central clinical coordination staffed with senior clinician decision makers to discuss the requirement for patient transport.
4. Multi-party teleconferences between retrieval services and key stakeholders, to enable senior clinicians to discuss cases in a timely fashion providing support, advice and guidance as well as retrieval team if required.
5. Prior to transport of suspected or confirmed COVID-19 cases, clear agreement between referring and receiving facilities that transfer is clinically indicated and appropriate.
6. Communication of patient arrival times via well-established channels to receiving hospitals to ensure team is met and escorted.
7. Where possible, transported patients should be taken directly to inpatient bed locations bypassing the ED and limiting exposure and number of transfers.
8. Where a decision is made not to transport patients, that clear communication, advice and support channels are provided for the treating clinical team.
9. All patient transfers (pre-, inter- and intra-hospital) should be undertaken by clinicians with:
  - (a) The ability to set-up, operate, troubleshoot and maintain the specialist medical equipment utilised for critical care transports.
  - (b) Experience in managing the patient's clinical condition.
  - (c) Preferably, current pre-hospital and retrieval medicine training (pre-, inter-hospital). If this is not possible, discuss options with the retrieval coordinator.
10. As per ANZICS/MJA guidelines, patients should not be transferred on NIV or HFNO. Aerosolising procedures should not be undertaken during transport including intra-hospital transport.
11. Patients receiving supplemental oxygen should have a surgical mask placed over their oxygen delivery device.
12. Where possible, transporting clinicians should not walk or be seated in front of the patient.

13. During intra-hospital transport a designated 'clean' staff member is required to open doors, push lift buttons and to watch the team and patient to ensure they do not contaminate surfaces within the health facility.
14. To minimise requirements for intra-hospital transport to radiology, consideration should be given to the utility of bedside point of care ultrasound (POCUS) for chest investigation where the skill set is available.

We **advocate** that:

15. Advance care plans are in place and up to date especially for residential aged care facilities.

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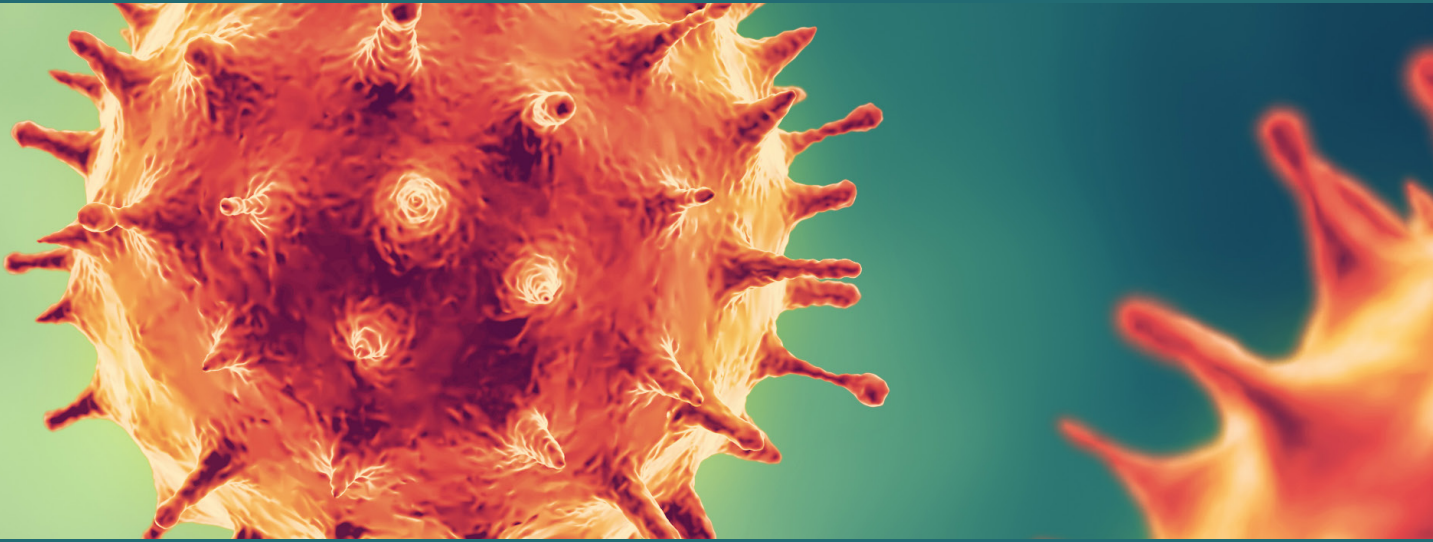
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## 7.2 Resources

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# Section 8

## ED-Ambulance interface



Version	Date	Pages revised / brief explanation of revision
V1	1 May 2020	Approved by ACEM
v4.2	24 August 2020	S8.0 - Revision to point 6 under "We recommend the following principles"

## 8. ED-Ambulance interface

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The COVID-19 pandemic has highlighted the importance of infection control and prevention at all stages during the patient journey. The transition between pre-hospital care providers and the ED needs to be carefully managed in order to:

- Reduce the infection risk to pre-hospital and ED staff.
- Ensure appropriate “streaming” of patients based on their risk for COVID-19.
- Maintain high standards of clinical care, which is particularly important for patients with time-critical emergencies.

We **recommend** the following principles

1. Transport to hospital should only be initiated after appropriate assessment of risk versus benefit for staff and patients.
2. Patients should only be transported when there is a clear benefit to the patient and where it is safe to do so. If it is decided that transport to hospital is not an appropriate outcome, it should be ensured that alternative arrangements for care are made in consultation with community providers.
3. Pre-hospital assessment for COVID-19 risk according to local screening guidelines. These are likely to include (a) epidemiological factors (such as recent overseas travel, close contact with a person known to have COVID-19), and (b) clinical features (such as respiratory symptoms, fever, anosmia).

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\* It is acknowledged that case definitions, testing criteria and recommendations for streaming patients into high-risk and low-risk areas have been changing frequently. Decisions should be made according to the latest health department advice.

4. Pre-hospital notification of critically ill patients.
5. Communication and confirmation of COVID-19 risk status as soon as possible:
  - (a) During pre-hospital notification for critically ill patients
  - (b) Immediately upon arrival for all other patients
6. Patients should be moved into an ED cubicle as soon as possible after arrival. They should not wait for a prolonged period of time in the ambulance or ED corridor. There is likely to be less risk of infection transmission between patients if waiting occurs in the ambulance vehicle until a bed is available.
7. Delays to triage should be minimised by verbal handover from ambulance paramedics to triage staff while the patient remains in the ambulance.
8. After triage, there should be an agreed mechanism by which ambulance paramedics can communicate with ED staff in order to notify a change in clinical status, and/or to escalate due to delays to handover and offload.

We **advocate** for:

9. Review and where possible, automatization of the transition of patient information from prehospital to hospital environment. This will limit health care worker (HCW) interaction and streamline processes when systems are overwhelmed.

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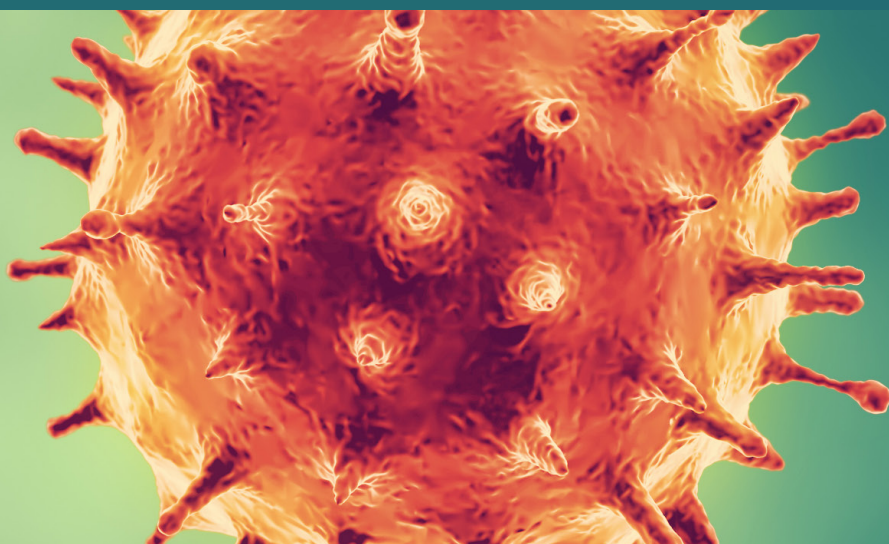
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# Section 9

## Treatment



Version	Date	Pages revised / brief explanation of revision
v1	25 March 2020	Approved by ACEM
v2.0-2.2	7 April 2020	S8.1 – Additional recommendation S8.2 – Additional recommendation and minor clarifying changes S8.3 – Title becomes ‘Management of ventilation for adults’ plus minor clarifying changes S8.5 – Additional reference
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 8 to Section 9 S9.1 – Change to target SpO2 S9.2 – Edits to first paragraph S9.5 – Updated version of ANZICS COVID-19 Guidelines
v3.1	15 May 2020	Edits to S9.2 and S9.3
v4.0	22 June 2020	Addition of S9.5 - Other considerations
v4.2	24 August 2020	S9.4 - Addition of points 1-3



## 9. Treatment

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Treatment should be provided and escalated in accordance with patients' needs and wishes, anticipated progress, prognosis and goals of care.

We **align** with the Australian and New Zealand Intensive Care Society (ANZICS) Covid-19 Guidelines.

### 9.1 Indications for oxygen supplementation

We **recommend**:

1. Supplemental oxygen therapy is provided to patients with severe acute respiratory infection and respiratory distress, hypoxaemia or shock with a target SpO<sub>2</sub> of 92-96%.
2. Lower SpO<sub>2</sub> (88-92%) can be targeted in patients with pre-existing lung disease, for example chronic obstructive pulmonary disease (COPD) or pulmonary fibrosis.

Providers are alert to appropriate infection prevention and control procedures for aerosol-generating procedures (described in *Table 1* of [Section 3](#)).

We **recommend** the following escalation of oxygen therapy:

1. Nasal oxygen: titrated to response. Maximum 6L/min.
2. Mask: if nasal oxygen supplementation does not maintain adequate oxygenation (SpO<sub>2</sub> > 94%), we recommend applying oxygen via face mask with a reservoir bag with flow rates of 10-15L/min.
3. Use high flow nasal oxygen (HFNO) therapy (at lowest FiO<sub>2</sub> possible) for hypoxia associated with COVID-19 disease unresponsive to above methods, as long as staff are wearing optimal airborne PPE.
4. If a patient's oxygen requirements change such that a different delivery mechanism is required, delivery device should be retained with patient to support reuse at different points in patient care.

### 9.2 Use of Non-Invasive Ventilation (NIV)

Use of NIV does have the potential to generate aerosols. As such, it should be performed in a negative-pressure (Class N) room; if unavailable, a single (Class S) room should be used. NIV may be considered appropriate, for example, in patients with a clear exacerbation of COPD or heart failure, as a ceiling of care, as a technique to delay intubation, or in situations where resources are limited.

We **recommend**:

1. That where clinicians decide to use NIV, COVID-19 infection should be assumed and NIV provided using similar precautions as for HFNO.
2. That where clinicians decide to use NIV, continuous positive airway pressure (CPAP) is used in preference to bilevel positive airway pressure (BiPAP), as lung compliance is generally normal in COVID-19.

### 9.3 Management of ventilation for adults

ACEM is aware of evidence from other countries whereby ventilatory management has moved away from early intubation. Patients with worsening hypercapnia, acidaemia, hypoxaemia, respiratory fatigue, haemodynamic instability or those with altered mental state will need invasive mechanical ventilation.

We **recommend** lung-protective mechanical ventilation should be employed using the following principles:

1. Low tidal volume strategy (4-8ml/kg predicted body weight).
2. Limiting plateau pressures to less than 30cm H<sub>2</sub>O.
3. Permissive hypercapnia is usually well-tolerated and may reduce volutrauma.
4. Higher levels of positive end-expiratory pressure (PEEP) (greater than 15cm H<sub>2</sub>O) may be needed but should be used with caution.
5. Alternate modes of ventilation such as airway pressure release ventilation (APRV) may be considered based on clinician preference and local experience.

We **recommend** the following practices when mechanical ventilation is employed:

1. Viral (rather than heat and moisture exchanger (HME)) filters should be utilised, and circuits should be maintained for as long as allowable (as opposed to routine changes).
2. Use of closed inline suction catheters. Any disconnection of the patient from the ventilator should be avoided to prevent lung decruitment and aerosolisation. If necessary, the endotracheal tube should be clamped and the ventilator disabled (to prevent aerosolisation).
3. Neuromuscular blockade (NMB): NMB may be considered in the setting of worsening hypoxia or hypercapnia, and in situations where the patient's respiratory drive cannot be managed with sedation alone resulting in ventilator dys-synchrony and lung decruitment.

### 9.4 Supportive care

We **recommend**:

1. Consider using dexamethasone 6 mg daily intravenously or orally for up to 10 days in **adults with COVID-19 who are receiving oxygen** (including mechanically ventilated patients).
2. Do not routinely use dexamethasone to treat **COVID-19 in adults who do not require oxygen**.
3. Whenever possible **remdesivir** should be administered in the context of a randomised trial with appropriate ethical approval. Use of remdesivir for adults with moderate, severe or critical COVID-19 outside of a trial setting may be considered.
4. Anticipating and addressing complications, which include arrhythmias, cardiac impairment, sepsis and multi-organ dysfunction, using existing standards of care.
5. A restrictive fluid management strategy, aiming to reduce extravascular lung water. Where possible avoid 'maintenance' intravenous fluids, high volume enteral nutrition, and fluid bolus for hypotension.
6. Preferential use of metered dose inhalers with avoidance of nebulisers wherever possible.

### 9.5 Other Considerations

#### ***Nitrous oxide use***

There is currently insufficient and conflicting information about cleaning, filtering and aerosol generating potential in the setting of COVID-19 to provide definitive advice about the use of nitrous oxide during ED procedures.

Factors believed to mitigate the likelihood of aerosol generation include limiting use to fully co-operative

patients, use of a face mask with a good seal rather than a mouthpiece, use of an appropriate viral filter and use of a circuit with a scavenger system.

As a result, many health services have taken the approach that nitrous oxide may continue to be used in ED for patients for whom it is the best available option.

We **recommend**:

1. Clinical staff should don PPE appropriate to the COVID-19 risk status of the patient, with airborne PPE recommended only for unknown or high-risk patients.

### **Procedural sedation**

Procedural sedation (PS) is an example of a process that may have to be modified in the context of the pandemic. This reflects the possibility that any PS could theoretically result in the need for an aerosol generating procedure such as airway management.

We **recommend**:

1. EDs review their current processes for PS and identify whether modifications are required based on IPC requirements for COVID-19
2. Clinicians undertake a patient and procedure specific risk assessment prior to performing PS. Where the patient meets a current case definition for COVID-19 (or their risk cannot be assessed) and the procedure does not need to be performed immediately, alternate strategies should be pursued (such as management in an operating theatre).
3. Where the procedure is time critical and there is a significant risk that PS may result in an aerosol generating procedure (such as airway management), appropriate IPC precautions should be undertaken. This should include staff wearing PPE for airborne precautions.
4. A risk mitigation approach should be used wherever possible. For example, this might include using ketamine as opposed to propofol to reduce the probability that airway management is required.

## **9.6 References**

The following resources were used in the preparation of this section:

- Australian and New Zealand Intensive Care Society (ANZICS). [ANZICS COVID-19 Guidelines](#). 15 April 2020; Version 2.
- Beasley R, Chien J, Douglas J, et al. [Thoracic Society of Australia and New Zealand oxygen guidelines for acute oxygen use in adults: 'Swimming between the flags'](#). *Respirology*. 2015;20(8):1182–1191. doi:10.1111/resp.12620.
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- NHS. [Guidance for the role and use of non-invasive respiratory support in adult patients with coronavirus \(confirmed or suspected\)](#) 26 March 2020 Version 2.
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- NHS. [Clinical guide for the management of critical care for adults with COVID-19 during the coronavirus pandemic: Specialty guides for patient management during the coronavirus pandemic](#). 8 April 2020 Version 2.

## 9.7 Section disclaimer

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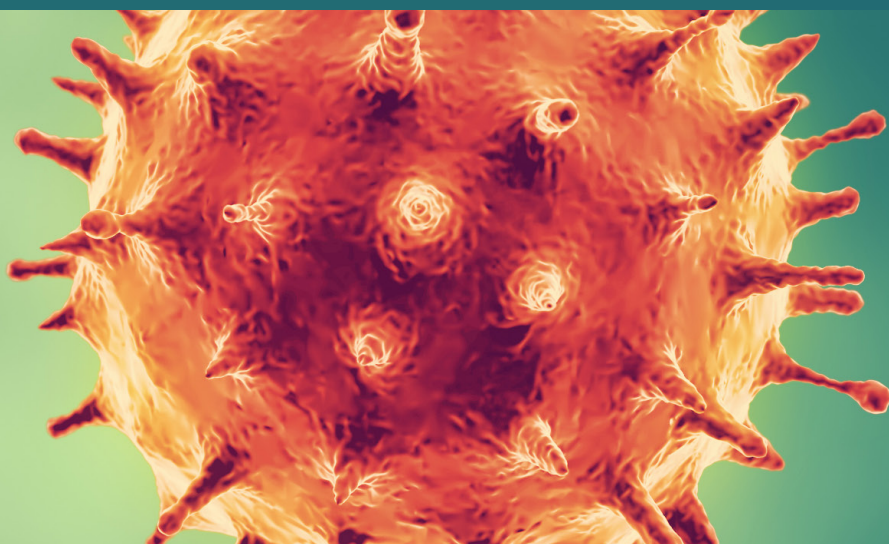
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## 9.8 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 10

## Adult cardiac arrest management



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor editorial changes only
v2.3	24 April 2020	Minor editorial changes, addition of Resources
v3.0	1 May 2020	Changed from Section 9 to Section 10
v3.1	15 May 2020	Edits to S10.0, S10.1, S10.4, S10.6, S10.7, S10.8. Revision to Figure 10.
v4.2	24 August 2020	S10.0 – Minor revisions S10.2 – Revisions to table, including removal of ‘N95 or P2 mask, eye protection and gloves’ column S10.4 – Figure 10 updated S10.6 – Revision to ‘Airway and breathing’ S10.7 – Revision to point 1

## 10. Adult cardiac arrest management

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Based on experience from the 2003 Severe Acute Respiratory Syndrome (SARS) crisis, healthcare workers are at considerable risk of disease transmission, particularly during critical care procedures (Tran, 2012). During SARS, healthcare workers made up approximately 20% of worldwide infections (Chan-Yeung, 2004). Media reporting suggests that over 60 Italian doctors have died from COVID-19 (CNN, 2020).

