CoolCuddle  Standard Operating Procedure (SOP)

CoolCuddle is a process and technique developed in Bristol to enable parents to cuddle their babies during therapeutic hypothermia and intensive care. The following SOP includes the group of babies who can be offered CoolCuddle, steps and monitoring involved in CoolCuddle and when to consider stopping the Coolcuddle. CoolCuddle has been investigated for a maximum of 2 hours per cuddle. Parents may choose to stop the cuddle earlier than 2 hours.

**Which babies are suitable for CoolCuddle?**

Infants ≥35 weeks’ gestation undergoing therapeutic hypothermia using a servo-controlled cooling machine and intensive care for HIE.

**Which babies are not suitable for CoolCuddle?**

At the time of planned cuddle, any baby receiving cooling therapy who is requiring any of the following:

- high-frequency oscillation
- mean airway pressure >15cm H₂O
- oxygen requirement >70%
- chest drain in-situ
- needing ≥3 inotropes
- status epilepticus

**Steps involved in Coolcuddle**

1. Parent (Mum or Dad) sits in a chair with pillows on their lap.
2. The wires and tubes around the baby are gathered into 2 bundles and secured with Velcro at either side of the baby.
3. Baby (with wires) is wrapped in a sheet to keep everything secure.
4. Two (or three) nurses carefully move the baby onto the pillow on the parent’s lap.
5. Cuddles can last for up to 2 hours.
6. At the end of the cuddle the baby is moved back to the cot and made comfortable again.
# CoolCuddle checklist

## Before cuddle:

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| **Is the baby stable for a cuddle** | No pending investigations/procedures  
Make sure medical team is happy for the baby to have a cuddle  
Need blood gas?  |
| **Parent(s)** | Explain the process  
Make sure parent(s) has eaten/ has enough drinks/ been to toilet/ maternal pain is under control (not due for medications in the next few hours or inform midwifery team if necessary)  
Make sure the parent(s) is positioned near the ventilator  
Make sure enough space around the chair for easy access for staff  
Offer a pillow / footstool |
| **Nursing staff** | Identify 2\textsuperscript{nd} nurse (one nurse to look after airway)  
Do you need 3\textsuperscript{rd} person?  
Identify the role (who will be leading the move) |
| **IV infusions/lines** | Enough slack?  
Move lines to one side – on opposite side to where parent(s) is – so that lines don’t lie between the baby and the parent(s)  
Bundle together and clip to jacket - one Velcro clip close to line insertion site and the 2nd one near the baby’s head level and clip onto cooling wrap or cot sheet. |
| **Monitoring cables** | Enough slack?  
Group the monitoring cables on the side close to the parent  
Bundle together and clip to cooling wrap (may need 2 or more Velcro clips)  
Peripheral arterial line transducer should be clipped separately and keep the insertion site visible at all the time |
| **Ventilator tubing (including end tidal CO\textsubscript{2} monitoring line)** | No tangles  
Enough slack |
| **Cooling machine** | Position closer to the parent for easy access |
| **Cerebral Function Monitor (CFM)** | Electrodes secure?  
Headbox clipped to the cot sheet  
Enough slack with the electrodes? |
| **Endotracheal tube (ETT)** | ETT secure?  
ETT length at ____ cm at lips |
| **Umbilical Venous Catheter (UVC), Umbilical Arterial Catheter (UAC)** | UAC ____cm  
UVC ____cm  
Secure?  
(Longline secure?) |
| **Rectal Probes** | Secure at 6cm?  
Cables have enough slack? |
| **Urinary catheter** | Secure at insertion site?  
Urine collection container moved to the side, near to the parent(s)  
If not long enough for a transfer, clip onto cot sheet making sure the collection bag stays lower than the baby |
| **Airway** | Check and set Neopuff – If decide to use neopuff, make sure the baby tolerates Neopuff (oxygen saturation stable)  
Stethoscope - check air entry  
Need suction (oral/ETT)?  
If inline suction is used, disconnect inline suction from the suction tubing  
Clear water from ventilator tubing if necessary |
| **Vital signs including end Tidal CO₂** | Pre-cuddle set of observations and record observations every 30 minutes as a minimum.  
Also check ventilation requirement |
| **Baby** | Mark baby being prepared for cuddle on CFM monitor  
Midline position  
Bring the baby’s hands to midline position over the chest  
Swaddle the baby with cot sheet |
| **Medical staff** | Available for a move? |
| **Cooling machine** | Set on Standby  
Wait for 20 seconds  
Clamp hosepipes  
Disconnect hose from the wrap  
Or  
Make sure the cooling machine is close to the parent and if there is adequate slack in the hosepipe that will allow moving the baby to the parent, above steps are not necessary |
| **Surroundings** | Make sure the pathway is clear  
Cables and IV lines are not obstructing the pathway – potential trip hazard  
Make sure other staff in the room is aware the baby is about to be moved |

