Nasal High Flow (NHF) use with COVID-19 patients

















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Links to some of the latest information and resources on

Nasal High Flow (NHF) use with COVID-19 patients





Recent evidence-based COVID-19 guidelines

(MULTI-REGIONAL) Click links for further reading on COVID-19 guidelines...

- WHO: Clinical management of COVID-19: living guidance.

 (JAN 2021 UPDATE)

 GLOBAL
- NIH: COVID-19 treatment guidelines
 oxygenation and ventilation
 (DEC 2020 UPDATE)
 USA
- Surviving Sepsis Campaign:
 Guidelines on the management of
 adults with COVID-19 in the ICU.
 (JAN 2021 UPDATE)

EUROPE AND USA COMBINED

Surviving Sepsis Campaign:
Recommendation chart
(JAN 2021 UPDATE)
EUROPE AND USA COMBINED

ANZICS: COVID-19 Guidelines – V3.
(OCT 2020 UPDATE)

AUSTRALIA AND NEW ZEALAND

- National COVID-19 Clinical Evidence
 Taskforce: Respiratory support for
 adults with severe to critical COVID-19.

 AUSTRALIA AND NEW ZEALAND
- National Health Commission of the People's Republic of China: diagnosis and treatment protocol for COVID-19 patients.
 CHINA
- → Handbook of COVID-19
 Prevention and Treatment
 (first affiliated Chinese hospital).
 CHINA

- European Respiratory Journal: Management of hospitalised adults with coronavirus disease-19 (COVID-19): A European Respiratory Society living guideline EUROPE
- Society of Critical Care Medicine (SCCM) summary video of NHF use in COVID-19 respiratory failure. USA
- → WHO: TECHNICAL SPECIFICATIONS for invasive and non-invasive ventilators for COVID-19.

 GLOBAL



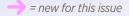














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Clinical webinars (MULTI-REGIONAL) Click links to view further information on COVID-19.



USA

- 5:00 Summary of existing quidelines
- 7:57 Technical differences and distinctions between NHF and NIV
- 9:25 Indications for NIV
- 27:00 NHF discussed
- 30:10 Aerosol dispersion
- 48:00 ROX index



- 6:20 PPE discussed
- 16:20 CPAP pre-oxygenation discussed
- 18:10 NHF discussed
- 23:10 Pre-oxygenation with NHF

Philips: International Learning from COVID-19: EUROPE

- Webinar Series 2.
 - 31:00 1:10:00 Non-invasive respiratory support strategies discussed
 - 1:21:00 Aerosolization discussed (Dr Hui, Hong Kong)
 - 1:26:00 Summary from Dr Mark Elliot (Chair, UK)

Webinar Series 3.

- 7:30 Italian experience with CPAP in COVID-19 (Dr Annalisa Carlucci)
- 19:00 Temple University, USA, experience with NHF and early analysis of data
- 37:00 Dr Nick Hart (London) discusses intubation strategies, pathophysiology of COVID-19 and oxygen supply
- 1:16:00 Dr Wolfram Windisch (Germany) describes experience
- 1:46:00 Dr Mark Elliot (Chair, UK) discusses CPAP v NHF in COVID-19 survey results

Webinar Series 4.

1:34:50 Aerosolization and cross infection discussed

FPH: Respiratory Care Webinar 1: Nasal high flow - moving forward with **COVID-19, Dr Anil Patel.**

UK

- Aerosolization discussed.
- **FPH: Respiratory Care** Webinar 3: High-flow nasal cannula for COVID-19 patients, Dr Jie Li.

USA

 Aerosol dispersion in the hospital setting.

FPH: Respiratory Care Webinar 2: HFNO outside ICU. safety and effectiveness. Dr Audrey Créac'hcadec.

FRANCE

- Local experience of NHF use in COVID-19 patients outside the ICU.
- **FPH: Respiratory Care Webinar Discussion: Dr Nicholas Hart. Dr Alison Armstrong, Dr Swapna Mandel** and Dr Chris Carlin.

