Australasian College
for Emergency Medicine

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COVID-19 Toolkit

for Rural Emergency Care Facilities in Australasia

v1.0

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About

This toolkit

During a pandemic, emergency departments (EDs) in large regional centres operate like metropolitan EDs in most respects. The principles and details of the Australasian College for Emergency Medicine's (ACEM; the College) **Clinical Guidelines for the Management of COVID-19 in Australasian Emergency Departments** [1] (the ACEM COVID-19 Clinical Guidelines) are suitable for these EDs. From this document, large regional EDs may benefit from the Regional Pandemic Planning Section and the Workforce Section.

This toolkit provides guidance specific to smaller rural care facilities. Smaller rural emergency care facilities, especially those without on-site intensive care departments, may operate differently to metropolitan EDs (see Appendix A). In this toolkit, 'Rural Emergency Care Facilities' **may** include:

- a Level 1 ED that provides emergency care within a designated area of a remote or rural hospital, as defined in ACEM's **Statement on the Delineation of Emergency Departments**;[2] and
- other hospital-based facilities that provide emergency care services in a rural setting, such as small rural hospitals and urgent care centres.

The principles of pandemic care are the same, but the details may need modification. This toolkit provides consensus-based advice on how to apply pandemic principles at these Rural Emergency Care Facilities.

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 FACEMs **Tim Baker** and **Sally McCarthy** for their work in developing this toolkit. In addition, the College would like to extend its thanks to the following Fellows for generously providing input:

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[1] Latest version available here: **https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/COVID-19/Resources/Clinical-Guidelines**

[2] Available here: **https://acem.org.au/getmedia/aa6c120d-bd9f-4850-a257-2b9a8f3860b3/S12_Statement_on_the_Delineation_EDs_Nov-12_v05-(1).aspx**

Acknowledgement of Country

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

This toolkit 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.

The toolkit 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 this toolkit as professional medical advice.

The toolkit 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 toolkit is 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 toolkit in each case.

The authors have made considerable efforts to ensure the information upon which they are 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 toolkit 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.

This toolkit 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.

Key points

The primary issues outlined within this document include the following:

- Rural Emergency Care Facilities are part of a larger emergency care network. Rural Emergency Care Facility plans should align with regional approaches.
- Healthcare workers are the most limited resource in rural health. Ensuring staff safety and welfare is paramount in maintaining service operation. Do not forget to include visiting general practitioners.
- When community prevalence of COVID-19 is low, the key role of Rural Emergency Care Facilities is to prevent local outbreaks amongst patients and staff.
- Although inter-hospital transport capacity will probably be maintained, Rural Emergency Care Facilities should make plans for delays in patient transport.

Our goal is to create a living document for the generic planning and implementation that is occurring across multiple sites concurrently. **We encourage** all Rural Emergency Care Facilities to share their feedback, resources, challenges, wins and local solutions here:

ACEM COVID-19 Suggestions - Click here*

* Available here: **https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/COVID-19/Resources/Clinical-Guidelines/Suggest-Clinical-Guidelines-Edit-s'**

Contents

1. Rural Emergency Care

Everyone has the right to timely, safe and quality emergency care. ACEM is committed to advocating for continuously improving emergency care in rural areas.

Depending on the location, hospital-based emergency care is likely to be delivered by emergency physicians, general practitioners, rural generalists, hospitalists, nurses, and paramedics (including nurses and paramedics with extended emergency care abilities). As onsite resources vary widely, all Rural Emergency Care Facilities should be supported by a regional network of referral, retrieval and transfer services (see Appendix A).

2. Pandemic planning

To enhance their pandemic preparedness, facilities of different sizes will need to plan for different challenges.

2.1 Local Pandemic planning

Many of the smallest rural health facilities consist of a large Residential Aged Care Facility (RACF), a small inpatient unit treating mainly older persons, and a small emergency care facility with limited diagnostic and management capacity. Staff are not allocated specifically to the emergency care facility and move between hospital areas frequently each shift. For some of these hospitals, the risk to their older patients may outweigh the small amount of benefit they can provide to COVID-19 patients. An infection in the RACF would result in a large number of COVID-19 patients for the neighbouring regional hospital.

For these facilities **we recommend**:

- isolating the entrance to co-located Residential Aged Care Facilities;
- rostering separate staff for shifts in the emergency facility if the number of potential COVID-19 infections is high. No nurse should visit the COVID-19 high risk zone and the hospital ward in a single shift;
- separating equipment used in the emergency facility hot zone from other areas of the hospital as much as possible; and
- discussing the facility's role in assessing potential COVID-19 presentations (see Regional Pandemic Planning section below). Assisting patients in the community may be a better use of resources, as community care facilities are often the strongest division of a small rural hospital. This includes supporting general practitioners in their practices.

2.2 Regional Pandemic planning

Rural Emergency Care Facilities are a key entry point into the entire acute healthcare system. As part of a regional network, rural hospitals provide advice and support to smaller healthcare sites within their network, as well as receive expertise from regional resource centres and metropolitan link hospital specialists. This communication facilitates either better local care of the patient or the transfer of the patient to facility with more appropriate resources.

To produce a coordinated COVID-19 management plan with regional hospitals **we recommend**:

- including a plan for testing community members with limited symptoms away from the Rural Emergency Care Facility. For the smallest facilities this may involve referring patients to COVID-19 assessment clinics at larger hospitals;
- considering asking COVID-19 assessment clinics at larger hospitals to provide ongoing advice to asymptomatic or mildly symptomatic COVID-19 positive patients in the surrounding small communities;
- considering (at a regional/network level) whether to have some Rural Emergency Health Facilities designated as COVID-19 (Red) hospitals, some designated as non-COVID-19 (Green) hospitals, and some designated as COVID-19-bypass (White) hospitals (see Appendix B);
- considering asking ambulance services to bypass Rural Emergency Care Facilities with possible or known COVID-19 cases if the regional centre has capacity, and the ambulance service has capacity to undertake a longer transfer;
- including plans to decide the clinical and physiological criteria at which transfer to a larger facility should be contemplated (see Appendix C). A balance needs to be made between having patients treated at a centre with higher resources and overwhelming services with high numbers of low acuity transfers;
- involving ambulance and retrieval services in regional transfer plans. All retrieval services have a greater capacity to transport patients before they need intubation than after they are intubated;
- consulting regional centres before referring any patient (including patients able to self-transport). Easily accessible consultation with specialists at larger centres may reassure clinicians at smaller centres to discharge mildly symptomatic patients;
- setting up regular communication with other services to alter hospital roles and transport plans as the pandemic phase changes; and
- communicating Rural Emergency Care Facility policies to the local community.

