NHS North West Neonatal Operational Delivery Network

NEC Care Bundle

ORION

Overall Reduction in Infections, Optimising Nutrition

Working together to provide the highest standard of care for babies and families

NHS North West Neonatal Operational Delivery Network

Title:	**North West Neonatal Operational Delivery Network NEC Care Bundle**
Reference number	GL-ODN-22
Main Author (s)	Dr Richa Gupta
Target Audience	All Local Neonatal Units within the North West Neonatal Operational Delivery Network
Ratified by:	NEC SIG & SMT
Date Ratified:	13.03.2024
Review Date:	12.03.2026
Version:	Final
Document status:	Uploaded to website and shared with NW units Supporting documents uploaded to NHS Futures

Overview

Rationale for NEC Specialist Interest Group & Care Bundle

- GIRFT results (from 2018 data)
- Recent NNAP outcomes for NEC
- Baseline data from 2022/23

Process prior to implementation

- Pre-implementation scoping – unit survey
- Sharing of proposed implementation plan
- Development & ratification of NEC Care Bundle document

Next Steps - implementation

- Sharing of resources
- Identifying gaps and Implementing changes
- Data audit 12 months after roll out (March 2025)

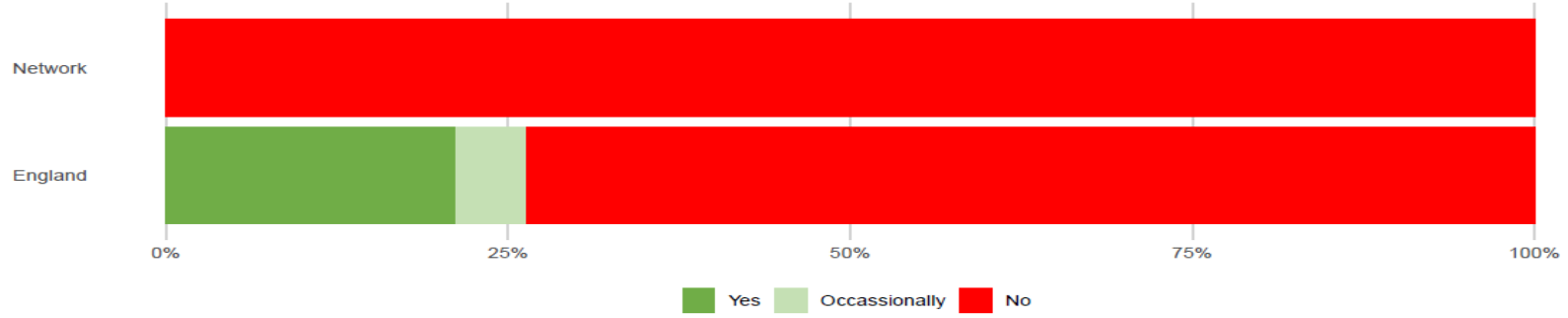
Are we Getting it Right First Time?
GIRFT Findings from 2019 review

Northwest NODN

7.8a NEC and NEC prevention

Metric	Source and Year	Network	England	Position	Score % (0 – 10% | 10 – 25% | 25 – 75% | 75 – 90% | 90 – 100%)
Proportion of babies < 32 weeks meeting NNAP definition of NEC	NNAP 2018	6.00%	5.81%	8/12	
Proportion of babies < 32 weeks receiving mother's milk / colostrum enterally or for mouth care within 3 days	Badgernet MY2018/19	71.89%	78.06%	12/12	
Proportion of babies < 32 weeks receiving own mother's milk at day 14	Badgernet MY2018/19	87.80%	91.88%	12/12	
Proportion of babies < 33 weeks receiving mother's milk at discharge to home	NNAP 2018	46.21%	60.79%	12/12	

Neonatal unit use of probiotics in preterm infants in your network
Source: GIRFT Clinical Services Questionnaire 2019



GETTING IT RIGHT FIRST TIME

Are we Getting it Right First Time?
GIRFT Findings from 2019 review

Northwest NODN

7.8b Prevention of Necrotising Enterocolitis (NEC)

