

## CHEST PHYSIOTHERAPY Supporting information

**This guideline has been prepared with reference to the following:**

Association of Paediatric Chartered Physiotherapists Neonatal Group. Physiotherapy competency document: A competence framework and evidence based practice guidance for physiotherapists providing respiratory interventions for preterm infants in the UK. 2014

[https://apcp.csp.org.uk/system/files/neonatal\\_group\\_-\\_respiratory\\_competencies\\_2014\\_.pdf](https://apcp.csp.org.uk/system/files/neonatal_group_-_respiratory_competencies_2014_.pdf)

Thompson, K, Curson, C, Bedson, Developmentally Appropriate Care – handling and positioning. South West Midlands Newborn Network. 2012

<http://www.networks.nhs.uk/nhs-networks/southern-west-midlands-newborn-network/documents/Dev%20Care%20Guideline%20January%202012.pdf>

Department of Health. Principle 2.5.2.1 in Toolkit for high-quality neonatal services. 2009

Bliss. Standard 3.2 Multidisciplinary team in The Bliss Baby Charter Standards, 2011. BAPM. London.

British Association of Perinatal Medicine. Standard 6.2.3 and Standard 4.2.2 in Service standards for hospitals providing neonatal care. 3<sup>rd</sup> ed. 2010

[https://www.nna.org.uk/assets/bapm\\_standards\\_final\\_aug2010.pdf](https://www.nna.org.uk/assets/bapm_standards_final_aug2010.pdf)

### **What evidence is there for adverse effects of physiotherapy on neonatal patients?**

The evidence suggests that caution must be taken when dealing with vulnerable extremely preterm infants.

An updated review of 3 trials that studied 106 infants- Flenady (2010), reported that information on adverse effects of chest physiotherapy is not adequate enough in the trials included to gauge safety for practice. In view of this and the lack of clear evidence for benefit, it recommends using this intervention cautiously.

Early small scale studies reported risks such as intraventricular haemorrhage (Raval 1987) and encephaloclastic porencephal. (Harding 1998)

Harding (1998) carried out a retrospective case-control study among 454 infants of birth weight less than 1500 gm cared for during the 3-year period of 1992 to 1994. Thirteen babies of 24 to 27 weeks of gestation who weighed 680 to 1090 gm at birth had encephaloclastic porencephaly. Twenty-six control subjects were matched for birth weight and gestation. The patients received two to three times as many treatments with chest physiotherapy in the second, third, and fourth weeks of life as did control infants (median 79 vs 19 treatments in the first 4 weeks,  $p < 0.001$ ). Patients also had more prolonged and severe hypotension in the first week than did control subjects (median duration of hypotension 4 vs 0.5 days,  $p < 0.01$ ), and were less likely to have a cephalic presentation (31% vs 81%,  $p < 0.01$ ). Since December 1994 no very low birth weight baby has received chest physiotherapy treatment in the first month of life in our nursery, and no further cases have occurred. There were methodological limitations to this study though and there is the possibility that the parallels between discontinuation of physiotherapy and cases of EP is confounding evidence. This link has also been disputed by a number of cohort studies following publication of Harding's (1998) research. (Beeby et al 1998; Knight et. al 2001)

An updated Cochrane review (Roque I Figuls 2012) focusing on chest physiotherapy on patients with acute bronchitis, found that the nine included trials did not report any severe adverse events, although one of the trials reported a higher number of transient episodes of vomiting and respiratory instability after physiotherapy.

Beeby, PJ, Henderson-Smart, DJ, Lacey, JL et al. Short- and long-term neurological outcomes following neonatal chest physiotherapy. *J. Paediatric Child Health* 1998 34: 60-2.

Flenady, P and Gray, P.H. Chest Physiotherapy for preventing morbidity in babies being extubated from mechanical ventilation. *Cochrane Database of Systematic Reviews* 2002, Issue 2.

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000283/full>

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Harding, JE, Miles, FK, Becroft, DM et al. Chest physiotherapy may be associated with brain damage in extremely premature infants. J Pediatr. 1998. 132: 440-444.

Knight, DB, Bevan, CJ, Harding, JE et al. Chest physiotherapy and porencephalic brain lesions in very preterm infants. J Paediatric Child Health 2001. 37: 554-8.

Raval D, Yeh TF, Mora A, Cuevas D, Pyati S, Pildes RS. Chest Physiotherapy in preterm infants with RDS in the first 24 hours of life. J. Perinatol. 7 (4): 301-4, 1987

Roqué i Figuls M, Giné-Garriga M, Granados Rugeles C, Perrotta C. Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old. Cochrane Database of Systematic Reviews 2012, Issue 2. Art. No.: CD004873. DOI: 10.1002/14651858.CD004873.pub4.  
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004873.pub4/full>

### **Evidence Level: II**

### **Is chest physiotherapy associated with an increased risk of periventricular leukomalacia?**

No evidence could be identified to suggest such a link.

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