The capacity of healthcare systems across Australia and New Zealand are expected to be challenged by the COVID-19 pandemic. If a healthcare worker contracts COVID-19, not only does their illness have personal consequences, which may be severe, it also increases the burden on the healthcare system, and reduces the capacity of the system to deal with future patients.

We **recommend**:

1. **During the period in which there is a COVID-19 edpidemic in the country and high rates of community transmission, unless there is clear evidence to the contrary, any collapsed / unresponsive patient should be assumed to be high-risk for COVID-19.**
2. Health care workers should only perform resuscitative interventions when they are protected by appropriate personal protective equipment (PPE).
3. Health care workers must not perform resuscitative interventions if they are not adequately protected by appropriate PPE.

Therefore, modifications to the traditional approach to cardiac arrest are needed.

We **align** with published guidelines and statements from:

1. New Zealand Resuscitation Council (NZRC, 2020).
2. Resuscitation Council UK (RCUK, 2020).
3. Australian Resuscitation Council (ARC, 2020).
4. American Heart Association (AHA, 2020).
5. International Liaison Committee on Resuscitation (ILCOR, 2020).

As the COVID-19 pandemic has progressed, there is some emerging evidence to guide this document. However, with an overall aim to ensure a safe working environment for healthcare workers, we have been deliberately conservative with many recommendations.

### 10.1 Is resuscitation appropriate?

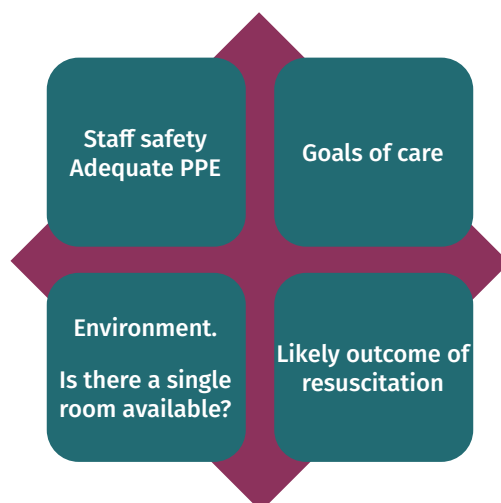
Before resuscitation commences, there are a number of factors which must be considered (Fritz and Perkins, 2020) (see Figure 8). These include:

- Are there any documented goals of care / advance care directives?
- What is the community prevalence of COVID-19?
- Are staff protected by appropriate personal protective equipment (PPE)?
- Is there an appropriate resuscitation setting (single or negative pressure room) available that limits risk to others?
- What is the chance of successful resuscitation with good neurological outcome?
- What is the risk to other patients in offering resuscitation?

Resuscitation should not proceed unless all staff are protected by adequate PPE.

It may become necessary in some jurisdictions for treating clinicians to exercise some resource-based decision-making discretion on the individual patient. Should this become necessary it must be discussed at jurisdictional level including with medical regulators to ensure that decisions are not made at the whim of an individual clinician, and that ethical principles of natural justice still apply.

Figure 8. Factors to consider before resuscitation commences.



## 10.2 Summary of minimum personal protective equipment (PPE) for various resuscitation procedures

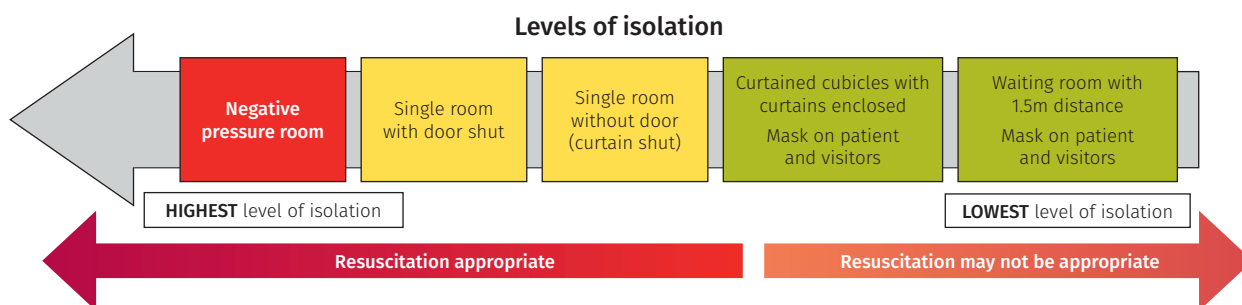
	Surgical mask, eye protection and gloves	Droplet PPE <ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Eye protection</li> <li>• Gloves</li> <li>• Gown / apron</li> </ul>	Airborne PPE <ul style="list-style-type: none"> <li>• N95/P2 mask</li> <li>• Eye protection</li> <li>• Gloves</li> <li>• Gown / apron</li> <li>• Visor, hat and neck protection as per local guidelines</li> </ul>
First responder recognise cardiac arrest and send for help	✓ Low risk for COVID-19 or unable to assess risk	✓ High-risk for COVID-19	
Oxygen mask (up to 10L/min) on patient. Consider covering with towel/cloth/clear plastic sheet/ surgical mask	✓ Low risk for COVID-19 or unable to assess risk	✓ High-risk for COVID-19	
Defibrillation (with patient's face covered)	✓ Low risk for COVID-19 or unable to assess risk	✓ High-risk for COVID-19	
Initial (first-responder) compression-only CPR while awaiting staff in full airborne PPE	✓ Low risk for COVID-19 or unable to assess risk	✓ High-risk for COVID-19	
Ongoing chest compressions during CPR	✓ Low risk for COVID-19		✓ High-risk for COVID-19 or unable to assess risk
Basic airway manoeuvres (chin lift/head-tilt/jaw thrust)	✓ Low risk for COVID-19 or unable to assess risk	✓ High-risk for COVID-19	
Oropharyngeal/nasopharyngeal airway	✓ Low risk for COVID-19 or unable to assess risk		✓ High-risk for COVID-19 or unable to assess risk
Bag-mask ventilation	✓ Low risk for COVID-19 or unable to assess risk		✓ High-risk for COVID-19 or unable to assess risk
Supraglottic airway	✓ Low risk for COVID-19 or unable to assess risk		✓ High-risk for COVID-19 or unable to assess risk
Intubation	✓ Low risk for COVID-19 or unable to assess risk		✓ High-risk for COVID-19 or unable to assess risk

### 10.3 Optimal setting for resuscitation

We **recommend**:

1. A single negative pressure room is the safest location for resuscitation procedures, and where possible patients should be moved to one as soon as practicable.
2. Initial resuscitation should not be withheld if a single room is immediately unavailable.
3. If a single room (negative pressure room, single room with a door, or single room with a curtain) is not available anywhere in the department, then the most senior clinician should consider whether it is appropriate to continue resuscitation. In particular, they should consider whether the potential risk of COVID-19 transmission to healthcare workers and other patients outweighs the possible benefit to the individual patient. In a setting where patients who are positive for COVID-19 are cohorted in an open ward, and all staff are wearing appropriate PPE, this consideration is less relevant.

**Figure 9. Hierarchy of isolated treatment spaces**

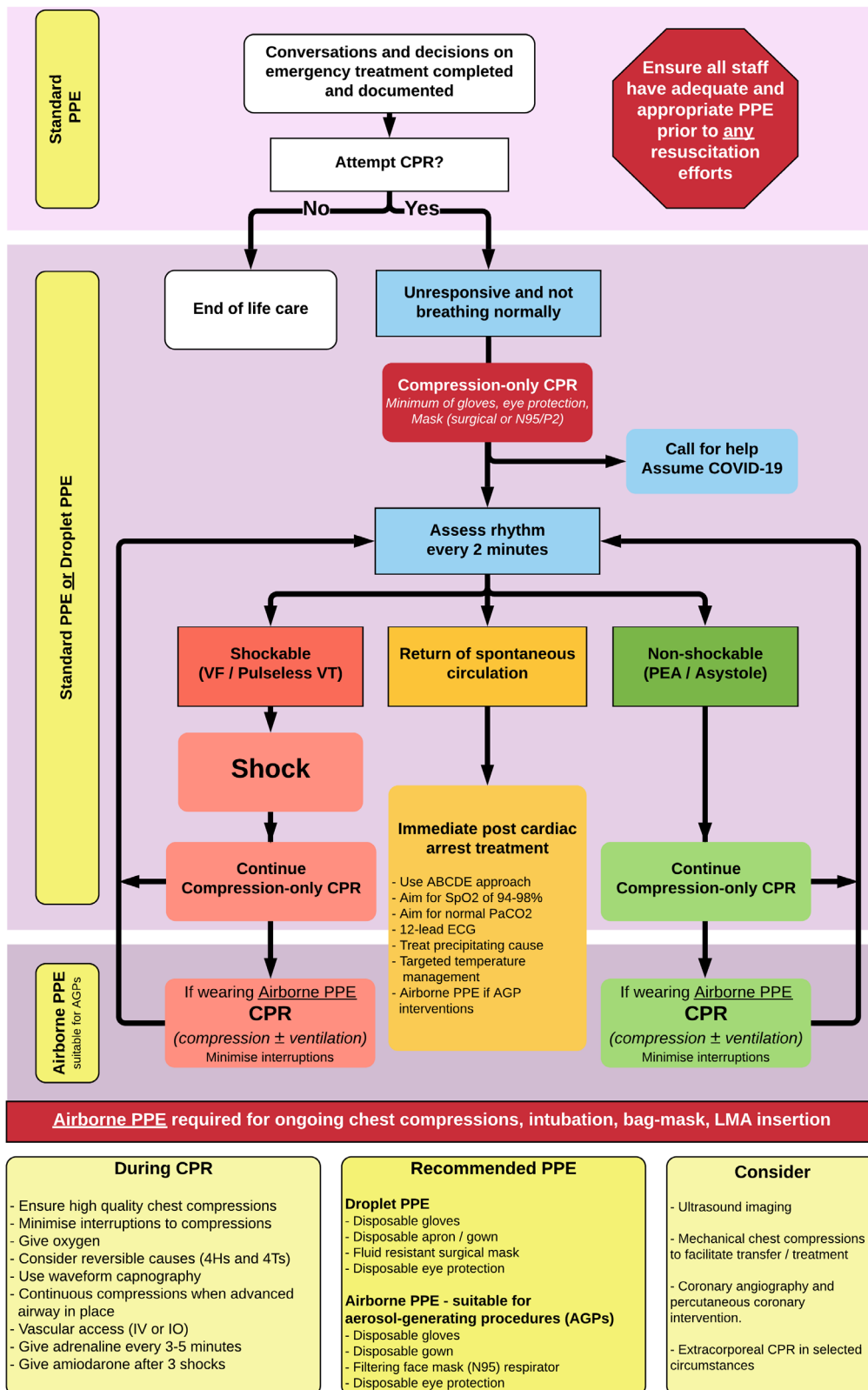




## 10.4 Suggested resuscitation algorithm

A suggested resuscitation algorithm is shown in **Figure 10** below:

**Figure 10. Suggested resuscitation algorithm**



Adapted from NZRC (with permission).

## 10.5 Staff safety and prevention of occupational exposure to COVID-19

We **recommend**:

1. As community spread increases, all critically ill patients should be assumed to be infected with COVID-19.
2. Goals of care and any limitations on resuscitation should be clarified early for all patients admitted to hospital.
3. Maintenance of current systems to recognise clinical deterioration and prevent cardiorespiratory arrest due to progression of severe illness.
4. Maintenance of access to palliative care protocols to ensure appropriate care for dying patients.
5. All staff attending a collapsed patient should be wearing appropriate PPE. The level of PPE dictates which interventions may be safely provided by healthcare workers.
6. A staff member should be specifically assigned to ensure safe PPE use. Specific attention should be paid to mask fit for staff members wearing airborne PPE, and to supervise any donning / doffing.
7. Senior expertise is used to minimise the number of people involved in a resuscitation.

## 10.6 Modifications to cardiac arrest management in the COVID-19 era

We **recommend**:

1. Modifications to existing advanced life support protocols should be made in the following ways:

### **DANGER**

- Ideally, all resuscitation should be performed by healthcare workers in PPE suitable for aerosol generating procedures. However, it is recognised that this may not be the case for first responders.
- First responders should be wearing at least a surgical mask, eye protection and gloves.
- The patient's face should be covered with a mask, towel or sheet to reduce the risk of aerosols during resuscitation. Supplemental oxygen can be provided prior to this, as long as administering oxygen does not delay other resuscitative interventions.
- A staff member wearing a minimum of gloves, eye protection, and surgical face mask should immediately place defibrillation pads on the chest, check the cardiac rhythm and defibrillate the patient if VF/pVT.
- Compression-only CPR (with the face covered) should be instituted rapidly by the first available staff member wearing a minimum of gloves, eye protection and a surgical mask (or N95 mask or P2 respirator if available).
- Ongoing resuscitation should be carried out by staff in full airborne PPE (gloves, eye protection, gown and N95 mask or P2 respirator) who should take over resuscitation as soon as possible. Any rescuers not wearing full airborne PPE should leave the area, remove their PPE and perform careful hand hygiene.
- Resuscitation should occur in the highest level of isolation available.

### **RESPONSE**

- If the patient is unresponsive and not breathing normally, then resuscitation may be necessary. Call for help.

## AIRWAY AND BREATHING

- Do NOT provide positive pressure ventilation until in an appropriate room and wearing airborne PPE.
- Place a standard oxygen mask (e.g. Hudson mask) on the patient and open their airway with a head tilt / chin lift.
- Provide oxygen at a flow rate of 10 L/minute.
- Listening or feeling for breathing should not occur. Instead, place a hand on patient's chest to feel for chest rise and fall while assessing for normal breathing.
- Do not attempt to clear the airway using any methods other than head tilt or chin lift.
- Suctioning of the airway should not occur through an open suction device (i.e. Yankauer sucker) until in an appropriate room with airborne PPE.
- An appropriate viral filter must be connected to any oxygen delivery device, as close to the patient as possible. Take care to ensure that all connections are secure.
- Bag-mask ventilation should be minimised. If required, use two hands to hold the mask. Compressions should be paused, and the bag should be squeezed by a second rescuer at a compression:ventilation ratio of 30:2
- Pause compressions before inserting a supraglottic airway or attempting to intubate.
- If additional oxygen delivery is required, a well-fitted supraglottic airway device (e.g. an i-gel) should be inserted, and connected to a Mapleson circuit (preferred) via an appropriate filter, or a standard self-inflating bag.
- If using a Mapleson circuit, connect the circuit to oxygen, but do not squeeze the bag. This will allow flow of oxygen without administration of positive pressure ventilation.
- If using a standard self-inflating bag, monitor the movement of the reservoir bag. If oxygen is being delivered, then do not squeeze the bag. If there is no oxygen delivery, then squeeze the bag gently.
- A supraglottic airway is preferred to a face mask, as it is thought to reduce the risk of aerosols (Brewster et al).
- If possible, positive pressure ventilation should **only** be delivered once an endotracheal tube has been inserted in the trachea, the cuff has been inflated, a viral HME filter connected, and correct placement confirmed.
- Suctioning through an endotracheal tube should occur through a closed (inline) system, in the highest level of isolation available, and by a healthcare worker in airborne PPE.

## CIRCULATION

- Rapid rhythm assessment and defibrillation should be prioritised.
- Until endotracheal intubation has occurred, compression-only CPR is recommended.
- If positive pressure ventilation is required, then compressions should be paused to allow ventilation while using a mask or supraglottic airway.
- Mechanical CPR devices should be used when available in order to reduce healthcare worker exposure to COVID-19.

## MONITORING OF RESUSCITATION

- Waveform capnography should be used to monitor resuscitation.
- Focused cardiac ultrasound may be useful to guide resuscitation efforts, and / or demonstrate absence of cardiac activity and early cessation of resuscitation.

## TERMINATION OF RESUSCITATION

- If cardiac arrest occurs in a patient with COVID-19, a rapid assessment of potentially reversible causes should be sought.
- If no readily reversible causes are identified, then early consideration should be given to stopping resuscitation.

## ADVANCED RESUSCITATION TECHNIQUES

- Advanced resuscitation techniques such as extracorporeal life support should be carefully considered and only used in exceptional circumstances for currently accepted indications (e.g. massive pulmonary embolism, or specific toxicologic emergencies).
- In the setting of a cardiac arrest in the ED from presumed COVID-19, escalation to extracorporeal life support is likely to be inappropriate.

## CARE FOR FAMILY MEMBERS

- Family is restricted from entering resuscitation rooms, except in exceptional circumstances (for example paediatric cardiac arrest), as determined by local policies.
- Social work support is provided to family members in a safe location or via telehealth where COVID-19 precludes visitation.
- Bereavement procedures follow local guidelines for COVID-19.

## POST-RESUSCITATION

- If return of spontaneous circulation is achieved prior to intubation, then time should be taken to clarify goals of care before intubating the patient.

