NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline scope

Specialist neonatal respiratory care for babies born preterm

The Department of Health in England and NHS England have asked NICE to produce a guideline on specialist neonatal respiratory care for babies born preterm.

The guideline will be developed using the methods and processes outlined in Developing NICE guidelines: the manual.

1 Why the guideline is needed

Key facts and figures

In 2016, a National Neonatal Audit found that approximately 13% of babies in the UK need specialist neonatal care, either because they are born preterm (at less than 37 weeks of gestation) or they have an illness or condition.

A comparison of the EPICure studies published in 2012 found that, between 1995 and 2006, the number of babies born below 26 weeks of gestation and admitted to neonatal units increased by 30% in England. Over the same period, survival rates for babies born at 22–25 weeks of gestation and admitted for intensive care increased by 13%. In addition, a higher proportion of these babies survived without disability (particularly babies born at 24–25 weeks gestation). International comparisons show that the neonatal mortality rate varies significantly by country.

Preterm babies are at risk of respiratory disorders, including respiratory distress syndrome and bronchopulmonary dysplasia. High-quality respiratory care can reduce the length of hospital stay and risk of long-term disability. Bronchopulmonary dysplasia is particularly common in preterm babies who

require assisted ventilation. Babies with bronchopulmonary dysplasia need prolonged specialist care and respiratory support.

Current practice

Respiratory support is used in different ways in different units, and it is unclear what the best method is for providing mechanical ventilation and preventing bronchopulmonary dysplasia. There are many other areas of uncertainty and variation in how respiratory support is provided. There is also variation in other areas of respiratory management, including how corticosteroids are used to prevent and manage bronchopulmonary dysplasia.

Policy, legislation, regulation and commissioning

Legislation, regulation and guidance

The European Association of Perinatal Medicine endorses the European consensus guidelines on the management of neonatal respiratory distress syndrome in preterm infants – 2013 update.

Commissioning

Since 2013, neonatal critical care services have been managed within Operational Delivery Networks. For healthy babies and babies with minor problems, most care is provided by the hospital they are born in. Neonatal intensive care units are responsible for babies who have more complex problems. Neonatal intensive care, and the service specifications for Neonatal Critical Care and Neonatal Intensive Care Transport, are within the scope of the neonatal critical care Clinical Reference Group.

2 Who the guideline is for

This guideline is for:

- healthcare professionals in primary, secondary and tertiary care
- parents and carers of babies born preterm who need respiratory support
- commissioners and providers of specialist neonatal care services.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive.

Equality considerations

NICE has carried out an equality impact assessment during scoping. The assessment:

- lists equality issues identified, and how they have been addressed
- explains why any groups are excluded from the scope.

The guideline will look at inequalities relating to parents and carers who do not speak English as their first language.

3 What the guideline will cover

3.1 Who is the focus?

Groups that will be covered

- Babies born preterm who need respiratory support (for example oxygen supplementation or assisted ventilation) in hospital, beginning in the neonatal period.

Groups that will not be covered

- Babies born at term.
- Babies who need respiratory support because of congenital disorders, for example congenital diaphragmatic hernia.

3.2 Settings

Settings that will be covered

- All settings that provide NHS-funded healthcare to babies.

3.3 Activities, services or aspects of care

Key areas that will be covered

We will look at evidence in the areas below when developing the guideline, but it may not be possible to make recommendations in all the areas.

Note that guideline recommendations for medicines will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

1. Early respiratory management (excluding resuscitation) after birth and before arrival in the neonatal unit. This includes oxygen supplementation and assisted ventilation with:
    - non-invasive techniques (for example high-flow therapy or continuous positive airway pressure [CPAP]) **or**
    - invasive techniques (for example conventional ventilation).
2. Diagnosing bronchopulmonary dysplasia.
3. Preventing and managing respiratory disorders on the neonatal unit, including with:
    - oxygen supplementation and assisted ventilation (including the techniques specified in key area 1 and high-frequency oscillatory ventilation)
    - medicines (for example, surfactants, corticosteroids, diuretics and caffeine)
    - treatment for patent ductus arteriosus
4. Monitoring in the neonatal unit, including:
    - blood oxygen levels
    - blood carbon dioxide levels
    - blood pressure
5. Sedation and analgesia (including morphine) in babies receiving respiratory support

6. Involving and supporting parents and carers, communicating with them and providing them with information
7. Discharge planning from hospital to home for babies who have had respiratory support in hospital (beginning in the neonatal period) and need continued support for chronic lung disease.

