

Introducing a change to the management of early-onset neonatal infection: Intravenous to oral antibiotic switch

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Background

Currently in the UK, standard management of suspected early-onset neonatal infection involves a minimum of 36 hours of intravenous (IV) antibiotics. Antibiotics are typically stopped after 36 hours if the baby is well, CRP results are reassuring, and any cultures taken are negative. However, when there are ongoing concerns for infection, IV antibiotics are continued for up to 7 days.¹

Use of IV antibiotics has a number of disadvantages including increased duration of inpatient stay and multiple cannulation attempts.²

In June 2024, the Royal Devon and Exeter hospital introduced a switch from IV to oral antibiotics for eligible babies at 36 hours of life. This poster outlines how we have changed our management of early onset neonatal sepsis through our Neonatal Oral Antibiotics at Home (NOAH) Pathway.

Aims

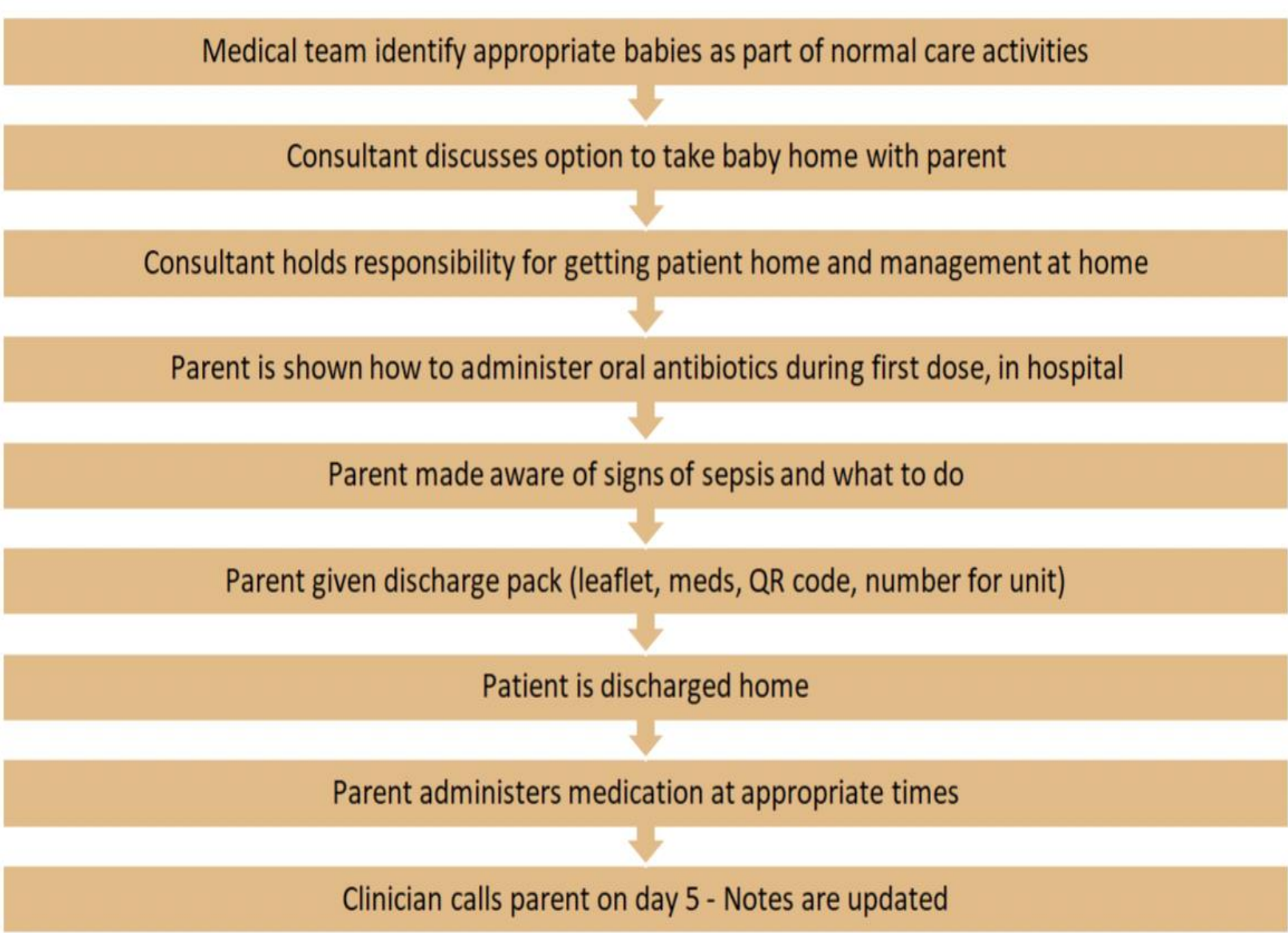
- Reduce length of stay in hospital
- Improve parents’ experience (keep families together)
- Reduce volume of Gentamicin doses (3→1) and reduce associated risk of harm (ototoxicity, nephrotoxicity)
- Reduce costs to the NHS and increase work force capacity