### 10.7 Post-resuscitation care

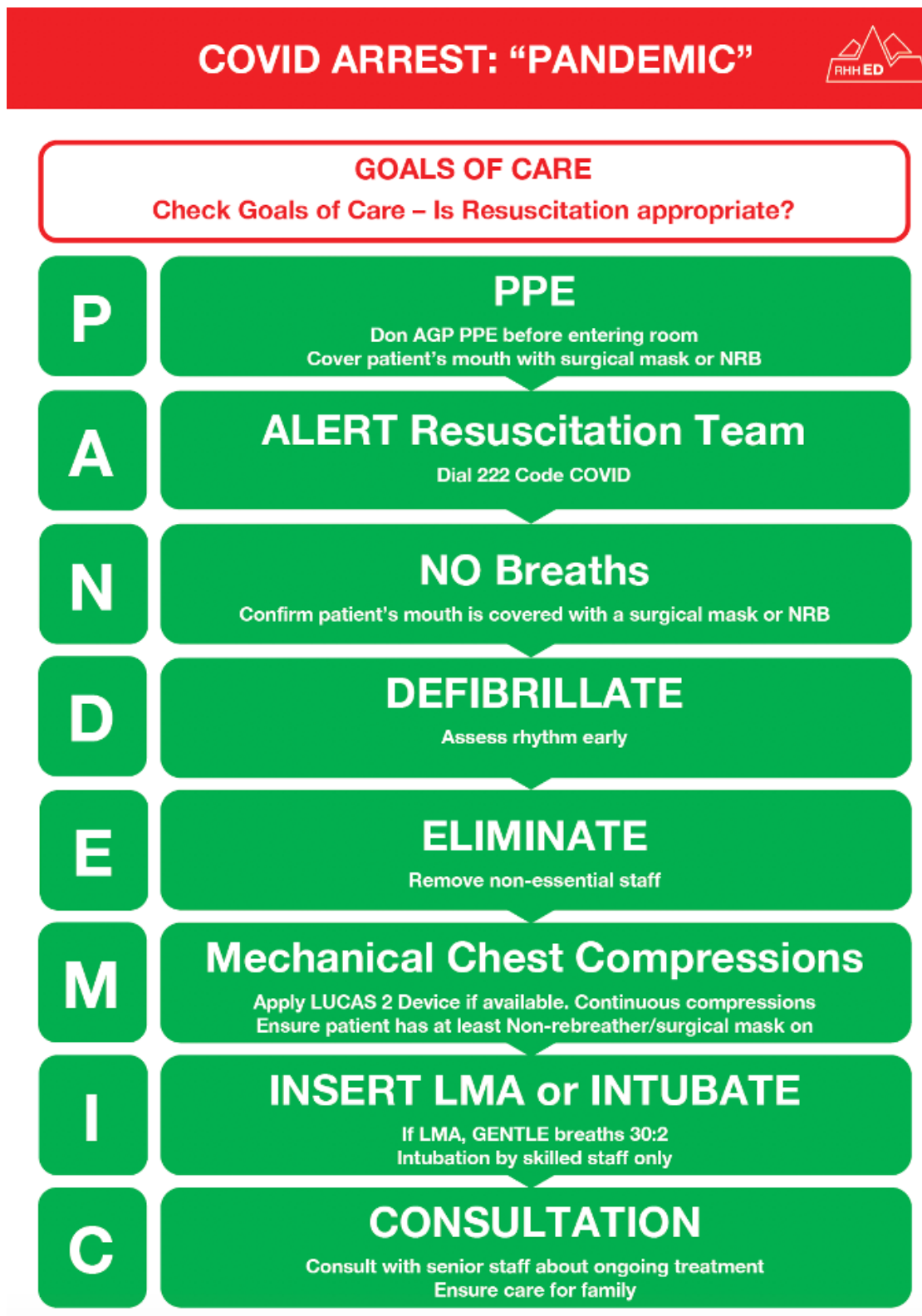
We **recommend**:

1. At the end of resuscitation attempts, everyone should remove PPE carefully, and perform hand hygiene in line with local recommendations.
2. Equipment should be cleaned / disinfected / disposed of according to hospital protocols.
3. Following resuscitation, it is important to conduct a debrief with team members, to specifically address:
  - Clinical care and decision-making.
  - Communication.
  - PPE and prevention of COVID-19 transmission.
4. Documenting/reporting any breaches of PPE policy and arranging follow-up as per hospital protocols
5. If resuscitation is unsuccessful, appropriate PPE should be used by staff when preparing the body for the mortuary.

## 10.8 Example algorithm

An example algorithm (Royal Hobart Hospital) is provided in **Figure 11** below:

*Figure 11. Example algorithm from the Royal Hobart Hospital.*



## 10.9 References

The following resources were used in the preparation of this section:

- Australian Resuscitation Council. [ARC Statements on COVID-19](#). Online resource. Accessed 29th March 2020.
- Chan-Yeung M. [Severe acute respiratory syndrome \(SARS\) and healthcare workers](#). Int. J Occup. Environ. Health. 2004 Oct-Dec; 10(4): 421-7.
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- New Zealand Resuscitation Council: [COVID-19 Resources. Modifications to Essential Life Support](#). Online resource. Accessed 29th March 2020.
- New Zealand Resuscitation Council: [COVID-19 Resources. Adult Advanced Life Support for COVID-19 Patients Flowchart](#). Online resource. Accessed 29th March 2020.
- Resuscitation Council UK. [Adult Advanced Life Support for COVID-19 Patients](#). Online resource. Accessed 29th March 2020.
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- Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. [Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review](#). PLoS One. 2012;7(4):e35797. doi: 10.1371/journal.pone.0035797. Epub 2012 Apr 26.
- International Liaison Committee on Resuscitation (ILCOR). [Consensus on Science with Treatment Recommendations \(CoSTR\): COVID-19 infection risk to rescuers from patients in cardiac arrest \[Draft for public comment\]](#). Online resource. Accessed 31st March 2020.
- Fritz Z and Perkins GD. [Cardiopulmonary resuscitation after hospital admission with COVID-19](#). BMJ. 2020 369:m1387.
- Public Health England. [PHE statement regarding NERVTAG review and consensus on cardiopulmonary resuscitation as an aerosol generating procedure \(AGP\)](#). 27 April 2020. Online.
- Department of Health. [Guidance on the use of personal protective equipment \(PPE\) in hospitals during the COVID-19 outbreak](#). Australian Government, Department of Health. April 27th 2020.
- [Coronavirus Disease \(COVID-19\): Information for paramedics and ambulance first responders](#). Australian Government Department of Health. 10 March 2020. Online.

## 10.10 Section disclaimer

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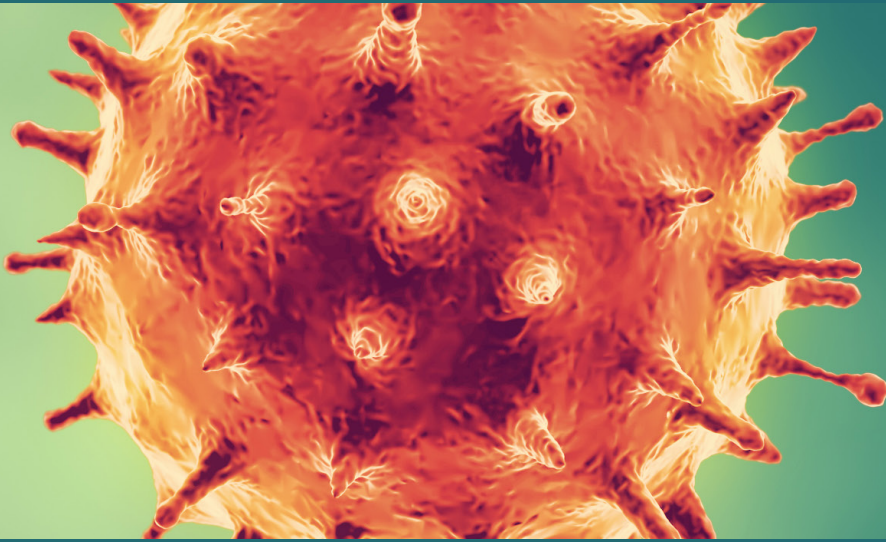
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## 10.11 Resources

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# Section 11

## Experimental treatment



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	No changes
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 10 to Section 11



## 11. Experimental treatment

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There are no specific treatments available for COVID-19 at this stage.

We **recommend**:

1. That specific treatments are only offered in the setting of a registered clinical trial.

We **do not recommend**:

1. The use of corticosteroids where the only indication is routine use for acute respiratory failure with COVID-19.
2. The use of antiviral agents where the only indication is treatment for COVID-19.
3. The use of antibiotics in asymptomatic or mildly symptomatic patients with COVID-19.

We **advocate** for clinician judgement:

1. When using empiric antibiotic therapy for suspected secondary bacterial infection.

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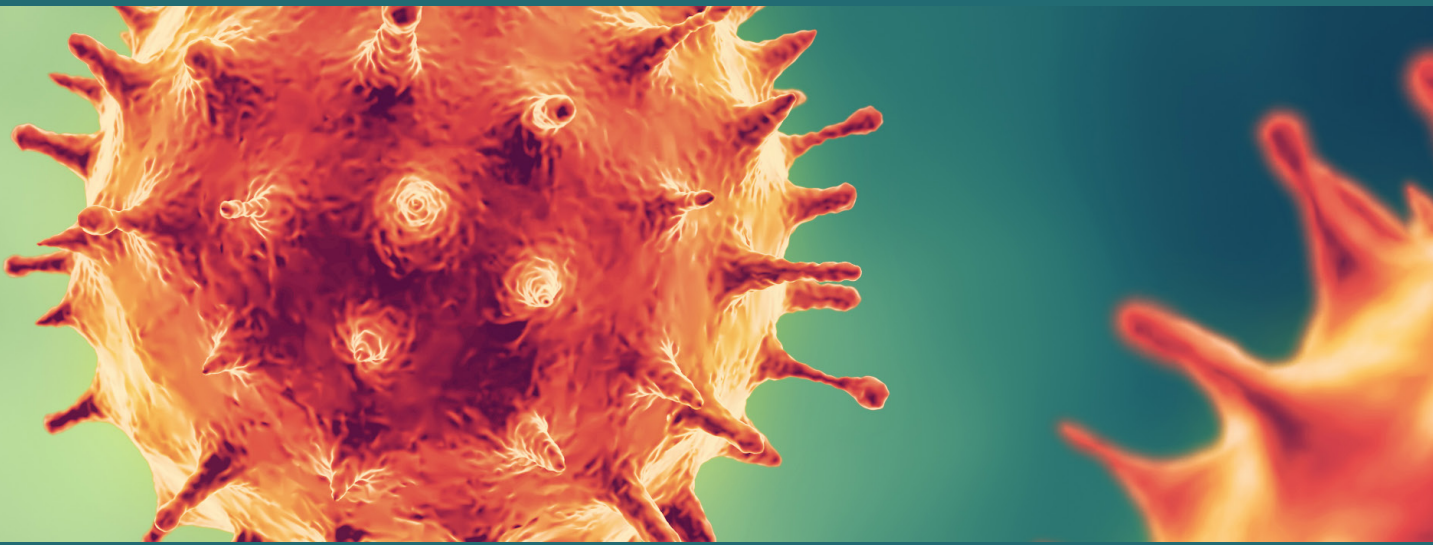
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# Section 12

## Clinical research



Version	Date	Pages revised / Brief Explanation of Revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor change to 11
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 11 to Section 12
v4.0	22 June 2020	Added information regarding EMER (Emergency Medicine Events Register)

## 12. Clinical research

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We **recommend**:

1. EDs lead and are actively involved in COVID-19 clinical research. This research will include but not be limited to:
  - (a) Biological sampling of COVID-19 patients to understand the pathophysiology of differential mortality in patient groups.
  - (b) Clinical registries for epidemiology and prognostic prediction.
  - (c) Clinical trials of pharmacological and non-pharmacological prophylaxis and treatments.
  - (d) Qualitative evaluations of individual and systems responses to a pandemic.
2. Clinical research aligns and integrates with international efforts for harmonisation and coordination of research (such as the [International Severe Acute Respiratory and Emerging Infections Consortium COVID-19 Case Record Form](#), and the [World Health Organisation Research and Development Framework](#)).
3. The use of EMER (Emergency Medicine Events Register) to anonymously report adverse events, near misses or good saves that relate directly or indirectly to the pandemic. This might include incidents such as delayed emergency presentations due to fear of attending the hospital, issues related to mental health presentations, problems around equipment and procedures, ED streaming of patients into COVID and non-COVID areas, the use of telemedicine or issues around civility in the workplace. Themes relating to recurrent incidents during the pandemic will be analysed and communicated back to members by the ACEM EMER team.

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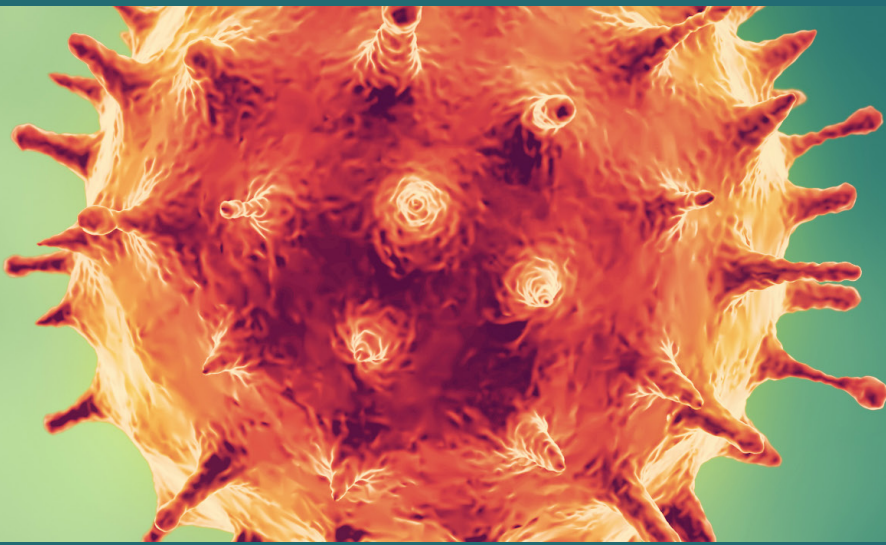
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# Section 13

## Imaging



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	No changes
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 12 to Section 13
v4.2	24 August 2020	Minor revisions to S13.0

## 13. Imaging

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At present, we do not recommend chest radiography (CXR), computed tomography (CT) or lung ultrasound (LUS) to diagnose COVID-19.

Chest radiographic findings include bilateral patchy opacities, though CXR is considered unreliable in detecting the early phase of the pneumonia. CT findings are bilateral and peripheral ground-glass and consolidative pulmonary opacities.

We **recommend**:

1. The use of imaging when required for exclusion of other pathology from the differential diagnosis.
2. The use of imaging when required to identify the cause of sudden deterioration in a patient (e.g. tension pneumothorax).
3. Portable CXR preferentially over patient movement to radiology where possible.

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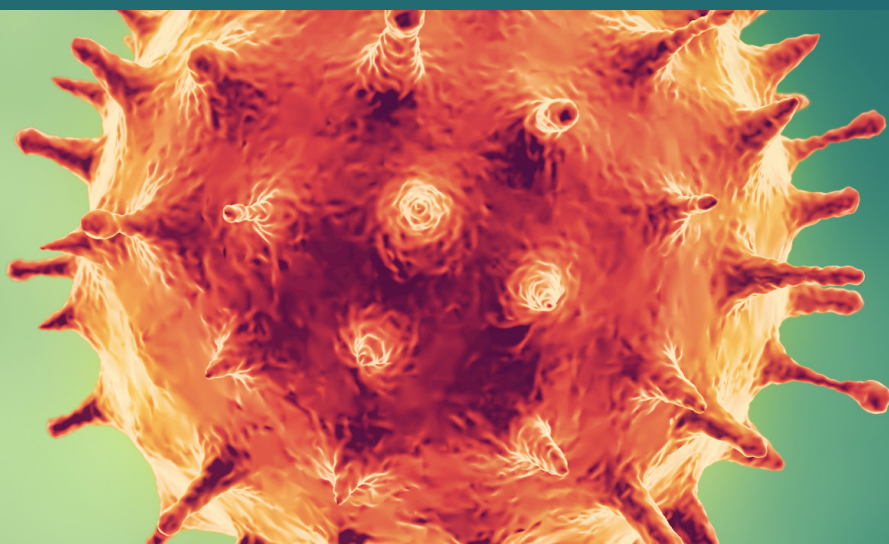
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### 13.2 Resources

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# Section 14

## Trauma



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.1	6 April 2020	Section 3.8 – additional alignment items added to 13.8: Minor trauma <i>This update was published as a roll-up of V1.0-2.2.</i>
V2.2	7 April 2020	Minor editorial changes only <i>This update was published as a roll-up of V1.0-2.2.</i>
v2.3	24 April 2020	Minor editorial changes, addition of Resources
v3.0	1 May 2020	Changed from Section 13 to Section 14 Minor editorial changes
v4.2	24 August 2020	Minor revisions to S14.0, S14.1, S14.2, S14.6, and S14.8 Addition of S14.9 - References

## 14. Trauma

*The ability to provide high quality care to major trauma patients should be maintained to the greatest possible extent during the coronavirus pandemic, while ensuring that critical resources are preserved as far as possible.*

London Major Trauma System Guideline

This guideline applies to injured patients of **all ages**.

We **recommend** that major trauma services retain the capability to perform:

1. Acute trauma resuscitation and resuscitative procedures.
2. Emergency surgery to preserve life and limb.

We **reiterate** that there is risk of COVID-19 transmission from:

1. Patient to health care worker (HCW).
2. HCW to patient.
3. HCW to HCW.

We **recommend** that in any setting, clinicians providing trauma care:

1. Consider a patient at high risk for COVID-19 transmission when:
  - (a) Patient history or clinical assessment is not reliable or unavailable.
  - (b) Clinicians are preparing to deliver trauma care that may include aerosol generating procedures (AGPs), for example pre-hospital or hospital trauma teams receiving trauma patients requiring resuscitation.
2. Only consider a patient low risk for COVID-19 transmission when:
  - (a) Patient history and clinical assessment has excluded local case definitions.
  - (b) No AGPs are required.
3. Use senior expertise to limit the number of healthcare workers (HCW) required for safe delivery of trauma care at all stages of the trauma patient journey. This includes and is not limited to:
  - (a) Prehospital and inter-hospital trauma care.
  - (b) Trauma team activations.
  - (c) Transfers to CT, theatre and inter-departmental.

Although the COVID-19 pandemic is **likely to reduce traumatic injury presentations overall**, there may be a potential skew towards domestic and family violence and self-inflicted injury.

We **recommend** that:

1. Non-accidental injury (NAI), domestic violence, elder abuse and self-inflicted injury are considered in all presentations.
2. Emergency clinicians use a **domestic violence screening tool (ACEM, P39 Policy on Family and Domestic Violence)**.



We **acknowledge and align** with:

1. The London Major Trauma System: [Management of Critical Resources during COVID-19 Pandemic, Clinical Guide for the management of major trauma patients.](#)
2. The American College of Surgeons Committee on Trauma '[Maintaining Trauma Centre Access and Care during the COVID-19 Pandemic](#)'.
3. The NHS [Clinical guide for the management of trauma and orthopaedic patients during the coronavirus pandemic](#)
4. Australian Orthopaedic Association Position Statement: [Orthopaedic surgery during the COVID-19 pandemic.](#)
5. Royal Australasian College of Surgeons Statement: [Maintaining front-line trauma services during the COVID-19 response.](#)
6. Australian Orthopaedic Trauma Society: [Guidelines for emergency orthopaedic surgery during the COVID-19 pandemic.](#)
7. The NHS [Clinical guide for the management of neurotrauma patients during the coronavirus pandemic.](#)

Exemplar documents:

1. Royal Adelaide Hospital: [Trauma callouts during COVID era](#)
2. Gold Coast University Hospital: [ED COVID Trauma/Resus Teams Guide](#)

#### **14.1 Early senior consideration of complexity in COVID-19 trauma care**

It is well recognised that older patients with injury are at higher risk of delayed diagnosis and poor outcome due to:

- a. Under-triage in low force mechanism.
- b. Fewer physiological predictors of severe injury.
- c. Concurrent cognitive or communication issues complicating assessment.
- d. Concurrent frailty, comorbidity and polypharmacy.

