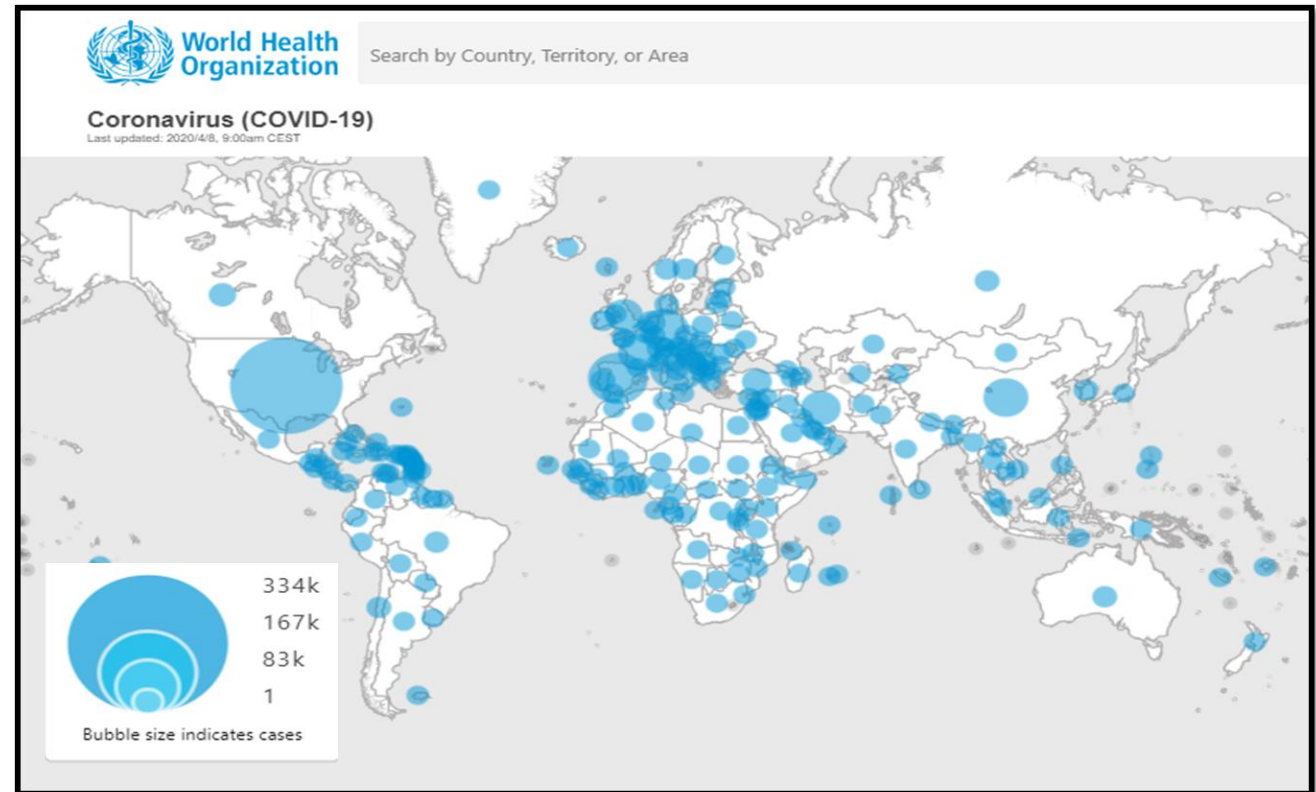


Resuscitation of Adult COVID-19 Patients

Introduction

- ▶ The pandemic of COVID-19, a disease caused by a novel coronavirus (CoV), SARS-CoV-2, is causing substantial morbidity and mortality.
- ▶ COVID-19 has caused significant health care burden across the globe



Revised Definition

Govt. of India (31/03/2020)

► When to suspect

- All symptomatic individuals who have undertaken international travel in the last 14 days or
- All symptomatic contacts of laboratory confirmed cases **or**
- All symptomatic healthcare personnel (HCP) **or**
- All hospitalized patients with severe acute respiratory illness (SARI) (fever AND cough and/or shortness of breath) **or**
- Asymptomatic direct and high risk contacts of a confirmed case (should be tested once between day 5 and day 14 after contact)

Symptomatic refers to fever/cough/shortness of breath. Direct and high-risk contacts include those who live in the same household with a confirmed case and HCP who examined a confirmed case

Revised Definition

Govt. of India (31/03/2020)

► CONFIRMED CASE

**A person with laboratory confirmation of COVID-19 infection,
irrespective of clinical signs and symptoms**

Clinical Features

- ▶ COVID-19 may present with mild, moderate, or severe illness
- ▶ The latter includes severe pneumonia, ARDS, sepsis and septic shock.
- ▶ Early recognition of suspected patients allows for timely initiation of IPC.
- ▶ Early identification of those with severe manifestations allows for immediate optimized supportive care treatments and safe, rapid admission (or referral) to ICU

Immediate implementation of appropriate IPC measure

- ▶ Infection prevention control (IPC) is a critical and integral part of clinical management of patients.
- ▶ It should be initiated at the point of entry of the patient to hospital (typically the Emergency Department).
- ▶ Standard precautions should always be routinely applied in all areas of health care facilities.

