Transfer of preterm infants from incubator to open cot at lower versus higher body weight (Review)

New K, Flenady V, Davies MW

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2008, Issue 1

http://www.thecochranelibrary.com

WILEY
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEADER</td>
</tr>
<tr>
<td>ABSTRACT</td>
</tr>
<tr>
<td>PLAIN LANGUAGE SUMMARY</td>
</tr>
<tr>
<td>BACKGROUND</td>
</tr>
<tr>
<td>OBJECTIVES</td>
</tr>
<tr>
<td>METHODS</td>
</tr>
<tr>
<td>RESULTS</td>
</tr>
<tr>
<td>DISCUSSION</td>
</tr>
<tr>
<td>AUTHORS' CONCLUSIONS</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
</tr>
<tr>
<td>REFERENCES</td>
</tr>
<tr>
<td>CHARACTERISTICS OF STUDIES</td>
</tr>
</tbody>
</table>
Transferring preterm infants from incubator to open cot at lower versus higher body weight

Karen New1, Vicki Flenady2, Mark W Davies1

1Grantley Stable Neonatal Unit, Royal Brisbane and Women's Hospital, Brisbane, Australia. 2Centre for Clinical Studies-Women's and Children's Health Service, South Brisbane, Australia

Contact address: Karen New, Grantley Stable Neonatal Unit, Royal Brisbane and Women's Hospital, Butterfield Street, Herston, Brisbane, Queensland, 4029, Australia. karennew@optusnet.com.au.

Editorial group: Cochrane Neonatal Group.

Publication status and date: Edited (no change to conclusions), published in Issue 4, 2008.

Review content assessed as up-to-date: 30 August 2007.


Copyright © 2008 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

The use of incubators in helping to maintain a thermoneutral environment for preterm infants has become routine practice in neonatal nurseries. As one of the key criteria for discharging preterm infants from nurseries is their ability to maintain temperature; the infant will need to make the transition from incubator to open cot at some time before discharge. The timing of this transition is important because, when an infant is challenged by cold, the infant attempts to increase its heat production to maintain body temperature. The increase in energy expenditure may affect weight gain. The practice of transferring infants from incubators to open cots usually occurs once a weight of around 1700 - 1800 g has been reached; however, this practice varies widely among neonatal units. This target weight appears to be largely based on tradition or the personal experience of clinicians, with little consideration of the infant's weight or gestational age at birth.

Objectives

The main objective was to assess the effects on weight gain and temperature control of a policy of transferring preterm infants from incubator to open cot at lower versus higher body weight.

Search strategy

Searches were undertaken of MEDLINE from April 2007 back to 1950, CINAHL from April 2007 back to 1982 and the Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library, Issue 2, 2007). The title and abstract of each retrieved study were examined to assess eligibility. If there was uncertainty, the full paper was examined.

Selection criteria

Trials in which preterm infants were allocated to a policy of transfer from incubators to open cots at a lower body weight versus at a higher body weight.

Data collection and analysis

Quality assessments and data extraction for included trials were conducted independently by the reviewers. Data for individual trial results were analysed using relative risk (RR) and mean difference (MD). Results are presented with 95% confidence intervals (CI). Due to insufficient data, meta-analysis could not be undertaken.
Main results

Five studies were identified as potentially eligible for inclusion in this review. Three studies were excluded as neither random nor quasi-random allocation to the exposure was employed. Two small quasi-randomised studies, involving 74 preterm infants are included in this review. These studies compared the transfer of infants to open cots at 1600 - 1700 g vs. 1800-1900 g, and 1700 g vs. 1800 g. Data for only two prespecified outcomes could be included in this review. No statistically significant difference was shown for either return to incubator [one trial (N = 60) RR 2.00; 95% CI 0.40 to 10.11] or daily weight gain measured in g/kg/day [one trial (N = 14) MD 1.00 g/kg/day; 95% CI -2.89, 4.89]. Due to insufficient data, meta-analysis was not performed and effects on clinically important outcomes could not be adequately assessed.

Authors’ conclusions

There is currently little evidence from randomised trials to inform practice on the preferred weight for transferring preterm infants from incubators to open cots. There is a need for larger randomised controlled trials to address this deficiency.