**Immediately after a transfer:**

| **Airway** | Visible chest wall movement  
Equal air entry  
Check End Tidal CO₂ and its waveforms (if used)  
Check ventilation requirement and ventilator waveforms  
Secure ventilator tubing to parent’s top (position the tube in such a way making sure it does not obstruct the parent’s view of the baby)  
ETT still secure and taped at ___cm at lips |
| **Vital signs** | Stable? |
| **Baby** | Midline position  
Comfortable  
Unwrap the cot sheet which was used to swaddle  
Make sure the cooling wrap is not digging into the baby |
| **Cooling machine** | Connect hoses to the cooling wrap  
Unclamp  
Restart cooling  
Or  
If the hoses were not disconnected from the cooling machine before the move, above steps are not necessary and ensure the rectal temperature is within the target range |
| **IV lines / monitor cables** | Make sure not digging into the baby  
Re-clip onto parent’s pillow if necessary |
Make sure arterial line transducer is maintained at the level of the heart and arterial line insertion site is clearly visible
All the infusion pumps are running

**CFM**
Make sure head box is secure and place it on the cot or shelf closer to baby’s head
Mark ‘start of cuddle’ on CFM
Check EEG electrodes are secure and the EEG signal is acceptable

**Parent(s)**
Make sure the parent is comfortable
Reassure the parent(s)

### Transferring back:

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| **Parent(s)** | Explain the process  
If the parent is happy to move the baby back into the cot, support the parent |
| **Nursing staff** | Identify 2\(^{nd}\) nurse (one nurse to look after airway)  
Do you need 3\(^{rd}\) person?  
Identify the role (who will be leading the move) |
| **Airway** | Unclip the ventilator tubing  
Make sure tubing is free from tangle  
ETT secure?  
ETT length at ____ cm at lips  
Check ventilation requirement |
| **Vital signs** | Stable? |
| **IV lines/cable** | Make sure they are clipped onto the cooling wrap or the cot sheet as before the transfer  
Secure?  
Free from any tangles |
| **CFM** | Ensure the EEG electrodes are secure  
Headbox clipped to the cot sheet  
Enough slack with the electrodes? |
| **Baby** | Mark on the CFM monitor baby being prepared to be moved back to the incubator  
Midline position  
Bring the baby’s hands to midline position over the chest  
Swaddle the baby with cot sheet |
| **Medical Staff** | Available for a move? |
| **Cooling machine** | Set on Standby  
Wait for 20 seconds  
Clamp hosepipes  
Disconnect the hose from the cooling wrap/blanket  
Or  
If there is enough slack in the cooling machine hosepipes for the move back to the cot, above steps are not necessary |
| **Surroundings** | Make sure the pathway is clear  
Cables and IV lines are not obstructing your pathway – potential trip hazard  
Make sure other staff in the room is aware the baby is about to be moved |
Post transfer:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Airway</strong></td>
<td>Visible chest wall movement</td>
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<tr>
<td></td>
<td>Equal air entry</td>
</tr>
<tr>
<td></td>
<td>Check end tidal CO₂ and waveforms (if used)</td>
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<td></td>
<td>Check ventilation requirement / ventilator waveforms</td>
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<tr>
<td></td>
<td>ETT still secure and taped at ___ cm at lips</td>
</tr>
<tr>
<td><strong>Vital signs</strong></td>
<td>Stable?</td>
</tr>
<tr>
<td><strong>Cooling machine</strong></td>
<td>Connect hoses to the cooling jacket</td>
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<td></td>
<td>Unclamp</td>
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<tr>
<td></td>
<td>Restart cooling</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>If the hoses were not disconnected from the cooling machine before the move, above steps are not necessary and ensure the rectal temperature is within the target range</td>
</tr>
<tr>
<td><strong>IV lines/cable</strong></td>
<td>Unclip all the IV lines and monitoring cables</td>
</tr>
<tr>
<td><strong>Baby</strong></td>
<td>Midline position</td>
</tr>
<tr>
<td></td>
<td>Comfortable?</td>
</tr>
<tr>
<td><strong>CFM</strong></td>
<td>Unclip the head box</td>
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<tr>
<td></td>
<td>Mark ‘end of cuddle’ on CFM</td>
</tr>
<tr>
<td><strong>Safe to leave</strong></td>
<td>Check vital signs again</td>
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<tr>
<td></td>
<td>Ventilating well</td>
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<td></td>
<td>Infusion pumps running</td>
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<tr>
<td></td>
<td>Cooling in progress</td>
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<td></td>
<td>CFM</td>
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**When to consider stopping a CoolCuddle**