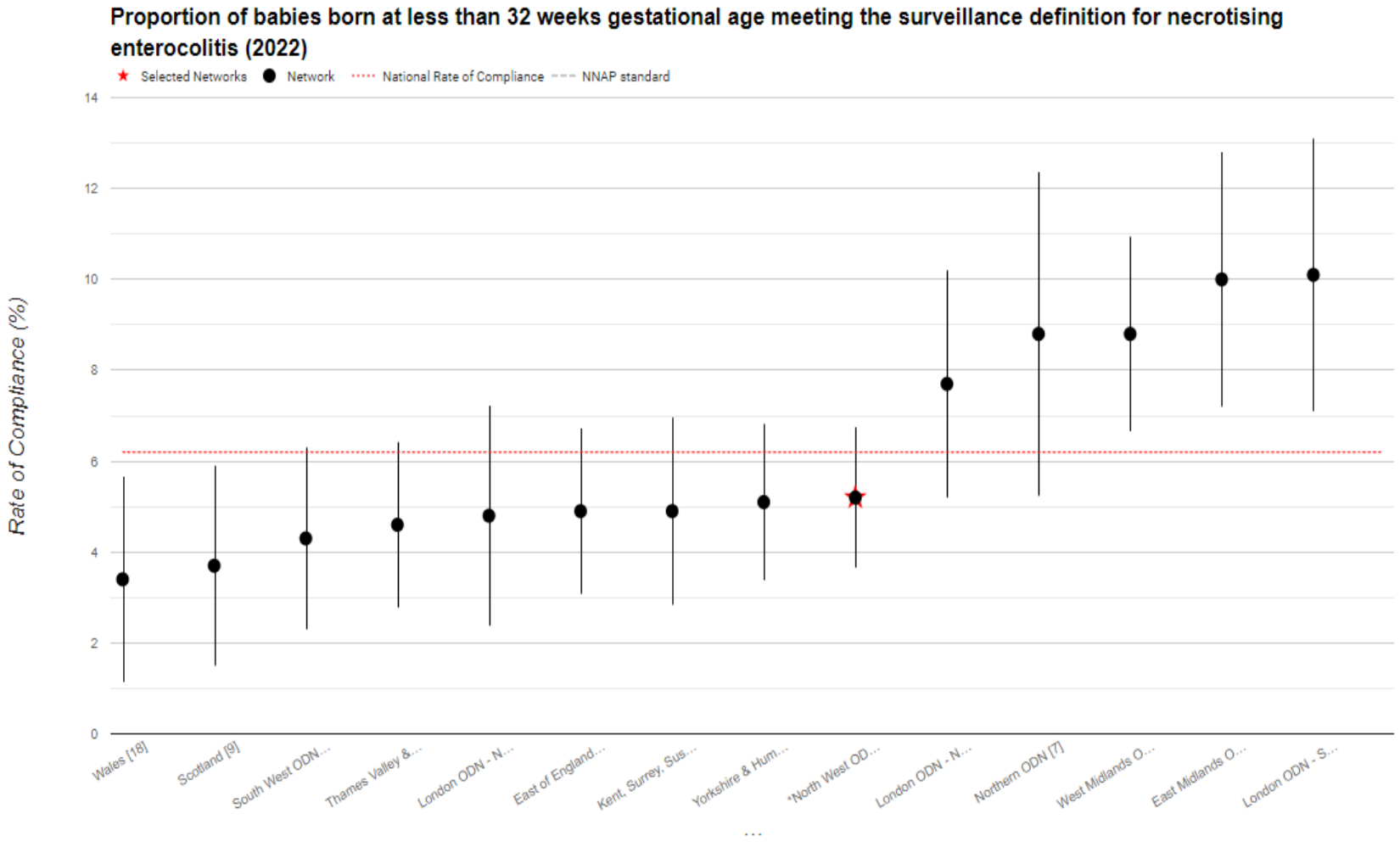
Standardised feeding guidelines for preterm infants
Source: GIRFT Clinical Services Questionnaire 2019

Access to donor breast milk for preterm infants by network
Source: GIRFT Clinical Services Questionnaire 2019

* Each bar represents a network; your network is outlined.

GETTING IT RIGHT FIRST TIME

NNAP data 2022



Decrease in comparison to 2018 data by 0.8% and below the national mean of 6.2%.

However, there are still 8 regions with better outcomes than the NW.

Introduction

Every year Necrotising Enterocolitis (NEC) affects over 400 preterm babies

- UK rates of NEC in neonatal units across the country vary between 3 - 9%
- Mortality from NEC is over 20%
- GIRFT data (2019) highlighted the NWNODN as being an outlier with NEC incidence 6%
- From 1st April 2022 to 31st March 2023 the NWNODN incidence of NEC was **6.6% (57/869).**

Following the GIRFT review in 2020, and acknowledgement of the need to reduce incidents of NEC, the NWNODN response was to put the development of a NEC Care Bundle using a QI approach onto the work programme, and scope out to units to find out what guidance and practices were in use with regards to feeding and infection prevention. This resulted in the NEC Specialist Interest Group (SIG) being set up in 2021. The group comprised of medics, nurses, AHPs and parents from NW neonatal units