Plain Language Summary

Transfer of preterm infants from incubator to open cot at lower versus higher body weight

There is not enough evidence on whether to transfer preterm infants from an incubator to an open cot at a lower body weight. For preterm infants to be discharged home from nurseries, they must be able to maintain their temperature in an open cot. The timing of the transfer from the incubator to an open cot is important because, if an infant is not able to maintain his/her temperature and is cold, then this could affect weight gain and delay the infant’s discharge from hospital. Usually infants are transferred when their weight is around 1700-1800 grams. Earlier transfer at a lower body weight may have benefits of better access to the baby by the family and earlier discharge from hospital. Due to the poor quality of the trials in this review, there is not enough evidence to show whether transfer is better or worse at a lower body weight than at a higher body weight. Good quality trials are needed to address this issue.

Background

Preterm infants are cared for in a neutral thermal environment to prevent thermal cold stress so that minimal energy is expended, thereby minimising oxygen and energy consumption. Since improved survival of small infants cared for in warmer environments was demonstrated over 40 years ago (Silverman 1957; Silverman 1958; Silverman 1963), maintaining a thermoneutral environment for preterm infants with the use of incubator care has become routine practice in neonatal nurseries. However, at some point during hospitalisation, the infant will need to make the transition from incubator to open cot. One of the key criteria for discharging preterm infants from nurseries is their ability to maintain temperature once transferred to an open cot. The timing of this transition is important because when an infant is challenged by cold, the infant attempts to increase its heat production to maintain body temperature. Vasconstriction occurs as the infant attempts to conserve body heat and brown adipose tissue is metabolised. The increase in energy expenditure may affect weight gain. Exposure of growing preterm infants to a subthermoregulatory environment in the late neonatal period results in a slowing of growth through an increase in energy expenditure (Glass 1969).

The practice of transferring infants from incubators to open cots varies widely among neonatal units, with no clear indication as to when or how this transition should take place. The usual practice is to transfer infants to open cots once a weight of around 1700 - 1800 g has been reached. This target weight appears to be largely based on tradition or the personal experience of clinicians with little consideration of the infant’s weight or gestational age at birth. The main factors determining the preterm infant’s postnatal thermal stability are: (i) degree of prematurity - the more immature the infant, the thinner the skin, the less subcutaneous fat and the greater the surface area/weight ratio; (ii) birth weight - small for gestational age or lower birth weight also results in less subcutaneous fat for insulation and thermogenesis and the greater the surface area/weight ratio; (iii) postnatal age - thermoability increases with postnatal age (McManus Kuller 1998).

Delaying transition to an open cot on the basis of not reaching a certain arbitrary weight criterion may result in longer hospital-
isation than necessary, thus increasing the cost of care provided (Wilson 1998). Maternal perceptions of their infants may influence infant development (Watt 1989). Maternal perceptions may be more positive when infants are cared for in an open cot due to ease of access promoting autonomy for parents and improving parent-infant attachment, which may improve breast feeding rates. Nursing staff may perceive that caring for infants in open cots reduces workload and that better care may be provided due to increased accessibility.

While there may be benefits of earlier transfer to an open cot, there may be potential risks. Transferring infants from an incubator to an open cot before an infant is ready may result in the infant’s inability to maintain temperature, leading to weight loss, resulting in extended hospitalisation and adding to the cost of care (Wilson 1998). The need for an infant to return to an incubator after making the transition to an open cot may also result in increased stress and anxiety to the parents and family.

A number of measures have been suggested to assist in the maintenance of body temperature when transferring infants from incubators to open cots. These measures have included a gradual weaning process in which infants are dressed in clothing and the incubator air temperature is reduced, thus thermally challenging the infant prior to transfer to an open cot (Wilson 1998), the use of heated water-filled mattresses and heated nurseries (Gray 2003; Gray 2004).

Open cots are relatively inexpensive compared to the cost of air-heated incubators. If it could be demonstrated that transfer of an infant to an open cot at a lower body weight could be achieved without adverse outcome, considerable economic benefit could result in both developing and developed countries.

**OBJECTIVES**

**Primary:**
To determine the effects of a policy of transferring preterm infants at lower versus higher body weight on the outcomes of weight gain and temperature control. Secondary outcomes included duration from transfer to cot to discharge home (days); postnatal age at discharge (days); cost; not breast feeding at hospital discharge; parental satisfaction; parental anxiety; death.