 Value of NHF in preparation for the second wave of COVID-19 in the UK.

FPH: NHF and COVID-19

JAPAN AND USA

- From start: NHF as a respiratory support (Pr Gerard Criner)
- 22:38 NHF and bio-aerosol dispersion (Dr Jie Li)
- **36:25** Aerosol dispersion under oxygen delivery modes (Dr Kazuko Yamamoto)
- 45:40 Video of particle dispersion (Takazono T et al)

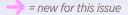














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Infection risk & uncertainty (MULTI-REGIONAL)

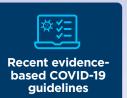
Click links below for further reading on COVID-19 and aerosolization of the virus.

- → WHO: Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations.
 GLOBAL
- Wilson N et al. The effect of respiratory activity, ventilatory therapy and facemasks on total aerosol emissions. MedRxiv pre-print. AUSTRALIA
- Takazono T et al. Effects of surgical masks on droplet dispersion under various oxygen delivery modalities. *Critical Care.*
- Video: Experimental footage of particle dispersion. JAPAN
- Li J et al. High-flow nasal cannula for COVID-19 patients: low risk of bio-aerosol dispersion.
 Eur. Respir. J.

 USA

- Jermy et al. Assessment of dispersion of airborne particles of oral/nasal fluid by HFNC therapy. MedRxiv pre-print.
 NEW ZEALAND
- Li J et al. Placing a mask on COVID-19 patients during high-flow nasal cannula therapy reduces aerosol particle dispersion. ERJ Open Res. USA
- Leung C et al. Comparison of high-flow nasal cannula versus oxygen face mask for environmental bacterial contamination in critically ill pneumonia patients. J. Hosp. Infect. HONG KONG
- Hui D et al. Exhaled air dispersion during high flow nasal cannula therapy versus CPAP via different masks. Eur. Respir. J. HONG KONG

- → Li et al. High-flow aerosol dispersing versus aerosol generating procedures. AJRCCM.
 - **USA**
- Gaeckle N et al. Aerosol generation from the respiratory tract with various modes of oxygen delivery. AJRCCM.
 USA
- Kaur R et al. Practical strategies to reduce nosocomial transmission to healthcare professionals providing respiratory care to patients with COVID-19. Critical Care. USA
- → Kotoda M et al. Assessment of the potential for pathogen dispersal during high-flow nasal therapy. *J. Hosp. Infect.*JAPAN

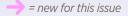














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Links to some of the latest information and resources on

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Articles, studies, systematic reviews & opinions (MULTI-REGIONAL)

- → Patel M et al. Retrospective analysis of high flow nasal therapy in COVID-19-related moderate-to-severe hypoxemic respiratory failure.

 BMJ Open Respiratory Research.*
- Guy T et al. High flow nasal oxygen: a safe, efficient treatment for COVID-19 patients not in an ICU. Eur. Respir. J.*

 FRANCE
- → Vianello A et al. Assessment of outcomes and safety of HFNC in AHRF consequent to COVID-19.* *Thorax*.
- → Deng L et al. Outcome of early versus late HFNC in elderly COVID-19 ARDS patients. *medRxiv*.

 CHINA

Bonnet et al. High flow nasal oxygen therapy to avoid invasive mechanical ventilation in SARS-CoV-2 pneumonia: a retrospective study. Annals of Intensive Care.

FRANCE

Jackson et al. High flow nasal cannula for acute hypoxic respiratory failure in COVID-19. Respiratory Care.

USA

USA

USA

- Gershengorn et al. The impact of NHF use on patient mortality and the availability of mechanical ventilators in COVID-19. Ann. Am. Thorac.
- Anesi et al. Characteristics, outcomes, and trends of patients with COVID-19-related critical illness at a learning health system in the United States. Ann. Intern. Med.

Westafer et al. No evidence of increasing COVID-19 in health care workers after implementation of high flow nasal cannula: A safety evaluation. Am. J. Emerg. Med. USA

 Calligaro et al. The use of NHF for severe COVID-19 in a resource-constrained setting. EClinical Medicine.

