Probiotic Research Update July 2025

This Update for Clinicians is sponsored by Biofloratech Ltd, manufacturer of Labinic Probiotic Drops for babies.
Labinic is:

- A triple strain preparation (L. acidophilus, B. bifidum & B. infantis)
- Highly concentrated in MCT oil (allows small administration volumes)
- Very stable at room temp - shelf life for live probiotics guaranteed
- Manufactured to cGMP (Good Manufacturing Practice), cGPP (Good Pharmacy Practice) in specialist facilities holding an A-grade Manufacturing Pharmacy licence
- Widely used with an excellent safety profile
- Excellent value

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Using Probiotics to treat Breast Milk Jaundice?

Bagcı O, Varal IG, Dogan P, Özkan H, Köksal N. The role of probiotics in breast milk jaundice: Results of a prospective study in a tertiary care center. Pediatr Int. 2025 Jan-Dec;67(1):e70043

Jaundice is extremely common, occurring in at least 60% of term infants and 80% of preterm infants. The most common cause is breast milk jaundice, which creates a significant workload for (usually) community teams who must respond to parental concerns, screen babies (often repeatedly) and occasionally implement referral for further testing and/or treatment. Phototherapy is the globally accepted first line treatment for jaundice. In low income settings its availability is often patchy. In high income settings, families are increasingly wanting treatment at home, which creates a greater workload for community teams. Prolongation of jaundice, as occurs in breast milk jaundice, means that longer supervision of babies may be required, adding to the workload.

Interest is therefore high for other options that are easy to give and may complement, and perhaps reduce, the need for or duration of phototherapy, or reduce the supervision workload.

Probiotics improve intestinal function and reduce enterohepatic circulation, and increasing numbers of reports show that they can have a positive effect on the course of jaundice.

In this study, a total of 112 term infants were enrolled who were all exclusively breast fed and were more than 15 days old. 77 had a clinical diagnosis of breast milk jaundice (BMJ). A similar group, without jaundice, provided the control group (n=35). 37 of the BMJ group were given a multistrain probiotic consisting of a blend of Lactobacilli and a Bifidobacterium for 7 days, followed by a clinical review. 40 of the BMJ group received no probiotics.

The probiotic BMJ group had a faster rate of fall in bilirubin levels, and a lower mean bilirubin level, than the non-probiotic group, with significantly shorter times for bilirubin levels to normalise. They also gained significantly more weight than the other 2 control groups.

The study also noted that, in babies born by caesarean section, there were significantly lower levels of Bifidobacteria in the stool, which has been widely described elsewhere.

This study adds to the mounting evidence that multistrain probiotics, especially those containing Bifidobacteria, have a positive impact on gut health, reducing enterohepatic circulation, decreasing enteral passage time and reducing bilirubin levels.

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Probiotics for Neonatal Jaundice – A systematic review

Wijaya LA, Widiastuti PW, Nesa NNM, Putra IGNS. The effect of probiotics supplementation in neonatal jaundice therapy: A systematic review. J Neonatal Perinatal Med. 2025 Jun 20:

This systematic review, published last month, focussed on babies who met the treatment threshold for phototherapy in eligible studies. 9 out of 14 studies showed that the addition of probiotics during phototherapy led to significant reduction in bilirubin levels, with studies reporting reductions in hospital stays and duration of phototherapy too. The use of probiotics was safe with no adverse events reported.

Provision of probiotics to term babies may help to shorten phototherapy and reduce the time in hospital, which should lead to cost savings and reduction in carbon generation (from hospital visiting by family members etc).

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Bifidobacterium longum in neonatal gut leads to significant reduction in hospital admissions for viral URTI in the first 2 years

Cristina Garcia-Mauriño, Yan Shao, Ada Miltz, Trevor D Lawley, Alison Rodger, Nigel Field. Investigation of associations between the neonatal gut microbiota and severe viral lower respiratory tract infections in the first 2 years of life: a birth cohort study with metagenomics. The Lancet Microbe, June 2025 Vol 0; 101072

This important UK study followed 3,305 babies born across 3 Trusts. Stool samples from days 4, 7 and 21 were sequenced and the health data of the participants was followed up for 2 years as part of the Baby Biome Study (BBS).

Babies born vaginally had 3 principal clusters of microbiota, and babies born by caesarean section had two clusters. Cluster 1, found in both vaginal (49%) and caesarean (42%) births, consisted of a mixture of species including Enterococcus faecalis, Escherichia coli, Streptococcus salivarius and Staphylococcus epidermidis. Cluster 2 was principally Bifidobacterium breve, again found in both modes of delivery, and Cluster 3 was mainly Bifidobacterium longum, only found in vaginally delivered infants.

