



South West Neonatal Network Guideline

The Use of Probiotics in Preterm Babies

March 2017

1. Background

The aetiological basis for Necrotising Enterocolitis (NEC) remains poorly understood but the nature of the bacterial colonisation of a baby's gut is felt to be a significant factor. Probiotics are gram positive non-pathogenic and non-toxicogenic live microbes which, when administered enterally, have been shown to successfully colonise the gut of preterm infants. Probiotic products such as Infloran and *LaBiNIC*[®] that can contain *Lactobacillus acidophilus*, *Bifidobacterium bifidum* (and *Bifidobacterium infantis* – *LaBiNIC*), the predominant organisms found in the GI tract of healthy breastfed infants, have been shown to reduce NEC and sepsis. Colonisation with these organisms is thought to protect the gut from colonisation by more pathogenic species. Randomised controlled trials have shown that preterm infants given mixed strain probiotics in early life have a decreased risk of death and NEC. Long term follow-up data is, as yet, unavailable but probiotic use does not appear to be associated with significant side-effects

2. Scope

This guidelines applies to neonatal units that fall within the South west Neonatal Network, who care for babies <32 weeks gestation and/or Birthweight <1500g this includes the following hospitals.

Northern Devon Healthcare Trust	- North Devon District Hospital, Barnstable
Royal United Hospital Bath NHS Trust	- Royal United Hospital Bath
North Bristol NHS Trust	- Southmead Hospital, Bristol
University Hospitals Bristol NHS Foundation Trust	- St Michaels Hospital, Bristol
Royal Devon and Exeter NHS Foundation Trust	- Royal Devon and Exeter Hospital
Gloucestershire Hospitals NHS Foundation Trust	- Gloucester Royal Hospital
Plymouth Hospitals NHS Trust	- Derriford Hospital, Plymouth
Great Western Hospitals NHS Foundation Trust	- Great Western Hospital, Swindon
Taunton and Somerset NHS Foundation Trust	- Musgrove Park Hospital, Taunton
Torbay and South Devon NHS Foundation Trust	- Torbay Hospital
Royal Cornwall Hospitals NHS Trust	- Royal Cornwall Hospital, Truro
Yeovil District Hospital NHS Foundation Trust	- Yeovil District Hospital

3. Product, Dose and Administration

- Speak to parents; offer them written information (Appendix 3).
- Commence probiotics on any baby born <32 weeks or <1500g on the day non-nutritive feeds are started.
- Prescribe Probiotics as per manufactures guidance with pharmacy lead support.
- Do not add to continuous feeds.
- It is safe to provide probiotics as an extra bolus up to twice daily even in babies only on 0.5ml/2 hourly.
- Stop probiotics in any baby if feeds are stopped.
- Probiotic use should not influence decisions regarding the rate of increase of enteral feeding. This remains as per protocol or as directed by the consultant in charge.

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The Use of Probiotics in Preterm Babies

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- Preparation of probiotics should be carried out in the milk kitchen and disposal of any excess product should be carried out in to designated sharp bins and should not be tipped in to sinks.
- Storage: Please refer to manufacturers guidelines for chosen product.
- Continue until 34+0 weeks corrected age. Consider prolonging treatment in infants where feed tolerance has been an issue, until feeding is well established.

Please see Appendix 4 for further Dose, Preparation and Administration information