**Secondary:**
To conduct subgroup analysis to determine if the effects of a policy of transferring preterm infants from incubators to open cots at lower versus higher body weight differ for those infants who were:

i. born less than 1000 g or greater than or equal to 1000 g

ii. born at less than 34 weeks gestational age or greater than or equal to 34 weeks gestational age

iii. less than or greater than or equal to seven postnatal age at the time of transfer

Subgroup analysis will also be conducted to determine if the results differ with the use of co-interventions:

i. use of additional heating measures i.e. heated water filled mattresses, heated nurseries, overhead heating device

ii. use of thermal challenging prior to transfer (i.e. gradual reduction the incubator temperature with increasing the infants clothing)

**METHODS**

**Criteria for considering studies for this review**

**Types of studies**
Trials in which infants were randomised or quasi-randomised to a policy of transfer from incubators to open cots at a lower body weight versus at a higher body weight.

**Types of participants**
Preterm infants being nursed in incubators

**Types of interventions**
Transferring or weaning of preterm infants from an incubator to an open cot at a lower body weight compared with higher body weight. “Lower” is defined as transfer before reaching 1700 g, and “higher” is defined as transfer after reaching 1700 g or more.

**Types of outcome measures**

**Primary:**
- Weight gain (g/kg/day)
- Episodes of cold stress (e.g. temperature < 36.3 degrees C) or requiring assistance with heating (i.e. overhead heater)
- Requiring to be returned to incubator

**Secondary:**
- Duration from transfer to cot to discharge home (days)
- Postnatal age at discharge (days)
- Length of hospital stay (days)
- Cost
- Not breast feeding at hospital discharge
- Parental satisfaction
- Parental anxiety
• Death (by 28 days or prior to hospital discharge and also by 12 months if reported)

Search methods for identification of studies

In addition to the neonatal review group searches, searches of the electronic databases were based on the following search terms:
The MeSH terms ‘Infant, Newborn’ OR ‘Nurseries, Hospital’ OR ‘Intensive Care Units, Neonatal’ AND
The MeSH terms ‘Skin Temperature’ OR ‘Body Temperature’ OR ‘Body Temperature Regulation’ OR the text word ‘Therm*’ OR ‘Temperature’ AND
The MeSH term ‘Incubators, Infant’ OR the text words ‘Cot’ OR ‘Crib’ OR ‘Isolette’ OR ‘Incubator’ OR ‘cot-nurse*’ AND
The highly sensitive search strategy developed by Kay Dickersin to identify RCTs (Dickersin 1994)
Previous reviews including cross-references, abstracts, conference and symposia proceedings, expert informants, journal hand searching in the English language were also sought. No other language restrictions were applied.
The title and abstract of each retrieved study was examined to assess eligibility. If there was uncertainty, the full paper was examined.

Data collection and analysis
Standard methods of The Cochrane Collaboration (Higgins 2006) and its Neonatal Review Group were used to assess the methodological quality of the trials.

Quality assessment:
Two of the three reviewers worked independently to search for trials for inclusion and all reviewers independently assessed methodological quality. Study quality was assessed using the following key criteria: blinding of allocation, blinding of intervention, completeness of follow up and blinding of outcome measurement, assigning a rating of ‘Yes’, ‘No’ or ‘Cant tell’ for each. Data were extracted independently by the reviewers. Differences were resolved by discussion and consensus of the reviewers.

Methods used to collect and synthesise data from included studies:
Two of the three reviewers independently extracted data, then compared and resolved differences. The authors of the two included trials (Heimler 1981; Sutter 1988) were contacted for further information concerning outcomes and exclusions. Sutter 1988 responded to the enquiry, but was unable to provide additional data requested. At the time of this update, no information was forthcoming from Heimler 1981.

Due to insufficient data and the units in which outcomes were reported (weight gain as g/day and g/kg/day) it was not possible to conduct a meta-analysis. For individual trials, where possible, mean differences and 95% confidence intervals (CI) are reported for data measured on a continuous scale. For categorical outcomes, relative risk and 95% confidence intervals (CI) are reported.

RESULTS

Description of studies
See: Characteristics of included studies; Characteristics of excluded studies; Characteristics of ongoing studies.
Five studies were identified as potentially eligible for inclusion in this review. Three studies were excluded as neither random nor quasi-random allocation to the exposure was employed (Medoff-Cooper 1994; Roncoli 1992; West 2005). This review includes the studies of Sutter 1988 and Heimler 1981. In this update, Heimler 1981, previously classified as pending, has been included despite some remaining methodological concerns.