The results showed that high levels of alpha-diversity in the first week were associated with reduction in hospital admissions for respiratory infections for the first 2 years of life, and where there was a Cluster 3-type pattern, rates of viral lower respiratory tract infections were significantly lower. Cluster 3-type babies also had high levels of other Bifidobacteria. The reduction in viral LRTI was over 3 fold compared to Cluster 1 babies.

Other studies have linked low Bifidobacteria levels to increases in respiratory infections at 1 yr and asthma at 5 yrs. B. longum infantis is one of the components of Labinic.

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Probiotics to Modulate Intestinal Dysbiosis in Babies

Mogoş GFR, Manciulea Profir M, Enache RM, Pavelescu LA, Popescu Roşu OA, Cretoiu SM, Marinescu I. Intestinal Microbiota in Early Life: Latest Findings Regarding the Role of Probiotics as a Treatment Approach for Dysbiosis. Nutrients. 2025 Jun 21;17(13):2071

This recent review considers the impact of probiotics on early life dysbiosis. Over the last 2 decades or more, we have understood more and more about the importance of establishing a healthy microbiota even from before birth, and the impact on the gut that interventions such as maternal

diet and medications, choice of delivery mode, post-natal exposure to antibiotics or proton-pump inhibitors, differences between breast milk and formula feeding and the impact of weaning onto solid foods, might have on longer term health. In addition, environmental and genetic factors also play a role in determining the microbiota.

The gut microbiota appears to stabilise around 3 years of age, but before that time it is very responsive to external influences. It is also evident that the gut microbiota has direct and modulatory influences on the brain, the immune and metabolic systems and other organs such as the lungs, liver, heart and kidneys, and that these interactions are bidirectional.

The premature infant shows reduced bacterial diversity and lower levels of healthy bacteria, such as Bifidobacteria, and this may have a direct effect on their immune and metabolic responses. We have previously reviewed papers in these newsletters on the importance of a gut microbiota with predominance of Bifidobacteria.

Manipulation of this environment is key to this knowledge, in order to optimise health from an early age. Whilst maternal ingestion of probiotics can create a less-pathogenic mix of vaginal microbes, there is no evidence yet that this translates to better newborn health. The use of multistrain probiotics, which consistently demonstrate a range of positive benefits (such as improved weight gain, reductions in jaundice, reduction in colic-like symptoms and, in preterm babies, reductions in NEC, death and sepsis) is becoming increasingly normal practice.

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Labinic did not reduce deaths in healthy term infants in Tanzania but did reduce ESBL carriage in the gut

Home administration of a multistrain probiotic once per day for 4 weeks to newborn infants in Tanzania (ProRIDE): a double-blind, placebo-controlled randomised trial
Klingenberg, Claus et al. The Lancet Global Health, Volume 13, Issue 6, e1082 - e1090I

Healthy term babies in Tanzania received either placebo or active Labinic probiotic for 4 weeks in a blinded RCT with a primary outcome of death or hospitalisation during the first 6 months of life. There was no effect in reducing infant mortality; however the authors commented that trial was planned at an event rate of 9% where in the placebo group this occurred at 3% (death rate of 0.6%) due to significant improvements in infant mortality in Tanzania over the past decade. However there were no effect signals noted and the trial would still have been powered sufficiently to detect an ARR of 1.9%.

Interestingly this is the second study showing that Labinic significantly reduced the carriage of ESBL-E at 6 weeks (2 weeks after the 4 week course). For infants born in hospital, the reduction persisted at the 6 month testing. There was also persistence of the Bifidobacteria strains at 6

weeks, but not the Lactobacilli, in line with other studies. The reduction in ESBL-E implies that continued use of Labinic could maintain low levels of drug-resistant organisms in the gut, which could be useful for infection control purposes in settings where ESBL-E colonisation rates are high.

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Influence of Perinatal Antibiotics on the Microbiome in Preterm Infants

Iqbal F, Shenoy PA, Lewis LES, Siva N, Purkayastha J, Eshwara VK. Influence of perinatal antibiotic on neonatal gut microbiota: a prospective cohort study. BMC Pediatr. 2025 July 21;25(1):560

This single centre study from India examined two stool samples taken at Day 4 and Day 14 from 182 preterm infants admitted to NICU. They were grouped by exposure to maternal or neonatal antibiotics – NE (no exposure), IE (infant exposure only), ME (maternal exposure only) and IME (both infant and maternal exposure).