Immediate implementation of appropriate IPC measure

► Standard precautions include

- Hand hygiene;
- Use of PPE to avoid direct contact with
 - patients' blood,
 - body fluids,
 - secretions (including respiratory secretions) and
 - non-intact skin.

► Standard precautions also include

- prevention of needle-stick or sharps injury;
- safe waste management;
- cleaning and disinfection of equipment; and
- cleaning of the environment

**HOW TO IMPLEMENT IPC
MEASURES FOR PATIENTS WITH
SUSPECTED OR CONFIRMED
COVID - 19 INFECTION?**

At Triage

- ▶ Give suspect patient a triple layer surgical mask and direct patient to separate area, an isolation room if available.
- ▶ Keep at least 1meter distance between suspected patients and other patients.
- ▶ Instruct all patients to cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others.
- ▶ Perform hand hygiene after contact with respiratory secretions

Apply Droplet Precautions

- ▶ Droplet precautions prevent large droplet transmission of respiratory viruses.
- ▶ Use a triple layer surgical mask if working within 1-2 metres of the patient.
- ▶ Place patients in single rooms, or group together those with same etiological diagnosis.
- ▶ If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation.
- ▶ When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection (face-mask or goggles), because sprays of secretions may occur.
- ▶ Limit patient movement within the institution and ensure that patients wear triple layer surgical masks when outside their rooms

Apply contact precautions

Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces).

- ▶ Use PPE (triple layer surgical mask, eye protection, gloves, gown) when entering room and remove PPE when leaving.
- ▶ If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs, thermometers).
- ▶ If equipment needs to be shared among patients, clean and disinfect between each patient use.
- ▶ Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands.
- ▶ Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches).
- ▶ Ensure adequate room ventilation.
- ▶ Avoid movement of patients or transport.
- ▶ Perform hand hygiene.

Apply airborne precautions when performing an aerosol generating procedure

- ▶ Ensure that healthcare workers performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, CPR)

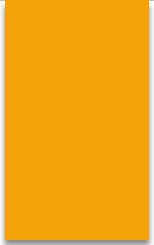
Use PPE,

- including gloves,
- long-sleeved gowns,
- eye protection, and
- fit-tested particulate respirators (**N95**).

(The scheduled fit test should not be confused with user seal check before each use.)

Apply airborne precautions when performing an aerosol generating procedure

- ▶ Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures,
 - meaning negative pressure rooms with minimum of 12 air changes per hour **or**
 - at least 160 litres/second/patient in facilities with natural ventilation.
- ▶ Avoid the presence of unnecessary individuals in the room.
- ▶ Care for the patient in the same type of room after mechanical ventilation commences



GUIDANCE FOR THE RESUSCITATION OF ADULT COVID-19 PATIENTS

Resuscitation of adult COVID-19 patients in acute hospital settings

- ▶ Identify as early as possible any patients with a COVID-19 like illness, who are at risk of acute deterioration or cardiac arrest.
- ▶ Take appropriate steps to prevent cardiac arrest and avoid unprotected CPR.

Resuscitation of adult COVID-19 patients in acute hospital settings

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Resuscitation of adult COVID-19 patients in acute hospital settings

- ▶ Use of physiological track-and-trigger systems (e.g. NEWS2) will enable early detection of acutely ill patients.
- ▶ For those for whom resuscitation would be inappropriate, decisions must be made and communicated.
- ▶ Equipment must be made readily available to protect staff during resuscitation attempts.
- ▶ **All health care workers managing those with suspected or confirmed COVID-19 must follow National guidance for infection control and the use of PPE**

Resuscitation in COVID-19 patients

Recognize cardiac arrest. Look for the absence of signs of life and normal breathing. Feel for a carotid pulse if trained to do so.

Do not listen or feel for breathing by placing your ear and cheek close to the patient's mouth.

If a defibrillator is readily available defibrillate shockable rhythms rapidly prior to starting chest compressions.

The early restoration of circulation may prevent the need for further resuscitation measures.