Older persons are also at higher risk of poor outcome in COVID-19 (see [Section 15](#)).

We **recommend** that:

1. Trauma teams are led by the most senior trauma clinician available.
2. Older injured persons have geriatrician or physician review in line with local guidelines.
3. Trauma teams have early discussion regarding patient ceilings of trauma care in line with ethical decision making in COVID-19 (see [Section 21](#)).
4. Decisions on limiting trauma care consider the utilisation of critical resources including blood stocks, critical care, emergency surgery and CT scanners.

#### **14.2 Trauma procedures**

In trauma resuscitation, aerosol-generating procedures (AGP) include:

- Airway procedures as listed in [Section 10](#).
- Management of penetrating chest injury.
- Thoracostomy.
- Intercostal catheter insertion (ICC).
- Resuscitative thoracotomy (RT).

We **recommend** that:

1. A robust case by case risk/benefit discussion is conducted prior to commencing any high risk interventions, for example RT, including careful consideration of the predicted outcomes, PPE and other resources such as surgeon availability and usual indications where RT is considered to be of most benefit (cardiac tamponade, signs of life and ongoing cardiac electrical activity).
2. Where finger thoracostomy occurs, ICC insertion should follow as soon as possible to minimise risk of COVID-19 transmission.
3. While evidence does not yet exist, ICCs should be connected to low dose wall suction or anti-viral filter to reduce sources of aerosolised particles..
4. AGP PPE is used including a face shield and hair cover for all members of the trauma team when AGP is likely to be performed.

Exemplar documents:

1. The Royal London [T.A.C.T.I.C Resuscitative Thoracotomy in ED \(COVID-19\)](#).
2. The Royal London [T.A.C.T.I.C Chest Drain insertion \(COVID-19\)](#).

### 14.3 Trauma systems

Multiple new protocols should not be required. We **advocate** for:

1. Senior trauma clinicians to be involved in network and organisational pandemic planning.
2. Reviewing existing trauma protocols and guidelines with amendments when required for COVID-19 pandemic. Where patients meet current triage and transfer guidelines for care at major trauma services (MTS):
  - (a) Existing guidelines, coordination and referral pathways should be followed where possible.
  - (b) Telehealth and senior decision makers at MTS are involved as early as possible.
3. Coordinated trauma care communication across state or regional networks, with:
  - (a) A centralised communication hub.
  - (b) Frequent (as determined by the stage of the pandemic) communication updates at all levels of the trauma network on service capacity including:
    - (i) Trauma workforce.
    - (ii) PPE supply.
    - (iii) Access to critical resources such as blood stocks, CT and emergency surgery.
    - (iv) Any impact on standard operating procedures (SOPs) or network guidelines
  - (c) Rapid and telehealth supported access for regional and rural services to senior trauma decision makers in MTS
4. Where trauma systems are overwhelmed with unacceptable delays to trauma care, local consideration in consultation with senior trauma clinicians at MTS, for altered trauma care delivery. This may include:
  - (a) Consideration of operative intervention where angio-intervention is unavailable.
  - (b) Consideration of delayed, interventional radiology or non-operative management of injuries.
  - (c) In exceptional circumstances, moving trauma HCW to the patient when it is not possible to move the patient. This would allow for use of aeromedical platforms but should be balanced against staff safety and resource capability at both referring hospital and MTS.
  - (d) Supporting regional/rural clinicians with appropriate skills to work at an extended scope of practice.

#### 14.4 Prehospital care

We **advocate** for:

1. All prehospital trauma clinicians to make early assessment of COVID-19 risk.
2. All prehospital trauma notifications include information on patient COVID-19 risk based on:
  - (a) Ability to assess against local case definitions.
  - (b) Requirement for AGPs.
3. Objective assessment of potential for escalated care requirements with patient observations, in line with **ACEM's Australasian Triage Scale (ATS)** and local ambulance service guidelines.

We **recommend** that any pre-notification of COVID-19 suspected or confirmed trauma patients is included in communication to all members of the trauma team response, including and not limited to the trauma facility lead for COVID-19 clinical care, clinicians, imaging, pathology, administrative, social work and transport staff.

#### 14.5 Location of trauma care

In the COVID-19 pandemic, trauma providers will need to balance the risks and benefits and timing of patient transfer within the trauma network, with the impact of COVID-19 on:

- a. The severity of patient disease (injury and non-injury).
- b. The risk of COVID-19 transmission amongst patients and HCW.
- c. Trauma system resources and capacity, including:
  - PPE availability.
  - Workforce distribution across rural/regional and metropolitan trauma services.
  - Blood product availability, including stock levels and distribution.
  - CT scanners.
  - Access to critical care and emergency surgery.

When prioritisation is required, we **recommend**:

1. **Only** patients meeting pre-hospital major trauma criteria are streamlined to MTS specifically those:
  - (a) Requiring ongoing resuscitation.
  - (b) Requiring interventional radiology or surgical care.
  - (c) Having injuries that require specialised care or intervention such that life, limb or long-term function may be at risk. This may include and is not limited to; solid organ injury of spleen and liver, limb amputation, suspected spinal cord injury, crush injuries, fractured pelvis, open limb fracture or joint dislocation.
2. That non-MTS are supported to provide initial patient care and early consultation is **required** prior to transfer of patients with isolated single system injury without compromise, for example:
  - (a) Orthopaedic extremity injuries (excluding pelvic injury).
  - (b) Spinal injury without neurological compromise.
  - (c) Less than three (3) rib fractures without respiratory compromise.
  - (d) Head injury with GCS 14 or 15, including small volume subdural for non-operative management
3. That consultation is **required** prior to any transfer to MTS for patients with the potential for a poor outcome and need for palliative care. These include:
  - (a) Patients with advanced care directives that limit the use of critical care and surgical interventions.

- (b) Patients considered very frail and/or vulnerable to adverse outcomes due to advanced age, dementia, and multiple comorbidities, specifically advanced lung disease.

We **do not recommend** transfer to MTS where adult patients have no evidence of injury on appropriate trauma CT. Any concerns regarding the need for further radiological assessment, for example MRI, should be discussed with a senior trauma clinician at MTS.

## 14.6 Receiving trauma patients in the ED

In an ED, the location for the initial assessment of trauma patients requires consideration of risks to both patients and risks to HCWs, including consideration that HCW as well as patients, may have asymptomatic COVID-19. Severely injured patients require resuscitation in appropriate settings. It is recognised that a negative pressure room is the highest level of isolation for patients:

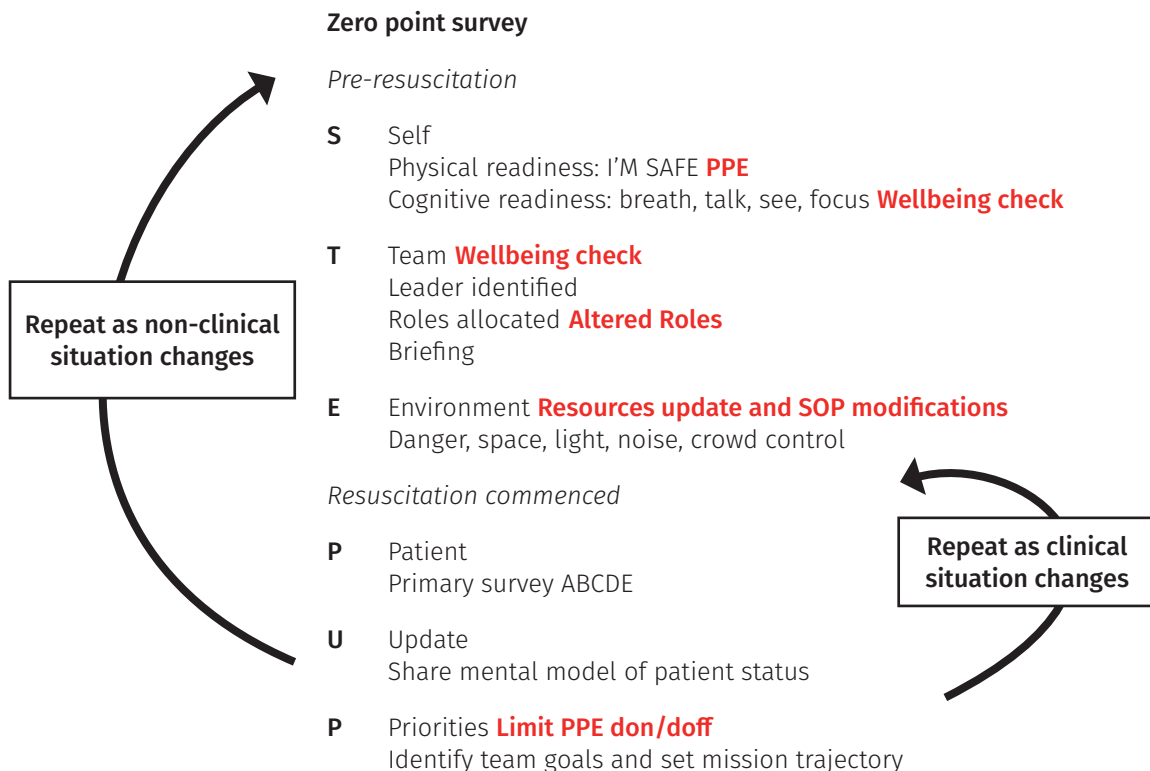
- a. With unknown risk or suspected to have COVID-19.
- b. Requiring aerosol generating procedures (AGP).

We **recommend** that EDs consider the most appropriate location for managing major trauma patients.

We **recommend** that usual trauma reception protocols should apply with the addition of:

1. Local consideration of:
  - (a) Controlled entry / exit points to the trauma resuscitation zone for staff and patients.
  - (b) Location for, and minimising of, PPE donning and doffing.
2. Trauma team 'zero point survey' (Figure 12) including discussion on:
  - PPE and wellbeing check, at 'S' self - for safety.
  - Altered role allocation and wellbeing at 'T' team.
  - A brief critical care resource capability update and any modifications to usual standard operating procedures at 'E' environment.
  - A reiteration of limiting donning/doffing of PPE at 'P' priorities.

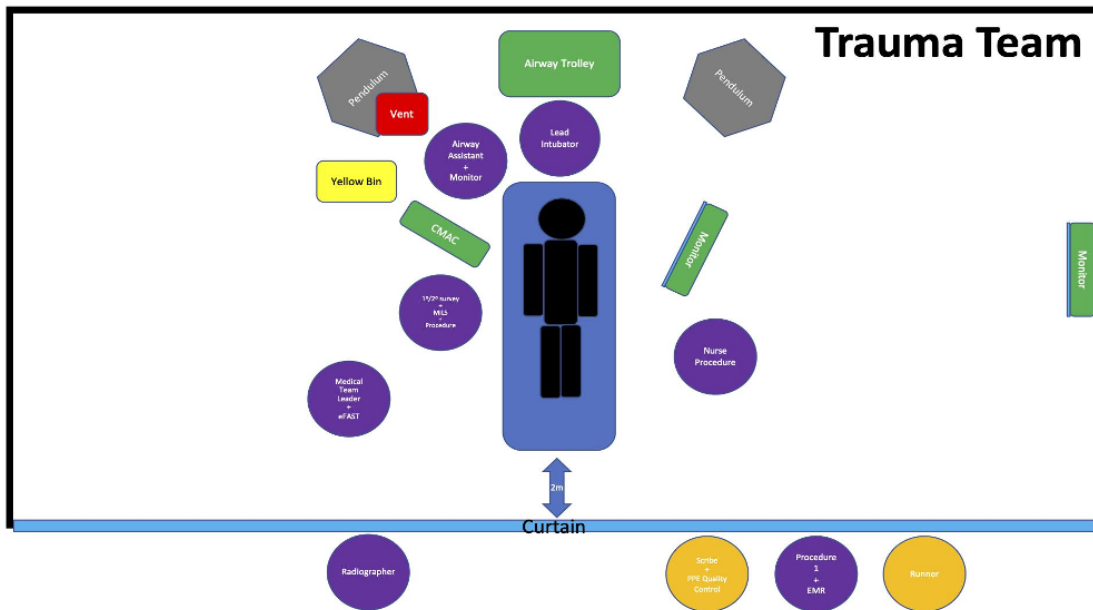
**Figure 12. Zero point survey.**



Adapted from Reid et al. [Zero point survey: a multidisciplinary idea to STEP UP resuscitation effectiveness.](#)

3. Additional trauma team role of PPE quality assurance, which may be delegated to the existing scribe role in resource constraints.
4. Traditional trauma team roles and locations are altered with:
  - (a) Use senior expertise is used to minimise the number of HCW in the trauma reception bay.
  - (b) Trauma team clinicians in the trauma reception bay wearing PPE for AGPs (**Figure 13**, purple).
  - (c) Trauma team clinicians outside of the trauma room wearing PPE for suspected COVID-19 patients (**Figure 13**, yellow).

**Figure 13. Trauma team roles and location.**



5. The trauma CT scan:
  - (a) Is minimised, where possible, when resources are overwhelmed.
  - (b) That in adult patients with moderate to severe trauma, whole body CT (WBCT) is preferred to minimise multiple selected CTs and repeated patient transport.
  - (c) Should be reviewed for both injury and incidental findings of COVID-19.
  - (d) May be deferred and augmented by plain x-ray, ultrasound and serial examination in consultation with a senior trauma clinician taking accountability for ongoing patient care.
  - (e) Is discussed with MTS for paediatric patients as CT can often be avoided.
6. COVID-19 swab is considered early in line with local guidelines.
7. Consideration of delayed, non-operative (e.g. interventional radiology) or conservative management for all injuries.

#### 14.7 Family in the trauma room

We **recommend** that:

1. Family is restricted from entering resuscitation rooms, except in exceptional circumstances, for example paediatric trauma, as determined by local policies.
2. Social work support is provided to family members in a safe location or via telehealth where COVID-19 precludes visitation.
3. Bereavement procedures follow local guidelines for COVID-19.

## 14.8 Minor trauma

Where possible, the principles of minor trauma management in COVID-19 should be to:

- a. Ensure essential services such as orthopaedic and plastic surgical services are maintained, while minimising impact on resources for the COVID-19 response.
- b. Streamline diversion of appropriate patients away from the ED.
- c. Consider and streamline delayed, day surgical, non-operative, or virtual solutions.

We **recommend**:

1. Non-operative interventions were possible e.g. fracture reduction or laceration repair under local anaesthetic block.
2. The use of back slabs in appropriate cases with appropriate patient information where possible, to decrease attendances for plaster removal.

We **advocate** for:

1. Mechanisms for increased consultation to decrease unnecessary outpatient referrals.
2. Specialty surgical services to provide guidance on priorities of care for example, still require admission e.g. hip fracture, non-operative care preferred e.g. some limb fractures, day case and virtual management strategies.

## 14.9 References

- Duffy C, Kidd AC, Francis S, Tsim S, McNaughton L, Ferguson K, Ferguson J et al. Chest drain aerosol generation in COVID-19 and emission reduction using a simple anti-viral filter. medRxiv (preprint). [doi: 10.1101/2020.07.13.20152264](https://doi.org/10.1101/2020.07.13.20152264). 2020 Jul 15.

## 14.10 Section disclaimer

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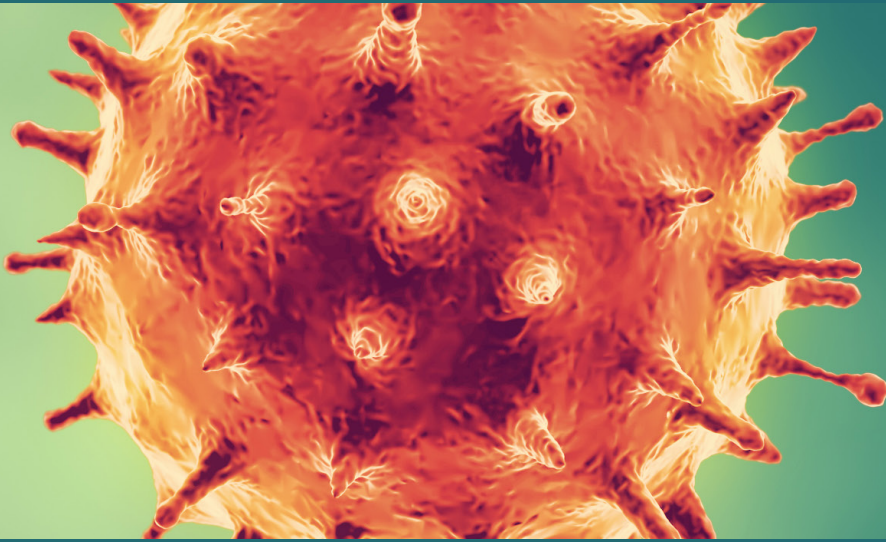
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#### **14.11 Resources**

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# Section 15

## Older person-specific recommendations



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor editorial changes only
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 14 to Section 15
v4.2	24 August 2020	Revisions to S15.0, including addition of points 9 and 10 S15.1 – New references added



## 15. Older person-specific recommendations

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Physiologic changes of aging, impaired immunity and common comorbidities increase the vulnerability of older persons to COVID-19 and result in higher risk of severe disease. However, even in those aged over 80 years where the crude mortality rate is approximately 22%, survival is more likely than death.

In all older persons, in addition to the principles outlined in ACEM's P51 [Policy on the care of elderly patients in the emergency department](#), we **recommend**:

1. Beyond standard case-definitions, emergency clinicians should also consider the following in screening of older persons for potential COVID-19:
  - (a) Acute respiratory illness (ARI) may present with atypical symptoms in older persons, including, for example, functional decline, delirium (which may manifest as hypoactive, hyperactive or mixed on the basis of psychomotor behaviour), exacerbation of underlying chronic conditions, falls, loss of appetite/nausea, malaise, diarrhoea and myalgia. Emergency Department triage screening tools should flag the potential for atypical symptoms in older persons.
  - (b) Although fever is the most common sign in the population overall, it is not a sensitive sign in older persons.
  - (c) Emergency clinicians should take care to avoid anchoring onto a diagnosis of COVID-19 and consider broad differential diagnoses where older persons present with atypical symptoms.
  - (d) Reliance on symptom-based screening alone in the frail, older population may fail to identify 50% or more of those with COVID-19.
2. Prediction of probability of mortality in all persons (irrespective of age) should incorporate use of objective evidence-based multi-dimensional tools (for example, use of age combined with clinical frailty scale together with a measure of acute illness severity e.g. SOFA or qSOFA).
3. Where feasible, Emergency Departments prioritise flow of older persons to inpatient wards when admission is indicated.
4. Emergency physicians recognise and provide support to older persons and their carers for psychological distress and stress that is likely to result from the pandemic situation.