The results showed that Klebsiella was significantly increased in the IE group compared to the NE group, with the latter showing significant dominance of Bifidobacteria compared to all the other groups. All the antibiotic-exposed groups showed increases in pathogenic bacteria including Klebsiella and E. coli.

This study adds to the growing understanding of the impact of perinatal antibiotics and underlines the importance of careful and targeted use of antibiotics.

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Penicillin prophylaxis for maternal GBS colonisation reduces Bifidobacterium longum in the infant gut for 1 year

Teuscher JL, Lupatsii M, Graspeuntner S, Jonassen S, Bringewatt A, Herting E, Stichtenoth G, Bossung V, Rupp J, Härtel C, Demmert M. Persistent reduction of *Bifidobacterium longum* in the infant gut microbiome in the first year of age following *intrapartum* penicillin prophylaxis for maternal GBS colonization. Front Immunol. 2025 May 15;16:1540979

This study from Germany enrolled 48 mothers and babies, with 22 receiving Penicillin prophylaxis and 26 controls. 3 babies in the IAP group received probiotics after birth, none of the control group did. Their microbiomes were tested at birth, 1 month and 1 year of age. The results showed that at 1 month there was significant reduction in Bifidobacterium longum and this significant reduction

persisted in the 1 year samples. There was also evidence of inflammatory cytokine activation in available blood samples (n=22; IAP group n=9) in the IAP-exposed group.

The authors comment that Bifidobacterium longum subspecies infantis is the “champion metaboliser of human milk oligosaccharides” and “protects against enteropathogenic infections”. It is therefore concerning to see significant reductions due to maternal Penicillin prophylaxis which are arguably detrimental to the infant’s immunity, through creating an intestinal dysbiosis and inflammation. They also point out that vaccine-responsiveness might be reduced as a result.

Whilst this was a relatively small study, it points to the growing interest in the effects of dysbiosis in term infants and the importance of sustaining a Bifido-dominant microbiome, in particular with Bifidobacterium longum subspecies infantis (one of the components of Labinic probiotic drops).

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Meta-analysis shows higher levels of Bifidobacterium transmission from mothers in vaginal delivery

Flores Ventura E, Esteban-Torres M, Gueimonde M, van Sinderen D, Koren O, Hall LJ, Segata N, Valles-Colomer M, Collado MC. Mother-to-infant vertical transmission in early life: a systematic review and proportional meta-analysis of Bifidobacterium strain transmissibility. NPJ Biofilms Microbiomes. 2025 Jul 1;11(1):121

This fascinating systematic review of the vertical transmissibility of Bifidobacteria from mothers to infants included over 800 mother-infant pairs in ten studies. Many studies were not included due to variable definition of vertical transmission, which the authors highlight as an area for improvement to ensure scientific comparability.

There is evidence for transmission of Bifidobacteria from multiple maternal sites, including breast (milk), gut and vagina, as well as other sites. Transmissibility is reduced in babies delivered by Caesarean section. Bifidobacterium longum was the most abundant; Bifidobacterium bifidum showed the highest transmission in one study (96%). The main transmission route is the maternal gut. However data for the transmission of other specific strains is scarce.

The authors comment on the areas where more study is needed, such as in LMIC-countries, and also the need for rigor when taking and processing samples to avoid site contamination (such as the taking of vaginal swabs) and the need to characterise strains accurately. It is only through such precision that the longer-term effects on health can be correctly surmised.

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Biofloratech Technical Newsletter**

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This technical newsletter for Health Professionals was commissioned by Biofloratech Ltd who manufacture Labinic® Drops, a liquid multi-strain probiotic containing Lactobacillus acidophilus, Bifidobacterium (longum subspecies) infantis and Bifidobacterium bifidum in a total daily recommended dose of 2 billion cfu/day. Labinic is manufactured to stringent high-quality control standards in a cGMP and cGPP compliant, licenced manufacturing pharmacy.

Labinic has an excellent safety profile and is widely used in NHS (UK) and in neonatal units overseas.

We are pleased to see further evidence of its use emerging in clinical papers and we confirm that we have had no influence over any publications describing use of Labinic.

Thank you for reading this update, we hope you found it interesting. Please feel free to share with healthcare and other professional colleagues. **All disclaimers are fully applied .**

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