SOUTH AFRICA

- → Hu et al. Application of high-flow nasal cannula in hypoxemic patients with COVID-19: a retrospective cohort study.

 BMC Pulmonary Medicine
 CHINA
- → Zucman N et al. Using the ROX index to predict outcome of NHF use during COVID-19 AHRF. Intensive Care Med.













* publication reports observations on both NHF outcomes as well as staff infection rates.





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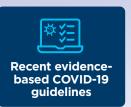


- Gattinoni L et al. COVID-19 pneumonia: different respiratory treatments for different phenotypes? Intensive Care Med. ITALY
- → Gattinoni L et al. COVID-19 pneumonia: ARDS or not? *Critical Care*.
- → Duan J et al. Use of HFNC and NIV in patients with COVID-19: a multicentre observational study. Am. J. Emerg. Med.*
- Raoof S et al. High-flow, non-invasive ventilation and awake (non-intubation) proning in COVID-19 patients with respiratory failure. Chest.
 USA

→ SYSTEMATIC REVIEW:

NHF for AHRF in patients with COVID-19: systematic reviews of effectiveness and its risks of aerosolization, dispersion, and infection transmission. *Can. J. Anaesth.* GLOBAL













* publication reports observations on both NHF outcomes as well as staff infection rates.





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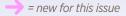














Nasal High Flow (NHF) use with COVID-19 patients



USA AND CANADA

Click links below for more information on COVID-19...









- FPH: Respiratory
 Care Webinar 3:
 High-flow
 nasal cannula
 for COVID-19
 patients,
 Dr Jie Li.
- ATS: Nicholas
 Hill: Non-invasive
 techniques in
 the COVID-19
 pandemic.
- ER Cast:
 COVID-19 Inside NYC.
 Dr Reuben
 Strayer.



- Li J et al. Placing a mask on COVID-19 patients during high-flow nasal cannula therapy reduces aerosol particle dispersion. *ERJ Open Res.*
- Li et al. High-flow aerosol dispersing versus aerosol generating procedures. AJRCCM.
- Gaeckle N et al. Aerosol generation from the respiratory tract with various modes of oxygen delivery. AJRCCM.
- Kaur R et al. Practical strategies to reduce nosocomial transmission to healthcare professionals providing respiratory care to patients with COVID-19. Critical Care.
- Li J et al. High-flow nasal cannula for COVID-19 patients: low risk of bio-aerosol dispersion. Eur. Respir. J.



- Westafer et al. No evidence of increasing COVID-19 in health care workers after implementation of high flow nasal cannula: A safety evaluation. Am. J. Emerg Med.
- Gershengorn et al. The impact of NHF use on patient mortality and the availability of mechanical ventilators in COVID-19. Ann. Am. Thorac.
- Anesi et al.
 Characteristics,
 outcomes, and trends of
 patients with COVID-19related critical illness at a
 learning health system in
 the US. Ann. Intern. Med.

- Jackson et al. High flow nasal cannula for acute hypoxic respiratory failure in COVID-19. Respiratory Care.
- Patel M et al. Retrospective analysis of high flow nasal therapy in COVID-19-related moderate-to-severe hypoxemic respiratory failure. BMJ Open Respiratory Research.
- Raoof S et al. High flow, non-invasive ventilation and awake (non-intubation) proning in COVID-19 patients with respiratory failure. Chest.



Americas

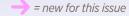














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ASIA & PACIFIC

Click links below for more information on COVID-19...



ANZICS: COVID-19 Guidelines - V3. (OCT 2020 UPDATE)

AUSTRALIA AND NEW ZEALAND

- **National Health Commission of** the People's Republic of China: diagnosis and treatment protocol for COVID-19 patients. **CHINA**
- **National COVID-19 Clinical Evidence Taskforce: Respiratory** support for adults with severe to critical COVID-19.