We **do not recommend** limitations on treatment based solely on age or place of residence.

For RACFs and RACF residents we **recommend**:

1. All RACFs adhere to the Communicable Diseases Network Australia (CDNA) [National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Residential Care Facilities in Australia](#), and comply with all advice, notices and directives made in relation to Federal and state legislation and policy in relation to ensuring safety of residents in RACFs.
2. RACFs undertake stringent infection control processes recommended in [Australian Guidelines for the Prevention and Control of Infection in Healthcare \(2019\)](#).
3. Disaster plans to incorporate cross-sector support for RACFs and General Practitioners (GPs).
4. Community-based forward triage of RACF residents (with COVID-19 and with non-COVID-19 presentations) during this pandemic response is critical to minimizing harm to residents and achieving sustainability of acute health service delivery. Decisions to transfer RACF residents to hospital should include assessment of:
  - Advance care planning wishes.
  - Frailty and comorbid illness.
  - Risks of transfer and potential benefits.
  - RACF capability and capacity to attend to care needs.
  - Public health imperatives.

This may be supported by telehealth / telephone triage assessment utilising RACF support services (e.g. Connecting Care).

5. All hospital jurisdictions implement or expand geriatrician, palliative care and emergency physician-led telehealth services to support RACFs and GPs (e.g. RACF acute care support services)..
6. RACFs implement urgent influenza vaccination for residents and staff.
7. RACFs and GPs, with health service support where necessary, immediately prioritise advance care planning with residents and their health decision makers.
8. RACFs and GPs proactively change residents on nebulisers to metred aerosols with spacers where clinically appropriate.
9. Where RACF residents require transfer to hospital, ED physicians recognise that 43 to 73% of residents testing positive for COVID-19 in RACF outbreaks are asymptomatic or presymptomatic at the time of testing and a higher proportion present with atypical symptoms than in the general population. Additional to usual indications, droplet and contact precautions for ED assessment and care of this cohort is also recommended where the residents are:
  - (a) Cognitively impaired or acutely confused, OR
  - (b) Transferred from a RACF where:
    - There are other residents or staff with acute respiratory illness, fever or documented COVID-19, OR;
    - The facility is located in a region or jurisdiction with a documented case of COVID-19 associated with community transmission or from an unidentified source of transmission in the prior 14 days.
10. Where RACF residents are tested for COVID-19 in the ED and considered suitable clinically for discharge, there is notification of the local public health unit prior to discharge to ensure that the RACF is able to appropriately isolate the resident within the facility and provide the required level of care; further, ED transitional communication will provide clear guidance as to isolation, infection control and follow-up requirements specific to the RACF setting.

We **advocate** for:

1. Development and implementation of a collaborative community strategy for care and support of community-dwelling frail older persons, including increased access to transition support and home care packages.
2. Adequate access of RACF staff and GPs to PPE.
3. Honesty with patients and relatives, and transparency of process in resource allocation decisions.
4. Increased funding and medical and nursing support provision to RACFs.
5. Improved access of GPs and RACFs to telehealth support and hospital-delivered clinical support in the RACF environment, 24 hours per day.

We **align** with:

- [CDNA National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Residential Care Facilities in Australia](#). Version 1, 13 March 2020.
- Infection control processes relevant to RACFs recommended in NHMRC, [Australian Guidelines for the Prevention and Control of Infection in Healthcare \(2019\)](#).
- QLD Health, [Checklist for Residential Aged Care Facility \(RACF\) preparation for COVID-19 prevention and outbreak management](#), 17 March 2020.

## 15.1 References

The following resources were used in the preparation of this section:

- Malone M, Hogan T, Perry A, Biese K, Bonner A et al. COVID-19 in older adults: key points for Emergency Department providers. *Journal of Geriatric Emergency Medicine*. 1(4): 1-11
- [Report of the WHO-China Joint Mission on Coronavirus Disease 2019 \(COVID-19\)](#). 16-24 Feb 2020.
- High K, Bradley S, Gravenstein S et al. Clinical practice guideline for the evaluation of fever and infection in older adult residents of long-term care facilities: 2008 Update by the Infectious diseases Society of America. *Clin Infect Dis* 2009; 28: 149-71
- [CDNA National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Residential Care Facilities in Australia](#). Version 1, 13 March 2020.
- Hollander JE, Carr BG Virtually Perfect? Telemedicine for COVID-19. *NEJM* 2020; DOI: 10.1056/NEJM p2003539
- McIntosh K. [Coronavirus disease 2019 \(COVID-19\)](#)
- Kimball A, Hatfield KM, Arons M et al. [Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility - King County, Washington, March 2020](#). *MMWR Morb Mortal Wkly Rep*. 2020;69(13):377-81.
- Graham NSN, Junghans C, Downes R et al. [SARS-CoV-2 infection, clinical features and outcome of COVID-19 in United Kingdom nursing homes](#). *J Infect*. June 3 2020 (In Press).
- Arons MM, Hatfield KM, Reddy SC et al. [Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility](#). *N Engl J Med*. 2020;382(22):2081-90.

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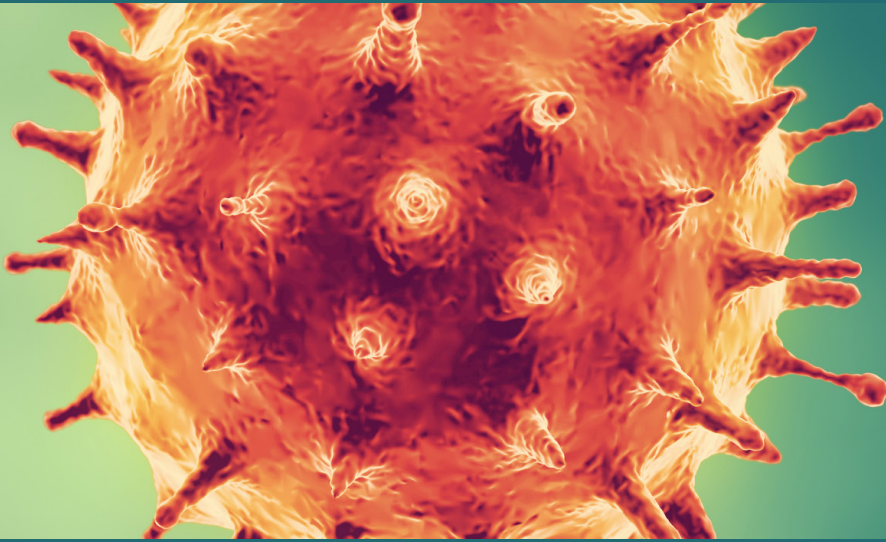
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# Section 16

## Paediatric-specific recommendations



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	No changes
V2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 15 to Section 16

## 16. Paediatric-specific recommendations

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The number of reported cases of COVID-19 in children is low. Current data suggests that they have a much lower mortality and morbidity with only a handful of reported deaths. Critical illness is exceedingly rare. There is some evidence to suggest younger infants (less than one year of age) may be more unwell, but this is confounded by the higher incidence of respiratory illness, such as bronchiolitis or croup, in this age group.

However, many children will meet clinical criteria of acute respiratory illness and/or fever (without epidemiologic criteria), and rates of asymptomatic carriage are thought to be quite high.

Therefore, careful attention to infection control is critical.

The spectrum of disease presentations also appears to be different in children. Up to 50% of children may not have a fever. Gastrointestinal symptoms are the predominant feature in about 10% of cases. This variability in presentation, coupled with potential asymptomatic carriage, means that the management of potentially infected patients is a challenge.

We **align** with:

- The Royal Childrens' Hospital, Melbourne, [Clinical Practice Guideline on the management of the patient with suspected COVID-19](#). March 2020.

### 16.1 The role of stand-alone Paediatric EDs

Tertiary paediatric hospitals have the capability to take paediatric presentations away from other hospitals in order to increase capacity to treat unwell adults in those hospitals.

### 16.2 Triage and screening

We **recommend**:

1. Initial streaming of patients (based on infection risk) takes place as outlined earlier.
2. That, if resources are available, children should be assessed in a separate area to adults. If multiple members of a family present seeking care, they should all be triaged and assessed in the same part of the department.
3. That families and children requesting testing, but not requiring emergency care, should be redirected to an appropriate screening clinic. This direction should occur prior to hospital through self-assessment algorithms or telephone triage/advice.

### 16.3 Care within the ED

We **recommend**:

1. That children receive usual routine care, such as adequate analgesia and sedation for procedures, including the use of nitrous oxide.
2. That close attention is paid to infection control. Potentially aerosolising procedures (such as nebuliser therapy, high flow nasal oxygen therapy, foreign body removal from nose/throat, throat examination or nasogastric tube insertion in uncooperative children) require appropriate airborne precautions to maintain staff safety.
3. That children streamed into the low-risk group should be seen in a physically separate space from those who are potentially infected, as deemed appropriate by local guidelines.

## 16.4 Considerations for special patient groups

Some patient groups are more at risk than others. Although there is little supporting data, the following groups should be considered as having higher risk of morbidity and mortality:

1. Immunocompromised patients including haematology/oncology patients.
2. Patients with chronic respiratory illness such as cystic fibrosis, bronchiectasis, prematurity or home ventilation.
3. Patients taking immunomodulating medication e.g. those with rheumatological disease.

We **recommend** that patients at high risk of complications are rapidly assessed and, if they do not require immediate resuscitation, are admitted to the ward or other protective isolation area for work-up, to minimise exposure.

We **advocate** for age-appropriate negative pressure facilities, recognising that these may not always be available.

Some children may find respiratory precautions particularly challenging, such as those with autism spectrum disorder or other neurodevelopmental disorders. Although these children are not at higher risk in themselves, the process of isolation, swabbing and respiratory precautions may prove to be particularly challenging.

We recommend rapid assessment and disposition of children who may have difficulty tolerating respiratory precautions, especially those under school age or with special needs.

## 16.5 Clinical assessment

Typical features include fever, cough and sore throat. Knowledge is developing rapidly as more reports of the paediatric clinical picture are published.

Recent papers describe:

1. Fever, dry cough, and fatigue.
2. Upper respiratory symptoms including nasal congestion and/or runny nose.
3. Gastrointestinal symptoms (less common), including nausea, vomiting, abdominal pain, and diarrhea.

There is no one pathognomonic feature in the initial assessment that will point to the diagnosis of COVID-19. As with the adult population, a history of recent foreign travel or exposure to a confirmed case must be specifically sought.

We **recommend**:

1. That clinicians actively consider COVID-19 as a cause of fever in children (and ensure appropriate PPE), but also consider a broad differential diagnosis.
2. That well children with a viral syndrome and no specific risk factors should be rapidly discharged home with appropriate advice on:
  - Isolation until well.
  - When to seek further medical assistance.

## 16.6 Investigations

We **recommend**:

1. Specific swab tests for COVID-19 should follow recommendations from local health departments.
2. Radiological investigations should be used selectively, and only if the results are anticipated to change management.
3. CT chests should not be used in children for assessment of COVID-19.

## 16.7 Treatment options

We recommend:

1. That children who are febrile AND distressed can be treated with paracetamol (15mg/kg) or ibuprofen (10 mg/kg). There is currently no evidence that ibuprofen can make COVID-19 worse.
2. That low-flow oxygen is appropriate for most cases of hypoxaemia.
3. That High Flow Nasal Cannula Oxygenation NOT be used for work of breathing in the absence of hypoxaemia.
4. That High Flow Nasal Cannula Oxygenation only be used for hypoxia and work of breathing which is not responding to low-flow oxygen.
5. High Flow Nasal Cannula Oxygenation is a potentially aerosol-generating procedure and should be carried out with aerosol PPE, and in an appropriate negative pressure space if possible.
6. The decision to give nebulised adrenaline in children with croup should be made by a senior doctor, and only if there is severe work of breathing. Weight based dosing of steroids is often sufficient.
7. Nebuliser therapy is a potentially aerosol-generating procedure and should be carried out with aerosol PPE, and in an appropriate negative pressure space if possible.

## 16.8 Follow-up and ongoing care

We **recommend** that appropriate discharge advice is provided, including isolation at home, planned follow-up, and when to seek further medical care.

We **advocate** that follow-up should be provided in the community setting, either through traditional consultations and/or telehealth.

## 16.9 Caregiver considerations

We **recommend**:

1. Family-centred care at all times, with the caregiver remaining with the child for the duration of their time in the emergency department.
2. That parents, or carers, attending with children should wear PPE (such as a surgical mask) - according to advice from local health authorities.
3. That if a parent is required to stay for a potentially aerosol-generating procedure then they should wear a surgical mask only. It is assumed that they have already had significant exposure to whichever pathogen their child is carrying.
4. That caregivers of children with respiratory infections are given information, and appropriate certificates, regarding timing of return to school or child care.
5. All children are discharged from hospital with caregivers whose identification and guardianship is checked prior to discharge, particularly if a different person from that presenting with the child. This may require additional social work input. This should also be a consideration where parental death has occurred.



## 16.10 Psychological safety

Hospitals are already a potentially frightening place for children and their carers. Being provided with a face mask, and being cared for by healthcare providers dressed in PPE is likely to make the child's hospital experience even more distressing than usual.

We **recommend**:

1. That children and their carers are fully informed regarding their journey through the department.
2. That families and children have access to psychological support wherever possible during their hospital stay in order to mitigate long-term psychological consequences.

We **advocate** for child and family involvement in the decision-making process.

It is anticipated that the COVID-19 pandemic will cause marked disruption to day-to-day life, economic hardship, and significant household stress. In this context, domestic violence and child abuse is likely to increase.

We **recommend** that clinicians consider the risk of increased child abuse and domestic violence in all consultations.

We **advocate** that any alterations to staffing practices follow standard procedures to protect children from harm.

## 16.11 References

The following resources were used in the preparation of this section:

- Zimmermann P and Curtis N. [Coronavirus Infections in Children Including Covid-19. An overview of the Epidemiology, Clinical features, diagnosis, treatment and prevention options in children.](#) Paediatric Infectious Disease Journal. Accepted March 3 2020.
- Wang XF, Yan J, Zheng YJ, et al Clinical and epidemiological characteristics of 34 children with 2019 novel coronavirus infection in Shenzhen. Zhonghua Er Ke Za Zhi. 2020;58:E008.
- Sun, D, Li, H, Lu, X. et al. [Clinical features of severe pediatric patients with coronavirus disease 2019 in Wuhan: a single center's observational study.](#) World J Pediatr (2020).
- Chen Zm, Fu JF, Shu Q, et al. [Diagnosis and treatment recommendations for pediatric respiratory infections caused by the 2019 novel coronavirus.](#) World J Pediatr (2020).
- Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiological Characteristics of 2143 Pediatric Patients With 2019 Coronavirus Disease in China. Pediatrics 2020:e20200702. doi:10.1542/peds.2020-0702.

## 16.12 Section disclaimer

This section has been developed to assist clinicians with decisions about appropriate healthcare in Emergency Departments in Australia and Aotearoa New Zealand during the COVID-19 outbreak. It is a framework for planning and responding to this pandemic, including the assessment and management of patients.

**This section is targeted at clinicians only.** Patients, parents or other community members using it should do so in conjunction with a health professional and should not rely on the information in the guideline as professional medical advice.

The section has been developed by an expert team of practising emergency physicians, by consensus and based on the best evidence available. The recommendations contained do not indicate an exclusive course of action or standard of care. They do not replace the need for application of clinical judgment to each individual presentation, nor variations based on locality and facility type.

The section is a general document, to be considered having regard to the general circumstances to which it applies at the time of its endorsement.

It is the responsibility of the user to have express regard to the particular circumstances of each case, and the application of the section in each case.

The authors have made considerable efforts to ensure the information upon which it is based is accurate and up to date. However, the situation is rapidly evolving, and a certain amount of pragmatism needs to be employed in maintaining such a 'living document'. Users of this section are strongly recommended where possible to confirm that the information contained within the document is correct by way of independent sources. The authors accept no responsibility for any inaccuracies, information perceived as misleading, or the success or failure of any treatment regimen detailed. The inclusion of links to external websites does not constitute an endorsement of those websites nor the information or services offered.

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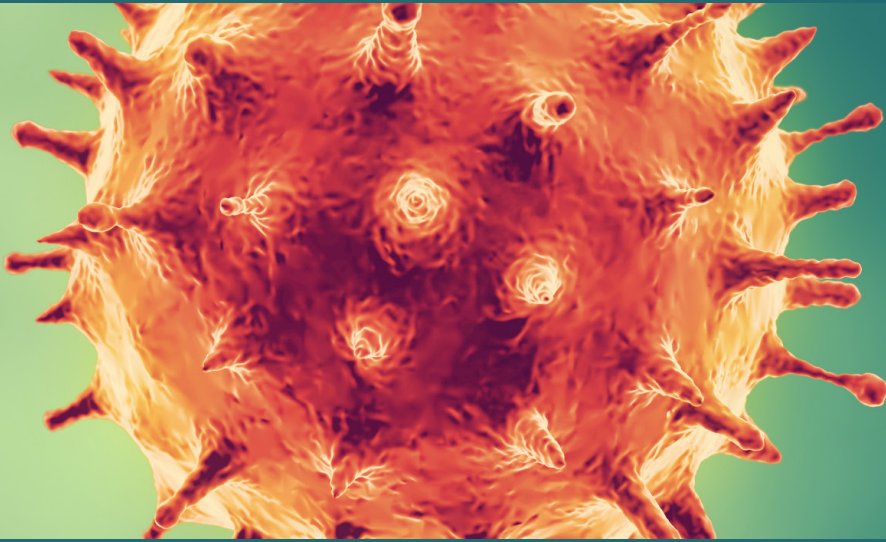
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### **16.13 Resources**

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 17

## Obstetric-specific recommendations



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor editorial changes only
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 16 to Section 17
v4.2	24 August 2020	Minor revision to S17.0 Revisions to S171

## 17. Obstetric-specific recommendations

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Care of women in the first trimester should include attention to the same infection prevention and investigation/diagnostic guidance, as for non-pregnant adults. The following recommendations refer to the care of women in the second or third trimesters of pregnancy, with suspected or confirmed COVID-19 disease, presenting to healthcare services staffed by emergency clinicians.

We **recommend**:

1. Prioritisation of the wellbeing of the mother, in keeping with usual practice.
2. Early specialist advice for situations where overlap between pregnancy symptoms and COVID-19 symptoms may cause confusion (e.g. fever with ruptured membranes, shortness of breath with pre-eclampsia). In emergency situations where senior specialist advice is not immediately available, we recommend adoption of appropriate infection prevention and control procedures.

