Neonatal Evidence Update
Produced by the PHT Clinical Librarian Service

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NICE Guidance

1. **Preterm labour and birth. NICE guidelines [NG25] Published date: November 2015**
   This guideline covers the care of women at increased risk of or with symptoms and signs of preterm labour (before 37 weeks) and women having a planned preterm birth. It aims to reduce the risks of preterm birth for the baby and describes treatments to prevent or delay early labour and birth. Click to view

Other Guidance

2. **American Academy of Pediatrics.**
   a. **AAP Issues Guidance on Apnea of Prematurity. Published: December 2015, Abstract:** Apnea of prematurity is one of the most common diagnoses in the NICU. Despite the frequency of apnea of prematurity, it is unknown whether recurrent apnea, bradycardia, and hypoxemia in preterm infants are harmful. Research into the development of respiratory control in immature animals and preterm infants has facilitated our understanding of the pathogenesis and treatment of apnea of prematurity. However,
the lack of consistent definitions, monitoring practices, and consensus about clinical significance leads to significant variation in practice. The purpose of this clinical report is to review the evidence basis for the definition, epidemiology, and treatment of apnea of prematurity as well as discharge recommendations for preterm infants diagnosed with recurrent apneic events. Click to view

b. Prevention and Management of Procedural Pain in the Neonate: An Update COMMITTEE ON FETUS AND NEWBORN and SECTION ON ANESTHESIOLOGY AND PAIN MEDICINE. Published: December 2015, Abstract: The American Academy of Pediatrics (AAP) has released a policy statement recommending that healthcare facilities both minimize the number of painful procedures performed on newborns and routinely assess and treat pain in these patients Click to view


4. Public Health England a. UK National Screening Committee recommendations: annual report 09 December 2015 Comment: This report summarises the work of the UK National Screening Committee (UK NSC) to review screening recommendations. Click to view

b. Zika virus infection: guidance for primary care. 04 February 2016. Comment: This guidance summarises key advice for those working in primary care, since they may be consulted by patients, including pregnant women, who are travelling to or returning from countries that are part of the Zika outbreak. Click to view

5. Medicines compendium a. Zorac 0.05% GelLast EMC. Last Updated on: 04/01/2016 Comment: Section 4.2 states safety/efficacy of Zorac gel in children <18 yrs has not been established. Section 4.4 includes recommendation that tazarotene should be used with caution if taken with other photosensitive drugs. Section 4.8 includes ADRs identified during post-marketing use. Click to view

b. Revised SPC: AErrane (isoflurane) 100% Liquid Inhalation Vapour. Last Updated: 27 January 2016 Overview: SPC now states that isoflurane is not recommended for use as an inhalation induction agent in infants and children because of the occurrence of cough, breath-holding, desaturation, increased secretions and laryngospasm. Click to view
New and Updated Cochrane Systematic Reviews

6. Alternative lipid emulsions versus pure soy oil based lipid emulsions for parenterally fed preterm infants New

7. Antibody therapies for lymphoma in children New

8. Pit and fissure sealants versus fluoride varnishes for preventing dental decay in the permanent teeth of children and adolescents New

9. Washed versus unwashed red blood cells for transfusion for the prevention of morbidity and mortality in preterm infants New

10. Comparison of animal-derived surfactants for the prevention and treatment of respiratory distress syndrome in preterm infants New

11. Needle aspiration versus intercostal tube drainage for pneumothorax in the newborn New

13. Corticosteroids for treating sepsis Updated

14. Effects and safety of periconceptional oral folate supplementation for preventing birth defects Updated

15. Glutamine supplementation to prevent morbidity and mortality in preterm infants Updated

16. Topical emollient for preventing infection in preterm infants Updated

Good Quality Systematic Reviews

17. Late Surfactant Treatment.
Randomized Trial of Late Surfactant Treatment in Ventilated Preterm Infants Receiving Inhaled Nitric Oxide. J Pediatr. Published Date: January 2016

Author’s Conclusions: Late treatment with up to 5 doses of surfactant in ventilated premature infants receiving inhaled nitric oxide was well tolerated, but did not improve survival without BPD at 36 or 40 weeks. Pulmonary and neurodevelopmental assessments are ongoing Click to view

Bronchopulmonary Dysplasia
Intratracheal Administration of Budesonide/Surfactant to Prevent Bronchopulmonary Dysplasia. Am J Respir Crit Care Med. Published Date: January 2016

Conclusion: In very-low-birth-weight infants with severe respiratory distress syndrome, intratracheal administration of surfactant/budesonide compared with surfactant alone significantly decreased the incidence of BPD or death without immediate adverse effect. Click to view

18. Celiac disease (CD).

Authors conclusions: There is currently no evidence to support that early introduction of gluten to the infant diet increases the risk of CD; however, late introduction of gluten may be
associated with increased risk of CD. More studies are needed that control for potential confounders and that evaluate environmental factors in low-risk families. [Click to view]

