

Developing a Guideline for Transferring Premature Infants From an Incubator to an Open Crib

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Introduction/Background

In neonatal intensive care units (NICU) achieving stable temperature in an open crib is one of the criteria for discharging premature infants. Few studies examined the weaning process of transferring a stable preterm infant from an incubator to an open crib and guidelines vary between institutions.

Due to concerns over thermal instability and poor weight gain, the traditional incubator weaning guidelines have mostly been dependent upon individual physicians' preferences and standard infant weights between 1600-2000 gm

A standard guideline regarding the weight, post menstrual age (PMA), and/or incubator temperature prior to transfer to an open crib has not been established

The purpose of the study was to identify guidelines for successful transfer of stable preterm infants from an incubator to open crib while maintaining thermoregulation within the acceptable axillary temperature between 36.5-37.2^o C.

Research Questions

- What is the optimal weight to have a successful transfer from an incubator to an open crib for a medically stable growing premature infant from 23- 34 6/7 weeks gestational age?
- What is the appropriate gestational age to have a successful transfer from an incubator to an open crib for a medically stable growing premature infant from 23- 34 6/7 weeks gestational age?
- What is the optimal axillary temperature to have a successful transfer from an incubator to an open crib for a medically stable growing premature infant from 23- 34 6/7 weeks gestational age?

Design/Instruments

A descriptive retrospective chart review

A non-probability convenience sample; All infants between 23-34 6/7 gestational ages at birth and who are medically stable at the time of transfer from an incubator to an open crib from January 2010- December 2015

Further stratified into 23-25 6/7 weeks, 26- 28 6/7 weeks, 29-31 6/7 weeks, and 32-34 6/7 weeks of gestational age.

Instruments used were:

- Demographic data sheet
- Baseline data checklist



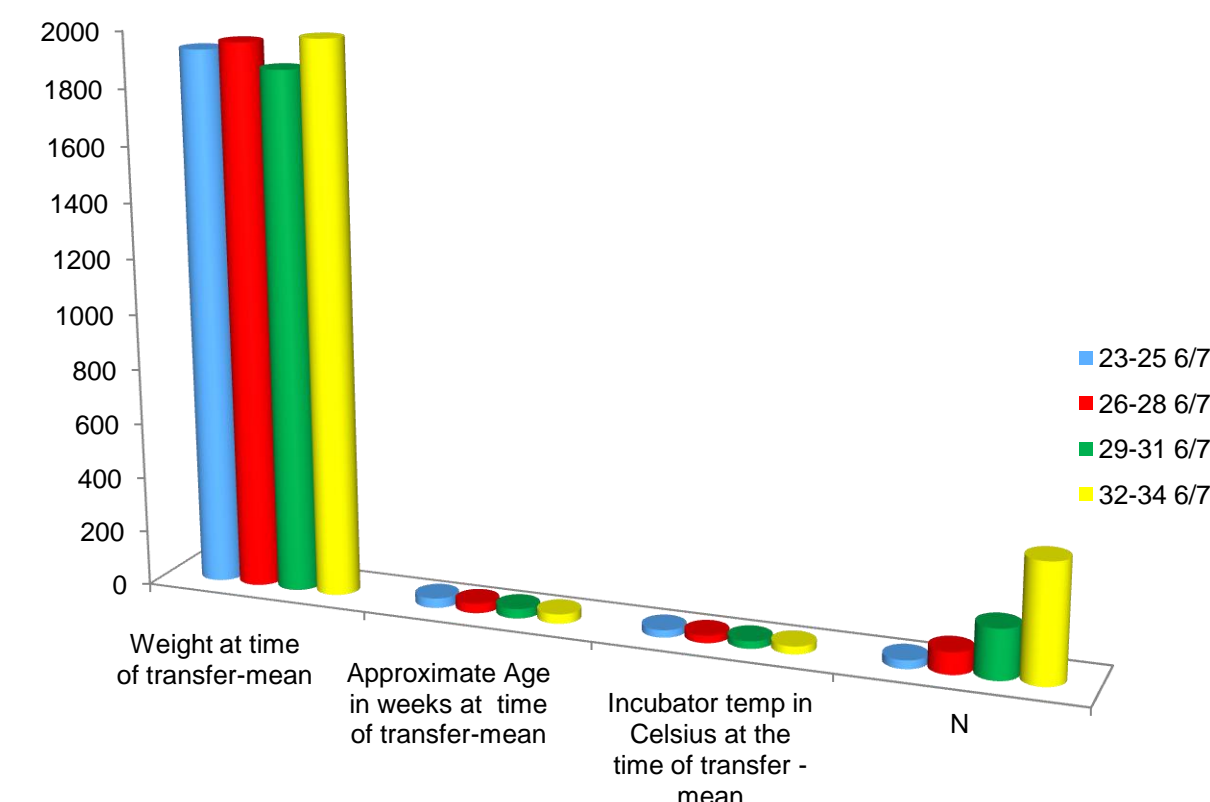
Methodology/Intervention

Data collection started in February 2016 after IRB approval

- Template for baseline data collection created
- Six NICU RNs (three from day shift & two from night shift) trained by the investigators reviewed the selected charts and documented in the data collection sheet.
- Investigators input the data in the online data collection repository RedCap