We **do not recommend**:

1. Delaying obstetric management in an emergency to test for COVID-19.

### 17.1 Neonatal care

There is limited data to guide the postnatal management of babies of mothers who tested positive for COVID-19 in the third trimester of pregnancy. Reassuringly, vertical (antenatal) transmission appears uncommon. Only perform diagnostic testing for COVID-19 in the baby if the mother is confirmed as being positive **and** the baby is symptomatic.

We **align** with:

1. Victorian Department of Health and Human Services (DHHS) [clinical guidance and resources, COVID-19, Maternity and Newborn](#).
2. The Royal College of Obstetricians and Gynaecologists UK, [Coronavirus \(COVID-19\) Infection in Pregnancy: Information for healthcare professionals](#). Version 11, updated 24 July 2020.

### 17.2 Section disclaimer

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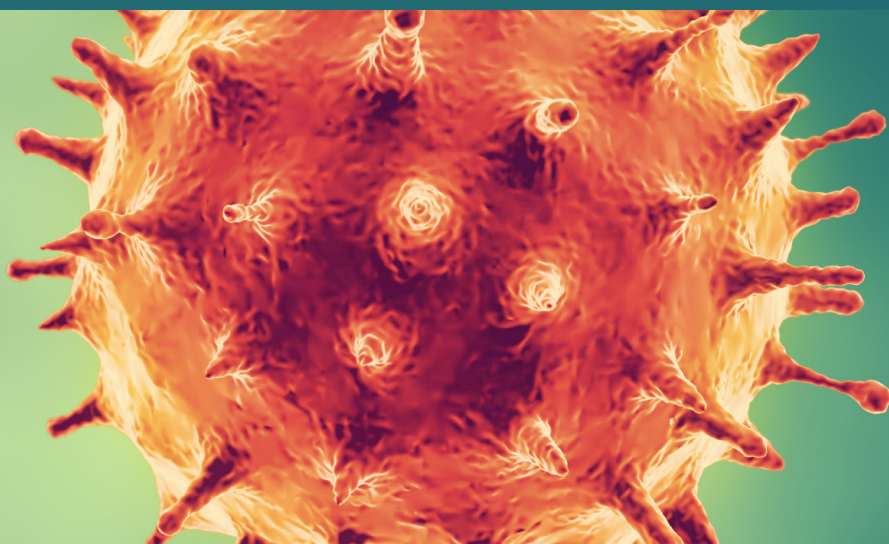
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### **17.3 Resources**

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# Section 18

## Rural, regional and remote recommendations



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	New and changed recommendations in S17.2-17.3 Minor change in S17.4 regarding Indigenous leadership Minor editorial changes throughout
V2.3	24 April 2020	Addition of Resources
V3.0	1 May 2020	Changed from Section 17 to Section 18
V3.1	15 May 2020	Removal of S18.1-S18.4, which have been incorporated into ACEM's COVID-19 Rural Emergency Toolkit.

## 18. Rural, regional and remote recommendations

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During a pandemic, EDs in large regional centres operate like urban EDs in most respects. Smaller rural emergency facilities face three additional problems: a smaller pool of resources; delays in replenishing resources; and lower community health literacy contributing to late patient presentations. The principles of pandemic care are the same in these emergency facilities but implementation may have to be modified.

**[Please click here for ACEM's COVID-19 Rural Emergency Care Toolkit.](#)**

### 18.1 Section disclaimer

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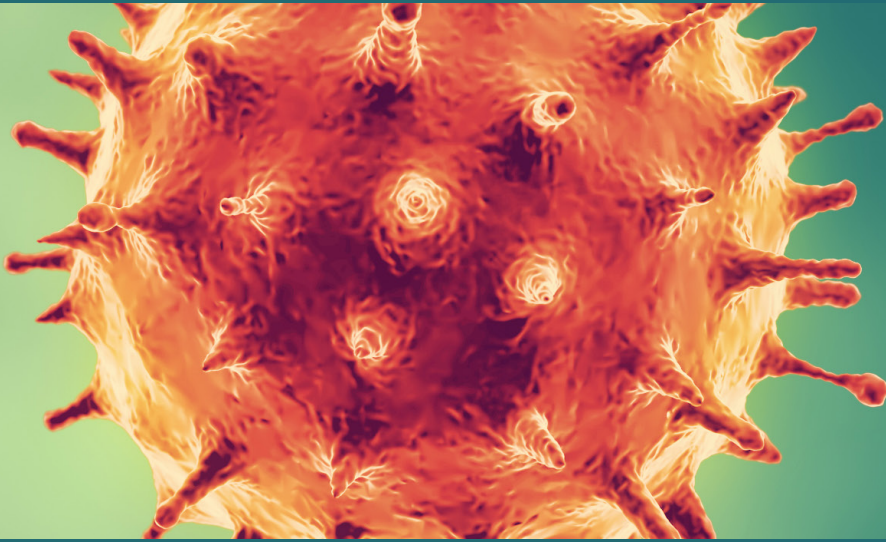
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### 18.2 Resources

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# Section 19

## Indigenous community recommendations



Version	Date	Pages revised / brief explanation of revision
v4	22 june 2020	Approved by ACEM



## 19. Indigenous community recommendations

*“Let us not be distracted by the pressing needs for acute care; instead let us keep close to our hearts the humanistic principles of medicine that we should all live by, and that is, that at the end of every swab, every test, every ventilator is a patient with generations of history that we all need to be culturally, emotionally and professionally respectful of so that we can continue to provide the gold standard care to all of our patients, no matter the crisis that is unfolding around us.”*

Dr Shannon Springer, Vice-President, Australian Indigenous Doctors Association, writing for The Guardian Australia (23 April 2020: ‘As doctors, we must remember that behind every test is a patient with cultural and emotional needs’)

ACEM strives for excellence in emergency care for Aboriginal, Torres Strait Islander peoples and Māori in Australia and Aotearoa New Zealand, through the process of Reconciliation in Australia and a commitment to the principles of Te Tiriti o Waitangi in Aotearoa New Zealand.

ACEM acknowledges that vulnerable groups currently have health outcomes that are not only avoidable but unfair and unjust. The COVID-19 pandemic is likely to further exacerbate inequities and biases, including through the current reduction in services due to the pandemic response. Equitable, transparent decision making is vital at this time and should incorporate local community perspectives.

Emergency departments across Australia and Aotearoa New Zealand must strive to provide culturally safe, equitable access to care to vulnerable groups, in particular Aboriginal, Torres Strait Islander peoples and Māori, who are at greater risk of increased severity of disease and death from COVID-19.

Culturally safe care improves health outcomes for all patients, including those who are vulnerable. Special consideration should be given to people who:

- are living in social precarity - including people experiencing homelessness, poverty or incarceration
- have barriers to accessing appropriate health care - including people living remotely, of lower socioeconomic status, or living with a disability
- are marginalised – including the LGBTIQ community, people from culturally and linguistically diverse backgrounds, people experiencing mental health issues, or people living with addiction
- have increased susceptibility to COVID-19 - including the elderly and frail, people with comorbidities, or people living in overcrowded conditions.

Staff working in our emergency departments who experience increased risk from COVID-19, or have close family members who are at increased risk, should also be given special consideration with respect to work duties.

### 19.1 Caring for Māori Patients in the Emergency Department

The purpose of this section is to provide practical guidance to emergency clinicians (doctors and nurses) to help reduce cultural barriers and improve Māori patient outcomes during COVID 19. ACEM has made a commitment to Māori through its health equity strategy, Te Rautaki Manaaki Mana, to provide excellent and equitable care to Māori patients, whānau (family) and staff. This has not changed due to the outbreak of COVID 19.

Please note that this section cannot be taken as a catch all complete guide. It outlines recommended key principles as a starting point. The principles outlined in this Section are based on ACEM’s Manaaki Mana vision that emergency departments in Aotearoa New Zealand provide excellent and culturally safe care for Māori.

It is now more important than ever to be aware that inequities are exaggerated during pandemics and to do as much as possible to mitigate them. The evidence from previous pandemics consistently shows higher mortality rates for Māori compared to non-Māori.

For example:

- 1918 Influenza Pandemic: Māori mortality rate 7 times more than the rate of the European settler population.
- 1957 Influenza Epidemic: Māori mortality rate was 6 times more than the European rate.
- 2009 H1N1 Swine Flu Pandemic: Māori mortality rate almost 3 times higher than the European rate

Be your patient's advocate for excellent emergency care. This includes ensuring patients do not suffer racial, ethnic or cultural discrimination in the Emergency Department.

### **Advice for clinicians**

We **recommend**:

- Ensure that your patient feels safe in your care and knows that you and your staff will ensure their safe management during their time in the ED and the hospital.
- Provide care that is culturally safe to Māori and which upholds tikanga as far as is possible under the restrictions of the higher alert levels as defined by the New Zealand and Australian governments.
- Be aware of and demonstrate respect for key Te Ao Māori values when providing care – when this is sincerely done it helps to reduce cultural barriers and misunderstandings. These values also benefit the patient-clinician relationship in all other cultures:
  - Manaakitanga: Treat patients with kindness, care, respect and aroha (love). For example, you can demonstrate this by making an effort to say their name and Māori words such as whānau, correctly. Acknowledgement of whānau who are present is another important way to demonstrate manaakitanga. This link can assist you with pronunciation.
  - Tika me Pono: Be fair, be honest, be just, in how you treat your patient.
  - Whanaungatanga: Understand the importance that Māori patients often place on involving whānau in their health decisions. Their individual health issue may be seen as a whanau health issue.
  - Whakamana: Recognise that the patient has inherent mana and is worthy of your respect.
- Demonstrate compassion and care in your words and actions. Respecting mana is an important part of communication, regardless of the amount of PPE you are wearing. Remember you may have to be more overt and demonstrative of this when your facial expressions are covered by your PPE.
- Discuss resuscitation limits and ceiling of care decisions early, preferably before the patient becomes critically ill. This is a highly sensitive area for many Māori whānau. Trust is built by involving whānau and allowing as much time as possible to come to terms with medical decisions. Be honest and open. Invite questions. Ensure mutual understanding has occurred. Useful guidance can be found [here](#).
- Understand that for Māori, kaumatua and kuia (elders) are taonga (treasures) that need to be protected from COVID 19. Should they be admitted to hospital they need to be treated with the utmost care and compassion as befits their special status within Te Ao Māori.
- Recognise that restriction on visitors to the hospital may disproportionately affect Māori, as the extended whānau often wish to be with those who are sick or critically unwell. It is to be expected that whānau will be distressed by these restrictions – we must therefore uphold these restrictions with kindness and compassion, but also feel empowered to allow restricted visitors (where practical/ possible) for compassionate or practical reasons.
- Respect cultural beliefs and practices around death and dying. For spiritual reasons many Māori whānau will desire time with the dying or the tūpāpaku (the deceased). Traditionally the tūpāpaku is never left alone. This may include karakia (prayer) or waiata (song) immediately before or after death. Where this can occur within government guidelines, it should be allowed. If this is not possible due to visitor restrictions alternatives such as video calls should be encouraged and facilitated if possible.

- Recognise diversity within the Māori world, just as there are differences within other cultures and mainstream societies. Don't make assumptions about patients or their cultural practices. If in doubt, ask respectfully.
- Remember we all have implicit bias. This manifests most when we are stressed and overwhelmed and can lead us to make decisions based on assumption. Being aware of our own biases is the first step to reducing their effect and improving patient outcomes.

For more assistance work with your local Māori Health unit, Manaaki Mana champions in your ED or to find out more about becoming a champion yourself please contact [vienna.richards@acem.org.au](mailto:vienna.richards@acem.org.au).

## 19.2 Advice for departments

ACEM acknowledges Māori as tangata whenua in Aotearoa New Zealand and recognises our obligations to Māori as Te Tiriti o Waitangi partners. Amongst other things this means **we advocate** for the following:

- Consulting with Māori in the preparation and running of the emergency department and hospital to care for those unwell due to COVID 19 as well as those experiencing health issues not related to COVID 19.
- Working with St John and other ambulance services and primary care providers to ensure that those that need hospital level care reach us.
- Working to provide equitable access to care for Māori by addressing fears of safety, separation from whānau and care of tūpāpaku (the deceased) by providing information that reaches its target audience.
- Commitment to transparent and robust processes that seek to eliminate bias in treatment decisions, especially those which place limits on care (such as whether mechanical ventilation is offered) by working with Māori and colleagues in intensive care and other specialties.
- Offering clinicians guidance and processes to mitigate implicit bias, which is likely to be accentuated when making decisions under the stress of an overwhelmed health service.
- Collection and rapid analysis of data on outcomes to ensure these are equitable.

Culturally safe behaviour from emergency physicians improves health outcomes for all patients including Māori. Demonstrating kindness and compassion is key to providing culturally safe care, take the time to understand the needs of patients and their whānau and explain with sensitivity where government restrictions will prevent particular practices taking place.

This guidance is relevant for future pandemics/epidemics. It is important to be aware that whilst the Australian and Aotearoa New Zealand health systems have not been overwhelmed due to Covid-19 as we have seen elsewhere, existing inequities in care are likely to be exacerbated when our health system is under pressure. The advice in this guideline will help guide clinicians to deal with the inequity that existed pre-COVID 19, which is expected to be amplified post COVID 19. It can also be used as part of an ongoing approach to Māori health inequity in the future.

If you would like to learn more about the impacts of COVID 19 restrictions on Māori, please visit Te Rōpu Whakakaupapa Urutā (National Māori Pandemic Group) online. You can also read ACEM's joint statement with Te Tumu Whakarae and Te Ohu Rata Aotearoa (Te ORA).

For COVID-19 Restrictions on Māori Customs for Burial and Funeral, please see the latest Ministry of Health Guideline on restrictions for deaths, funerals, tangihanga.

## 19.3 Aboriginal and Torres Strait Islander Health

The COVID-19 pandemic is likely to further exacerbate health inequities for Aboriginal and Torres Strait Islander Peoples. Consultation and collaboration with Aboriginal and Torres Strait Islander communities must underpin both local and broader responses.

The Australian Health system has provided inequitable resourcing to meet the specific needs of Aboriginal and Torres Strait Islander Peoples, who are more likely to have poorer health outcomes and lower life expectancy than non-Indigenous Australians.

Historic experiences of Government policies, coupled with personal and family experiences of institutional racism, and disrespectful communication may contribute to mistrust in the system and an unwillingness for Aboriginal and Torres Strait Islander Peoples to engage with healthcare services.

Pandemics have profoundly impacted Indigenous peoples throughout history, even in recent times, and despite modern health responses. In 2009, Indigenous Australians suffered death rates six times higher than the general population in the H1N1 Swine Flu pandemic.

The COVID-19 pandemic is likely to further exacerbate health inequities for Aboriginal and Torres Strait Islander communities, and may result in:

- increased severity of disease and death from COVID-19
- more rapid spread of COVID-19, particularly within discrete communities
- diagnostic testing delays for COVID-19
- reduction in overall health service provision, disproportionately affecting Aboriginal and Torres Strait Islander Peoples due to pre-existing chronic disease burden.

ACEM demands the highest standards of culturally safe and ethical behaviour from all Fellows and Trainees. Emergency physicians must advocate for excellent emergency care for all patients with COVID-19, show respect and sensitivity for the different cultural needs of Aboriginal and Torres Strait Islander patients, mitigate unconscious biases likely to emerge under stress, and address systemic barriers to ensure patients do not suffer racial, ethnic or cultural discrimination in the emergency department.

ACEM advocates for pandemic planning that supports, sustains and values Aboriginal and Torres Strait Islander perspectives. Consultation and collaboration with Aboriginal and Torres Strait Islander communities must underpin both local and broader responses, and should be tailored to the unique circumstance of each community and each setting.

We **align** with:

- Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19): Management Plan for Aboriginal and Torres Strait Islander Populations (March 2020)
- The Bellagio Meeting on Social Justice and Influenza: Statement of Principles

We **advocate** for:

- Transparent, robust and consistent decision-making regarding aeromedical retrieval, advanced care resource allocation, limits of care and futility that ensures equity and cultural safety is maintained for Aboriginal and Torres Strait Islander Peoples
- Research, data collection and analysis that is inclusive of Aboriginal and Torres Strait Islander knowledge and is used to inform future clinical guidelines.

### **Key Principles**

Unconscious bias must be recognised and racism must be mitigated. We **recommend** that all staff working in the emergency setting:

- Understand that Aboriginal and Torres Strait Islander heritage is not a co-morbidity. Avoiding assumptions about race and socio-economic status is critical during clinical care
- Seek to understand each unique patient and their individual circumstances, so as to prepare an accurate care plan based on clinical facts, not racial stereotypes
- Appreciate that clinical scoring tools contain bias and can perpetuate current health inequities if used in isolation. The co-morbidities that score poorly and may determine limitations or exclusion from care occur at disproportionately higher rates for Aboriginal and Torres Strait Islander Peoples due to the social determinants of health and other non-medical factors

- Respect the diversity of First Nations Peoples and languages, values and customs. When this is done sincerely, it helps to reduce cultural barriers and misunderstandings that can impact the therapeutic relationship between the emergency physician, the patient and their family
- Be mindful of communication that could be perceived as disrespectful. Appreciate that casual or unintentional racism impacts the recipient, regardless of the intent
- Ensure equity in testing for COVID-19 and access to chronic disease management generally.

Specific considerations for Aboriginal and Torres Strait Islander communities:

- Multi-generational family groups commonly live under one roof and may be in close proximity to each other
- The ability to access a mobile phone service, phone credit, or internet may be limited or non-existent and impacts on accessibility to telehealth consultations
- Inadequate basic infrastructure, such as clean water and housing, may be an issue, particularly in remote communities
- Transportation options may be limited, with some family groups sharing a private vehicle and licensed driver
- People are often highly mobile, with travel linked to cultural and family obligations
- Poverty may reduce the capacity of families and communities to adapt to rapidly changing emergencies
- Communities and families already dealing with significant inter-generational trauma related to Stolen Generations, dispossession, and ongoing cultural disruption may be more prone to the psychological and social impacts of the COVID-19 pandemic

Population Settings of the Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19): Management Plan for Aboriginal and Torres Strait Islander Populations provides further detail on issues for remote and very remote communities; urban and regional communities; other settings including hostels, town camps, aged care facilities, prisons and homeless populations.