Cuddle will be stopped, and the baby transferred back to the cot, if any of the following occurs continuously for 5 to 10 minutes during cooling without responding to any potential resolvable causes:

1. Rectal temperature < 30.0°C or > 35.0°C
2. Mean blood pressure < 30 mmHg or > 75 mmHg
3. Heart rate < 50 beats per minute
4. Heart rate > 180 beats per minute
5. Oxygen saturation < 80%
6. Fraction of inspired oxygen > 70%
7. Electroclinical or electrical status epilepticus

If any of the following occurs for greater than 20 minutes after any remediable causes are attended to:

- Rectal temperature between 30.0 and 32.9°C or between 34.1 and 34.9°C
• Mean blood pressure 10 mmHg below or above the pre-cuddle period
• Heart rate <20 beats per minute above or below pre-Cuddle period
• Oxygen Saturation 80-88%
• Increase in Fraction of inspired oxygen by 20% above the pre-CoolCuddle period or
• Medical or nursing concern that the infant is not adequately supported
### Data to be monitored before, during and after cuddle

**Pre Cuddle Data:**

| Date Cuddle started (DD/MM/YY) |  |
| Time Cuddle started (HH:MM) |  |
| Carer Cuddling (Mother/Father/Other) |  |

**Drugs at start of cuddle**

| Approved Drug Name and Dose #1 | Units (e.g. mg/min or mcg/kg/min) | Approved name | Dose |
| Approved Drug Name and Dose #2 |  |  |  |
| Approved Drug Name and Dose #3 |  |  |  |
| Approved Drug Name and Dose #4 |  |  |  |
| Approved Drug Name and Dose #5 |  |  |  |
| Approved Drug Name and Dose #6 |  |  |  |
| Approved Drug Name and Dose #7 |  |  |  |
| Approved Drug Name and Dose #8 |  |  |  |
| Approved Drug Name and Dose #9 |  |  |  |
| Approved Drug Name and Dose #10 |  |  |  |

**Variable**

<table>
<thead>
<tr>
<th>Pre-cuddle*</th>
<th>During cuddle</th>
<th>Post cuddle*</th>
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<tr>
<th>Respiratory Parameters</th>
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<tbody>
<tr>
<td>PIP cmH₂O</td>
</tr>
<tr>
<td>PEEP cmH₂O</td>
</tr>
<tr>
<td>MAP cmH₂O</td>
</tr>
<tr>
<td>FiO₂ %</td>
</tr>
<tr>
<td>SaO₂ %</td>
</tr>
<tr>
<td>T₁ seconds</td>
</tr>
<tr>
<td>ET-CO₂ kPa</td>
</tr>
<tr>
<td>Tidal Volume (ml)</td>
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<tr>
<td>Respiratory Rate</td>
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**Cardiovascular**

| Mean BP mmHg |  |
| Heart Rate beats/min |  |

**Blood Gas Measures (if done)**

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<th>pH</th>
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<td>pCO2</td>
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<tr>
<td>pO2</td>
<td></td>
</tr>
<tr>
<td>Lactate</td>
<td></td>
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<tr>
<td>Glucose</td>
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**Neurology**

- Seizures
- aEEG status
  - Normal
  - Moderately abnormal
  - Severely abnormal
- Lower margin voltage µV
- Upper margin voltage µV
- Sleep Wake cycling (Yes/No)
- rSCo₂% (regional cerebral oxygenation)

**Temperature**

- Peripheral /skin Temp °C
- Rectal Temp°C

**End of Cuddle Summary**

- Date Cuddle stopped (DD/MM/YY)
- Time Cuddle stopped (HH:MM)

**Adverse Events**

- Yes/No
  - Accidental extubation
  - Dislodgement of vascular catheters
  - Dislodgement of aEEG electrodes
  - Needle-stick injury from aEEG electrodes

**Cuddle Stopped early for clinical concerns**

- Yes/No

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If ‘Yes’ please expand

| * at least 15 minutes before moving the baby |
| $ if cuddle ends before 30 mins, please input the data in this column before ending the cuddle |

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<th>If ‘Yes’ please expand</th>
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