

# About this resource



With collaborators & support from multiple institutions, including:



Last updated June 2021

## Disclaimer

**This document is intended to be educational in nature and is not a substitute for clinical decision making based on the medical condition presented.**

This content is a collaborative effort by representatives of multiple institutions, and this document and the information herein are intended and designed for educational purposes only. You should not rely on this information to replace professional medical advice, diagnosis, and/or treatment, nor should this information ever be used as a substitute for either manufacturers' instructions and guidance or clinical decision-making based on the medical condition presented. It is the responsibility of the user to ensure that all information contained herein is current and accurate, and the creators and hosts of this content make no claims or warranties as to the currency, accuracy, or suitability of this information for any purpose. Any reference to specific equipment, pharmaceuticals, or other medical devices in this document is not meant as an endorsement of such items, and you should consult manufacturers' documentation prior using any such items that may be referenced here. The use of any information in this document is undertaken solely at your own risk, and the creators and hosts of this content shall not be liable for any damages, losses, or other injury caused by the use of any information in this document, nor for any reliance on the accuracy or reliability of such information.

## How to Use This Document

This is a living document, created by created by nurses, physicians, respiratory therapists and other healthcare providers from multiple institutions and multiple countries via the OpenCriticalCare.org project.

**The goal of this document is to provide tools that can be locally modified to help healthcare providers learning to provide respiratory care for hospitalized patients.**

For qualified personnel, please **copy or download this file and then modify the document** to fit your needs, the most current data and local resources. For Google documents, this can be done by going to the "File Menu" at the top left of this window and selecting "File" → "Download" then select the format you prefer. Alternatively you can select "File" → "Make a Copy" then use a copy in Google Slides to make your edits. For pdf document please contact us below for an editable file.

**To Print:** select "Print" from the file menu at the top left. You may need to scale the size to fit your preferred paper size.

Please check back regularly for updates and send any questions or comments to us [here](#).

This work is licensed under a Creative Commons Attribution-NonCommercial-Sharealike 4.0 International License.



# Adult oxygen therapy escalation algorithm

A medical mask should be placed over nasal cannulas for patients with suspected or confirmed highly infectious respiratory illness (e.g. COVID-19)



- Start oxygen at 1-5 L/min
- Use **nasal prongs**
- Assess response

FiO<sub>2</sub> 0.23 - 0.4

If continued distress or SpO<sub>2</sub> < 90%  
(or <94% if pregnant or emergency signs)

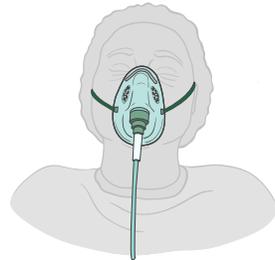
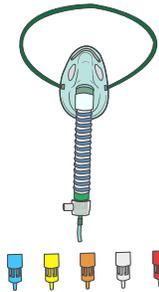
- Use **face mask**
- Increase oxygen to **5-10 L/min**
- Assess response

FiO<sub>2</sub> 0.3 - 0.5

If continued distress or SpO<sub>2</sub> < 90%  
(or <94% if pregnant or emergency signs)

- Consider **Venturi mask**
- Titrate oxygen **2-15 L/min** by color

FiO<sub>2</sub> 0.24 - 0.6

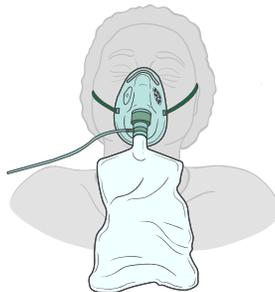


- Use **face mask with reservoir**
- Start oxygen at **10-15 L/min** & titrate to ensure bag inflates

FiO<sub>2</sub> 0.5 - 0.85

If continued distress or SpO<sub>2</sub> < 90%  
(or <94% if pregnant or emergency signs)

Heated humidification systems should be used with HFNO and BIPAP/CPAP.



- Continue to try to find a higher level of care and consider one of the following if available and adequate O<sub>2</sub> supply:

**HFNO:** 30-60 LPM (may also adjust FiO<sub>2</sub>)

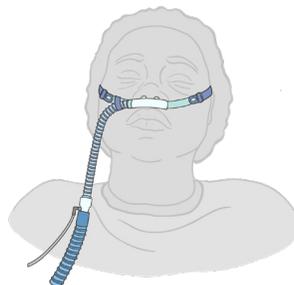
**CPAP:** 10-15 cmH<sub>2</sub>O

**BIPAP:** PS (Δ) 5-15/PEEP (EPAP) 5-15

FiO<sub>2</sub> 0.21 - 1.0



Oronasal BIPAP/CPAP



HFNO

**If continued respiratory distress or SpO<sub>2</sub> < 90% on 15L/min, further clinical management decisions should be made based on individual patient characteristics, local resources and expertise.**

**Wean O<sub>2</sub> flow & avoid SpO<sub>2</sub> 100% to avoid ill effects of hyperoxia & excess O<sub>2</sub> consumption. Optimal SpO<sub>2</sub> may vary with locally available resources.**

CPAP - continuous positive airway pressure; BIPAP - bilevel positive airway pressure; HFNO - high flow nasal oxygen; LPM - liters per minute; Δ - delta; PS - pressure support; PEEP - positive end expiratory pressure; EPAP - expiratory positive airway pressure

Algorithm modified from: [IMAI district clinician manual: hospital care for adolescents and adults - guidelines for the management of common illnesses with limited resources.](#)



USAID  
FROM THE AMERICAN PEOPLE



OC<sub>2</sub> Open Critical Care.org

UCSF Center for Health Equity  
in Surgery & Anesthesia  
chesa.ucsf.edu