Areas that will not be covered

1 Resuscitating newborn babies (this is covered in the NICE-accredited Resuscitation Council UK guideline on the Resuscitation and support of transition of babies at birth)
2 Technical aspects of airway management, such as intubation techniques
3 Managing persistent pulmonary hypertension of the newborn
4 Long-term management of chronic lung disease after discharge from the neonatal unit
5 Neonatal feeding and nutrition
6 Sepsis
7 Neurological disorders
8 Gastrointestinal disorders
9 Congenital heart disease (apart from patent ductus arteriosus)
10 Renal disorders
11 Hypoglycaemia and hyperglycaemia
12 Palliative care (this is covered in the NICE guideline on end of life care for infants, children and young people).

Related NICE guidance

- This guideline will not cover developmental follow-up for preterm babies, because this will be covered in:
  Developmental follow-up of pre-term babies (publication expected August 2017) NICE guideline in development
- This guideline will not cover end of life care, because this is covered in:
  End of life care for infants, children and young people (2016) NICE guideline NG61

- This guideline will not cover diagnosis, management or support for preterm labour and birth, because this is covered in:
  Preterm labour and birth (2015) NICE guideline NG25
- This guideline will not cover gastro-oesophageal reflux disease, because this is covered in:
  Gastro-oesophageal reflux disease in children and young people: diagnosis and management (2015) NICE guideline NG1
- This guideline will not cover early onset neonatal infection, because this is covered in:
  Neonatal infection (early onset): antibiotics for prevention and treatment (2012) NICE guideline CG149
- This guideline will not cover jaundice, because this is covered in:
  Jaundice in newborn babies under 28 days (2010) NICE guideline CG98

NICE guidance about the experience of people using NHS services

NICE has produced the following guidance on the experience of people using the NHS. This guideline will not include additional recommendations on these topics unless there are specific issues related to neonatal care:

- Patient experience in adult NHS services (2012) NICE guideline CG138
- Medicines adherence (2009) NICE guideline CG76
- Medicines optimisation (2015) NICE guideline NG5

3.4 Economic aspects

We will take economic aspects into account when making recommendations. We will develop an economic plan that states for each review question (or key area in the scope) whether economic considerations are relevant, and if so whether this is an area that should be prioritised for economic modelling and analysis. We will review the economic evidence and carry out economic analyses, using a NHS and personal social services perspective (PSS), as appropriate.

3.5 Key issues and questions

While writing this scope, we have identified the following key issues, and key questions related to them:

1 Early respiratory management (excluding resuscitation) after birth and before arrival in the neonatal unit. This includes oxygen supplementation and assisted ventilation with non-invasive and invasive techniques.

1.1 What respiratory support is most effective for babies who need it at birth and before transfer to the neonatal unit?

2 Diagnosing bronchopulmonary dysplasia

2.1 What are the risk factors for bronchopulmonary dysplasia?

3 Preventing and managing respiratory disorders on the neonatal unit, including oxygen supplementation and assisted ventilation, medicines and treatment for ductus arteriosus

3.1 How should oxygen be administered to ensure effectiveness and safety?

3.2 What is the effectiveness and safety of the different assisted ventilation techniques?

3.3 What is the effectiveness and safety of surfactant in managing respiratory distress syndrome and preventing bronchopulmonary dysplasia?

3.4 What is the effectiveness and safety of corticosteroids in preventing or managing bronchopulmonary dysplasia?

3.5 What is the effectiveness and safety of diuretics in preventing or managing bronchopulmonary dysplasia?

3.6 What is the effectiveness and safety of caffeine in preventing or managing bronchopulmonary dysplasia?

3.7 What is the effectiveness and safety of interventions for closing a patent ductus arteriosus in preventing or managing bronchopulmonary dysplasia?

4 Monitoring in the neonatal unit, including blood oxygen levels, blood carbon dioxide levels and blood pressure

4.1 What is the best method for monitoring blood oxygen levels?

4.2 What is the best method for monitoring blood carbon dioxide levels?

4.3 What is the best method for monitoring blood pressure?

5 Sedation and analgesia (including morphine) in babies receiving respiratory support

5.1 Is morphine effective and safe to use during assisted ventilation?

6 Involving and supporting parents and carers, communicating with them and providing them with information

6.1 What involvement do parents, carers and family members value in the care of babies who are receiving respiratory support?

6.2 What are the benefits and risks of involving parents, carers and family members in the care of babies who are receiving respiratory support?

6.3 What support is valued by parents and carers of babies who are receiving respiratory support in hospital, both during admission and at discharge?

6.4 What information, and in what format, is valued by parents and carers of babies who are receiving respiratory support in hospital, both during admission and at discharge?

7 Discharge planning from hospital to home for babies who have had respiratory support in hospital (beginning in the neonatal period) and need continued support for chronic lung disease

7.1 What should be included in a discharge plan to facilitate the safe discharge of a baby on oxygen or assisted ventilation?

The key questions may be used to develop more detailed review questions, which guide the systematic review of the literature.