AUSTRALIA AND NEW ZEALAND

→ Handbook of COVID-19 **Prevention and Treatment** (first affiliated Chinese hospital). **CHINA**



- Jermy et al. Assessment of dispersion of airborne particles of oral/nasal fluid by HFNC therapy. MedRxiv pre-print. **NEW ZEALAND**
- Hui D et al. Exhaled air dispersion during high flow nasal cannula therapy versus CPAP via different masks. Eur. Respir. J. **HONG KONG**
- → Kotoda M et al. Assessment of the potential for pathogen dispersal during high-flow nasal therapy. J. Hosp. Infect. **JAPAN**
- → Leung C et al. Comparison of high-flow nasal cannula versus in critically ill pneumonia patients. J. Hosp. Infect.

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- oxygen face mask for environmental bacterial contamination **HONG KONG**



- Hu et al. Application of high-flow nasal cannula in hypoxemic patients with **COVID-19: a retrospective** cohort study. BMC Pulmonary Medicine. **CHINA**
- Duan J et al. Use of HFNC and NIV in patients with **COVID-19: a multicentre** observational study. Am. J. Emerg. Med. **CHINA**
- Deng L et al. Outcome of early versus late HFNC in elderly COVID-19 ARDS patients. medRxiv. **CHINA**







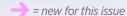


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Asia &

Pacific

Europe

EUROPE & AFRICA

Click links below for more information on COVID-19...



 Surviving Sepsis Campaign: Guidelines on the management of adults with COVID-19 in the ICU.

EUROPE AND USA

- Surviving Sepsis Campaign: Recommendation chart.
 EUROPE AND USA
- European Respiratory Journal:
 Management of hospitalised
 adults with coronavirus
 disease-19 (COVID-19):
 A European Respiratory
 Society living guideline
 EUROPE



FPH: Respiratory Care webinars

1: Nasal high flow - moving forward with COVID-19.

UK

2: HFNO outside ICU, safety and effectiveness.

FRANCE

Webinar Discussion: NHF and the second wave of COVID-19 in the UK. UK

Philips: International Learning from COVID-19.

EUROPE

- → Webinar Series 2.
- → Webinar Series 3.
- → Webinar Series 4.



→ Gattinoni L et al.
COVID-19 pneumonia:
different respiratory
treatments for
different phenotypes?
Intensive Care Med.

ITALY

→ Gattinoni L et al. COVID-19 pneumonia: ARDS or not? Critical Care.

ITALY

→ Vianello A et al.

Assessment of outcomes and safety of HFNC in AHRF consequent to COVID-19. Thorax.

ITALY

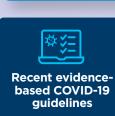
Calligaro et al. The use of NHF for severe COVID-19 in a resource-constrained setting. EClinicalMedicine. SOUTH AFRICA

→ Guy T et al. High flow nasal oxygen: a safe, efficient treatment for COVID-19 patients not in an ICU. Eur. Respir. J.

FRANCE

→ Zucman N et al. Using the ROX index to predict outcome of NHF use during COVID-19 AHRF. Intensive Care Med.

FRANCE



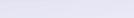


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= new for this issue



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Europe

GLOBAL

Click links below for more information on COVID-19...





- WHO: Clinical management of **COVID-19: living** quidance.
- → F&P Healthcare COVID-19



- (JAN 2021 UPDATE)
- **Resource Center.**
- → WHO: TECHNICAL **SPECIFICATIONS** for invasive and noninvasive ventilators for COVID-19.



- The Internet Book of Critical Care -**COVID** podcast #5.
- The Internet Book of Critical Care -COVID podcast #7.



→ WHO: Modes of transmission of virus causing COVID-19: implications for **IPC** precaution recommendations.



→ SYSTEMATIC REVIEW:

High-flow nasal cannula for acute hypoxemic respiratory failure in patients with **COVID-19: systematic reviews** of effectiveness and its risks of aerosolization, dispersion, and infection transmission. Can. J. Anaesth.