### ***Aboriginal and Torres Strait Islander patient clinical care***

We **recommend**:

- Aboriginal Liaison Officers are involved wherever possible with patient care, including by phone
- Shared decision-making that focuses on the patient perspective and understanding
- Facilitating family-centred care that respects cultural values to ensure patients can remain connected with family while in hospital
- Use of interpreters where English is not a first language (The FirstVoices Keyboards App can be helpful if no interpreter is available)
- Healthcare service messaging includes images/graphics, is available in local language, and includes input from local community to increase effectiveness and trust
- End-of-life care is informed by local Aboriginal and Torres Strait Islander community cultural protocols and obligations
- Pathways for continuity of care into and out of EDs are developed in partnership with local Aboriginal Community Controlled Organisations (ACCHOs)
- Discharge planning that takes into consideration limited transport options and financial constraints, including prescription collection
- Ensuring that self-isolation is feasible, and arranging alternate housing or hospital admission if necessary

- Understanding that Aboriginal and Torres Strait Islander patients may not be familiar with or feel comfortable in mainstream health services
- Avoiding being judgmental if a patient presents late in the course of illness. This may reflect complex social circumstances, and concerns about racism, feelings of shame and mistrust of mainstream health services
- Clarifying advanced care decisions early:
  - Address patient and family concerns with honesty
  - Be transparent and take the time to be inclusive
  - Involve an Aboriginal Liaison Officer if possible
  - Involve an Emergency Physician, Intensivist or Palliative Care specialist where possible
  - Ensure you use reliable information, rather than assumptions, to inform the discussion
- Promoting influenza vaccination (and pneumococcal vaccination if the patient is 50 years or older)
- That Aboriginal and Torres Strait Islander healthcare workers who experience increased risk from COVID-19, or have close family members who are at increased risk, are supported with flexible workforce strategies to continue to contribute to patient care.

#### 19.4 References

The following resources were used in the preparation of this section:

- [Ministry of Health Covid-19 Guidelines](#)
- [Understanding Equity in a Aotearoa New Zealand Context](#)
- [Review of Australia's Health Sector Response to Pandemic \(H1N1\) 2009: Lessons identified.](#) Commonwealth of Australia 2011.
- [An Ethics Framework for Making Resource Allocation Decisions within Clinical Care: Responding to COVID-19.](#) Sydney Health Ethics, University of Sydney. Version 1: 2 April 2020.

#### 19.5 Section disclaimer

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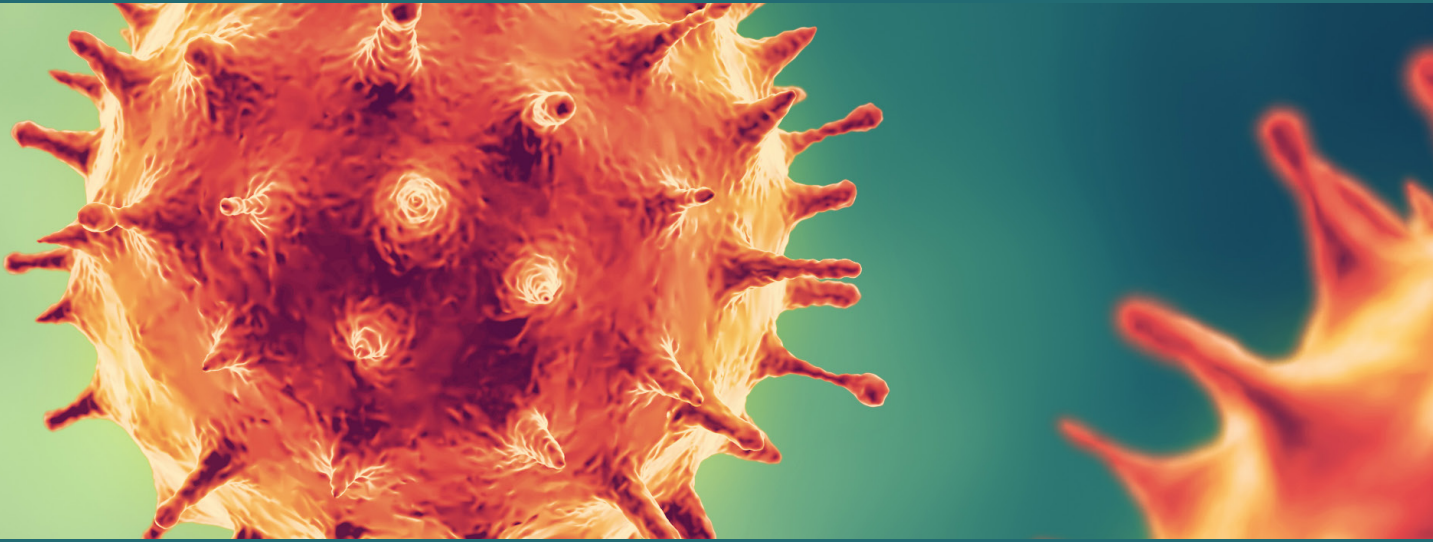
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## 19.6 Resources

Resources that are relevant to this section can be accessed through the Clinical Guidelines [web-based material](#). COVID-19 related [ACEM Resources](#), COVID-19 related [external resources](#), and the latest [Government advice](#) on COVID-19 are also available.

# Section 20

## Palliative care



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes throughout
v2.3	24 April 2020	Addition of Resources
v3.0	1 May 2020	Changed from Section 18 to Section 19
v4.0	22 June 2020	Changed from Section 19 to Section 20



## 20. Palliative care

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Regardless of the cause, in all acute life-threatening illnesses emergency physicians are expert in difficult ethical decisions which balance patient autonomy, the risks and benefits of invasive therapies such as ventilation, and resource stewardship. Prior to COVID 19, many older multimorbid patients dying of acute infective respiratory failure were best managed, when balancing all of those factors, with a palliative end-of-life approach. In a pandemic, there is the additional risk that Advanced age, comorbidity and immunological compromise put patients at increased risk of death. Most mortality will be associated with respiratory failure, however, there is also risk to the wider population as demand for healthcare outstrips resources such that difficult choices need to be made about patients that previously may have been offered a trial of ventilatory support. As we move through pandemic phases, decisions to provide palliative care as opposed to acute intervention will require ethical consideration. Emergency clinicians will be faced with these challenging decisions. Ethical frameworks supported by organisations with associated clinician and public education will assist in these decisions.

We **recommend** that, in addition to principles outlined in ACEM's P455 [Policy on end of life and palliative care in the emergency department](#):

1. Organisations have a multi-disciplinary approach to building an ethical decision-making framework to support clinicians who will need to make these decisions.
2. Early, senior ED clinician involvement in patient assessment is vital in guiding end-of-life decision making.
3. Staff caring for patients who will require end-of-life decisions are adequately and rapidly trained to do so.
4. Organisations and community services will need to account for, and provide culturally appropriate care to, families who may not be able to visit their dying family member or attend funeral and mourning rituals.
5. Psychological support is available to staff caring for patients requiring end-of-life care.
6. Informed relatives and chaplaincy services wishing to have access to dying patients should be allowed to do so when PPE and isolation practices can be adhered to during and after the visit.
7. Appropriate medication protocols and clinical care pathways are available in the ED to ensure adequate and appropriate symptom management for dying patients.
8. Emphasis in end-of-life medication prescribing is placed on reducing coughing and vomiting in order to reduce risk of transmission of COVID-19.
9. Health services have a defined plan for safe management of deceased patients with suspected or confirmed COVID-19 disease, including an ability to surge mortuary capacity as required.

We **advocate** for:

1. GPs and specialists caring for vulnerable patient groups, to initiate discussions with their patients about their choices and goals in the setting of this pandemic.
2. Patients with advance care plans ensure that their plans are up to date and reflective of their current wishes.
3. Organisations providing locations away from EDs to provide palliative care, being mindful that:
  - (a) Where a person wishes to receive end of life care in their own environment, and care can be safely delivered in this environment (from both a patient and staff / carer perspective), all efforts are made to facilitate this wish.
  - (b) Existing palliative care facilities may be easily overwhelmed.
  - (c) There be consideration of separation into COVID-19-positive and -negative streams.
  - (d) Those caring for patients who are dying will also need PPE access and training.
  - (e) Staff caring for dying patients are adequately trained to do so.

We **align** with:

1. Palliative Care Australia, [Statement on Statement on Coronavirus Disease \(COVID-19\)](#) March 2020
2. The following discussion papers and articles:
  - Hick, J. L., D. Hanfling, M. K. Wynia, and A. T. Pavia. 2020. [Duty to Plan: Health Care, Crisis Standards of Care, and Novel Coronavirus SARS-CoV-2](#). NAM Perspectives. Discussion paper. National Academy of Medicine. Washington, DC.
  - Daugherty Biddison, E. L., Faden, R., Gwon, H. S., Mareiniss, D. P., Regenber, A. C., Schoch-Spana, M., Schwartz, J., & Toner, E. S. (2019). [Too Many Patients...A Framework to Guide Statewide Allocation of Scarce Mechanical Ventilation During Disasters](#). In Chest (Vol. 155, Issue 4, pp. 848–854). Elsevier Inc.
  - Daugherty Biddison, L., Berkowitz, K. A., Courtney, B., De Jong, M. J., Devereaux, A. V., Kissoon, N., Roxland, B. E., Sprung, C. L., Dichter, J. R., Christian, M. D., & Powell, T. (2014). [Ethical considerations: Care of the critically ill and injured during pandemics and disasters: CHEST consensus statement](#). Chest, 146(4), e145S-e155S.

Exemplar documents:

- NSW Health, [COVID-19 – Handling of bodies by funeral directors](#)

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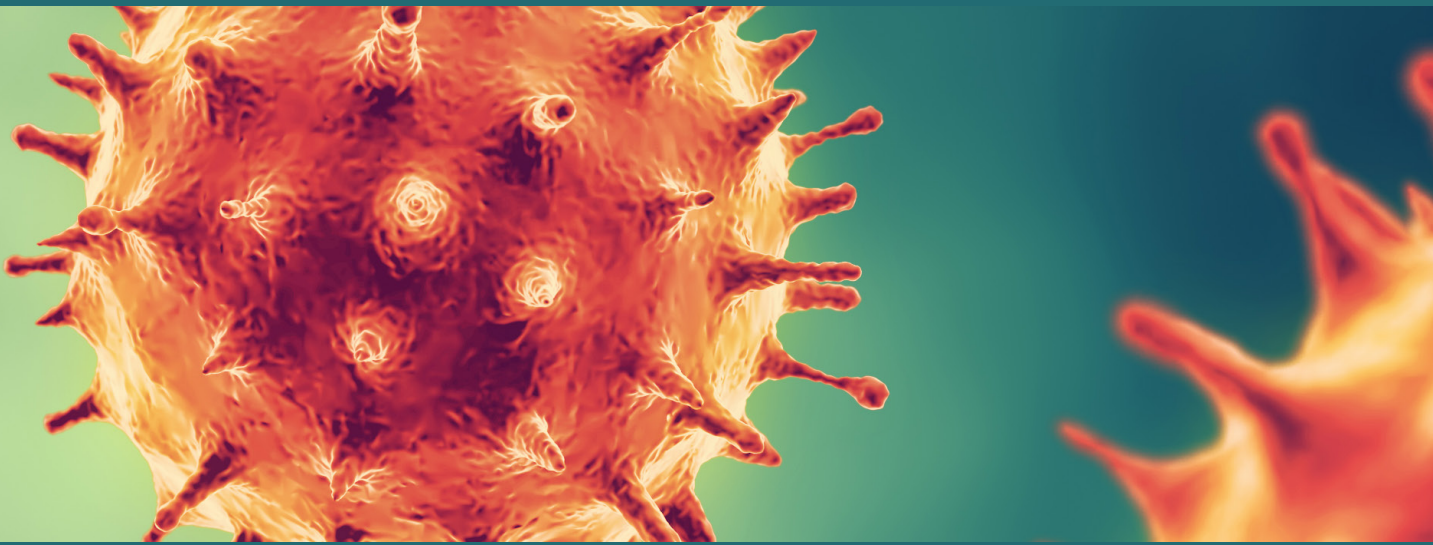
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# Section 21

## Ethics in decision making



Version	Date	Pages revised / Brief Explanation of Revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	3 April 2020	Corrected error in Figure 15
V2.3	24 April 2020	Minor changes to Figure 15, addition of Resources
v3.0	1 May 2020	Changed from Section 19 to Section 20
v4.0	22 June 2020	Changed from Section 20 to Section 21

## 21. Ethics in ED decision making

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Ethically challenging decisions in relation to the COVID-19 outbreak are expected. Ethical decision-making is contextual; previous tools may cause harm if used out of context. (Tuohey J. [A Matrix for ethical decision making in a pandemic](#), Health Progress, Nov-Dec 2007, 20-25

We **recommend**:

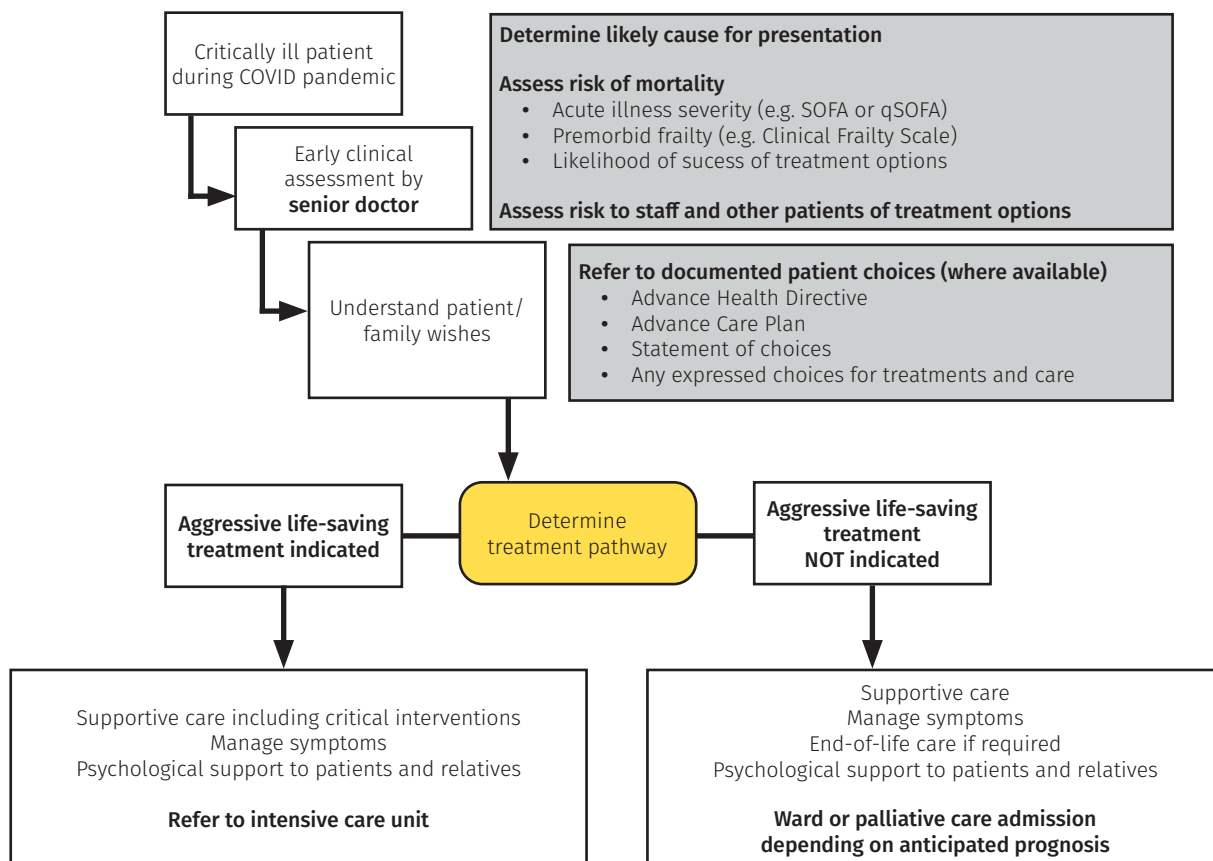
1. That the ethical framework adopted by ED physicians is underpinned by the fundamental premises:
  - (a) Every person matters, and every person deserves respect.
  - (b) We never abandon a patient: care is never futile; treatment may be.
2. That prior to making decisions clinicians check for their own forms of personal bias. All humans have them and they impede good ethical decision making. Stereotypes regarding race, socioeconomics, age and address should not influence clinical decision making.
3. Emergency clinicians apply well-known and ethically rigorous principles to guide decision making (Beauchamp, T. L., Childress, J. F. (1979). Principles of biomedical ethics. New York: Oxford University Press). These are applicable to the patient, our colleagues and the broader community:
  - (a) Autonomy: the ability to choose but not in detriment to others. For example; patients may still choose to reject treatment and alternatively patients cannot demand treatment that does not have any capacity to benefit or that limits treatments of others.
  - (b) Beneficence: obligation to provide care that is for the good of the patient and others including staff. This includes being truthful to patients and communicating with relevant stakeholders, where feasible.
  - (c) Non-maleficence: options of care offered must avoid harm. Examples include: futile treatment and exposing staff to risk without availability of personal protective equipment.
  - (d) Justice: allocating medical resources fairly, according to medical need and each patient's capacity to benefit. This allocation should not be influenced by the race, culture, wealth or address of the person being treated.
4. That emergency clinicians supplement the above principles with use of an objective, evidence-based threshold test to guide decision making in times of resource scarcity. The use of such tools will ensure that there is consistency of decision making that is less liable to latent biases and emotional valence. See figure below for an example of a standardized, evidence-based decision-making approach.