Full Aerosol Generating Procedure (AGP) Personal Protective Equipment (PPE) must be worn by all members of the resuscitation/emergency team before entering the room.

1. Resuscitation Council UK Statements on COVID-19 (Coronavirus), CPR and Resuscitation / COVID-19 Resources: Healthcare Settings. Version 4. Published 6 April 2020
2. Interim Guidance for Healthcare Providers during COVID-19 Outbreak. American Heart Association Guidelines 2020
3. Available at <https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>. Accessed on 08/04/2020

Resuscitation in COVID-19 patients ... Contd...

Sets of AGP PPE must be readily available where resuscitation equipment is being locally stored.

No chest compressions or airway procedures such as those detailed below should be undertaken without full AGP PPE.

Once suitably clothed, start compression-only CPR and monitor the patient's cardiac arrest rhythm as soon as possible.

Do not do mouth-to mouth ventilation or use a pocket mask.

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Resuscitation in COVID-19 patients ... Contd...

If the patient is already receiving supplemental oxygen therapy using a face mask, leave the mask on the patient's face during chest compressions as this may limit aerosol spread.

If not in situ, but one is readily available, put a simple oxygen mask on the patient's face. Restrict the number of staff in the room (if a single room).

Airway interventions (e.g. supraglottic airway (SGA) insertion or tracheal intubation) must be carried out by experienced individuals.

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Resuscitation in COVID-19 patients ... Contd...

Airway interventions (e.g. supraglottic airway (SGA) insertion or tracheal intubation) must be carried out by experienced personnel.

Individuals should use only the airway skills (e.g. bag-mask ventilation) for which they have received training.

Identify and treat any reversible causes (e.g. severe hypoxaemia) before considering stopping CPR.

Discussion should be maintained throughout the resuscitation event and early planning of the post resuscitation phase undertaken.

Contact senior help and gain advice from critical care partners as part of the planning.

1. Resuscitation Council UK Statements on COVID-19 (Coronavirus), CPR and Resuscitation / COVID-19 Resources: Healthcare Settings. Version 4. Published 6 April 2020
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Resuscitation in COVID-19 patients ... Contd...

Dispose of, or clean, all equipment used during CPR following the manufacturer's recommendations and local guidelines.

Any work surfaces used for airway/resuscitation equipment will also need to be cleaned according to local guidelines.

Specifically, ensure equipment used in airway interventions (e.g. laryngoscopes, face masks) is not left lying on the patient's pillow, but is instead placed in a tray.

Do not leave the Yankauer sucker placed under the patient's pillow; instead, put the contaminated end of the Yankauer inside a disposable glove..

1. Resuscitation Council UK Statements on COVID-19 (Coronavirus), CPR and Resuscitation / COVID-19 Resources: Healthcare Settings. Version 4. Published 6 April 2020
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Resuscitation in COVID-19 patients ... Contd...

Remove PPE safely to avoid self-contamination and dispose of clinical waste bags as per local guidelines.

Hand hygiene has an important role in decreasing transmission.
Thoroughly wash hands with soap and water; alternatively, alcohol hand rub is also effective.