Results

Transfer weight, age in weeks, and incubator temperature at the time of transfer

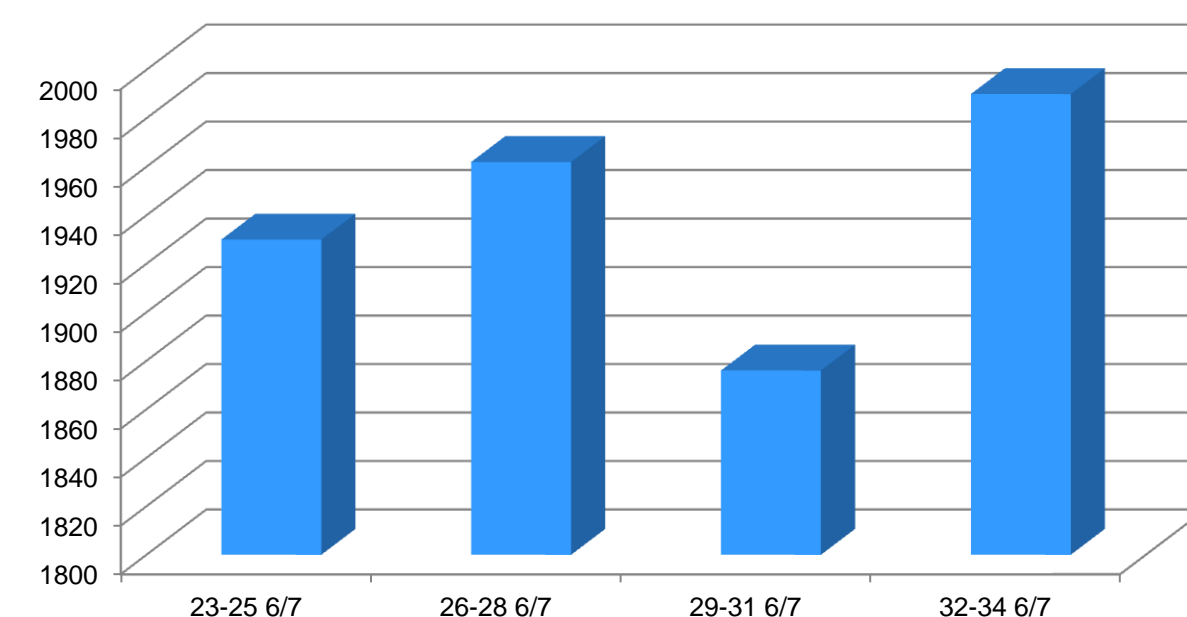


Results

Transfer Weight

- In all gestational age groups (stratified), successful transfer weight ranged from 1876-1990 grams

Weight at time of transfer-mean

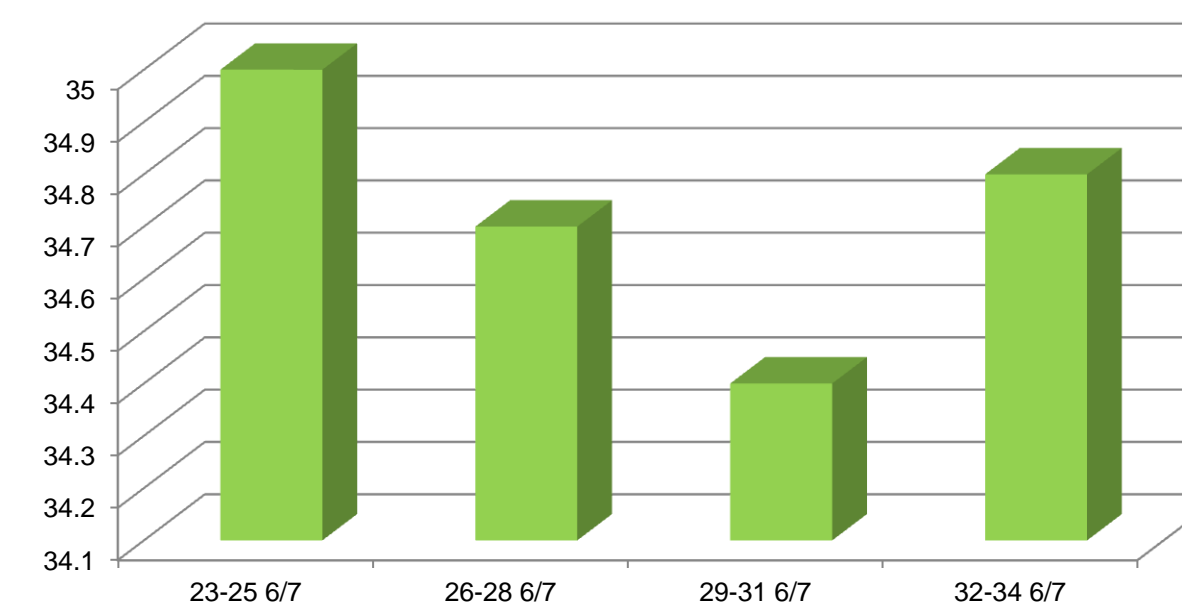


Results

Transfer age in weeks

Regardless of the gestational age at birth, the post menstrual age of all successful transfers was between 34.4-35 weeks.

