EMERGENCY CARE OF COVID-19 IN ADULTS IN LOW RESOURCE SETTINGS

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PURPOSE

The purpose of this document is to provide clinical guidance to clinicians working in a low resource setting during the COVID-19 pandemic. This is the first edition of guidance on clinical management of adult patients with confirmed or suspected infection with SARS-CoV-2, based on current knowledge and experience with urgent management of acute respiratory distress.

Before treating patients, it is critical to establish procedures within each facility to protect healthcare workers, screen patients, and isolate possibly infected patients. We do not provide detail on this, but rather a high-level overview.

Once a patient presents to a health care facility, they should be screened for symptoms, triaged to the appropriate part of the EU, and then a severity score should be utilized to dictate treatment. There is no specific antiviral treatment, thus management is based on symptoms and respiratory status.

This guide is targeted at low resource settings: we are assuming there is no easy access to more advanced testing such as troponin or CT scan.

Some medications are being trialled for off label use, including hydroxychloroquine, but their use is experimental. For additional information, from public guidance to intensive clinical care recommendations, please see https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

For additional recommendations on management of patients with Severe COVID-19, see the WHO Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected

Note that parts of this guidance refer to need for ventilation. AFEM is well aware that this is not an option for many locations, and that for many more, the number of patients will significantly outweigh the number of ventilators. We are providing tools to assist with your clinical management, but we cannot replace front-line clinical decision making at the bedside.

Contact us at scientific@afem.info with any comments or suggestions on this document.

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PERSONAL PROTECTIVE EQUIPMENT

Follow current WHO guidance on PPE for healthcare workers. Use frequent handwashing in line with guidance.

These videos can help with PPE donning and doffing technique:
Donning PPE https://www.youtube.com/watch?v=I94lIH8xXg8
Doffing PPE https://www.youtube.com/watch?v=oPLdi15YL3g

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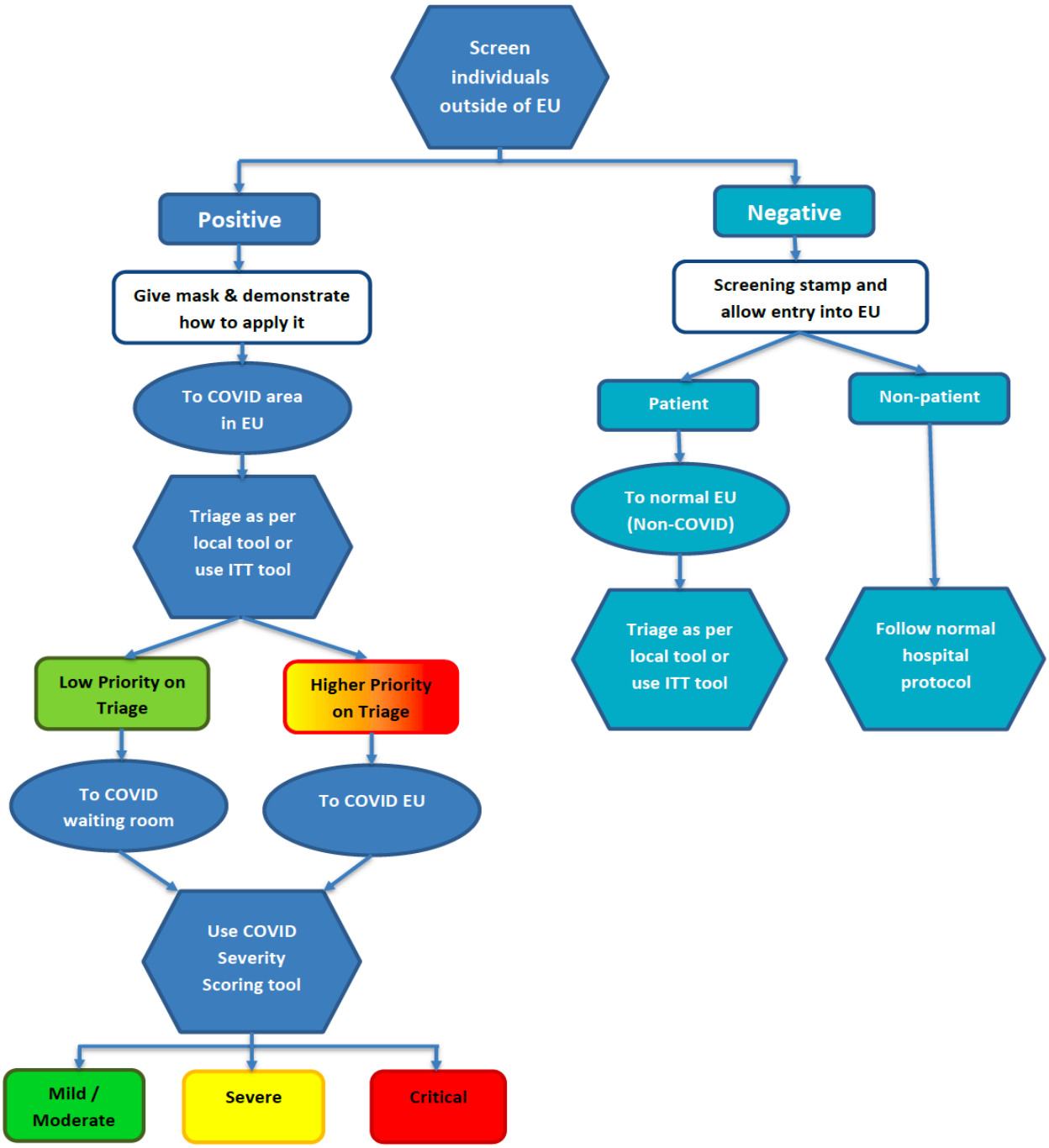
PATIENT FLOW THROUGH HEALTH FACILITIES