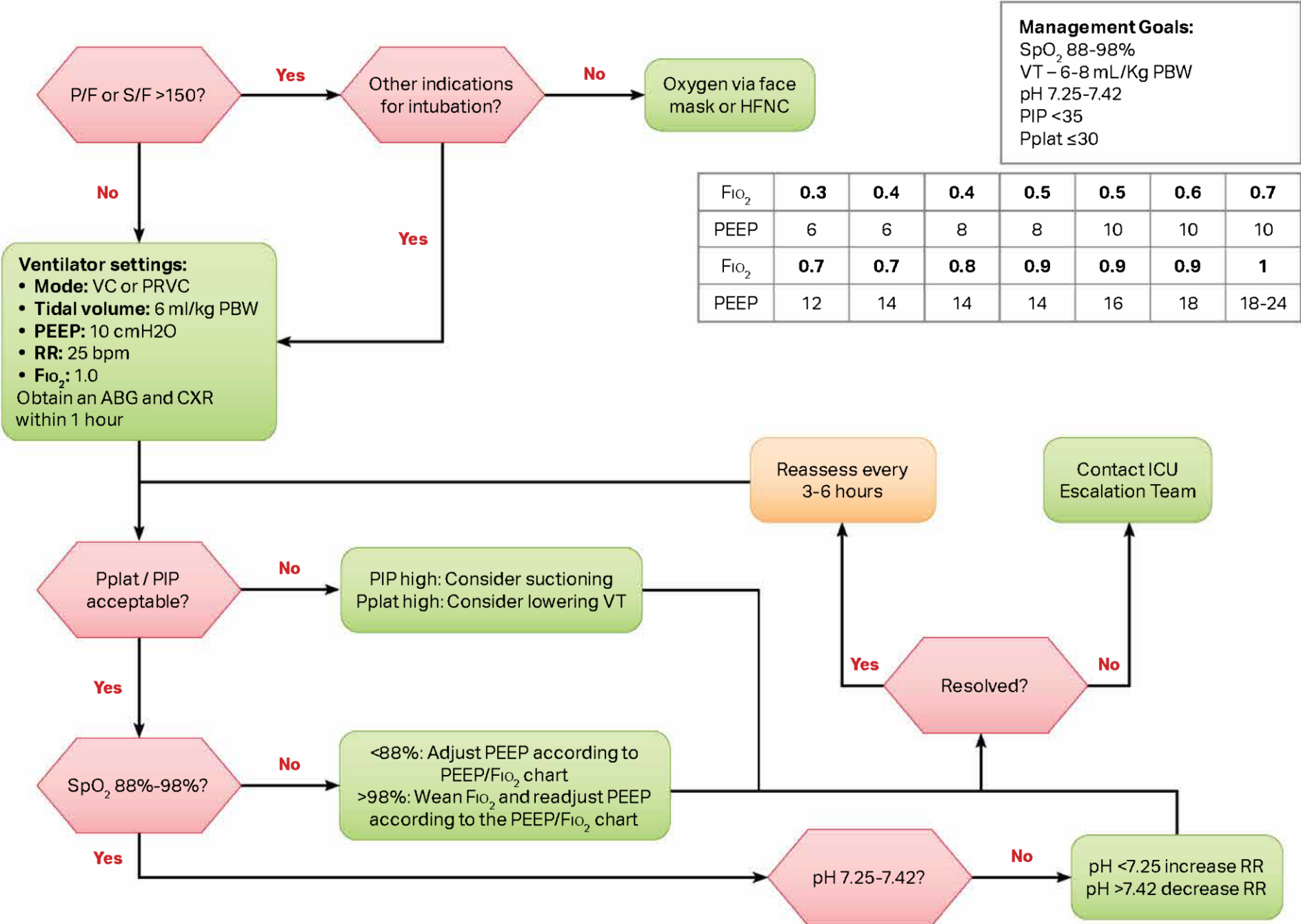
Post resuscitation debrief is important and should be planned.

1. Resuscitation Council UK Statements on COVID-19 (Coronavirus), CPR and Resuscitation / COVID-19 Resources: Healthcare Settings. Version 4. Published 6 April 2020
2. Interim Guidance for Healthcare Providers during COVID-19 Outbreak. American Heart Association Guidelines 2020
3. Available at <https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>. Accessed on 08/04/2020

The slide features a large orange rectangle on the left side with a curved right edge and a subtle gradient. In the top right corner, there is a small yellow rectangle. The title text is positioned to the right of the orange shape.