We advocate for an ethical and equitable sharing of resources across each region and between regions. For an example of a relevant ethical framework see **Responding to COVID-19 as a Regional Public Health Challenge: Preliminary Guidelines for Regional Collaboration Involving Hospitals**.[3]

Rural Emergency Care Facilities are not always mandated to report emergency activity data. To assess the impact of pandemic plans on the regional hospital system **we recommend**:

- collecting and monitoring data on numbers of presentations, triage category, possible COVID-19 presentations, and patient disposition; and
- sharing data with regional hospitals.

[3] Available here: **https://www.thehastingscenter.org/covid19-regional-ethics-guidelines/**

2.3 Provision of longer-term ventilation

If the interhospital transfer system becomes overwhelmed, Rural Emergency Care Facilities experienced in the provision of short-term ventilation may be required to ventilate patients for longer periods. This is not a likely situation but should be considered. To assess their capacity to do this **we recommend**:

- appointing a medical and nursing lead to assess if a Rural Emergency Care Facility could safely ventilate patients in a crisis situation;
- using a decision tool to audit resources and negotiate a support agreement with regional intensivists (see Appendix D and E);
- considering the availability of adequately trained medical and nursing staff to be available 24/7. The number of 'ventilator safe' nurses may be the major factor;
- considering the impact of losing staff if they become exposed to COVID-19 performing unfamiliar tasks;
- considering the comparative risk of aerosol generation with high flow nasal oxygen, or non-invasive ventilation if invasive ventilation is not used;
- ensuring the availability of a regional ICU to provide telehealth support;
- obtaining checklists and protocols for care of the ventilated patient from regional ICUs and modifying them for use in lower resource settings; and
- only planning to provide their own medical escort for critically ill patients (if the transport system becomes overwhelmed) if they can meet the recommendations outlined in the **Transport section of the ACEM COVID-19 Guidelines**.[4]

For Rural Emergency Care Facilities with no ability to provide short-term ventilation **we recommend** assessing the maximum level of clinical management able to be provided locally for COVID-19 patients. This includes available diagnostic resources and the level of oxygen therapy that can be given (oxygen only, oxygen with non-rebreather masks, high-flow nasal oxygen, or non-invasive ventilation).

[4] Available here **https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/COVID-19/Resources/Clinical-Guidelines/Transport-of-Patients**

3. Remote emergency facilities in communities with indigenous populations

Remote emergency facilities in communities with indigenous populations face the challenges described above, in the context of caring for communities that experience disproportionately higher rates of chronic disease and unique conditions that make social distancing difficult. It is also likely that aeromedical transport will struggle to meet demand.

For these facilities **we recommend**:

- at an early stage, developing clear guidelines for the provision of care when resources are exceeded; and
- working with Aboriginal Health Workers (Australia) or Māori health organisations (New Zealand) to communicate COVID-19 information and requirements.

We advocate for:

- quarantine of all remote communities and suspension of all tourism and non-essential travel until virus prevalence is acceptably low. This process should be led and controlled by the local Aboriginal communities or Māori;
- considering alternative accommodation for COVID-19 positive patients, such as partnering with local hotels; and
- we advocate for the provision of an adequate volume of hand sanitiser to any community where hand washing facilities are limited.

Please **click here** for ACEM's joint statement with Tumu Whakarae and Te Ora Rata o Aotearoa, 'COVID-19 Pandemic: Supporting Māori patients and whānau in Hospital Emergency Departments'.[5]

[5] Available here: **https://acem.org.au/News/April-2020/ACEM-Joint-Statement-with-Tumu-Whakarae-Te-ORA**

4. Patient flow

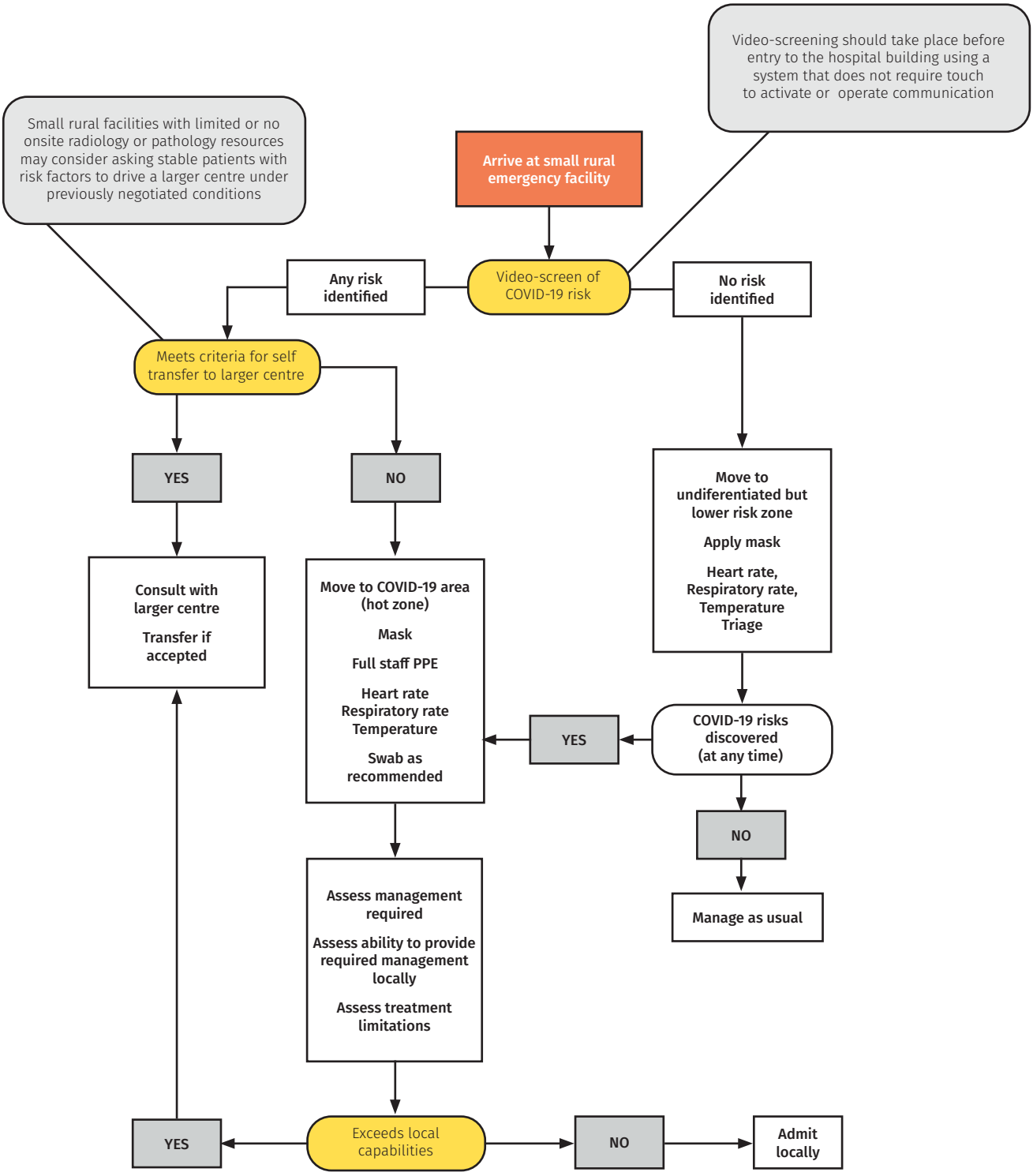
Patient flow through an ED changes with each phase of a pandemic. Section 3 of ACEM's **COVID-19 Clinical Guidelines** outline the principles of patient flow, including screening patients at the entry to the facility, establishing high-risk and low-risk COVID-19 zones, and allocation of treatment spaces based on COVID-19 risk.[6] See Appendix F for useful examples.

