MEDICLINIC

COVID-19 INFORMATION

COVID-19 UPDATE

27 March 2020

EMERGENCY CENTRE

The clinical care of suspected patients with COVID-19 should focus on early recognition, and immediate isolation, as well as appropriate infection prevention measures and control (IPC) measures with care taken to optimise supportive care. Although the EC may be considered the logical area in the hospital for those affected by this epidemic, it is often crowded with patients seeking care for other illnesses. The most important actions in the EC should focus on limiting the spread of infection, identifying all cases, and estimating disease severity.

1. **EC Planning and Preparedness**

- Advanced infection control procedures must be communicated and in place (e.g. staff vaccinations, infection control practices and hand washing)
- Planning and design (e.g. establishing criteria and sites for surge). The EC should remain responsible for treating severely ill patients (with or without Covid-19), as well as low acuity suspected Covid-19 patients who do not require hospital admission but still require a medical assessment, and determine a threshold number of ILI presentations per day to initiate either a designated area within the EC for treating ILI patients, or a definitive surge area operating independent of the EC. Both can help minimise the risk of spread of infection to other patients, particularly high-risk patients, such as those who are immunosuppressed. Sites chosen to cohort EC patients with respiratory symptoms may need to be changed around/reconfigured as the volume of ILI patients starts to increase.
- The location of the surge area should be based on recognised containment and infection control principles.
- The surge area should have access to imaging, pathology and pharmacy services.
- There should be a review of pertinent education, training and awareness needs as regards Covid-19.
- EC resource requirements and availability should be reviewed (this includes human and equipment resources)
- Clinical protocols and pathways should be reviewed and prepared.
- Prepare for implementation with testing of collapsible hierarchies, communication cascades and mock drills/simulations.
- Pre-allocation of staff per shift (Covid-19 vs non Covid-19 staff streams in EC)

2. **Phased Response**

2.1 General

- Prepare to initially receive patients with upper airway symptoms, followed in the next days by patients with persistent fever, and finally, patients with interstitial pneumonia. **The proportion of patients needing admission increases day by day and is primarily for hypoxia**.
- This pandemic is a **protracted disaster that will extend for months**. As a result the situation can change rapidly and plans may need to be adjusted in response to this.
- Be ready to adjust the spaces and the resources to the flow of incoming patients many times during the day, dividing “clean” flow from “dirty” flow. **It is fundamental to have leadership personnel on the floor to help manage the flow in the ED.**
- In the first days, the critically ill patients will be mostly older than 65 with comorbidities, followed by younger patients in the days/weeks after. Do not exhaust all of your resources with the first patients. **Patients will need to stay in the ICU for weeks**.
- **Patients come in waves, usually in late afternoon**. For every 100 patients coming to the ED, expect to have 5 with severe ARDS, 10-20 with mild/moderate ARDS, and 40 patients needing oxygen to treat hypoxia.
- Do not rely on a negative nasal swab test. **If a patient looks like they have COVID-19 pneumonia, they usually end up having it**. Treat them as COVID-19 pneumonia, with isolation, and repeat the testing in 3 days. Every patient presenting with fever is a potential COVID-19 infection, even if they do not have respiratory symptoms.
- **Prepare in advance to have staff becoming ill**. Personal protection is hard to maintain during long shifts in a busy EC, but it is feasible, and constant vigilance is mandatory.
- Most admitted patients on respiratory support are PEEP responders. **Noninvasive ventilation is a powerful tool to buy some time until an ICU bed becomes available**. Expect severe ARDS to be responsive to NIV for only a short period of time.
- **Lung ultrasound is very helpful in evaluating patients on arrival**. The EC may have one or a machine from the theatre or ICU may be used It is more sensitive than chest x-ray, with a diffuse B-line pattern correlating to good response to PEEP.
- **Prepare psychological support for the staff early**.

2.2 Screening and Triage

Establish a clearly marked access control point at the entrance to the EC according to the guideline.

Patients that enter the hospital premises that are only requiring Covid-19 screening and potential testing should still be directed to the onsite Mobile Testing Station (MTS) if one exists on site.

Once the case definition changes (to only screening admitted patients) and the need for the MTS decreases, the staff and equipment of the MTS can be combined into the EC access control point. The MTS functionality will no longer be required as the case definition will have changed.