VENTILATOR MANAGEMENT ALGORITHM

Basic Ventilator Management Algorithm



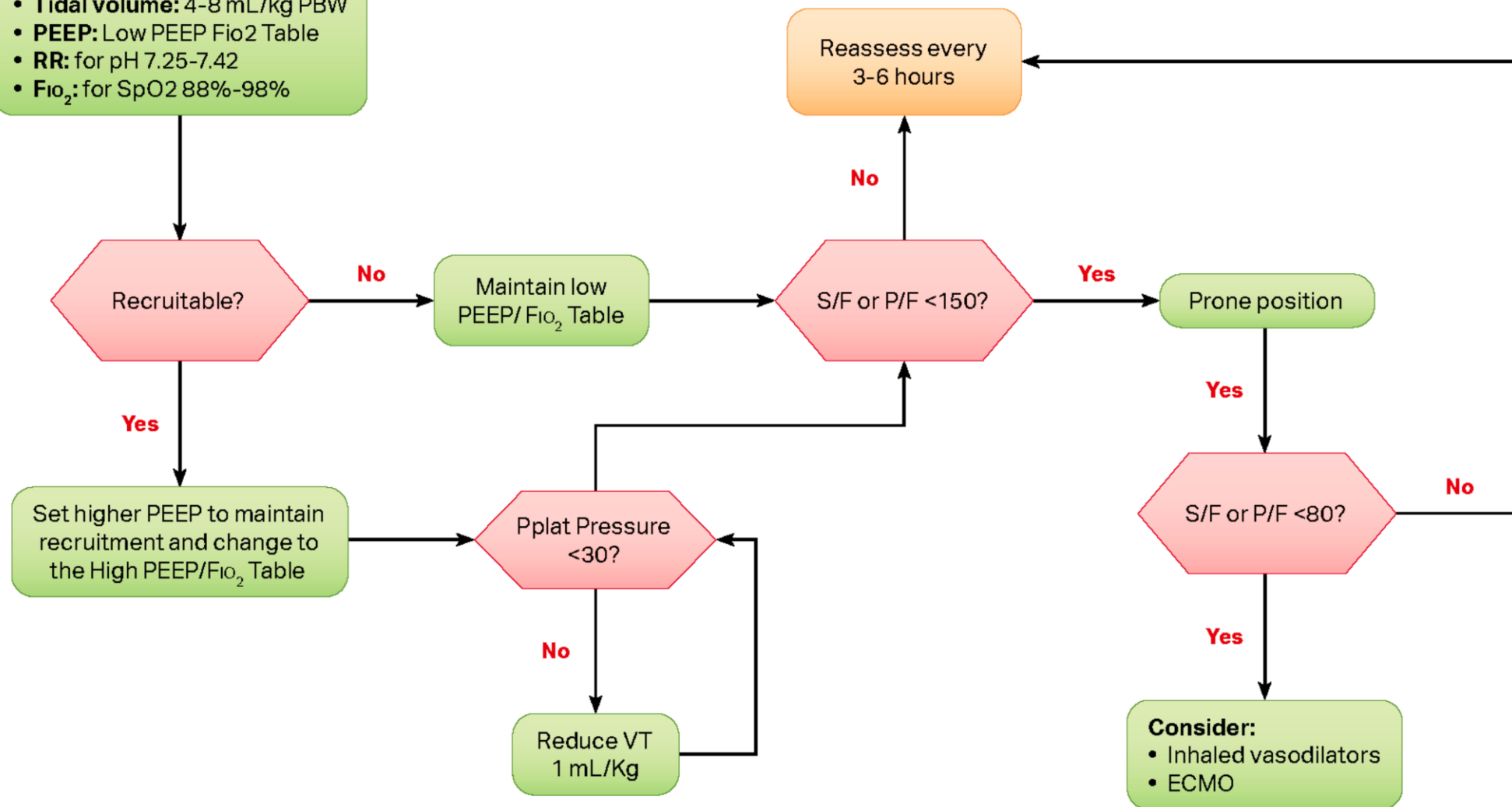
Advanced Ventilator Management Algorithm

Ventilator goals:

- **Mode:** VC or PRVC
- **Tidal volume:** 4-8 mL/kg PBW
- **PEEP:** Low PEEP Fio₂ Table
- **RR:** for pH 7.25-7.42
- **Fio₂:** for SpO₂ 88%-98%

Management Goals:

- Driving pressure <14
- RR for pH 7.25-7.42
- PaO₂ >60 or SpO₂ 88%-98%





GUIDANCE FOR PARAMEDICS AND OTHER FIRST RESPONDERS

Guidance for paramedics and other first responders

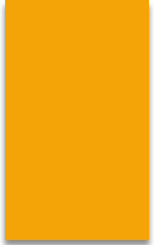
- ▶ Paramedic staff should question callers and determine the possibility that this call concerns a person who may have signs or symptoms and risk factors for COVID-19.
- ▶ When COVID-19 is suspected in a patient needing emergency transport, prehospital care providers and healthcare facilities should be notified in advance that they may be caring for, transporting, or receiving a patient who may have COVID-19 infection.
- ▶ During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures

Guidance for paramedics and other first responders

- ▶ If paramedic staff advise that the patient is suspected of having COVID-19, The emergency clinicians should follow Standard Precautions, including the use of eye protection, and should put on appropriate PPE before entering the scene.
- ▶ If information about potential for COVID-19 has not been provided by the paramedics, Clinicians should exercise appropriate precautions when responding to any patient with signs or symptoms of a respiratory infection.
- ▶ Initial assessment should begin from a distance of at least 6 feet from the patient, if possible.
- ▶ Patient contact should be minimized to the extent possible until a facemask is on the patient
- ▶ If COVID-19 is not suspected, clinicians should follow standard procedures and with appropriate PPE.

Special considerations for transport of patients who may have COVID-19

- ▶ Clinicians should notify the receiving healthcare facility if the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.
- ▶ Keep the patient separated from other people as much as possible.
 - Family members and other contacts of patients with possible COVID-19 should not ride in the ambulance (transport) vehicle, if possible.
 - If riding in the transport vehicle, they should wear a facemask.
- ▶ Paramedic staff including the driver should wear appropriate PPE.
- ▶ Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut



Thank You