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SCREENING

All people presenting to the EU should be screened by applying the WHO case definition (which is updated regularly and is available at http://www.nicd.ac.za/diseases-a-z-index/covid-19/):

- flu like symptoms (sore throat, fever, cough, and difficulty breathing) AND In the 14 days prior to onset of symptoms:
    - Were in close contact with a confirmed or probable case, OR
    - Had a history of travel to areas with local transmission, 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.

If the patient has symptoms suspicious of COVID-19, they should be treated in an isolated part of the EU for only possibly infected patients.

No visitors should accompany patients into the hospital if at all avoidable.

TRIAGE

In the designated COVID area within the EU, patients should undergo triage according to local protocols, or using the Interagency Triage Tool.

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SEVERITY ASSESSMENT

WHO classifies COVID-19 into 4 severity grades, as shown in the table.

Mild	Uncomplicated upper respiratory tract infection
Moderate	Pneumonia with no need for supplemental oxygen (O_2 sats >93% on air)
Severe	Fever or suspected respiratory infection, plus one of the following: respiratory rate > 30 bpm; severe respiratory distress; O_2 sats ≤93% on air
Critical	Acute respiratory failure and/or shock

AFEM has produced a very accurate severity scoring tool for use in the EU. The App version is available online at https://www.surgisphere.com/research-tools/severity.php and the paper version is on the AFEM website (www.afem.africa), but is shown below for information.

The COVID-19 Severity Scoring Tool is a guide to inform clinical decision making. It is NOT intended for use as a replacement for clinical decision making or diagnostic investigations. For example, if there are several critical patients, the tool will not help to differentiate which one should get the single ventilator. Also note that that O_2 sats may be lower in patients with chronic lung disease: clinical discretion will be needed in such cases.