To apply these principles in Rural Emergency Care Facilities **we recommend**:

- using a system that allows staff to remotely screen patients before entry to the Rural Emergency Care Facility if there are insufficient staff to allocate someone solely to this task. Examples include video connection, or a dedicated COVID-19 number for patients to ring on arrival that connects them to a dedicated COVID-19 phone held by a staff member. Systems should operate without patients needing to touch hardware to notify of attendance;
- dividing the Rural Emergency Care Facility, if large enough, into zones where high- and low-risk COVID-19 patients will be managed. Very small Rural Emergency Care Facilities may need to designate a room close by the entrance as the high-risk room. High- and low-risk zones reduce cross infection of patients and help staff identify patients requiring the use of higher levels of Personal Protective Equipment (PPE);
- finding and annotating a map of the Rural Emergency Care Facility to explain to staff how patients flow into and out of high- and low-risk zones;
- allocating single rooms to patients in the high-risk zone if possible (negative pressure rooms are rare in Rural Emergency Care Facilities);
- altering the proportion of the Rural Emergency Care Facility allocated to high- and low-risk zones as disease prevalence changes. If there is a surge in COVID-19 patients, they may be cohorted together in the high-risk zone and staff remain in PPE for their allocated time between breaks;
- considering adding doors, plastic barriers, or modified curtains to provide appropriate places for patient care and equipment storage; and
- investigating the possibility of modifying a single room to become a negative pressure room.

[6] Available here: **https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/COVID-19/Resources/Clinical-Guidelines/Emergency-Department-Design-Layout**

Figure 1. Example of patient flow in a Rural Emergency Care Facility



5. Patient management decisions

The small number of staff at Rural Emergency Care Facilities exacerbates the difficulties when staff become unwell or need to self-isolate. To enhance staff safety **we recommend**:

- using PPE in alignment with ACEM COVID-19 Clinical Guidelines and the **National COVID-19 Clinical Evidence Task Force Guidelines**;[7]
- providing regular drills to practice PPE donning and doffing, and social distancing during handovers; and
- ensuring stocks of PPE are sufficient to cope with delays in replenishment.

The initial treatment of many COVID-19 patients involves simple resources available at most Rural Emergency Care Facilities. We recommend treating patients in alignment with ACEM COVID-19 Clinical Guidelines and the **National COVID-19 Clinical Evidence Task Force Guidelines**.

Difficult management decisions should be discussed with regional specialists. **We recommend**:

- ensuring appropriate lines of communication with regional centres;
- creating and testing videoconference equipment; and
- developing memoranda of understanding between Rural Emergency Care Facilities without 24/7 cover by medical staff or prescribing nurses and larger services, to allow medical staff at the larger service to prescribe remotely. Another option is using private FACEM telemedicine services.

Rural hospitals, including Rural Emergency Care Facilities, are vital providers of palliative care in their communities. **We recommend**:

- sharing of critical decision making with doctors at regional centres, particularly when caring for community members known to Rural Emergency Care Facility staff;
- discussing goals of care early to prevent unnecessary transfers and allow people to stay in their community; and
- considering community treatment for palliative care patients.

[7] Available here: **https://covid19evidence.net.au/**

6. Workforce

Rural Emergency Care Facilities can struggle to recruit medical staff and other clinicians. Many rely on fly-in-fly-out (FIFO) staff on fractional appointments or short-term contracts. Further compounding this is that FIFO staff may be unavailable during a pandemic due to quarantine restrictions and/or a need to have staff close to family and their primary healthcare employer.

To plan for and prevent staff shortages **we recommend**:

- identifying locum doctors and agency nurses willing to stay and providing practical support to them and their family;
- surveying staff and whānau to identify relevant professional qualifications, training and experience that could be useful in a pandemic. It may be particularly useful to consider the clinical skills of clinicians now working in hospital administration;
- considering alternative staffing models including less experienced doctors or extended care nurses, if increased supervision can be provided;
- that facilities liaise with their jurisdiction regarding travel arrangements for fly-in fly-out health care workers,
- identifying opportunities where clinical services can be provided offsite via telemedicine (i.e. virtual patient reviews, ward rounds, outpatient reviews) to ensure continuity of clinical care with a limited/quarantined but otherwise well workforce;
- identifying volunteer local clinicians of any specialty to undergo PPE and COVID-19 protocol training in anticipation of redeployment to hospital work if there is a surge; and
- preventing staff burn-out by encouraging staff to take planned leave where possible.

In areas where Rural Emergency Care Facilities have a very low level of COVID-19 **we recommend**:

- considering infection risks when FIFO staff and rotating doctors-in-training move from health facilities where disease prevalence is high; and
- considering the infection risks of local part-time staff if they are unexpectedly exposed to COVID-19 at another hospital while not wearing appropriate PPE.

In areas where Rural Emergency Care Facilities are overwhelmed through the inability to transport patients or lack of an adequate workforce **we advocate** for:

- health authorities reallocating staff from less affected areas; and
- a streamlined method to share credentialing of healthcare practitioners between health facilities.