19. Invasive bacterial infection (IBI)
Use of Procalcitonin Assays to Predict Serious Bacterial Infection in Young Febrile Infants. [JAMA Pediatr. Published Date: January 2016]
Authors’ conclusions: The PCT assay has better diagnostic accuracy than CRP measurement for detecting IBI; the 2 tests perform similarly for identifying SBI in febrile infants aged 7 to 91 days. [Click to view]

20. Placental Transfusion
Effects of Placental Transfusion on Neonatal and 18 Month Outcomes in Preterm Infants: A Randomized Controlled Trial. [J Pediatr. Published Date: January 2016]
Authors’ conclusions: Although DCC did not alter the incidence of IVH or LOS in preterm infants, it improved motor function at 18-22 months corrected age. [Click to view]

Practice Changing Research

Family-centered developmental care (FCDC)-NICU

Recommendations for involving the family in developmental care of the NICU baby. [Journal of Perinatology. Published: Dec 2015]
Conclusions: Family involvement is a key to realize the potential for long-lasting positive effects on physical, cognitive and psychosocial development of all babies, including those in the neonatal intensive care unit (NICU). Family-centered developmental care (FCDC) recognizes the family as vital members of the NICU health-care team. As such, families are integrated into decision-making processes and are collaborators in their baby’s care. Through standardized use of FCDC principles in the NICU, a foundation is constructed to enhance the family’s lifelong relationship with their child and optimize development of the baby. Recommendations are made for supporting parental roles as caregivers of their babies in the NICU, supporting NICU staff participation in FCDC and creating NICU policies that support this type of care. These recommendations are designed to meet the basic human needs of all babies, the special needs of hospitalized babies and the needs of families who are coping with the crisis of having a baby in the NICU. [Click to view]

Oxygen Saturation Targets

Authors conclusions: Use of an oxygen-saturation target range of 85 to 89% versus 91 to 95% resulted in non-significantly higher rates of death or disability at 2 years in each trial but in significantly increased risks of this combined outcome and of death alone in post hoc combined analyses. [Click to view]

Auditory Plasticity (AP)

Mother’s voice and heartbeat sounds elicit auditory plasticity in the human brain before full gestation. [PNAS. Published: March 2015]
Significance: Newborns can hear their mother’s voice and heartbeat sounds before birth. However, it is unknown whether, how early, and to what extent the newborn’s brain is shaped by exposure to such maternal sounds. This study provides evidence for experience-dependent
plasticity in the auditory cortex in preterm newborns exposed to authentic recordings of maternal sounds before full-term brain maturation. We demonstrate that the auditory cortex is more adaptive to womb-like maternal sounds than to environmental noise. Results are supported by the biological fact that maternal sounds would otherwise be present in utero had the baby not been born prematurely. We theorize that exposure to maternal sounds may provide newborns with the auditory fitness necessary to shape the brain for hearing and language development.

**Weekend working**

**Weekend working: a retrospective cohort study of maternal and neonatal outcomes in a large NHS delivery unit.** *EJOG. Published:* April 2016

**Authors Conclusions:** Under current working arrangements, women who would benefit from consultant-led delivery are equally likely to receive one on weekends compared to weekdays. Weekend delivery has no effect on maternal or neonatal morbidity. Adopting mandatory 7-day contracts is unlikely to make any difference to either consultant-led delivery during weekends or to patient outcomes.

**21. Neonatal Hypoglycemia**

**Outcome at 2 Years after Dextrose Gel Treatment for Neonatal Hypoglycemia: Follow-Up of a Randomized Trial.** *The Journal of Pediatrics. Published:* December 2015.

**Conclusions:** Dextrose gel is safe for the treatment of neonatal hypoglycemia, but neurosensory impairment is common among these children.

**22. Acute kidney injury**


**Results:** AKI occurred in 30.3% of 357 neonates; 72.2% was stage 1. Gestational ages (GA), initial Cr, maternal magnesium and volume resuscitation were associated with early AKI (days 0 to 1). Volume resuscitation, umbilical arterial line and receipt of non-steroidal anti-inflammatory drug (NSAID) for patent ductus arteriosus were associated with intermediate AKI (days 2 to 5). GA, steroids for early hypotension, necrotizing enterocolitis and sepsis were associated with late AKI (greater than or equal today 6)

**CONCLUSIONS:** Stage 1 AKI is a common morbidity in our population. Risk factors for AKI in our population differed with time of onset.

**23. Preterm pre-labour ruptured membranes**

Immediate delivery compared with expectant management after preterm pre-labour rupture of the membranes close to term (PPROMT trial): a randomised controlled trial. *The Lancet. Published:* 25 November 2015.