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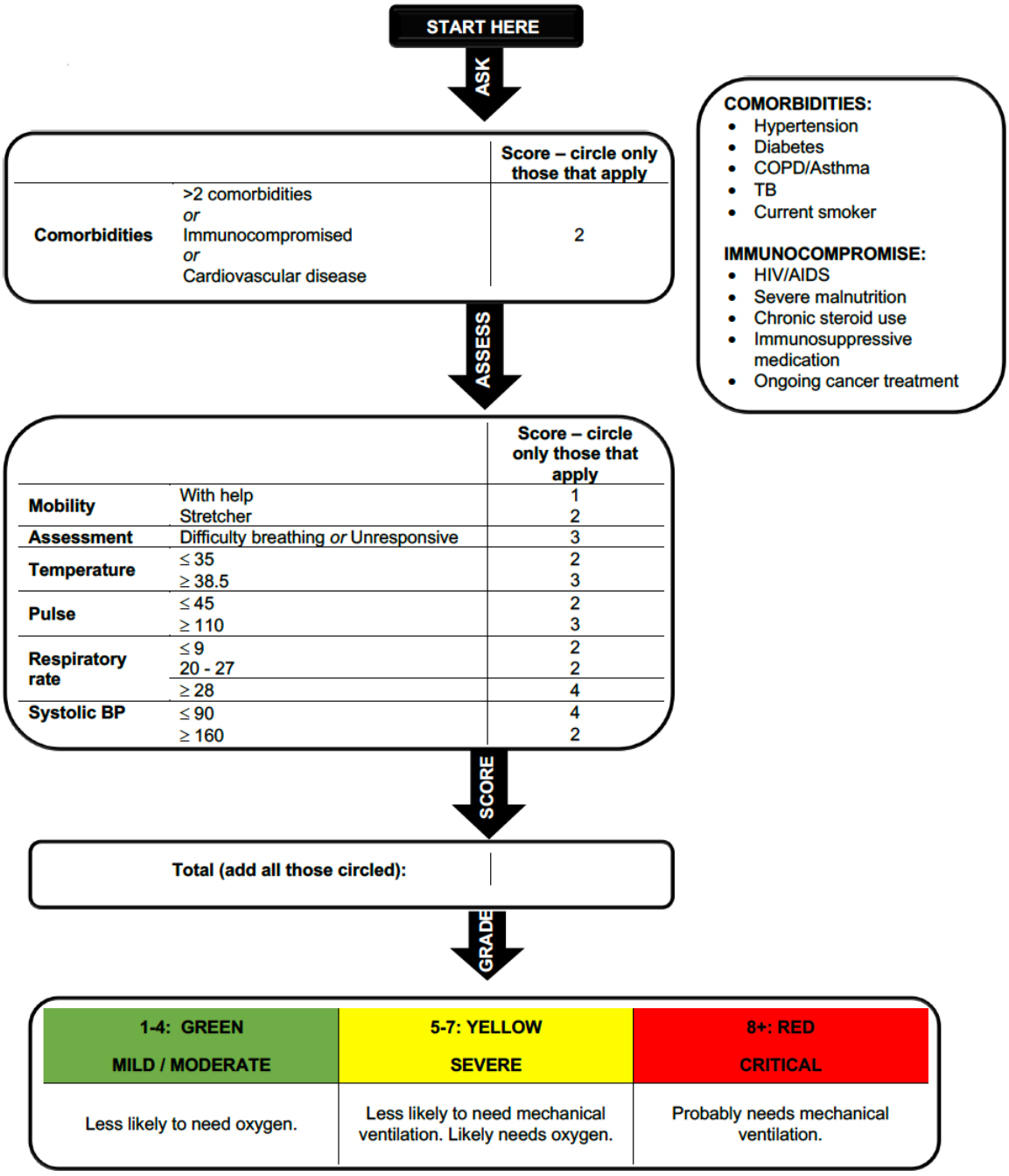

COMORBIDITIES:

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

IMMUNOCOMPROMISE:

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

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CLINICAL MANAGEMENT

SEVERITY	PROGRESSION OF CLINICAL SYNDROME	MANAGEMENT ESCALATION STRATEGY
MILD	Uncomplicated upper respiratory infection	symptomatic treatment and monitoring with self-quarantine at home
MODERATE	Mild pneumonia	Symptomatic treatment and monitoring with self-quarantine at home
SEVERE	Severe pneumonia	Oxygen therapy and monitoring + Treatment of co-infections
CRITICAL	Acute Respiratory Distress Syndrome **and/or** Sepsis **and/or** Shock	Treatment of ARDS + Prevention of complications + Treatment of septic shock

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1. MILD

Presentation:

