## Evidence table: Neonatal sleep maximisation in the hospital environment

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<th>Reference</th>
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<th>Key findings, outcomes or recommendations</th>
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</table>
• Differentiation between day and night increases sleep  
• Further research required on the long-term effect of nap intervention                                                                                                                                                                                                                                            |
• Cycled lighting is preferable than continuous dim lighting in pre-term infants.  
• Exposing pre-term infants to cycled lighting does not disrupt sleep or organisation.                                                                                                                                                                                                                             |
• The lowering of pain threshold appeared to correlate with the duration of sleep deprivation.                                                                                                                                                                                                                                                                       |
• 12 midnight to 4am is the absolute sleep period by 3 months of age.                                                                                                                                                                                                                                                                                  |
• Sleep habits are learned behaviours that are affected by biological and genetic factors and developmental changes.  
• Sleep consolidation begins between the hours of midnight and 5am.                                                                                                                                                                                                                           |
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● Sleep deprivation has a negative impact on health and development.  
● Mean duration of sleep cycles 40-70 minutes.  
● Observational indications of sleep states.  
● Cycled lighting may be a better environment to achieve a more physiologic homeostatic state.  
● Clustering of cares and interventions increase durations of rest periods |
● Circadian rhythm emerges around 2-3 months when infants become increasingly responsive to environmental cues such as light and dark and social cues such as feeding, nap times, and night-time routines. |
● Influences of daylight and dark cycles produce more wakefulness during the day.  
● 95% of infants will cry after waking and require a response to help them settle. |
● Neonates should not be woken while sleeping. If they must be woken, it should be during active sleep by gentle touch and talking.  
● Clustering of cares and interventions increase durations of rest periods  
● Quiet time assists neonates to become used to sleeping in dim and quieter environments. |
● Differentiation between day and night increases sleep  
● Further research required on the long-term effect of nap intervention |
● Cycled lighting is preferable than continuous dim lighting in pre-term infants.  
● Exposing pre-term infants to cycled lighting does not disrupt sleep or organisation. |
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<td>Ma, G., Segawa, M., Nomura, Y., Kondo, Y., Yanagitani, M., and Higurashi, M. (1993). The development of sleep-wakefulness rhythm in normal infants and young children. Tohoku Journal of Experimental Medicine, 171, 29-41.</td>
<td>III-3</td>
<td>• In the early stage of infancy, the environmental factors are important for the normal development of the circadian rhythm.</td>
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<td>Centre for Community Child Health. (2006). Settling and sleep problems. Practice resource. Downloaded from: <a href="http://www.rch.org.au/ccch">www.rch.org.au/ccch</a> on 14th May 2009</td>
<td>V</td>
<td>• Ninety five per cent of newborns wake every 3 – 4 hours at night and require an adult to help them go back to sleep.</td>
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The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case-series

V Evidence obtained from systematic reviews of descriptive and qualitative studies

VI Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