Methodology

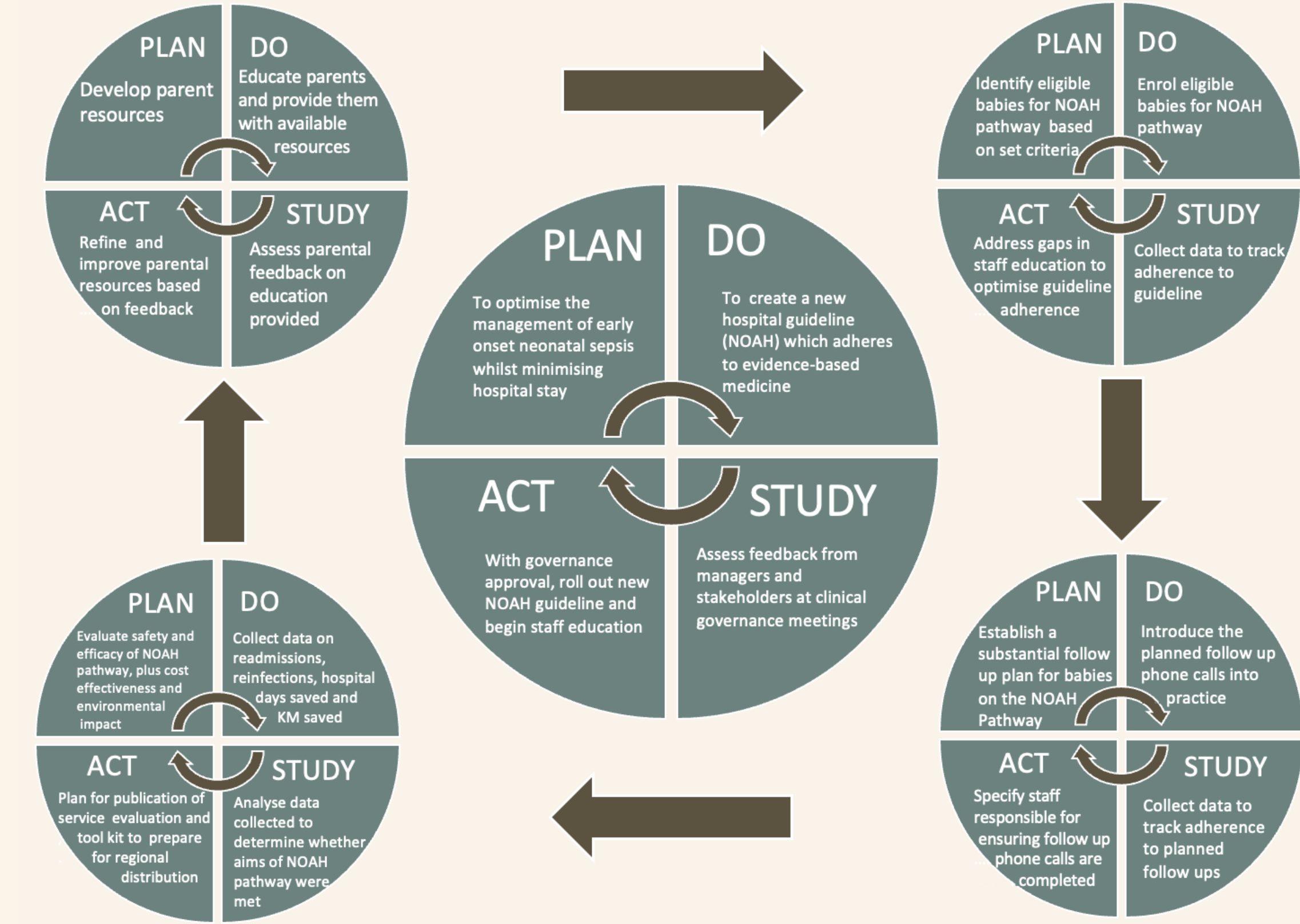
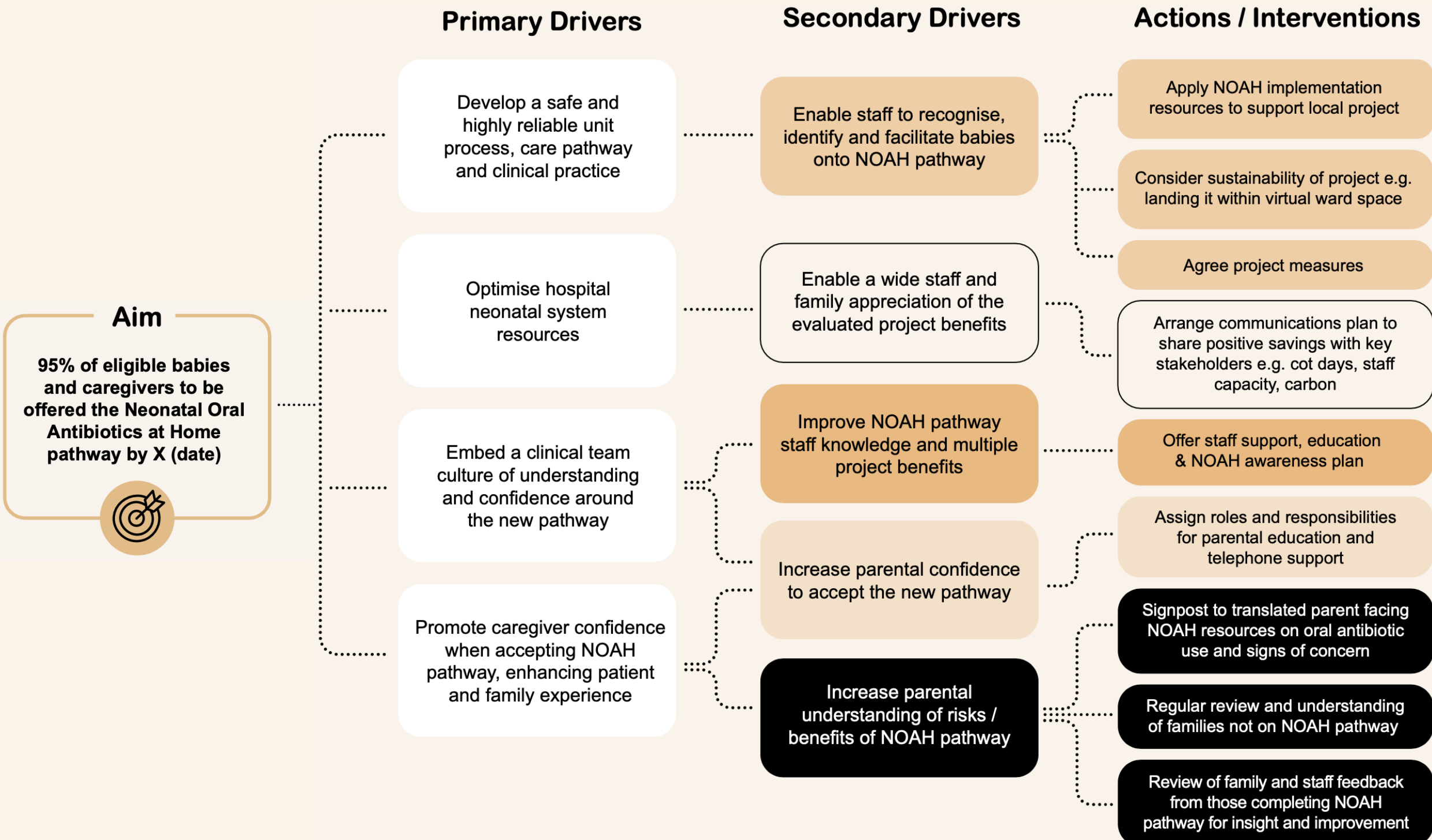
- Transcribed interview with clinical lead for NOAH
- Staff survey
- Parent survey
- Transcribed parent interviews
- System data- evaluating compliance with our pathway, complications (readmission/reinfection rates) and length of hospital stay.



