



# ADMINISTRATION OF HELIOX VIA HIGH FLOW CANNULA IN A CROUP PATIENT

Pamela McDermott, RRT, Baystate Medical Center  
Department of Respiratory Care, Baystate Medical Center



## ABSTRACT

### ADMINISTRATION OF HELIOX VIA HIGH FLOW CANNULA IN A CROUP PATIENT

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**Introduction:** Heliox has been used in the treatment of patients with airflow obstruction to provide more laminar flow which allows for better distribution of gases and hence reducing WOB. In this case study, an 80/20 mixture of heliox was used for a croup patient with moderate to severe stridor. **Case Summary:** An 8 month old infant who was admitted for croup started to exhibit moderate to severe stridor despite receiving IV steroids and aerosolized 1.25 mg of racemic epinephrine via SVN Q2°. Approximately 7 hours after admission the patient started to show signs of respiratory distress including, increased work of breathing, RR > 60, nasal flaring, grunting, significant subclavicular and substernal retractions. His audible stridor was becoming more severe and intubation was imminent. An 80/20 heliox mixture was administered through a Fisher & Paykel high flow nasal cannula at 7 lpm. An immediate improvement was demonstrated by a decreased WOB, decreased stridor and RR < 40. The patient appeared more comfortable and was able to sleep. There was still some slight stridor present which cleared completely after each aerosolized racemic epinephrine was delivered using the Aerogen Aeroneb Solo via HFNC application. The patient required 24 hours of heliox via HFNC and continued Q2 ° of aerosolized racemic epinephrine and then was weaned to room air and aerosolized therapy was discontinued.

**Discussion:** This report demonstrates the effects of delivering heliox with HFNC in the treatment of moderate to severe croup. This treatment regimen proved to be more effective than our previous practice which included cool mist therapy delivered by mask or mist tent, heliox via nonbreather mask and SVN racemic epinephrine treatments via mask. The application of heliox via HFNC in this patient dramatically improved patient comfort by reducing the WOB and by allowing the time necessary for the steroids to reduce inflammation.

## INTRODUCTION

Heliox has been used in the treatment of patients with airflow obstruction to provide more laminar flow which allows for better distribution of gases and hence reducing WOB. In this case study, an 80/20 mixture of heliox was used for a croup patient with moderate to severe stridor.



## CASE SUMMARY

An 8 month old infant who was admitted for croup started to exhibit moderate to severe stridor despite receiving IV steroids and aerosolized 1.25 mg of racemic epinephrine via SVN Q2°. Approximately 7 hours after admission the patient started to show signs of respiratory distress including, increased work of breathing, RR > 60, nasal flaring, grunting, significant subclavicular and substernal retractions. His audible stridor was becoming more severe and intubation was imminent. An 80/20 heliox mixture was administered through a Fisher & Paykel high flow nasal cannula at 7lpm. An immediate improvement was demonstrated by a decreased WOB, decreased stridor and RR < 40. The patient appeared more comfortable and was able to sleep. There was still some slight stridor present which cleared completely after each aerosolized racemic epinephrine was delivered using the Aerogen Aeroneb Solo via HFNC application. The patient required 24 hours of heliox via HFNC and continued Q2 ° of aerosolized racemic epinephrine and then was weaned to room air and aerosolized therapy was discontinued.

## DISCUSSION

This report demonstrates the effects of delivering heliox with HFNC in the treatment of moderate to severe croup. This treatment regimen proved to be more effective than our previous practice which included cool mist therapy delivered by mask or mist tent, heliox via nonbreather mask and SVN racemic epinephrine treatments via mask. The application of heliox via HFNC in this patient dramatically improved patient comfort by reducing the WOB and by allowing the time necessary for the steroids to reduce inflammation.