According to the WHO:

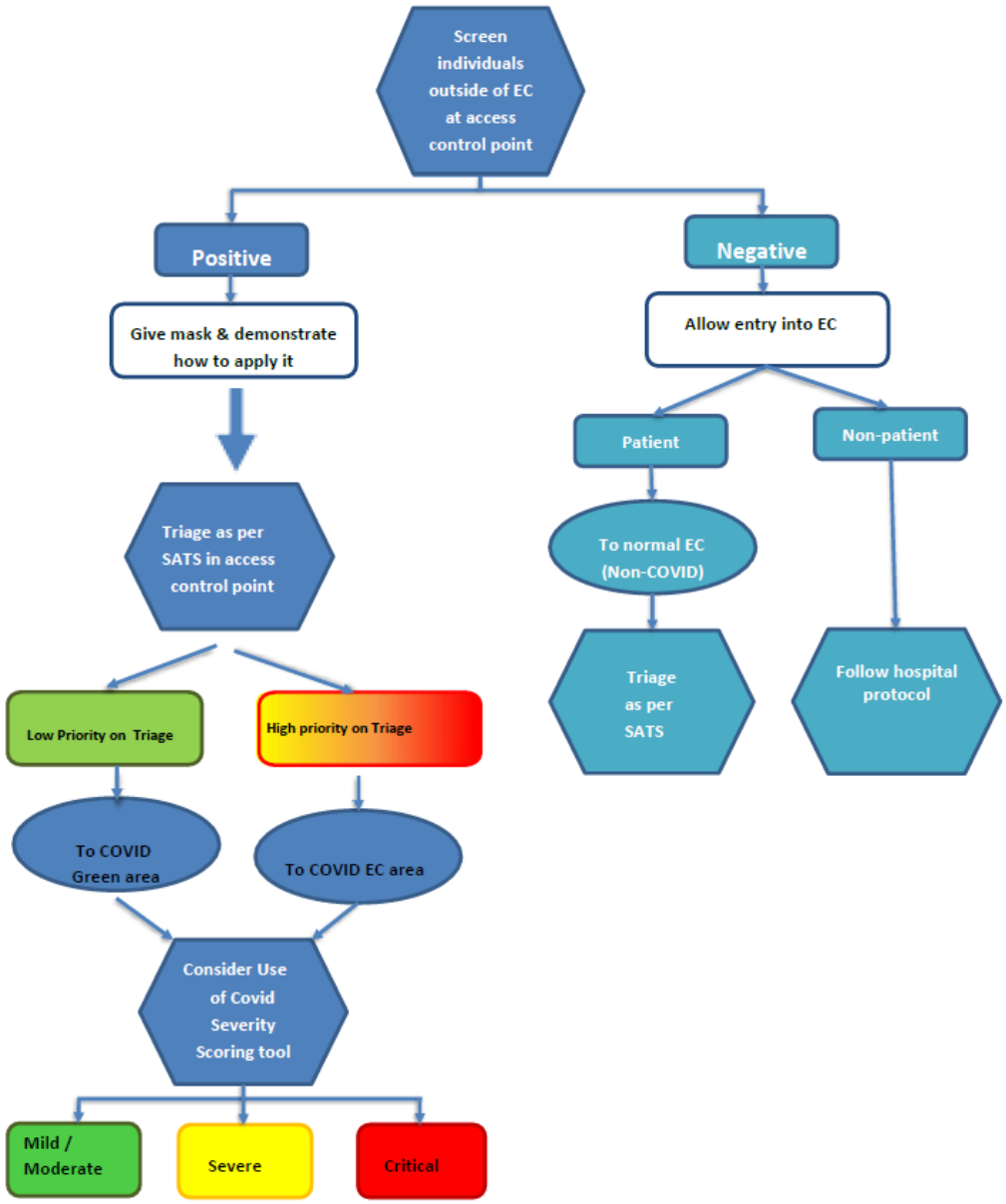
- Screening: An area in which an individual is evaluated and screened using the case definition; if the person becomes a suspected case, refer to COVID-19 protocol.

- Isolation: If the case definition is met, the patient should immediately be given a mask and directed to a separate area (an isolation room if available). At least 1 m distance should be kept between suspected patients and other patients.