7. Education

Rural Emergency Care Facility staff concerns may be increased by delayed communication about changes to recommended COVID-19 management. To reduce staff fear and anxiety by keeping them well informed **we recommend**:

- assigning medical and nursing leaders to monitor, filter and summarise up-to-date information on particular aspects of pandemic management. Important portfolios include PPE, domestic violence awareness, and managing chronic respiratory illness that could be COVID-19;
- accessing available educational staff and resources from larger regional hospitals. In Australia, consider contacting regional Emergency Medicine Education and Training (EMET) hubs to provide education resources and lecture streaming. Contact details for the nearest hub can be found **here** or by emailing **emet@acem.org.au**; [8]
- providing appropriate nursing education. For generalist nursing staff in Rural Emergency Care Facilities this may be strengthening patient assessment skills, recognising deteriorating patients, and communicating during patient transfer;
- ensuring visiting general practitioners can access education sessions by ensuring some are out of office hours; and
- providing regular simulation sessions to ensure a safe team approach to cardiac arrest and general resuscitation, including intubation in COVID-19 confirmed or suspected cases.

8. Staff support

Pandemic fear and anxiety may be higher for Rural Emergency Care Facility staff than urban ED staff as they have less experience, in general, with ED overcrowding and pandemic planning. To reduce stress on staff **we recommend**:

- providing regular videoconference meetings where staff can discuss psychological impacts, including the high likelihood of being identified as a health worker and the possibility of treating family and friends;
- encouraging staff to develop plans about how they will support each other if they need to self-isolate; and
- ensuring that staff understand that pandemic preparation requires looking at the worst-case scenarios (such as the need for patient intubation) but that these scenarios may never occur at a Rural Emergency Care Facility.

[8] Available here: **https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/National-Program/Emergency-Medicine-Education-and-Training**

9. References

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

- ACEM (2020). Clinical Guidelines for the Management of COVID-19 in Australasian Emergency Departments.
  https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/COVID-19/Resources/Clinical-Guidelines
- Australian and New Zealand Intensive Care Society (ANZICS) (2020). ANZICS COVID-19 Guidelines. Melbourne: ANZICS
  https://www.anzics.com.au/wp-content/uploads/2020/04/ANZI_3367_Guidelines_V2.pdf
- The Hastings Centre (2020). Responding to COVID-19 as a regional public health challenge
  https://www.thehastingscenter.org/covid19-regional-ethics-guidelines/
- ACEM Joint Statement with Tumu Whakarae and Te ORA
  https://acem.org.au/News/April-2020/ACEM-Joint-Statement-with-Tumu-Whakarae-Te-ORA
- National COVID-19 Clinical Evidence Taskforce
  https://covid19evidence.net.au/
- ACEM Emergency Medicine Education and Training
  https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/National-Program/Emergency-Medicine-Education-and-Training
- Patey C, Asghari S, Norman P, Hurley O. Redesign of a rural emergency department to prepare for the COVID-19 pandemic. CMAJ. 2020 Apr; DOI: 10.1503/cmaj.200509
  http://www.cmaj.ca/cgi/pmidlookup?view=long&pmid=32317277
- ACEM S12 Statement on the Delineation of Emergency Departments (2012)
  https://acem.org.au/getmedia/aa6c120d-bd9f-4850-a257-2b9a8f3860b3/S12_Statement_on_the_Delineation_EDs_Nov-12_v05-(1).aspx

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Appendix A

Levels of Pandemic Capability in Regional, Rural and Remote Areas

Levels of Pandemic Capability in Regional, Rural, and Remote Areas

Healthcare facility	Resources
EDs in rural hospitals with intensive care units	• Meet **ACEM ED minimum standards**.[1] • Many lack specialty trauma, cardiac, neurosurgical and other speciality services.
EDs in rural hospitals with 24/7 onsite medical cover	• Many meet ACEM ED minimum standards • Staffed by rural generalists, hospitalists, emergency physicians, medical officers, and international medical graduates. • Onsite pathology and medical imaging services are available but may be limited out-of-hours. • Most able to provide short term ventilation with transport ventilators.
Emergency facilities in rural hospitals with an operating theatre	• Initial treatment provided by nurses located on inpatient ward. • Offsite support from general practitioners, rural generalists, hospitalists, or extended practice nurses and/or telehealth. • May be able to provide short term ventilation with theatre ventilators.
Emergency facilities at very small rural hospitals	• Initial treatment provided by nurses located on inpatient ward. • Off-site medical support not always available. • Limited or no on-site pathology and medical imaging. • No ability to intubate a patient. • May have ambulance officer or paramedic back-up for acute resuscitation including airway interventions.

[1] See ACEM's Statement on the Delineation of Emergency Departments, available here: **https://acem.org.au/getmedia/aa6c120d-bd9f-4850-a257-2b9a8f3860b3/S12_Statement_on_the_Delineation_EDs_Nov-12_v05-(1).aspx**

Appendix B

Possible methods to sort rural hospital COVID-19 clusters

COVID-19 Cluster hospital designations

COVID-19 designation	Role	Minimum standards [1]	Considerations
COVID-19 Hub (Gold)	Admit known and suspected COVID-19 patients Lead cluster with consultation	Hospitals with an intensivist-led/staffed ICU who regularly provide the full range of critical care support but lack on-site access to the full range of sub-support	Designated for each cluster
COVID-19 Hospital (Red)	Admit known and suspected COVID-19 patients	Hospitals with an intensivist led/staffed ICU who regularly provide the full range of critical care support (but may lack on-site access to the full range of sub-speciality support). Or (jurisdictions should decide) Hospitals with an ICU led/staffed by non-Intensivists who regularly provide critical care support with the occasional assistance of a larger centre.	Chosen by cluster from hospitals meeting the minimum standard Based on many factors including hospital preparation and ensuring equitable geographic access If the prevalence of COVID-19 patients increases, more COVID-19 hospitals may be designated (and even the minimum standard may change).
Non-COVID-19 Hospital (Green)	Assess patients in ED Transfer if COVID-19 positive and meets physiological criteria for admission Admit other patients with fever, chills or acute respiratory illness– COVID-19 test - transfer if the test is positive and patient meets physiological criteria for admission.	Hospitals with established EDs, High Dependency Units (HDUs) or theatres who regularly provide critical care on a short-term basis.	Probably all hospitals who meet the minimum criteria. May limit to hospitals with better 24/7 access to x-ray or medical cover – placing less resourced hospitals into the COVID-19 bypassed group. If the prevalence of COVID-19 patients increases, less resourced hospitals will return to this group and no longer be bypassed
COVID-19 Bypass Hospital (White)	Bypassed by ambulance for COVID-19 positive patients that meet physiological criteria for admission Assess and consult about COVID-19 positive patients Assess and consult about other patients with fever, chills or acute respiratory illness Transfer patients requiring admission.	Hospitals with none of the above	Special arrangements may have to be made with more remote hospitals to ensure equitable access – including adding hospital resources or arrangements with ambulance services

[1] Using Appendix 1 of ANZICS COVID-19 Guideline V2. Available here: **https://www.anzics.com.au/wp-content/uploads/2020/04/ANZI_3367_Guidelines_V2.pdf**

Patients with fever, chills or acute respiratory illness

Presenting to a COVID-19 Hospital (Red)

- A COVID-19 Hospital (Red) must have an ICU which meets the minimum criteria.
- Each cluster will decide which hospitals meeting minimum criteria will be designated as COVID Hospitals.
- COVID-19 Hospitals (Red) admit patients with fever, chills or acute respiratory illness as normal.
- COVID-19 Hospitals (Red) may have arrangements to transfer certain other types of presentations to Non-COVID hospitals.

