

# The use of Humidified Gases for Thermoregulation during Resuscitation in the Delivery Suite

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## Background

- WHO defines normothermia in the newborn as a temperature between 36.5 and 37.5 degrees.
- An audit of admission temperatures in our tertiary unit showed that 14.5% of babies were hypothermic, the majority of which were preterm (9%).
- Hypothermia has been shown to increase morbidity and mortality in preterm infants.

## Aim

- To introduce humidified gases to those born 23-34 weeks gestation in the delivery suite in a tertiary NICU, with the aim of improving temperature outcomes between September and December 2022.

## Methods

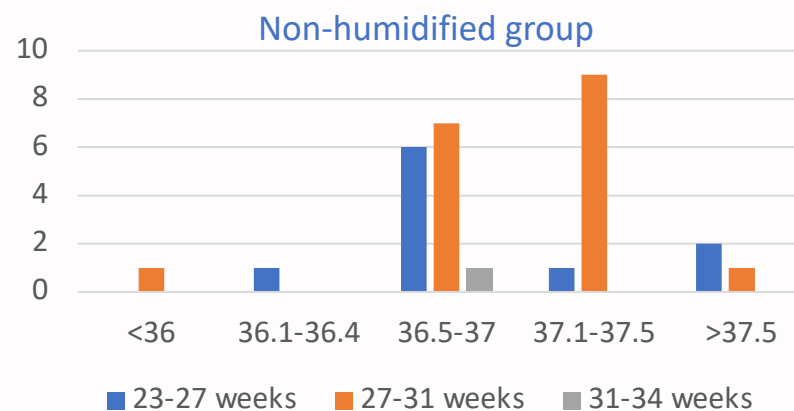
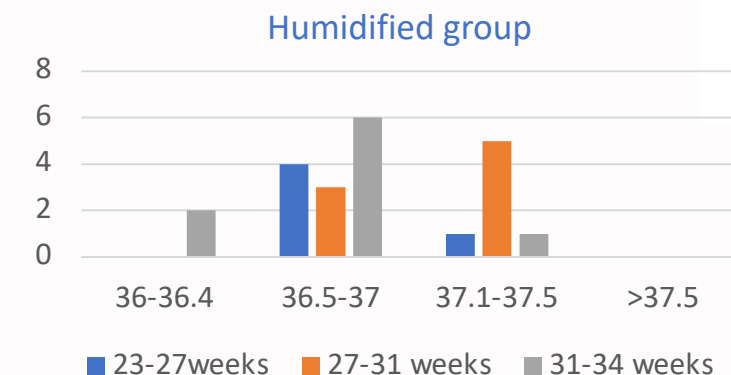
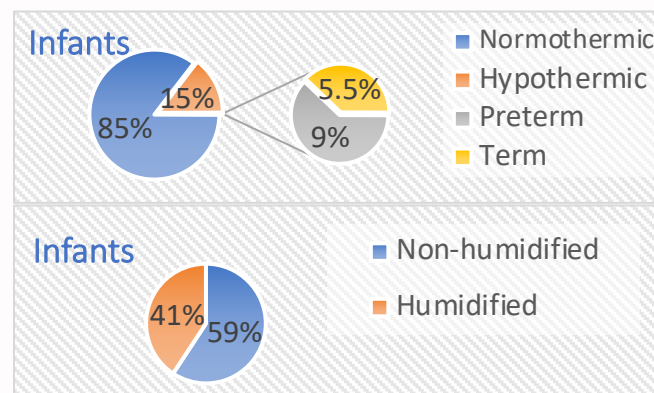
- A humidification circuit was attached to a pre-existing rPAP device (portable nasal CPAP).
- Gases were delivered through the nasal CPAP circuit or an ET tube.
- All infants received standard thermoregulation care including warmed blankets, radiant heater and a hat.
- Infant's temperature taken with axillary probe once removed from radiant heat source in the NICU.

## Results

- Data gathered from patient notes/ECR.
- Total 54 babies.
- GA 23→24 weeks
- Humidified group-22 babies  
-GA 25→34, lowest BW 402g.  
-Temperature range 36.4→37.5
- Non-humidified group-32 babies.  
-GA 23→32, lowest BW 470g  
-Temperature range 36.1→38.7
- Our hypothermia rate in preterm infants improved from 9% down to 5.5%.

## Conclusion

- There were no cases of significant hypothermia <36 degrees), in the infants receiving humidified gas even at extremes of gestation and extremely low birthweight. Challenges to introduction of humidified gases included 15 minute set up time so not suitable for use in rapid deliveries. Gases not being used via ET tube in the delivery suite so further staff education required.



rPAP Schematic