Participants in the Heimler 1981 trial were preterm infants (mean gestational ages 30.0 weeks and 31.5 weeks, mean birth weights 1268 g and 1414 g for the two study groups). Infants were cared for in a single-walled incubator and allocated to one of two study groups: Group A was transferred to an open cot at a weight of between 1600 g and 1700 g and Group B at a weight of between 1800 g and 1900 g. Infants were dressed in a single shirt, diaper, cap and booties throughout the study. Incubator air temperatures were kept between 30 and 32 degrees Celsius and room temperature between 25 and 27 degrees Celsius. Once transferred to a crib, the infant was covered with four blankets. Once infants reached a weight of 1500 g, all were fed outside the incubator. Infants had to be receiving an oral intake of at least 110 kcal/kg/day to be eligible for the trial.

The main outcome measures were body temperature (axillary, rectal and anterior abdominal skin); gross energy intake; weight gain; head growth; length growth and skinfold thickness. Only one outcome measure, weight gain (g/kg/day) was included in this review. Participants in the Sutter 1988 trial were preterm infants (mean gestational ages 30.1 weeks and 28.6 weeks, mean birth weights 1207 g and 1215 g for the two study groups). Infants were cared for in a single-walled incubator and allocated to one of two study groups: Group 1 was transferred to an open cot at a weight of 1700 g and Group 2 at a weight of 1800 g, following a weaning process. Each infant was weaned gradually by decreasing the incubator temperature by 1°C each hour until the incubator temperature...
reached 28°C. Infants were clothed in a cotton shirt, with one or two blankets when moved into an open cot. If the infant’s temperature dropped to less than 36°C at any time during the weaning process or any time after, the infant was returned to an incubator and weaning could recommence 48 hours later. Nursery temperature was maintained at 22°C. Infants had to be receiving feedings of 120 kcal/kg/day to 150 kcal/kg/day, via breast, bottle or gavage to be eligible for the trial.

The main outcome measures were hypothermia requiring the infant to be returned to the incubator and weight gain (mean 24 hr weight gain). A third outcome, duration (days) from transfer to cot to discharge home, could not be included in this review as day of discharge was defined to be 24 hours after successful weaning from incubator to open cot, due to delayed discharge of some infants for social reasons. The weaning process as described above was deemed successful if the infant’s temperature did not drop below 36°C and the weaning process did not need to be stopped. (For further details on included studies see table, Characteristics of Included Studies).

Risk of bias in included studies

The Heimler 1981 trial used a matched-pairs design for allocation to study group. The first infant of a matched pair was randomised, using card envelope. The next eligible infant matching gestation at birth was allocated to the opposite study group; therefore, the clinical staff knew treatment assignment of the second pair member prior to recruitment. There was inadequate blinding of allocation to treatment group, interventions were unable to be blinded and it is not known whether blinding of outcome measurements occurred. Twenty subjects were entered into the study; however, only data for 14 infants was included in the analysis. Six infants were excluded. Two infants eliminated due to apnoea and feeding problems; one infant withdrawn from the study by the parents; and three infants due to being small for gestational age (>10 centile) although this was not an exclusion criteria for enrolment into the study. It is not known whether these infants were excluded pre or post randomisation, nor the groups to which they had been assigned.

The methodological quality of this study is considered to be poor. The second included trial (Sutter 1988) used a matched-pairs design for allocation to study group. Infants were randomised in blocks of two, matched by birth weight in one of four strata (1251 to 1500 g; 1001 to 1250 g; 751 to 1000 g; and less than 751 g). The first eligible subject was randomly assigned to one treatment and the other subject in the pair was assigned to the other treatment when entered into the study. There was inadequate blinding of allocation to treatment group, interventions were unable to be blinded and it is not known whether blinding of outcome measurements occurred. Sixty-two infants were enrolled in the study, but completeness of follow up did not occur as two infants were not included in the analysis as they did not have matching pairs. Four pairs of infants received the opposite treatment to that which was randomly allocated; however, an intention to treat analysis was performed. The methodological quality of this study is considered to be poor.