4. Monitoring Effectiveness

Clinical Audit Standards and Governance

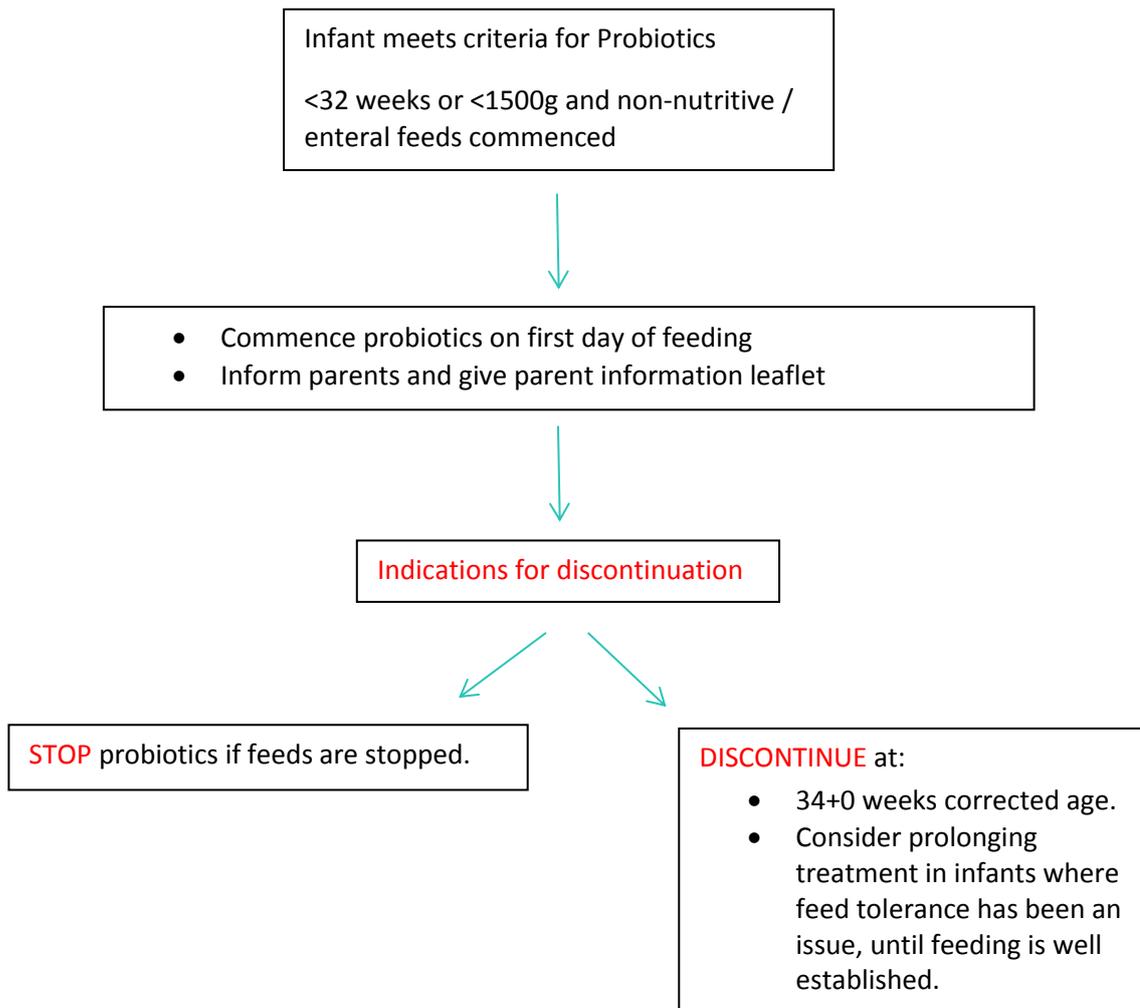
- Key outcomes (incidence of NEC, sepsis etc.) will be routinely recorded for infants that receive probiotics through Badger and the Vermont Oxford Network (<30/40 and <1500g). These audit figures will be presented yearly to the Mortality and Morbidity Meeting, and at any Neonatal / Paediatric Audit Meetings.
- In theory there is a small risk of infection to the patient from the organisms in the probiotics. It is also known that the risk of gut translocation of bacteria increases when babies are unwell. However, this possibility is considered unlikely as there were no infections secondary to probiotic organisms detected in over 2000 babies studied as part of probiotic research.

5. References

1. Deshpande G, Rao S, Patole S, Bulsara M. Updated meta-analysis of probiotics for preventing NEC in preterm neonates. *Pediatrics* 2010;125(5):921-30.
2. Wang Q, Dong J, Zhu Y. Probiotic supplement reduces risk of necrotizing enterocolitis and mortality in preterm very low-birth-weight infants: an updated meta-analysis of 20 randomized, controlled trials. *J Pediatr Surg* 2012; 47(1):241-248.
3. Deshpande GC, Rao SC, Keil AD, Patole SK. Evidence-based guidelines for use of probiotics in preterm neonates. *BMC Med*. 2011 Aug 2;9:92.
4. Lin H-C, Hsu C-H, Chen H-L, et al. Oral probiotics prevent necrotizing enterocolitis in very low birth weight preterm infants: A multicenter, randomized, controlled trial. *Pediatrics* 2008; 122; 693-700.
5. Lin H-C, Su B-H, Chen A-C, et al. Oral probiotics reduce the incidence and severity of necrotizing enterocolitis in very low birth weight infants. *Pediatrics* 2005; 115; 1-4.
6. Hey E, editor. *Probiotics in Neonatal Formulary 5. Drug use in pregnancy and the first year of life.* Oxford: Blackwell Publishing Ltd. Electronic version, 2008. Accessed via www.blackwellpublishing.com/medicine/bmj/nnf5/pdfs/new/probiotics.pdf.