Patients should be quickly triaged in terms of clinical severity. The routine SATS triage should be used. In the context of COVID-19, triaging is essential because:

- It allows for rapid initiation of supportive therapy (e.g. oxygen supplementation)
- It has implications for whether or not the patient can be allowed home to await results of the COVID-19 testing.
- It determines in which area of the EC the patient will be assessed and treated.

The process flow to be immediately implemented at the EC access point and into the EC will be as follows:



The current NICD case definition to be applied:

Persons with acute respiratory illness with sudden onset of at least one of the following: cough, sore throat, shortness of breath or fever [≥ 38°C (measured) or history of fever (subjective)] irrespective of admission status

AND

In the 14 days prior to onset of symptoms, met at least one of the following epidemiological criteria:

- Were in close contact with a confirmed or probable case of SARS-CoV-2 infection;

OR

- Had a history of travel to areas with local transmission of SARS-CoV-2 (the list of these countries will change with time – consult the NICD website)

OR

- Worked in, or attended a health care facility where patients with SARS-CoV-2 infections were being treated

OR

- Admitted with severe pneumonia of unknown aetiology

Any patient who fulfils the case definition criteria for COVID-19 case should immediately have the following measures taken:

- Give the patient a medical (surgical) mask (N95 respirators are NOT required for patients).
- Direct the patient to a separate area, preferably the cough room (if applicable) or isolation room if available. Choose an area that is well ventilated and visible to the triage nurse as much as possible. Where an individual isolation room is not available, a 2 metre distance should be kept between suspected COVID-19 cases and other patients.

2.3 EC capacity overwhelmed

Once the capacity of the EC access and triage control point and the EC itself is completely overwhelmed then SATS triage should be stopped and triage sort and sieve should be implemented.

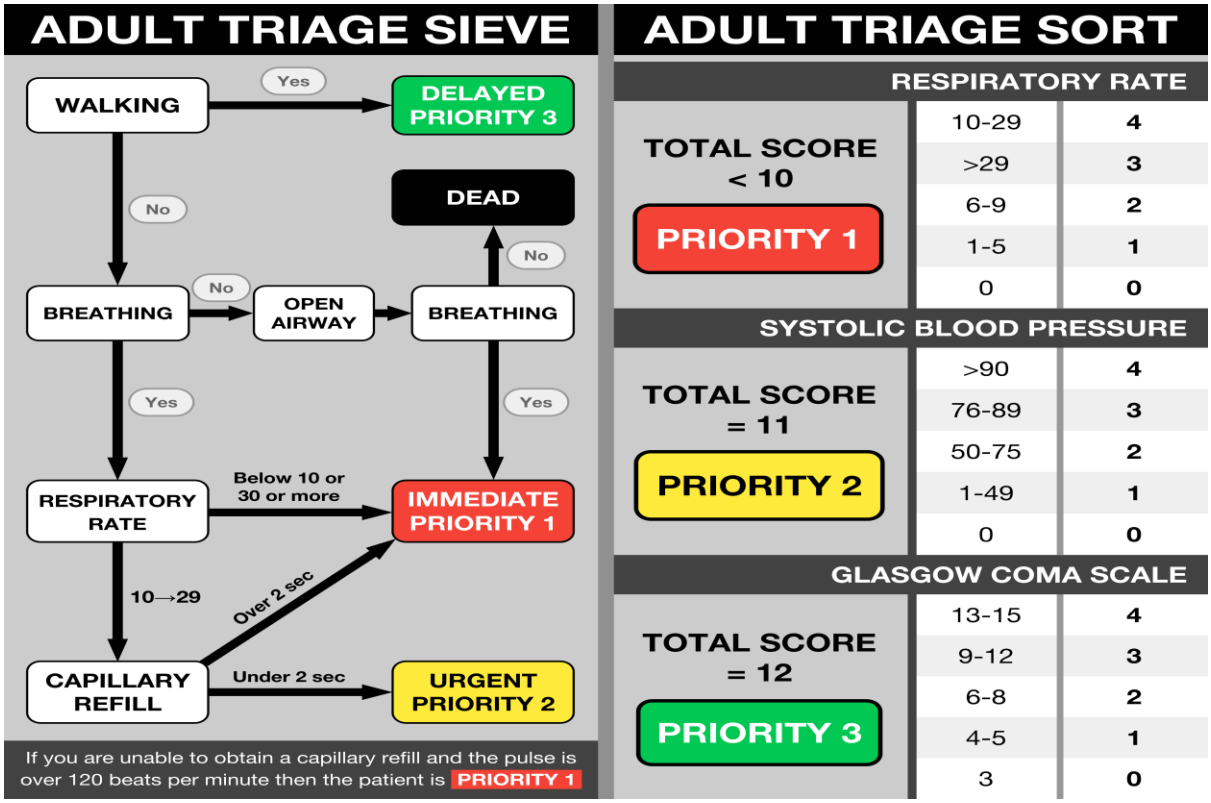


Figure 1. Example of triage sieve and sort used during major incidents and disasters.