Effects of interventions

The results of two trials are included in this review (Heimler 1981; Sutter 1988). Only two outcome data could be included in this review; return to incubator and daily weight gain. However, as Heimler 1981 has reported weight gain as g/kg/day and Sutter 1988 reports as g/day a meta-analysis could not be performed. No statistically significant difference was found for either return to incubator (Outcome 01.01 Sutter 1988), 30 infants, RR 2.00, 95% CI 0.40 to 10.11 or daily weight gain (Outcome 01.02 Heimler 1981), 14 infants, [MD 1.000 g/kg/day (95% CI -2.89, 4.89)]. While data on weight gain included in the Sutter 1988 study is not included in this review, due to reporting weight gain as g/day not g/kg/day, the authors report the overall mean difference for 24 hour weight gain was 3.3 g (90% CI -4.6 to 11.3). Due to small numbers, effects on clinically important outcomes could not be adequately assessed and planned subgroup analyses could not be undertaken.

DISCUSSION

This review includes two small controlled trials of poor quality involving 74 preterm infants (Heimler 1981; Sutter 1988). Only two outcomes were able to be included, return to incubator and daily weight gain. No statistically significant differences were shown for either return to incubator or daily weight gain for infants transferred from incubators to open cots at a lower body weight versus higher body weight. Heimler 1981 found no harmful effects of earlier weaning on thermal stability or growth rate, but suggest that the thermal environment may play a more important role in smaller babies than those included in this study. Likewise, Sutter 1988 concluded that earlier transfer appeared safe and effective; however, the authors expressed caution was needed for those infants born less than 1000 g due to an increased rate of return to incubator. This conclusion was based on a subgroup analysis of the six infants born less than 1000 g. Due to this small number, planned subgroup analysis of infants born less than 1000 g was not undertaken in this review. Numbers are too small for these findings to be considered reliable.

Due to insufficient data and poor methodological quality, these trials do not provide reliable evidence to support or refute the transfer of preterm infants from incubators to open cots at a lower body weight versus at a higher body weight. Given that transferring preterm infants from incubators to open cots at a lower body weight may result in inability to maintain temperature, greater
weight loss, extended hospitalisation and increase in the cost of care, this intervention needs to be assessed in rigorously designed trials.

Future trials should include a sufficient number of infants to address clinically important outcomes including temperature stability, weight gain, parental satisfaction, time to discharge and cost. It is hoped that the trial in progress (New 2003) will address some of these outcomes.

**AUTHORS’ CONCLUSIONS**

**Implications for practice**

The results of this review do not provide sufficient evidence to guide clinical practice on the preferred weight for the transfer of preterm infants from incubators to open cots.

**Implications for research**

There is a need for well designed randomised controlled trials to establish if there is any benefit in transferring preterm infants from incubators to open cots at a lower body weight and without significant harm.

Future studies should include sufficient numbers of infants to assess the effects of this intervention on the outcomes of temperature stability, weight gain, parental satisfaction, time to discharge and cost. Studies should also include sufficient numbers of infants born less than 1000 g to adequately assess these effects in this high-risk population.

**ACKNOWLEDGEMENTS**

None

**REFERENCES**

**References to studies included in this review**

Heimler 1981 [published data only]


Sutter 1988 [published data only]


**References to studies excluded from this review**

Medoff-Cooper 1994 [published data only]


Roncoli 1992 [published data only]


**West 2005 [published data only]**


**References to ongoing studies**

New 2003 {unpublished data only}

New K, Davies M, Flint A. A randomised controlled trial of transferring preterm infants born less than 1600 g, from incubator to open cot at lower (1600g) versus higher (1800g) body weight to determine the effects on weight gain, temperature stability and length of hospital stay. Australian Clinical Trials Registry (ACTR), NHMRC Clinical Trials Centre, University of Sydney 2003.

**Additional references**

Dickersin 1994


Glass 1969


Gray 2003


Gray 2004


Higgins 2006

McManus Kuller 1998

Silverman 1957

Silverman 1958

Silverman 1963

Watt 1989

Wilson 1998

References to other published versions of this review

New 2004

* Indicates the major publication for the study
**Characteristics of included studies**  *[ordered by study ID]*