Patients with fever, chills or acute respiratory illness

Presenting to a Non-COVID-19 Hospital (Green)

- A non-COVID-19 Hospital (Green) must have onsite medical imaging and the ability to provide short term ventilation while awaiting patient transfer.

COVID-19 status	Critically unwell	Moderately unwell
Unknown	Transfer to COVID-19 Hospital (Red)	Treat locally awaiting test
Positive	Transfer to COVID-19 Hospital (Red)	Transfer to COVID-19 Hospital (Red)

- Most patients COVID-19 patients will be mildly unwell and can be discharged home
- COVID-19 patients don't require admission unless at least moderately unwell. Typical indicators include SpO2 <92% on air (or 88% if known COPD), respiratory rate > 20 bpm, and hypotension.
- Unless critically ill, patients admitted for fever, chills or acute respiratory illness should not be transferred to a COVID-19 Hospital (Red) unless their COVID-19 status becomes positive.
- A critically ill patient is defined as requiring more than high flow nasal oxygen and/or inotropes.
- COVID-19 positive patients requiring admission for an unrelated issue (e.g finger injury requiring surgery) should be transferred to a COVID-19 Hospital (Red) that also has the relevant specialty.
- COVID-19 positive patients may remain at a non-COVID Hospital (Green) if they are palliative or have a treatment ceiling of high flow nasal oxygen or below.

Patients with fever, chills or acute respiratory illness

Presenting to a COVID-19-bypassed Hospital (White)

- A COVID-19-Bypassed Hospital (White) is a small rural hospital with no ability to provide even short-term ventilatory support. Typically, these hospitals have a very small emergency facility and a few inpatient beds. They may lack onsite diagnostic imaging and often share staff with collocated residential aged care facilities.
- Where possible, COVID-19 positive patients in the community who deteriorate should be advised to present directly to the nearest COVID-19 Hospital (Red) or Non-COVID-19 Hospital (Green).
- Where possible, ambulances should bypass these facilities and take COVID-19 positive patients in the community who deteriorate directly to the nearest COVID-19 Hospital (Red) or Non-COVID-19 Hospital (Green).
- Clinicians at COVID-19-Bypass Hospitals (White) should be prepared to assess patients with fever, chills or acute respiratory illness in their urgent care centres. These cases should be discussed with their nearest referral hospital or retrieval service (for unstable patients).
- Patients requiring admission for fever, chills or acute respiratory illness should not be admitted to COVID-Bypassed Hospitals (White) if they are COVID-19 positive or their COVID-19 status is unknown.

Appendix C

Example COVID-19 Transport Checklist

The following is an **example checklist for transport from peripheral sites of confirmed or suspected COVID-19 patients**. It is provided as an example by the Mid North Coast Local Health District in New South Wales (NSW), Australia.

Once disposition has been decided, the following actions MUST take place:

- ☐ Transport modality should be decided, taking into account current Non-Emergency Patient Transport (NEPT) and New South Wales Ambulance Service (NSWAS) Guidelines
- ☐ When completing NEPT/NSWAS booking ensure COVID-19/infectious disease status is declared
- ☐ Medical staff provide a verbal referral to the receiving facility including the patients COVID-19 status
- ☐ Ensure that the name and position of the accepting person is clearly documented in the notes
- ☐ If the patient is being discharged to home then a courtesy call to family members, if any, is made
- ☐ A written discharge summary is sent with patients undergoing inter-facility transfer that clearly documents the patients COVID-19 status
- ☐ A clear verbal handover is provided to the transport team/NSWAS in addition to the above documentation

Appendix D

Example Critical Care Facilities Audit Tool

This **Rural Emergency Care Facilities Critical Care Audit Tool** has been provided as an example by the Mid North Coast Local Health District in NSW.

Rural Emergency Care Facilities without a formal High Dependency Unit (HDU)/Intensive Care Unit (ICU) should assess their capacity to provide more than their usual level of critical care in a pandemic. Rural Generalists able to provide short-term ventilation for elective operations or prior to emergency transfer may be able to provide longer-term ventilation in these facilities if supported by Regional Intensivists. Not all hospitals will be able to do so in a way that keeps their patients safe and protects their key staff from unacceptable risks of infection.

Hospital name

Position	Name	Training	Upskilling available
Medical			
Local Clinical Lead with critical care experience			
Senior staff available (cover 24/7 on call)			
Junior staff available (cover 24/7 onsite)			
Nursing			
Ventilator safe nurses (cover 1:1 24/7)			
Other Staff			
Notes			

Audit tool continued

Ventilators

Make an inventory of ventilators, including transport ventilators, anaesthetic machines, and any equipment predominantly used for non-invasive ventilation that has an invasive ventilation mode.

Name	Details

Question	Y/N
Staff are familiar with filter requirements for COVID-19	
Staff are familiar with modifications of anaesthetic machines to provide long term ventilation	

Notes

Audit tool continued

Other forms of respiratory suport

Make an inventory of equipment for non-invasive ventilation, high-flow oxygen and other oxygen delivery methods. Do not double-count non-invasive ventilation devices that have an invasive mode.

Name	Details

Location

Assess possible location for HDU/ICU including perioperative monitoring/recovery areas and previous critical care areas (e.g. 'old' HDUs). If possible, areas should have:

- two oxygen outlets;
- one air outlet;
- two suction outlets; and
- twelve mains electricity outlets.

Area	Outlets available	Level of isolation

Telemedicine support network

Question	Y/N
Regional intensive care support available for planning	
Regional telemedicine support available for ward rounds	
Regional telemedicine support available for emergencies	
Notes	

Monitoring

Make an inventory of available monitoring equipment. Each patient requires ECG, oxygen saturation, and non-invasive blood pressure, and preferably invasive blood pressure and end-tidal CO_2.