2.4 COVID-19 Severity Scoring Tool

Clinicians involved in the assessment, treatment and disposition of suspected/confirmed Covid-19 patients can consider using the African Federation of Emergency Medicine Covid Severity Scoring Tool. This tool assists the clinician to help prioritise the necessary expected

COVID-19 SEVERITY SCORING TOOL

Full name:	DOB:	Sex: M F

START HERE

ASK

		Score – circle only those that apply
Comorbidities	>2 comorbidities *or* Immunocompromised *or* Cardiovascular disease	2

COMORBIDITIES:
- Hypertension
- Diabetes
- COPD/Asthma
- TB
- Current smoker

IMMUNOCOMPROMISE:
- HIV/AIDS
- Severe malnutrition
- Chronic steroid use
- Immunosuppressive medication
- Ongoing cancer treatment

ASSESS

		Score – circle only those that apply
Mobility	With help	1
	Stretcher	2
Assessment	Difficulty breathing *or* Unresponsive	3
Temperature	≤ 35	2
	≥ 38.5	3
Pulse	≤ 45	2
	≥ 110	3
Respiratory rate	≤ 9	2
	20 - 27	2
	≥ 28	4
Systolic BP	≤ 90	4
	≥ 160	2

SCORE

Total (add all those circled):	

GRADE

1-4: GREEN MILD / MODERATE	5-7: YELLOW SEVERE	8+: RED CRITICAL
Less likely to need oxygen.	Less likely to need mechanical ventilation. Likely needs oxygen.	Probably needs mechanical ventilation.

SURGISPHERE

AFEM

2.5 EC Flow

Covid-19 EC Flow

Low acuity patients – divert to appropriate clinical area if available (consultation room, hazmat shower area etc.)

Medium acuity patients – direct to an isolation zone within the EC (procedure room), or other designated area of the hospital. Patients in this area may need low-flow oxygen, so arrange a concentrator(s) if available. Separate these patients from other EC and admitted patients as much as possible.

High acuity patients – immediately move to designated resuscitation area within the EC for these patients. Patients in this area are likely to need high-flow oxygen. For some patients, more advanced therapies, such as non-invasive and invasive ventilation will be required.

Non-Covid-19 EC Flow

Low acuity patients – divert to appropriate clinical area such as EC waiting room.

Medium acuity patients – direct to main EC treatment area.

High acuity patients – immediately move to designated resuscitation area for these patients within the EC.

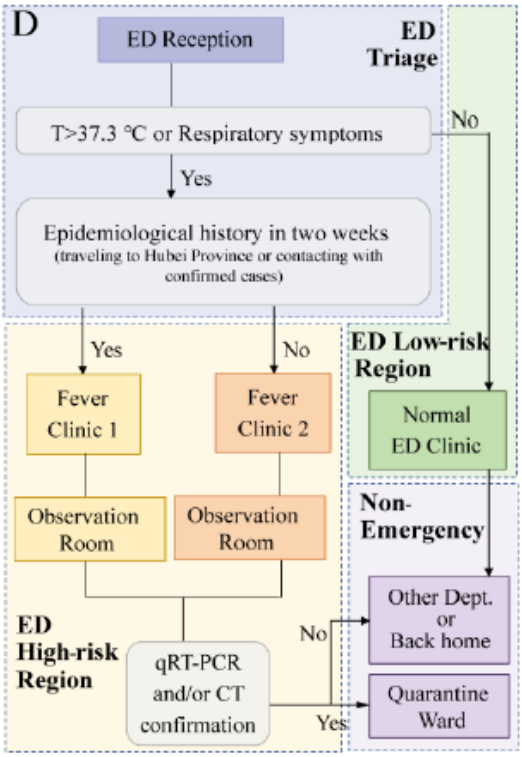


Figure 2. Example of EC flow after triage applied used in West China Hospital, Sichaun University, China.

