

VENTILATION: HIGH FLOW NASAL CANNULAE (HFNC) Supporting information

This guideline has been prepared with reference to the following:

NICE. Specialist neonatal respiratory care for babies born preterm - quality standard (QS193). 2020. London. NICE

<https://www.nice.org.uk/guidance/qs193>

NICE. Specialist neonatal respiratory care for babies born preterm. 2019. London. NICE

<https://www.nice.org.uk/guidance/ng124>

HFNC is superior to nasal CPAP as a means of respiratory support in preterm infants?

A 2022 systematic review of RCTs (10 studies, 1830 patients) concluded that despite a higher risk of treatment failure, considering no difference in intubation rates and a lower rate of nasal trauma using HFNC compared with CPAP, they suggest that HFNC should be used as primary respiratory support in preterm infants. Meta-analysis demonstrated an RR of treatment failure multiplied by 1.34 using HFNC compared with CPAP (RR=1.34, 95% CI 1.01 to 1.68). Secondary outcome meta-analysis showed no difference in intubation rates (RR=0.90, 95% CI 0.66 to 1.15) and a lower rate of nasal trauma using HFNC compared with CPAP (RR=0.48, 95% CI 0.31 to 0.65).

A 2019 systematic review of RCTs (21 studies, 2886 preterm infants were included) found that the rates of treatment failure at trial entry were similar between HFNC and CPAP (relative risk 1.03, 95% confidence interval 0.79-1.33), and HFNC had reduced nasal trauma ($p < .00001$); and (2) for respiratory support after extubation, CPAP was associated with a lower likelihood of treatment failure than HFNC (relative risk 1.23, 95% confidence interval 1.01-1.50). The incidences of nasal trauma and pneumothorax in the HFNC group were significantly lower than that in the CPAP group ($p < .0001$ and $p = .03$). Serious adverse events did not significantly differ.

Bruet S, Butin M, Dutheil F. Systematic review of high-flow nasal cannula versus continuous positive airway pressure for primary support in preterm infants. *Arch Dis Child Fetal Neonatal Ed.* 2022;107:56-9
<https://fn.bmj.com/content/107/1/56.long>

Hong H, Li XX, Li J et al. High-flow nasal cannula versus nasal continuous positive airway pressure for respiratory support in preterm infants: a meta-analysis of randomized controlled trials. *J Matern Fetal Neonatal Med.* 2019;24:1-8

Evidence Level: I

**Last amended October 2021
Last reviewed December 2021**