3.6 Main outcomes

The main outcomes that will be considered when searching for and assessing the evidence are:

1 Mortality
2 Duration of hospital stay
3 Bronchopulmonary dysplasia
4 Retinopathy of prematurity
5 Necrotising enterocolitis
6 Periventricular leukomalacia and intraventricular haemorrhage
7 Cerebral palsy
8 Developmental delay
9 Quality of life
10 Parent and carer experience

4 NICE quality standards and NICE Pathways

4.1 NICE quality standards

NICE quality standards that may need to be revised or updated when this guideline is published

- Neonatal specialist care (2010) NICE quality standard 4

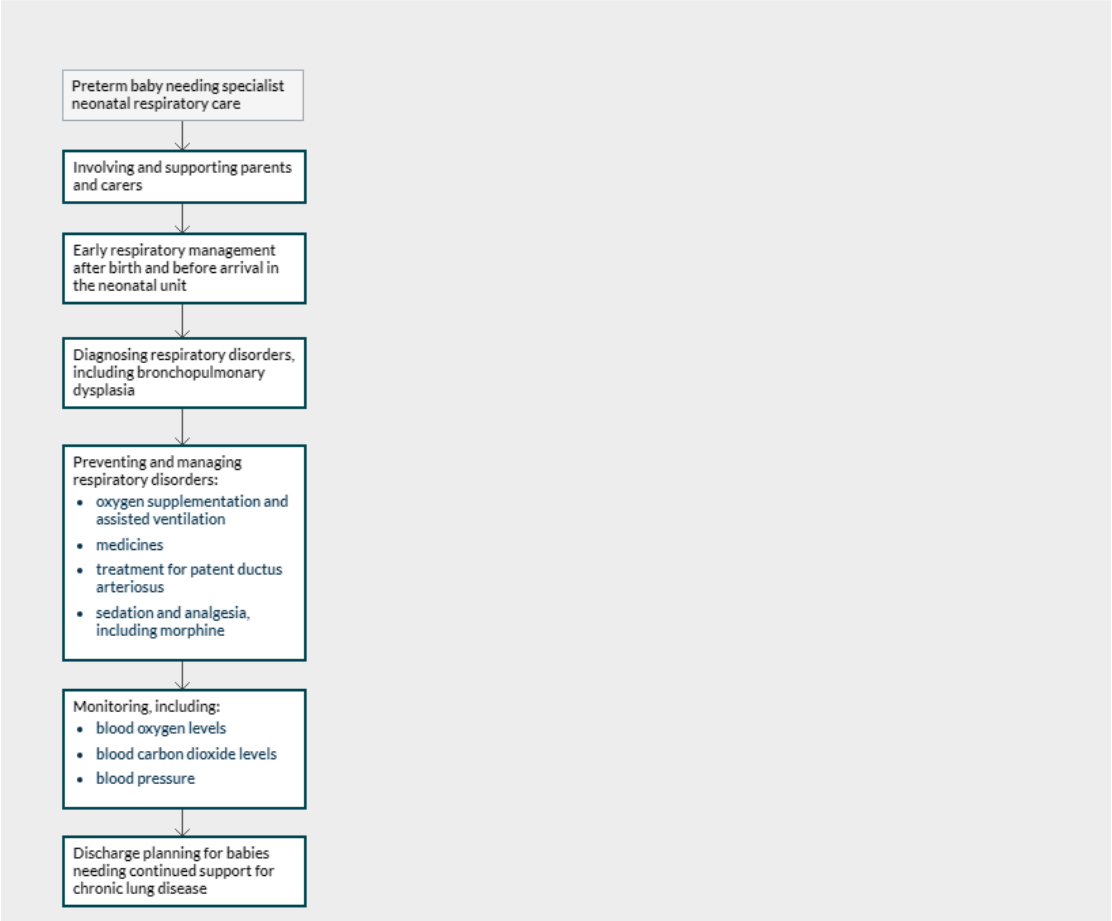
4.2 NICE Pathways

NICE Pathways bring together all related NICE guidance and associated products on a topic in an interactive topic-based flow chart. When this guideline is published, the recommendations will be added to NICE Pathways. Other relevant NICE guidance will also be added to the NICE Pathway, including:

- Endovascular closure of patent ductus arteriosus (2004) NICE interventional procedures guidance 97

A draft pathway outline on specialist neonatal care, based on the draft scope, is included below. It will be adapted and more detail added as the recommendations are written during guideline development.

Specialist neonatal respiratory care for babies born preterm overview



5 Further information

This is the final scope, incorporating comments from registered stakeholders during consultation. The guideline is expected to be published in April 2019.

The scope was updated in October 2017 to remove the review on risk factors for respiratory distress syndrome.

You can follow progress of the guideline.

Our website has information about how NICE guidelines are developed.