- Maintain segregated flow through the EC as much as the EC lay-out will allow.
- Ensure screened patients who require surgical masks wear them correctly at all times. Instruct the patient to cover his/her nose and mouth during coughing or sneezing with a flexed elbow. The patient should perform hand hygiene after contact with respiratory secretions (wash hands or use alcohol based hand rub, which should be readily available at the point of screening, cough room and waiting room).
- Limit the movement of the suspected Covid-19 patient (e.g. use portable X-rays rather than sending the patient to the X-ray department). If the patient has to be moved, ensure that (s)he wears a mask at all times.
- The suspected Covid-19 patients should have a dedicated bathroom (where this is possible).
- Ensure correct PPE principles are applied by staff at all times.
- Ensure the hospital has established an isolation ward and patients requiring admission who are suspected or confirmed Covid-19 are transferred as rapidly as possible.
- Consider dedicated patient flows inside the hospital as well.

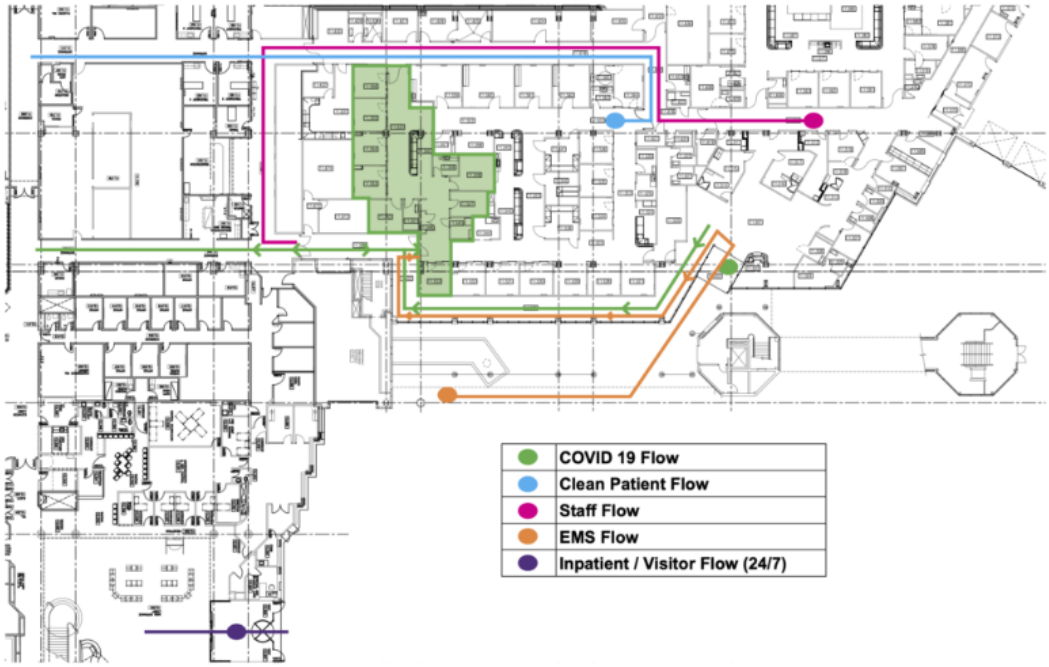


Figure 3. Example of dedicated flow streams inside a hospital. *Source: http://sjrhem.ca/covid-19-pandemic/*