Monitor	Modalities	Number available
Notes		

Audit tool continued

Other Equipment

Type	Details
Airway equipment (including anchoring devices)	
Closed suction systems	
Infusion pumps (Preferably 1 infusion controller, 2 infusion channels, 2 syringe drivers per patient)	
Central venous lines and pressure bags	
Arterial lines	
Feed pumps and enteral feeds	
Beds and mattresses	

Audit tool continued

Medications

Type	Details
Sedatives	
Analgesia	
Inotropes	
Antibiotics	
VTE prophylaxis	
Gut protection	
Electrolyte replacements	
Aperients	
Steroids	

Audit tool continued

Diagnostic services

Type	Details
Point of care	
Blood gas analysis	
COVID-19 testing	
Onsite pathology	
Off-site pathology (including time to test results)	
Radiology	
Ultrasound	

Documentation

Type	Details
Ventilator observation charts	
Infusion stickers	
Nursing shift checklist	
Medical shift checklist	

Appendix E

Regional Ventilation Support Planning Document

This document requires input from a local medical and nursing clinical lead, as well as an intensivist from a regional supporting service.

Hospital name

Members of critical care support network contacted		
Name	Location	Specialty

Can long-term ventilation be safely provided under any circumstance?	
☐ Yes ☐ No	**Notes:**

Pandemic conditions in which this support would be provided?	
☐ Transport delayed >6 hours ☐ Regional referral centre at capacity ☐ Other	

Indications for ventilation in this situation?	
☐ Meets National Clinical Evidence Guidelines ☐ Meets Jurisdictional guidelines ☐ Approved by regional intensivist ☐ Other	

Patients who cannot be ventilated at this location	
☐ Paediatric ☐ Bariatric ☐ Other	

Regional Ventilation Support Planning Document continued

Maximum level of respiratory support safe to provide?

- [ ] Standard oxygen therapy
- [ ] High flow nasal oxygen
- [ ] Non-invasive ventilation – CPAP
- [ ] Non-invasive ventilation – BIPAP
- [ ] Invasive ventilation – transport ventilator
- [ ] Invasive ventilation – anaesthetic ventilator
- [ ] Other

Maximum number of patients, if any, that can be ventilated at one time?

Telemedicine available for clinical support?

- [ ] Yes
- [ ] No

Telemedicine available for end-of-life decision making?

- [ ] Yes
- [ ] No

Resources, if any, to be transferred from small hospital to regional centre?

- [ ] Ventilators
- [ ] Monitors
- [ ] Infusion pumps
- [ ] Medication
- [ ] Other

Resources, if any, to be transferred from regional centre to small hospital?

- [ ] Ventilators
- [ ] Monitors
- [ ] Infusion pumps
- [ ] Medications
- [ ] Critical care protocols
- [ ] Critical care charts
- [ ] Other

Other

Appendix F

Examples of Rural Emergency Care Facility maps and patient flow diagrams

Figure 1. Example from Carbonear, Newfoundland, Canada

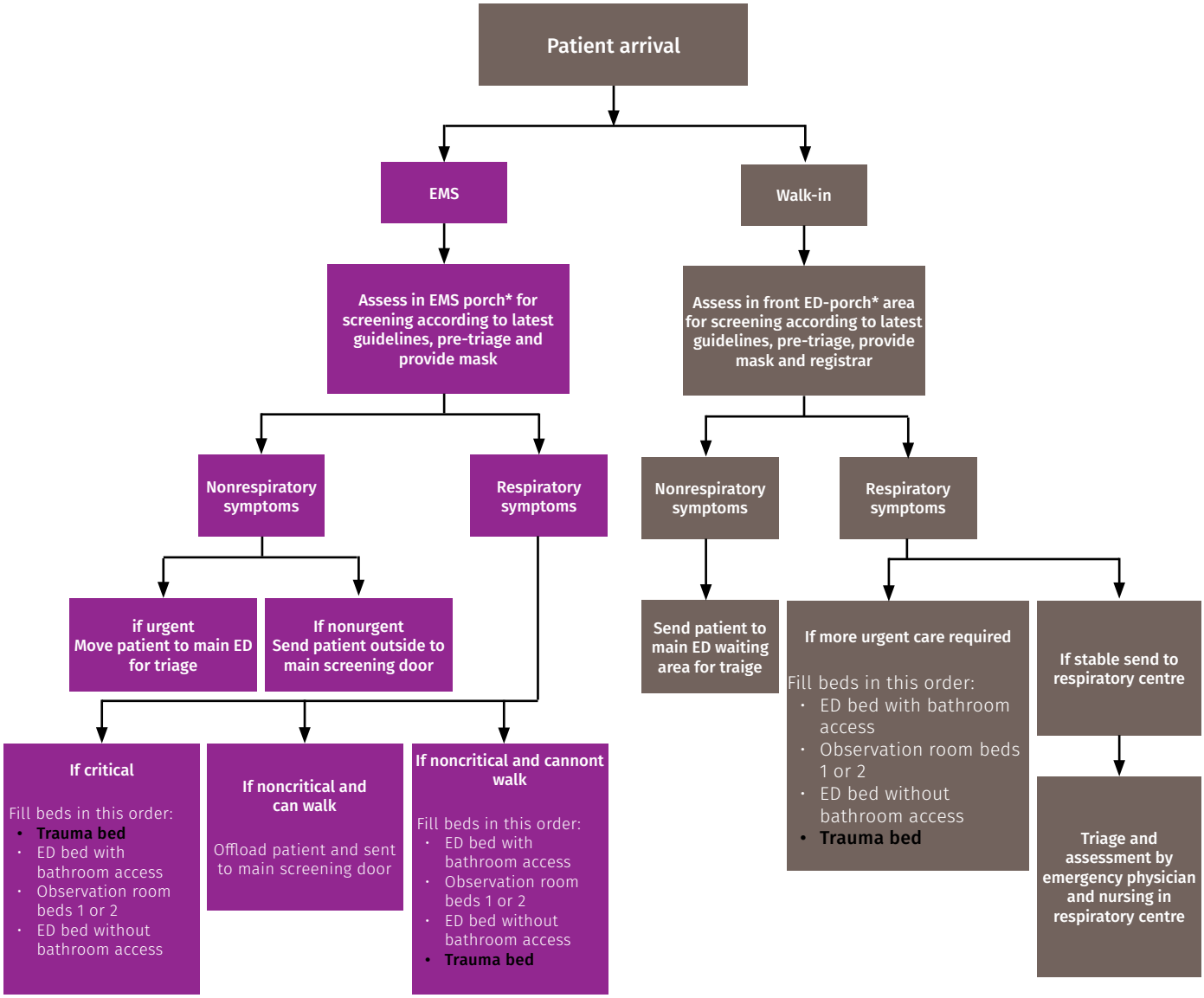


Figure 1: Coronavirus disease 2019 (COVID-19) pandemic flow map for all patients presenting to the emergency department (ED) in Carbonear, NL. The bolded black font indicates a negative pressure room was created in the existing trauma room with a walled-off doffing and donning containment entry. *"EMS porch" and *"ED porch" refer to the areas between 2 sets of doors at the ambulance entrance and walk-in entrance. TEMS critical patient bed order prioritizes large rooms for stretcher offload and bathroom availability. NOTE EMS=emergency medical services.