Further advice for emergency clinicians can be found at:

- Alberta Health, [Ethical Framework for Responding to Pandemic Influenza](#)

An example of standardized evidence-based decision-making guide is provided below:

**Figure 15. Example of a standardised evidence-based decision-making guide**



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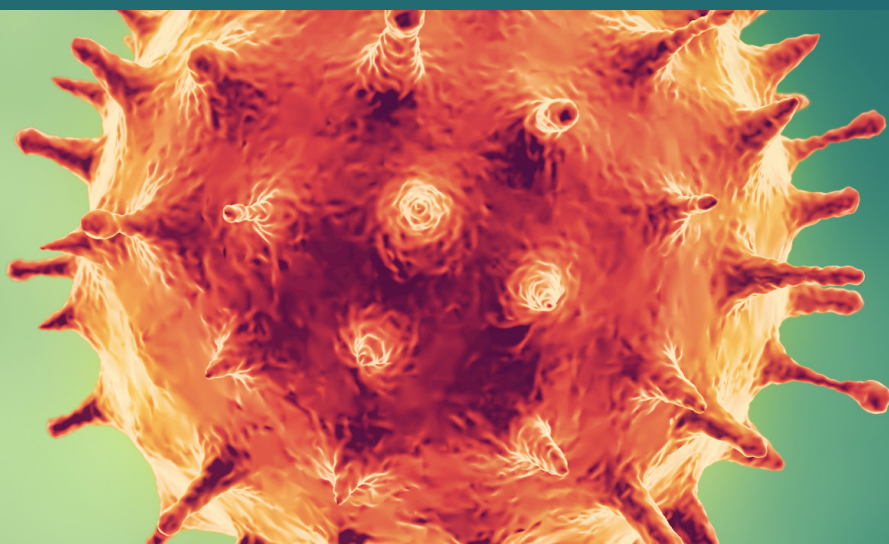
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## 21.2 Resources

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# Section 22

## Workforce and wellbeing



Version	Date	Pages revised / brief explanation of revision
V1	25 March 2020	Approved by ACEM
V2.0-2.2	7 April 2020	Minor changes throughout
v2.3	24 April 2020	Minor changes throughout, addition of Resources
v3.0	1 May 2020	Changed from Section 20 to Section 21 Minor editorial changes
v4.0	22 June 2020	Changed from Section 21 to Section 22
4.2	24 August 2020	Revisions throughout S22.1 – Heading changed from ‘COVID-19 risk management’ to ‘Infection prevention and control’ S22.2 – Heading changed from ‘Staffing requirements’ to ‘Workforce requirements’ Addition of S22.4 - Infrastructure to support clinician health and wellbeing

## 22. Workforce and wellbeing

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Emergency clinicians (doctors, nurses, administration and ancillary staff) are a precious, resilient, capable and expert frontline workforce. It is essential for the community that we:

1. The spread of COVID-19 infection among emergency clinicians is minimised.
2. The physical and psychological safety of emergency clinicians is prioritised.

### 22.1 Infection prevention and control

Regardless of current community case numbers, emergency clinicians have been, and will continue to need sustained vigilance in the application of new processes to assess and manage possible or known COVID-19 patients attending Emergency Departments (EDs). In areas of outbreaks, additional escalated strategies will be essential

We **recommend** that:

1. Organisations establish lines of communication to emergency clinicians ensuring daily and urgent updates on the emergency response planning, patient management, logistical and workforce wellbeing issues. Short team pre-briefs and debriefs should be used for every clinical shift to reinforce infection control measures, update processes and discuss staff and patient safety issues
2. Organisations ensure a sufficient supply of PPE is available to emergency clinicians at all times. Access to appropriate PPE, and relevant training, is a prerequisite for the delivery of patient care (see Section 6) and should be incorporated into organisational policies for ED to ambulance interface (see Section 8), triage and reception (see Section 5), patient treatment (see Section 9), management of cardiac arrest (see Section 10), patient transport (see Section 7) and management of specific patient presentations such as trauma (see Section 14) and occupational violence and security policies.
3. Organisations rapidly prioritise the training of emergency clinicians (including ongoing, temporary and rotating staff) in policies and procedures related to COVID-19 healthcare delivery.
4. Non-clinical team members, for example administration, transporters and security staff should be included in support and training initiatives.
5. Organisations identify emergency clinicians vulnerable to COVID-19 infection (pregnant women, older clinicians and those with comorbidities) and offer alternative work away from frontline patient care.
6. Emergency clinicians meeting COVID-19 case definitions have prioritised access to testing and expedited results in order to minimise staff furlough.
7. In the setting of significant rates of community transmission, it is reasonable to escalate PPE requirements such that droplet precautions are utilised for the whole ED. This will minimise the risk of staff members becoming 'close contacts' resulting in furlough and reduce complexity in processes.
8. Should a COVID-19 vaccination become available, administration should be prioritised for emergency clinicians and their immediate household members.
9. Organisations develop a visitor policy that is consistent with contemporary government guidelines and recommended infection prevention and control measures. Policies should aim to facilitate patient-centred care while minimising the risk of nosocomial transmission.
10. Organisations employing emergency clinicians provide sufficient security staff to manage occupational risks through crowding, violence and other behaviours of concern. Memoranda of Understanding with local law enforcement, and/or other agencies, may be required to facilitate increased organisational security.
11. Organisations employing emergency clinicians endeavour to provide clean scrubs and access to change areas for use on every clinical shift.
12. Consistent with section 22.4 below, organisations employing emergency clinicians provide food, water and a 'clean' (low-risk for COVID-19 transmission) break area, compliant with physical distancing guidelines.



We **align** with:

1. Royal Australian and New Zealand College of Obstetricians and Gynaecologists, [COVID-19 and pregnant health care workers statement](#).
2. Australian Health Protection Principal Committee [recommendations for managing vulnerable workers](#).
3. [Coronavirus disease \(COVID-19\) social distancing guidance](#). Australian Government Department of Health. Version 3, 26 March 2020.

## 22.2 Workforce requirements

EDs must maintain adequate staffing to ensure clinician and patient safety at all times. There must be sufficient redundancy to account for significant and unpredictable rates of staff absenteeism through forced quarantine, sick leave and staff wellbeing considerations. Given the ongoing unresolved issues of ED overcrowding, new and rapidly changing models of patient care, infection control requirements and new complexities in patient care delivery, it is unsustainable for emergency clinicians to work in an under-resourced environment. Allowing this to continue is harmful for patients and clinicians and will lead to increasing infection and burnout among staff

We **recommend** that:

1. Emergency clinicians are retained for their core roles and responsibilities (i.e. the delivery of emergency care). When considering using ED workforce outside of their usual scope of practice (for instance, in community public health emergency response), this should be balanced against the IPC implications of moving staff between a hospital and community setting and workforce issues.
2. Organisations review their staffing requirements to determine the need for additional human resources. Consistent with ACEM guidelines on constructing and retaining a senior emergency medicine workforce, departments should determine the minimums safe number of staff, including “senior decision makers” within the facility at all times.
3. Organisations establish a clear and transparent mechanism for clinicians to raise workforce concerns to the appropriate level, with transparent organisational and system level triggers to respond with workforce support for both ‘business as usual’ and surge response.
4. Where additional staff are required to supplement the emergency clinician workforce, the credentialing process for external staff and volunteers (both medical and non-medical) should balance patient safety and timeliness.
5. Emergency clinicians unable to work due to COVID-19 illness or public health isolation measures (for themselves or dependents) have access to paid leave for the duration of the illness/enforced leave.

We **advocate** for jurisdictions to establish:

1. A formalised process for ongoing COVID-19 system response reflection and quality improvement.
2. A transparent data solution to ensure real-time monitoring of suspected and confirmed COVID-19 caseload, staff availability and PPE supply across health care services. This will facilitate resource sharing and redistribution at times of increased stress across the emergency care system. Established state, national or binational emergency management platforms, such as Critical Health Resource Information System (CHRIS), should include EDs.
3. Central oversight of emergency care capacity and response across the system. This should include a centralised ‘Emergency Operations Centre’ that can facilitate real-time escalation and coordinated multi-disciplinary operational responses to system-wide issues.
4. Clear processes to facilitate efficient and effective communication between facilities and across the entire emergency care system. This is an essential strategy to ensure operational responsiveness in times of increased stress.
5. Measures to address pre-existing maldistribution of the emergency clinician workforce between metropolitan and rural/regional healthcare services.

6. Resource sharing among local facilities and networks. Effort should be made to assist regional, rural and remote EDs, as well as metropolitan EDs facing surge events, to maintain capacity for the delivery of safe and effective patient care at all times. This may require consideration of redistribution of the available workforce (in consultation with the affected clinicians), however where outbreaks have resulted in lockdowns, clear jurisdictional guidance will be required on where staff can travel from and to, acceptable behaviours whilst travelling from outbreak areas and alternative workforce options for organisations heavily reliant on workforce travelling from outbreak areas.
7. Transparent triggers for times of surge or staff incapacitation that escalate jurisdictional and inter-jurisdictional resource support which may include;
  - (a) creation of a jurisdiction wide “emergency relief” workforce to be used in times of need. This may address issues such as sustainability through workforce relief and recovery, staff furlough, sick leave and surge support.
  - (b) Triggers for inter-jurisdictional resources including additional emergency care workforce and infrastructure, as provided for example by Australian and New Zealand Medical Assistance Teams (AUSMAT) and the Australian and New Zealand Defence Force.
  - (c) Triggers for temporary closure of EDs for either IPC or workforce crisis.
8. Centralised contracting and credentialing processes for the healthcare workforce. This will allow greater flexibility and responsiveness in the workforce.
9. Appropriate support and transport arrangements for fly-in-fly-out (FIFO) emergency clinicians. Where clinicians are supporting organisations distant to their place of residence, arrangements should balance personal wellbeing with public health control measures. Sensible arrangements are required to ensure workforce supply and limit maldistribution.

We **align** with:

10. [ACEM G23 guidelines on constructing and retaining a senior emergency medicine workforce.](#)

### 22.3 Rostering and fatigue management

It is well established that rostering practices impact on clinician physical and psychological wellbeing. Evidence has also shown that risk of COVID-19 infection is increased with longer shifts.

To minimise the risk of fatigue and burnout among emergency clinicians, we **recommend**:

- Rostering for all staff members is consistent with fatigue management principles and best practice in ‘safe working hours’. Clinicians should not be rostered to excessive duty hours and must retain regular access to days off (free from work). This includes casual or supplementary staff members.
- Emergency clinicians are rotated through shifts in areas of high stress (eg, a high-risk zone) to areas of low stress. They should also be provided with regular breaks, ideally every 4 hours.
- Organisations develop staffing models that partner inexperienced or rotating staff with more experienced colleagues.
- Emergency clinicians are provided with appropriate remuneration for any additional working hours, consistent with relevant industrial agreements and frameworks
- Emergency clinicians are provided with safe places to sleep at work (if required), and taxi vouchers if unsafe to drive home after a shift.
- Any proposal for the rostering of emergency physicians to night shifts should be consistent with the principles outlined in ACEM S456 Statement on Night Shift Rostering of Emergency Physicians

We **align** with the human resources sections of:

1. World Health Organisation (WHO), [Hospital Readiness Checklist for COVID-19.](#)
2. [AMA National Code of Practice - hours of work, shiftwork and rostering for hospital doctors.](#)

3. [ACEM G23 guidelines on constructing and retaining a senior emergency medicine workforce.](#)
4. [ACEM S456 Statement on night shift rostering emergency physicians.](#)

## 22.4 Infrastructure to support clinician health and wellbeing

It is essential that EDs maintain sufficient facilities for clinicians to change, rest, eat and refresh before, during and after shifts. The available infrastructure must enable clinicians to take meal breaks, as well as other necessary activities, without compromising physical distancing and IPC measures.

We **recommend**:

1. Hospitals audit the capacity of existing non-clinical areas (such as tea and changing rooms) to safely accommodate staff. These facilities must be large enough to enable staff members to access them while maintaining physical distancing.
2. Hospitals consider the need for temporary structures or the repurposing of existing infrastructure, to expand waiting rooms, offices, ambulance ramping areas and non-clinical areas to comply with physical distancing and other IPC requirements.
3. Consideration of automated systems of sign in for communal break areas, such as QR code linked data bases and time stamps to enable contact tracing.

## 22.5 Psychosocial considerations

We **recommend** that:

1. Staff wellness (both physical and psychological) measures are incorporated into organisational emergency response and post response planning.
2. Emergency clinicians have access to free psychological support and debriefing (including one to one) when required. This may include peer support programs, drop-in centres or telehealth support.
3. Emergency Clinicians have access to a period of recovery, including debriefing, psychological support or leave in an appropriate timeframe during and after the COVID-19 response, specifically where identified outbreaks have required a surge response.

Exemplar documents

1. [A wellbeing plan from WRaPEM](#) (Wellbeing, Resilience, Performance in Emergency Medicine) for Wellness Week 2020
2. [A webpage addressing staff wellbeing](#) within domains, tied to organisational values

## 22.6 References

The following resources were used in the preparation of this section:

- American College of Emergency Physicians, [National Strategic Plan for Emergency Department Management of Outbreaks for COVID-19.](#)
- Ran L, Chen X, Wang Y, Wu W, Zhang L, Tan X. [Risk factors of healthcare workers with corona virus disease 2019: A retrospective cohort study in a designated hospital of Wuhan in China.](#) Clinical Infectious Diseases. 2020 Mar 17 [Link].

## 22.7 Section disclaimer

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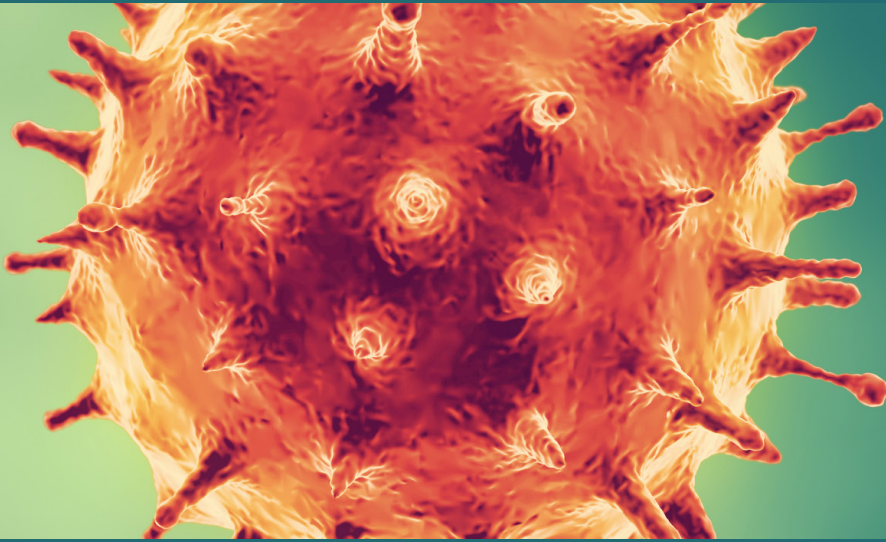
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# Section 23

A vaccine for COVID-19: what will the future hold?



Version	Date	Pages revised / brief explanation of revision
V5	23 Decembner 2020	Approved by ACEM

## 23. A vaccine for COVID-19: what will the future hold?

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The COVID-19 Pandemic has been global in its reach and infected millions of people. While its health and economic impacts have been devastating, the global cooperation that we have witnessed among scientists and clinicians has been extraordinary. This is especially true for the development of a vaccine. What would generally have taken years from research to a suitable vaccine has been achieved in less than a year. While the vaccine candidates have looked promising in preliminary findings and the scientists have reassured us that all the safety measures have been taken, we await definitive publication of the results of the efficacy of these candidate vaccines. These results will guide the appropriate Federal and State authorities' response to vaccination.

The process does not stop at identifying an efficacious vaccine. We still have to ensure that there is acceptance of the vaccine by the community, which will involve the active engagement and dissemination of evidence based information. This process needs to start now and continue through the rollout process. The barriers to community acceptance of the vaccine include lack of evidence based information, inconsistent messaging that is not adequately explained, lack of trust in government, media and large organisations. The vaccine will initially be rolled out to high risk groups which will include aged care residents and staff, healthcare workers in hospital and in the community and quarantine hotel workers.

Although a vaccine will not be the panacea for COVID-19, it would make a significant contribution to our ability to control the spread of this virus. It will take time to ensure adequate coverage of the population, and in the meantime other public health measures such as hand washing and physical distancing, will still be necessary.

**We recommend** that a COVID vaccine, once approved through a rigorous scientific and regulatory process, be made widely available, with prioritisation of vulnerable patient groups and healthcare workers.

**We advocate** for consistent public health messaging which ensures community engagement and addresses barriers to uptake.

### 23.1 References

The following resources were used in the preparation of this section:

- [Preliminary advice from the Australian Technical Advisory Group on Immunisation](#) (ATAGI) on general principles for the COVID-19 vaccination program. 13 November 2020.
- [COVID-19 vaccines: Frequently asked questions. National Centre for Immunisation Research and Surveillance](#). Accessed 18 December 2020.
- Gilmore B, Ndejjo R, Tchetchia A, de Claro V, Mago E, Diallo AA et al. [Community engagement for COVID-19 prevention and control: a rapid evidence synthesis](#). BMJ Global Health. 2020;5:e003188.

### 23.2 Section Disclaimer

This section has been developed to assist clinicians with decisions about appropriate healthcare in Emergency Departments in Australia and Aotearoa New Zealand during the COVID-19 outbreak. It is a framework for planning and responding to this pandemic, including the assessment and management of patients.

**This section is targeted at clinicians only.** Patients, parents or other community members using it should do so in conjunction with a health professional and should not rely on the information in the guideline as professional medical advice.

The section has been developed by an expert team of practising emergency physicians, by consensus and based on the best evidence available. The recommendations contained do not indicate an exclusive course of action or standard of care. They do not replace the need for application of clinical judgment to each individual presentation, nor variations based on locality and facility type.

The section is a general document, to be considered having regard to the general circumstances to which it applies at the time of its endorsement.

It is the responsibility of the user to have express regard to the particular circumstances of each case, and the application of the section in each case.

The authors have made considerable efforts to ensure the information upon which it is based is accurate and up to date. However, the situation is rapidly evolving, and a certain amount of pragmatism needs to be employed in maintaining such a 'living document'. Users of this section are strongly recommended where possible to confirm that the information contained within the document is correct by way of independent sources. The authors accept no responsibility for any inaccuracies, information perceived as misleading, or the success or failure of any treatment regimen detailed. The inclusion of links to external websites does not constitute an endorsement of those websites nor the information or services offered.

The section has been prepared having regard to the information available at the time of preparation and the user should therefore have regard to any information, research or other material which may have been published or become available subsequently.

Whilst we have endeavoured to ensure that professional documents are as current as possible at the time of their creation, we take no responsibility for matters arising from changed circumstances or information or material which may have become available subsequently.

### **23.3 Resources**

Resources that are relevant to this section can be accessed through the Clinical Guidelines web-based material [Link]. COVID-19 related ACEM Resources [Link], COVID-19 related external resources [Link], and the latest Government advice on COVID-19 [Link] are also available.

## Contacts

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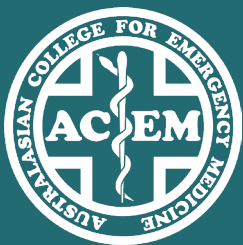
For the latest information about COVID-19 from ACEM, go to [acem.org.au/COVID-19](https://acem.org.au/COVID-19)

You can also follow ACEM on Facebook, Twitter and LinkedIn for updates:

 [facebook.com/ACEMonline](https://facebook.com/ACEMonline)

 [@acemonline](https://twitter.com/acemonline)

 [ace.mn/linkedin](https://ace.mn/linkedin)



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