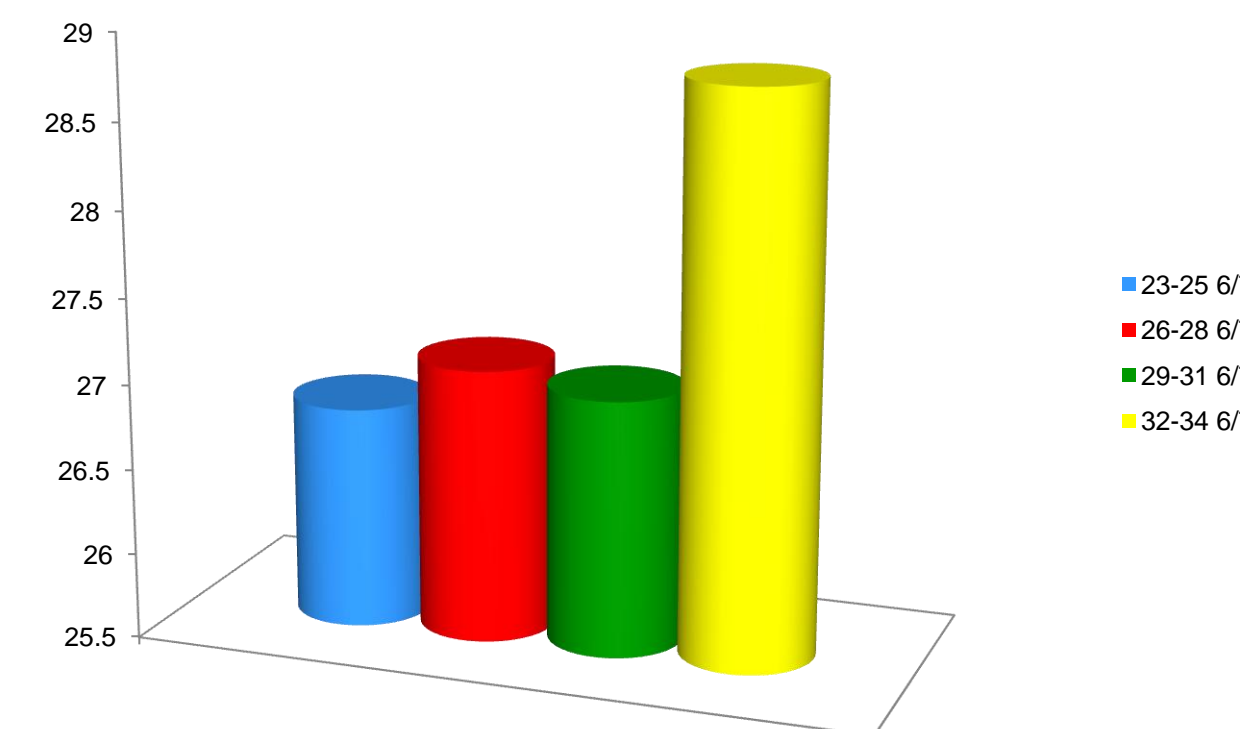
Approximate PMA in weeks at time of transfer-mean



Results

Incubator temperature at the time of transfer

- The set incubator temperature in Celsius at the time of infant transfer was collected
- There was no significant difference between the gestational age and the set incubator temperature at the time of transfer
- The set incubator temperature was slightly higher in 32-34 6/7 weeks of gestational age as most of them were transferred to an open crib within 24 hours
- The set incubator temp range for all infants for a successful transfer was 26.8-28.8 ^oC



Conclusions

- Most preterm infants are mature enough to maintain neutral thermoregulation outside of an incubator by 34.4 to 35 weeks PMA
- The optimal incubator temperature range for a successful wean was 26.8-28.8 ^oC
- The optimal weight range for a successful transfer was 1876 – 1990 grams
- No significant differences related to gender, race, ethnicity, or gestational age related to successful weaning from incubator to a crib
- Results represent a preliminary guideline for weaning preterm infants from an incubator to a crib

Limitations

- This is the first study documented on weaning premature infants from incubator to an open crib
- Data collection was limited to a single institution. Therefore, the results are not generalizable.
- Out of 725 charts reviewed, only 80 were in the age group of 23-25 6/7 gestational age (about 10%)
- There is still more than 100 gram difference in the weight range for a successful wean – it would be helpful if we could define those limits further and close the range.

Acknowledgments

Maryanne Ventura BSN, RNC-NIC,
Claudette Washington MS, RNC-NIC
Sumam Cheekkapparayil MS, RNC-NIC, CNP,
Leticia Fernando BSN, RNC-NIC,
Marie Bamba RN,
Carina Falco MS, CPNP, RNC-NIC

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