Patey C, Asghari S, Norman P, Hurley O. Redesign of a rural emergency department to prepare for the COVID-19 pandemic. CMAJ. 2020 Apr; DOI: 10.1503/cmaj.200509

Figure 2. Example from South East Regional Hospital, New South Wales, Australia

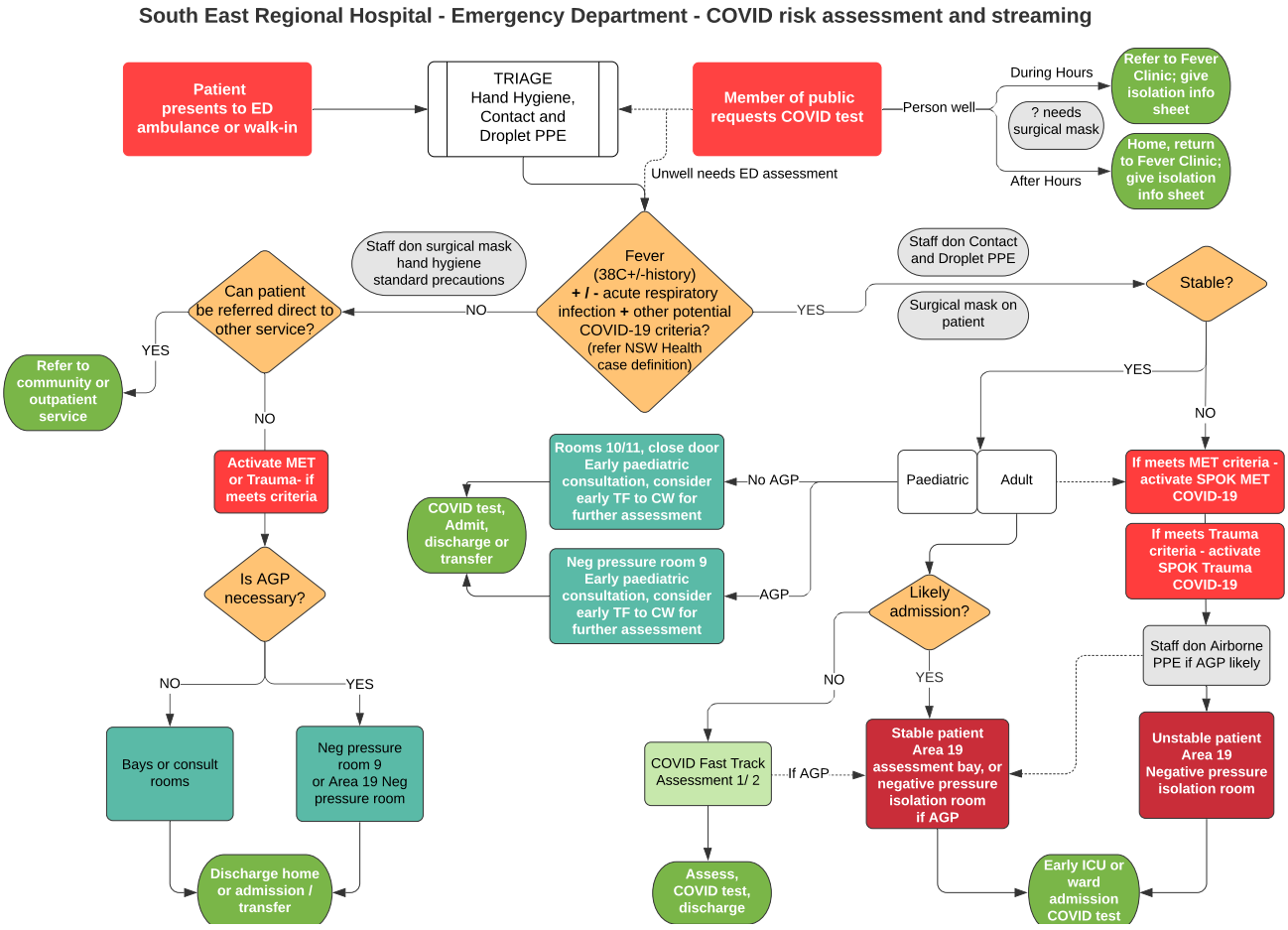
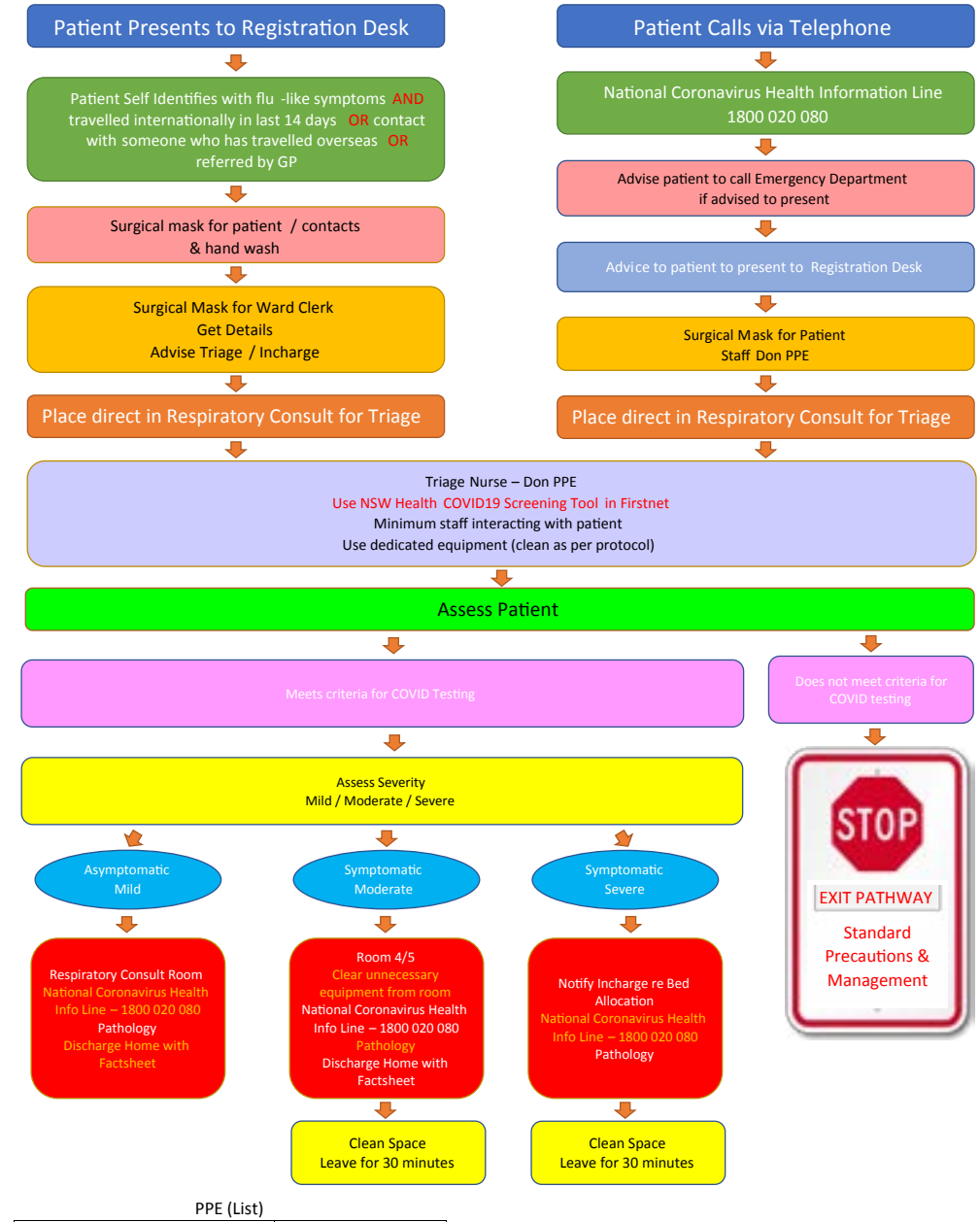