- Symptoms such as cough, fever, dyspnoea, URI symptoms, possible GI symptoms
- Normal O_2 sats
- Low clinical concern for pneumonia, clear breath sounds, or negative CXR if available

Management:

- Symptomatic support– antipyretics for fever, hydration, rest
- Self-quarantine at home for 14 days (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public)
- Instruct patient to return for worsening or high-risk symptoms, especially increased shortness of breath, difficulty breathing, pain/pressure in chest, confusion, inability to stay awake or cyanosis (blue skin colour, especially lips and fingertips)
- Patients should follow-up with primary care provider once quarantine period is completed

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2. MODERATE

Presentation:

- Higher clinical suspicion for pneumonia, or evidence of pneumonia on CXR (typically bilateral ground glass opacities)
- O_2 sats >94% on room air

Management:

- Symptomatic support
- If not admitting, self-quarantine at home for 14 days
- Give empiric antibiotics based on diagnosis of pneumonia, local treatment guidelines and antibiotic availability
- If bronchodilator treatment is required, provide metered dose inhalers and spacers instead of nebulizers to prevent aerosolization of the virus
- Systemic corticosteroids are not recommended
- Instruct patients to return for worsening or high-risk symptoms

3. SEVERE

Presentation:

- Pneumonia – typically bilateral ground glass opacities on CXR
- O_2 sats <94% on room air
- Patients are typically in respiratory distress with an increased respiratory rate and work of breathing, difficulty speaking in full sentences, and cyanosis (blue skin colour, especially lips and fingertips)

Management:

- Admit to isolation rooms
- Provide supplemental O_2 to achieve O_2 sats >94%
    - Nasal cannula
        - 20-40% oxygen
        - O_2 dose 1-5L/min
    - Simple facemask
        - 40-60% oxygen
        - O_2 dose 6-10L/min
    - Non-rebreather facemask
        - 60-90% oxygen
        - O_2 dose 10-15L/min
        - Ensure proper fit, to reduce risk of aerosol spread

- May deteriorate rapidly: continuously monitor O_2 sats and vital signs; escalate oxygen dose and delivery device if hypoxia remains with maximal oxygen doses
- Non-invasive positive pressure ventilation is NOT recommended as it can aerosolize the virus and increase spread. If additional respiratory support is required, patients should be intubated.
- Begin arranging for transfer to higher level of care as needed

4. CRITICAL

Presentation:

- Hypoxemic respiratory failure, Acute Respiratory Distress Syndrome (ARDS), and/or shock
    - Oxygenation index of SpO_2/FiO_2 ≤315 mmHg suggests ARDS

Management:

- Endotracheal intubation and mechanical ventilation to manage ARDS
    - should be performed with airborne precautions by the most experienced clinician, with Rapid Sequence Intubation
    - Use low flow non-rebreather masks or masks with reservoir bags to oxygenate prior to intubation. Using a bag valve mask is NOT recommended as it can aerosolize the virus and increase spread.
    - Mechanical ventilation goals:
        - SpO_2 is >90%
        - Tidal volumes of 4-8 mL/kg
        - Inspiratory pressures < 30 cmH_2O
- ECG and laboratory testing to monitor for complications including myocarditis, acute kidney injury, liver injury, and shock
- Test and treat co-infections, if possible, including influenza or other viruses, malarial blood tests, and blood cultures
- If shock is present, use conservative fluid management – aggressive fluid resuscitation may worsen oxygenation
    - 250-500 mL normal saline or lactated ringers as rapid bolus
    - Monitor for signs of fluid overload before giving additional bolus
    - Administer vasopressors if shock persists
        - goal MAP >65 mmHg
        - If central lines are not available, give through peripheral IVs with monitoring for extravasation and local tissue necrosis
        - Noradrenaline is the first-choice vasopressor
        - Adrenaline is the second choice
- Ventilator triage will likely be necessary
    - If resources are limited, determine which patients have the best chance of survival with mechanical ventilation
    - End of life discussions should be held with patients and their families if resources are not available or appropriate - especially for the elderly, terminally ill, and co-morbid with poor baseline functioning