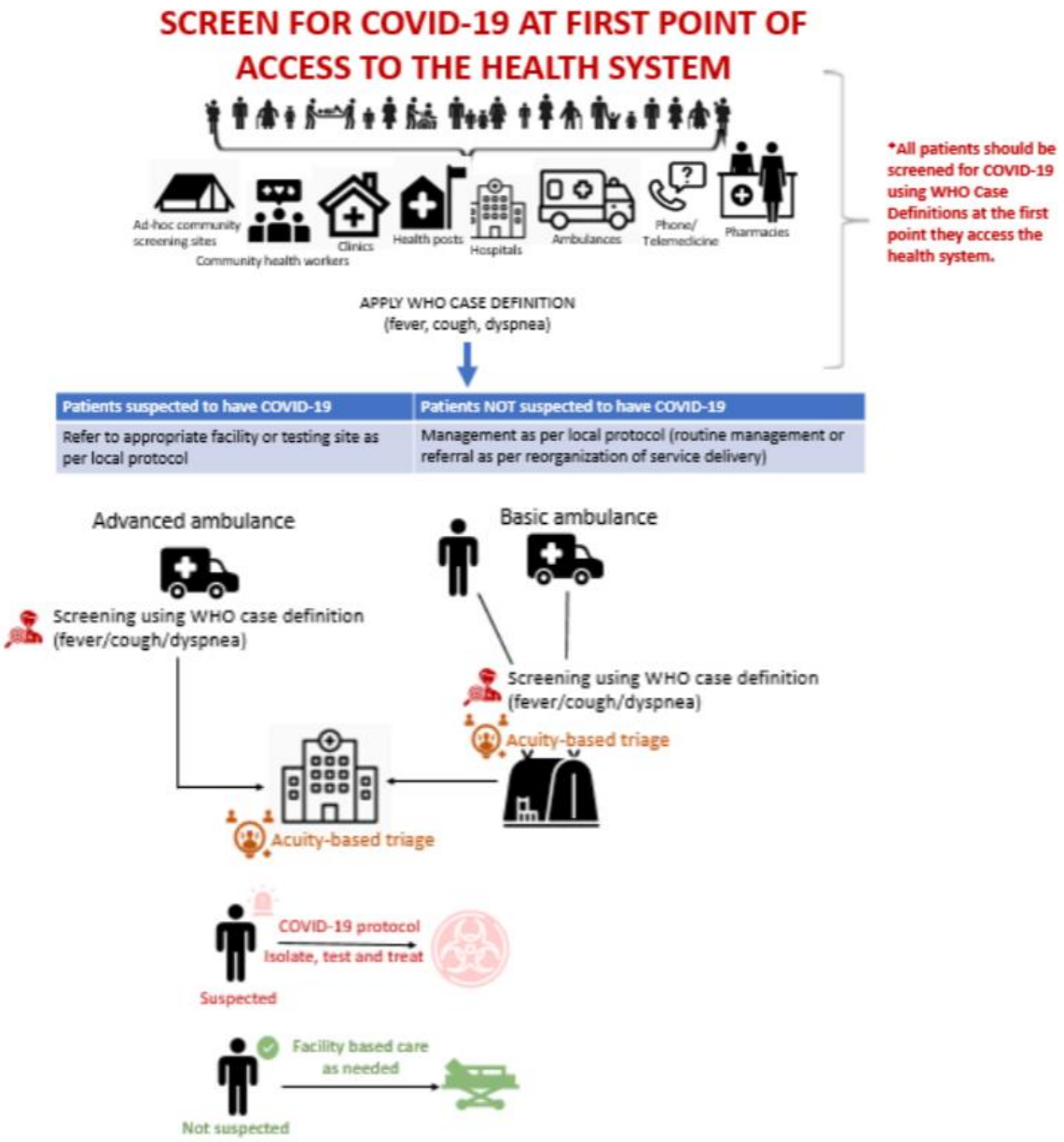


Figure 4. Suggested process flows for screening and triage of patients in emergency centres.

3. Resources

a) Australasian College for Emergency Medicine. Management of Respiratory Disease Outbreaks. 13 March 2020.
b) Australasian College for Emergency Medicine. Managing COVID-19 across the Indo-Pacific. A guide for emergency departments with limited resources
c) WHO Operational considerations for case management of COVID-19 in health facility and community Interim guidance 19 March 2020.
d) Novel Coronavirus COVID-19: An Overview for Emergency Clinicians. AL Giwa, LLB, MD, MBA, FACEP, FAAEM & Akash Desai, MD
e) Lessons Learned from the Front Line of the COVID-19 Outbreak in Northern Italy: An Emergency Physician's Perspective: EB Medicine. Andrea Duca, MD

f) EUSEM Position paper on Emergency Medical Systems response to COVID-19
g) NICD and NDoH, Clinical management of suspected or confirmed COVID-19 disease, version 2 (19th March 2020).
h) Hospital Emergency Management Plan During the COVID-19 Epidemic. Cao Y, Li Q, Cheng J et al.
i) Saint John Regional Hospital, Saint John, New Brunswick, Canada Covid-19 triage protocol. http://sjrhem.ca/covid-19-pandemic/
j) Western Cape Department of Health, Emergency Centre Disaster Plan.