Pathway



Intervention



Patient & staff input

Parents surveyed and interviewed expressed strong satisfaction with their experience of being discharged onto the NOAH pathway. All parents who responded to the survey reported feeling ‘very happy’ to leave hospital with their baby on oral antibiotics rather than stay in with their baby on IV antibiotics.

- "We were incredibly happy and relieved to be able to take our baby home and recovery and bonding as a family worked much better at home"
- "I felt very confident in talking to parents about NOAH. Parents have been positive about NOAH"
- "They were all extremely relieved to get out of hospital as soon as possible and felt well supported to look out for signs of their baby being unwell "
- "Having to stay in hospital without my partner was really hard – both from a physical and emotional perspective. It felt much more natural to be new parents together"

Outcomes

- 139 babies were screened for neonatal sepsis
- 93 were discharged at 36 hours due to a negative septic screen
- 19 completed a full course of IV antibiotics
- 27 babies met eligibility criteria for NOAH and were successfully oral switched and discharged home. Of these babies, there were 4 re-presentations to hospital for unrelated complaints. There were no readmissions. 34 doses of gentamicin were avoided.
- Introduction of NOAH has led to the avoidance of an average of 2.7days in hospital, an annual saving of around £65,540. In Addition, implementing the NOAH pathway for one year is estimated to save around 8,230kgCO2e, the equivalent of planting 255 to 380 trees.

Conclusion and next steps

In conclusion, our evidence supports the safety and effectiveness of switching from IV to oral antibiotics in clinically stable neonates with early-onset infection. This strategy reduces hospital stays and promotes earlier discharge, without increasing the risk of adverse events. Our interview and survey feedback also highlights the positive parent, baby and staff experience of the pathway.

However, there is little long-term evidence surrounding the use of oral antibiotics in neonates, particularly regarding antimicrobial resistance and the impact on the neonatal gut microbiome. The approach's generalisability across various healthcare settings, especially those with different resource levels, also requires further exploration.

We continue to collect data locally for ongoing evaluation of our pathway. We hope to expand our data and available resources as NOAH is introduced regionally.

References

- The National Institute for Clinical Excellence (NICE) Guideline (2021). Neonatal infection: antibiotics for prevention and treatment. NG195. Available at: <https://www.nice.org.uk/guidance/ng195>
- Malchau Carlsen EL, et al. Switch from intravenous – to- oral antibiotics in neonatal probable and proven early-onset infection: a prospective population-based real-life multicentre cohort study. Archives of diseases in childhood fetal neonatal edition. 2023; 10: 1136