**Heimler 1981**

| Methods | Blinding of randomisation: no  
| Blinding of intervention: no  
| Completeness of follow up: no  
| Blinding of outcome measure: unknown |
| Participants | 14 preterm infants  
| Mean gestational age 30.0 weeks and 31.5 weeks  
| Mean birthweight 1268g and 1414g  
| Conducted in USA |
| Interventions | Matched-pairs design  
| Group A (intervention): infant weaned to an open crib between 1600 - 1700g  
| Group B (control): infant weaned to open crib between 1800-1900g. Single walled incubators. Infant dressed in a single shirt, diaper, cap and booties throughout the study. Incubator air temperature kept between 30 and 32 degrees Celsius and room temperature between 25 and 27 degrees Celsius. Infants in cribs covered with 4 blankets. Once infants reached a weight of 1500g, all were fed outside the incubator. Oral intake of at least 110 kcal/kg/day |
| Outcomes | Temperature; Gross energy intake; Weight gain; Head growth; Length growth; Skinfold thickness |
| Notes | The first infant of a matched pair was randomised, using card envelope; the next eligible infant matching gestation at birth was allocated to the opposite study group, therefore the clinical staff knew treatment assignment of the second pair member prior to recruitment. 20 subjects were entered into the study, however only data for 70% analysed. 6 infants were excluded; 2 infants eliminated due to apnoea and feeding problems; 1 infant withdrawn from the study by the parents; and 3 infants due to being small for gestational age (<10 centile) although not an exclusion criteria for enrolment into the study. It is not known whether these infants were excluded pre or post randomisation or the groups to which they had been assigned |

**Risk of bias**

<table>
<thead>
<tr>
<th>Item</th>
<th>Authors’ judgement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocation concealment?</td>
<td>No</td>
<td>C - Inadequate</td>
</tr>
</tbody>
</table>
Sutter 1988

Methods
Blinding of randomisation: no
Blinding of intervention: no
Completeness of follow up: no
Blinding of outcome measure: unknown

Participants
60 preterm infants
Mean gestational age 30.1 weeks and 28.6 weeks
Mean birthweight 1207 g and 1215 g
Conducted in Texas, USA

Interventions
Matched-pairs design.
Group 1 (intervention): infant weaned to an open cot at 1700 g
Group 2 (control): infant weaned to an open cot at 1800 g
Each infant weaned by decreasing incubator temperature by 1°C each hour until 28°C reached. Infant then moved into an open cot. If infant’s temperature dropped to less than 36°C, weaning stopped and recommenced 48 hours later. Nursery temperature maintained at 22°C. Infants clothed in a cotton shirt, with one or two blankets. Feedings of at least 120 kcal/kg/day

Outcomes
Weight gain, hypothermia requiring return to incubator, and days to discharge

Notes
The first infant of a matched pair was randomised, using a randomisation list; however, the clinical staff accessed the randomisation list and knew treatment assignment of the next eligible infant prior to recruitment. The second member of the pair was assigned the opposite treatment. Therefore, there was no blinding of allocation for either the first or second pair member. Day of discharge defined in study to be 24 hours after successful weaning due to delayed discharge of some infants for social reasons

Risk of bias

<table>
<thead>
<tr>
<th>Item</th>
<th>Authors’ judgement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocation concealment?</td>
<td>No</td>
<td>C - Inadequate</td>
</tr>
</tbody>
</table>

Characteristics of excluded studies [ordered by study ID]

<table>
<thead>
<tr>
<th>Study</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medoff-Cooper 1994</td>
<td>Not a randomised (or quasi-randomised) controlled trial. A project that tested a research-based protocol to wean very low birth weight infants to an open crib</td>
</tr>
<tr>
<td>Roncoli 1992</td>
<td>Not a randomised (or quasi-randomised) controlled trial. An overview of thermoregulation and principles related to weaning an infant to an open crib</td>
</tr>
<tr>
<td>West 2005</td>
<td>Not a randomised (or quasi-randomised) controlled trial. An observational study of four cohorts of 15 infants (each cohort) who were sequentially removed from incubator to open cot on reaching a weight of 1800g (1st cohort); 1700g (2nd cohort); 1600g (third cohort) and 1500g (4th cohort)</td>
</tr>
</tbody>
</table>
### Characteristics of ongoing studies  
*ordered by study ID*

**New 2003**

<table>
<thead>
<tr>
<th>Trial name or title</th>
<th>Transition from incubator to open cot: early versus late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td>Preterm infants born less than 1600 grams</td>
</tr>
<tr>
<td>Interventions</td>
<td>Infants randomised to either intervention or control group on first weight equal to or greater than 1600g; intervention group transferred to open cot at 1600g; control group transferred to open cot at 1800g</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Temperature stability; weight gain; time to discharge</td>
</tr>
<tr>
<td>Starting date</td>
<td>23rd June 2003</td>
</tr>
</tbody>
</table>
| Contact information | Karen New  
| Ph: +61 7 3636 8918  
| Email: karennew@optusnet.com.au |
| Notes               | ACTRN012606000518561                                      |