Appendix 1

A flowchart: Use of probiotics in preterm babies



Appendix 2

Audit Tool

Auditable Standard	No of Eligible Babies	No of Babies Received	% of Eligible Babies
1 Have eligible infants received probiotics when indicated?			
2 Are probiotics appropriately ceased as per indications for discontinuation?			
3 Did parents receive a Parent Information Leaflet?			
4 Has long-term monitoring of incidence of NEC been reported through Vermont-Oxford Network and Badger Data?			
5 Have any cases of possible sepsis from organisms introduced through probiotic use been reported to the Network Governance Group?			

Appendix 3

A Parents' Guide to Understanding: Probiotics

Probiotics in preterm infants

This leaflet provides information for the parents of babies born prematurely about the use of regular probiotic treatment.

What is the medication called and what is it used for?

Probiotics are harmless bacteria that live in our gut, and help to keep our intestines healthy. Probiotics can stop harmful bacteria growing in the intestine and can help prevent conditions such as diarrhoea (gastroenteritis) and necrotising enterocolitis (NEC).

It is a treatment that contains the friendly bacteria that would usually be found in the intestine of breast-fed babies born at term. It is similar to drinking live yoghurt products. The bacteria are obtained by purifying a yoghurt type liquid so that your baby does not receive the milk part of the yoghurt.

How is it taken?

The product is given with milk feeds.

How often should it be taken?

It is given daily until your baby reaches 34 weeks corrected age, or may be continued if there are difficulties with tolerating milk feeds.

What are the benefits?

Preterm babies frequently have unusual bacteria in their intestines, often as a result of other treatments we need to use, such as antibiotics. These unusual bacteria can increase the risks of serious diseases such as Necrotising Enterocolitis (NEC), which is a severe inflammatory disease of the bowel. Probiotics work by replacing these with normal bacteria, and by strengthening your baby's immune response to infection.

There is good research evidence that probiotics protect babies, reducing NEC by 30%, and improving babies' ability to tolerate milk feeds.

What are the side effects?

Research has shown probiotics to be safe. There are no known risks or side effects to taking probiotics. The treatment may be temporarily stopped if your baby becomes unwell or feeds are stopped for any reason.

What are the alternatives?

There are no alternatives to probiotics; there is however a number of different brands supplying probiotics. If you would like further information on the probiotic your baby is receiving please speak to the nurse/doctor looking after your baby.

Who to contact if you have any more questions

Please feel free to discuss this with the nurse caring for your baby or the consultant on duty, who will answer any queries you might have.



Appendix 4

Product information

LaBiNIC® liquid drops

Contents: Lactobacillus acidophilus, Bifidobacterium bifidum and Bifidobacterium infantis

Each dose contains at least 1.5×10^9 colony forming units

- Prescribe 0.16ml LaBiNIC® once daily on drug chart by mouth, nasogastric tube (NGT) or orogastric tube (OGT)
- Mix with 1mL expressed breast milk (EBM) and give as bolus via NGT/OGT or give directly into the mouth if babies are breast feeding

Infloran capsules (250mg/capsule)

Contents: Lactobacillus acidophilus and Bifidobacterium Bifidum.

Each capsule contains at least 109 colony forming units.

- Prescribe 125mg Infloran twice daily (half capsule) on drug chart to be administered via nasogastric tube (NGT) or by mouth.
- Mix with 0.5-1ml expressed breast milk (EBM) or sterile water and give as bolus via NGT
- Do not add to continuous feeds.

Please take care not to spill any liquids as they contain live bacteria, ensure all spillages are cleaned up immediately using alcohol wipes.