Figure 3. Example from Macksville District Hospital, New South Wales, Australia



PPE (List)

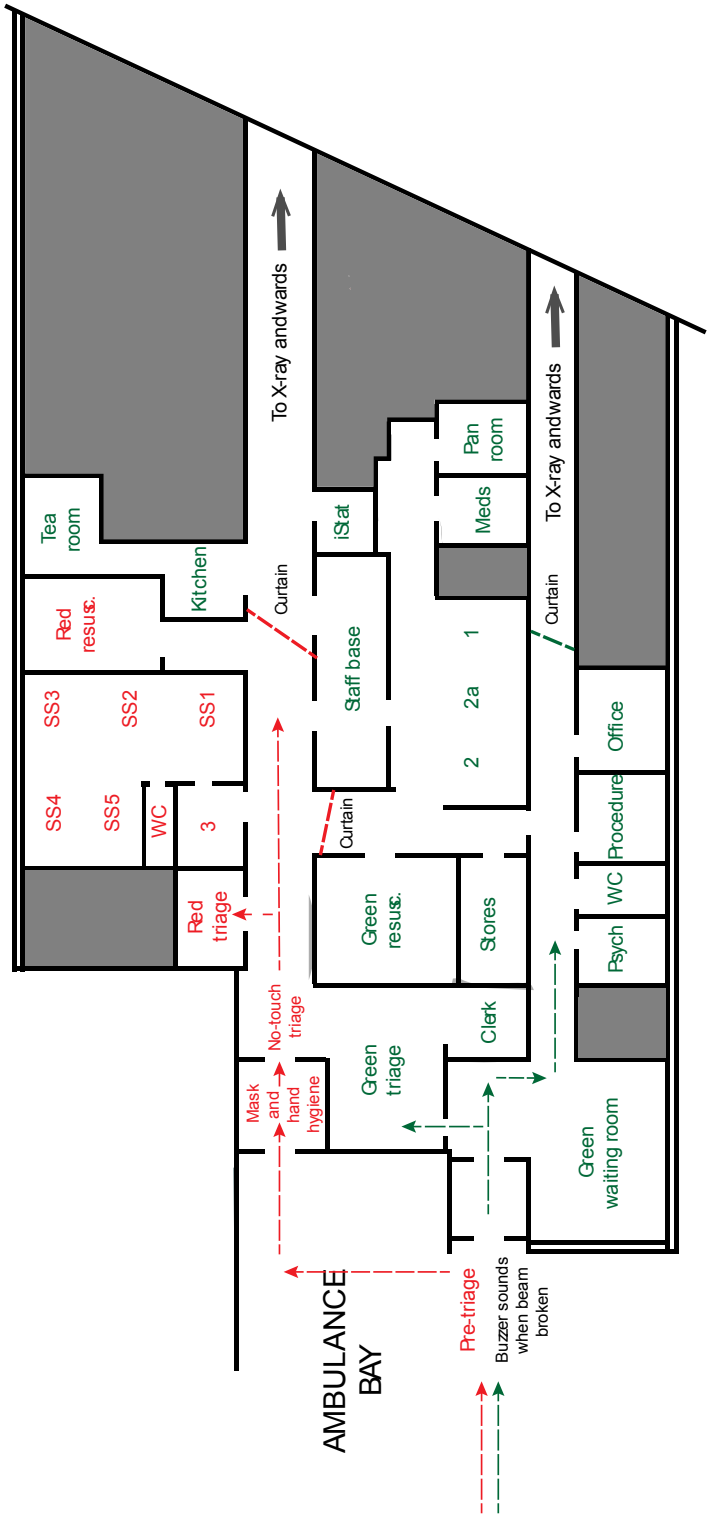
Staff	Patient
☒ P2 / N95 mask	☒ Surgical Mask
☒ Gown	
☒ Gloves	
☒ Eye Protection goggles or face shield	

☒ Linen / Waste Management
☒ Environmental Cleaning

NOTE: Early communication with Incharge General Floor / Executive in order to facilitate bed management

Figure 4. Example from Portland District Health, Victoria, Australia

Figure 5. Example from Portland District Health, Victoria, Australia



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