**Conclusion:** In the absence of overt signs of infection or fetal compromise, a policy of expectant management with appropriate surveillance of maternal and fetal wellbeing should be followed in pregnant women who present with ruptured membranes close to term.

**24. Muscular Dystrophy**


**Interpretation:** Screening for DMD will result in identification of other muscle diseases. Future screening protocols should include infants of both sexes and include follow-up testing algorithms to evaluate patients who do not have DMD gene mutations but may have another
muscle disorder associated with elevated neonatal creatine kinase levels. These programs will need to be aware that false-negative results are a possibility. Click to view

25. Premature Infant Discharge-NICU
Effect of an educational intervention on parental readiness for premature infant discharge from the neonatal intensive care units. Journal of Advanced Nursing.
Published: January 2016
Conclusion: Discharge education can improve parental readiness for premature infant discharge. Quality of discharge teaching can significantly predict parental readiness for premature infant discharge. Click to view

26. Congenital diaphragmatic hernia (CDH)
Published: 16 December 2015
Conclusion: Our results show no statistically significant difference in the combined outcome of mortality or BPD between the 2 ventilation groups in prenatally diagnosed congenital diaphragmatic hernia infants. Other outcomes, including shorter ventilation time and lesser need of extracorporeal membrane oxygenation, favored conventional ventilation. Click to view

Topical Issues

Using reflection on reading for revalidation. Nursing Times. Publication Date: June 2015
Comment: This article has outlined the reasons for reflecting on professional reading, how to select relevant journal articles or guidance frameworks to reflect on, some possible ways to structure reflection and a suggested model of reflection that is specifically designed for reflecting on articles rather than clinical practice Click to view

The effects of a one-to-one nurse-to-patient ratio on the mortality rate in neonatal intensive care: a retrospective, longitudinal, population-based study. Arch Dis Child Fetal Neonatal Ed
Publication Date: 9 February 2016
Comment: Our study suggests that decreases in the provision of one-to-one nursing in tertiary-level neonatal intensive care units increase the in-hospital mortality rate. Click to view

27. WHO Director-General summarizes the outcome of the Emergency Committee regarding clusters of microcephaly and Guillain-Barré syndrome. WHO. Publication Date: 1 February 2016
Comment: WHO statement on the first meeting of the International Health Regulations (2005) Emergency Committee on Zika virus and observed increase in neurological disorders and neonatal malformations. Click to view

Children/Neonatal in the news – media stories

"Depression in expectant fathers linked to premature births," The Independent reports. A Swedish study found a link between paternal depression occurring for the first time and an increased risk of very premature birth..... Click to view

29. Antidepressant use in pregnancy 'linked to childhood autism' Tuesday Dec 15 2015
"Taking antidepressants during pregnancy almost doubles the risk of children developing autism," The Daily Telegraph reports. Researchers say it is possible that chemicals present in antidepressants could interfere with child development... Click to view
30. Zika-linked condition: WHO declares global emergency. A disease linked to the Zika virus in Latin America poses a global public health emergency requiring a united response, says the World Health Organization. BBC Health 1 February 2016 Click to view

Latest Journal Table of Contents
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32. Archives of Disease in Childhood - Fetal and Neonatal Edition Click to view
33. Infant & Infant Grapevine Click to view
34. Journal of Maternal-Fetal & Neonatal Medicine Click to view
35. Journal of Neonatal Nursing Click to view
36. Journal of Obstetric Gynecologic and Neonatal Nursing Click to view
37. Neonatal Network Click to view

Keeping up to date

BMJ Evidence Updates — https://plus.mcmaster.ca/evidenceupdates/
Children, Families and Maternity e-bulletin —
Children and Young people — http://cash.libraryservices.nhs.uk/cash-service/age-group/early-years/
Journal Table of Contents (JToCs) — www.journaltocs.ac.uk
National Child and Maternal Health Intelligence Network—
http://www.chimat.org.uk/default.aspx
Paediatric Pearls — www.paediatricpearls.co.uk
RCPCH e-Bulletins and Regional Updates - http://www.rcpch.ac.uk/member-services
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Online Resources

What's New in Neonatology

Neonatal and maternal outcomes for planned out-of-hospital birth (January 2016)
Zika virus infection in the Americas (January 2016)

BestBets — www.bestbets.org

British National Formulary (BNF) - https://www.evidence.nhs.uk/formulary/bnfc/current
British Association of General Paediatrics — www.bagp.org.uk
Cochrane Child Health Evidence — http://childhealth.cochrane.org/cochrane-reviews-child-health

Neonatal Research http://neonatalresearch.org/
Royal College of Paediatrics and Child Health - www.rcpch.ac.uk
The Royal Marsden Manual of Clinical Procedures - Click for access (NHS Athens Required)
Zika Virus Health Information Resources:
http://www.cdc.gov/zika