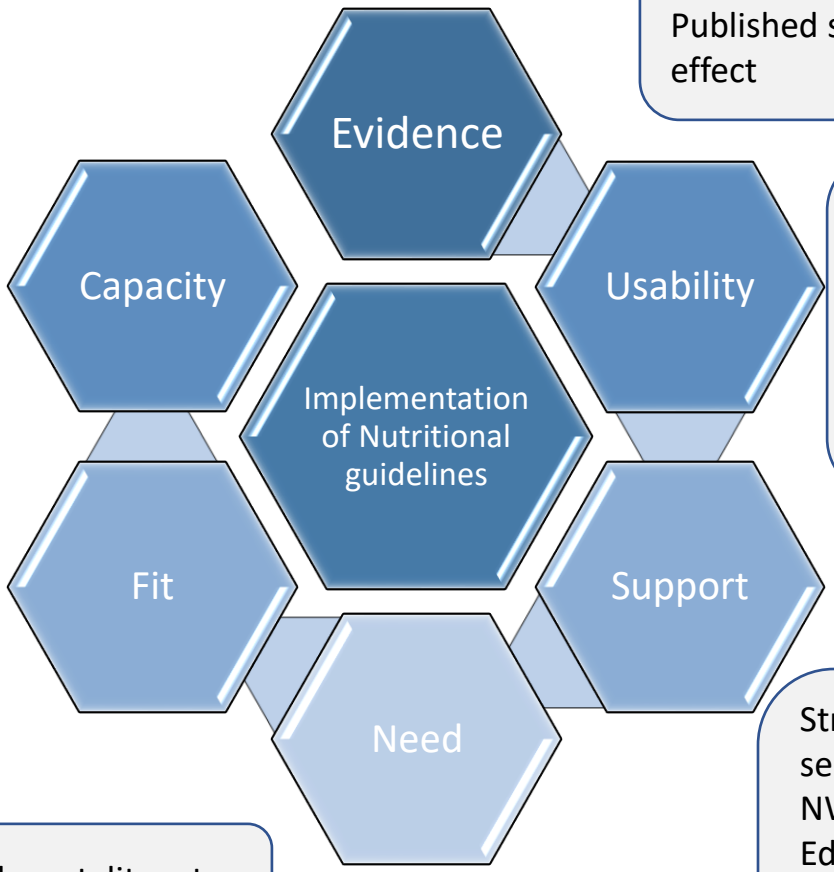
The strategy was to engage all units across the NWNODN to participate, with AHP support, to scope and devise a comprehensive package of measures aiming to reduce incidence of NEC, alongside improvements in provision of nutrition. It was acknowledged that there was sufficient evidence from national recommendations and professional expert bodies which could be incorporated into regional guidelines.

This collaborative work included the pooling of resources, thus aiming to facilitate dissemination of best practice, embed and sustain the interventions into routine clinical practice, and incorporate measurement of outcomes through monitoring of routinely collected data items (via the Badgernet system).

Hexagon Model for Exploration of Setting

ESPGHAN recommendations
Cochrane Systematic reviews
Published studies of practice effect

Variation in enteral feeding practice across NWNODN
Need for MDT approach
Lack of AHPs



Studies on UK practice show effectiveness of interventions.
Potential adaptable operational models

Compatible with NCCR
NHS long term plan to reduce length of stays
Potential for ICS footprint for services

GIRFT report - NWNODN NEC and mortality rates
FiCare pathway for patient flows between units.
NWNODN survey of LNUs and NICUs supports standardisation of approach to enteral feeding

Structured framework for service provision, access to NWNODN AHP leads, NWNODN Education team to support training on interventions, NWNODN Governance processes to monitor implementation & outcomes, IT and digital innovation.

Based on National Implementation Research Network toolkit methodology

Evidence to support the components & approach

- Literature search for NEC care bundles / QI projects to reduce NEC
- Evaluation of evidence
  - Successful modifiable factors/ interventions for reducing NEC
  - Successful approaches for implementation of identified interventions
- Identifying key components & assembling the elements
- Scoping exercise to establish current practice
- Setting up working groups (SIG and Task & Finish Groups)
- QIP planning and implementation with NWNODN support
- MatNeo* support linked to on-going Optimisation QI work

*MatNeo – Maternity & Neonatal Safety Improvement Programme

Taking a phased approach & the case for change

Creating awareness and urgency

- Scoping the problem
- Building a team/ collaborations
- Strategies:
  - Benchmarking
  - Consensus re: essential criteria
  - Pathway approach (locality vs NWNODN)
- Guidelines
- Training
- Implementation
- Monitoring outcomes

Strategic factors

- Themes from CEGs/ GIRFT report
- Evidence for NEC prevention in use
- Resources – what is in place/ what is needed
- Stakeholders -Engagement of key people
- Action Plans for sharing of current good practice
- Additional new resources required
- Linking to Academic resources, Data group and QI projects to support monitoring
- Reviewing implementation process and outcomes

Considerations

NEC has complex multi-factorial aetiology	Modifying single risks has not shown significant overall reduction in NEC	Known modifiable factors are types of milk and patterns of introducing enteral feeds	Introduction of new interventions or procedures is more successful using a structured QI approach	Evidence supporting benefits from use of probiotics to minimise NEC is mounting

Scoping national guidance & local practices

Nutrition & Feeding	• Standardised TPN (NICE NG 154) • Standardised Enteral Feeding guidelines • Access to Breastmilk (BAPM optimisation toolkit/ BFI) • Nutrition reviews • Probiotic use • Monitoring growth (NICE QS 197)
Infection Prevention & Antibiotic Stewardship	• Michigan Care Bundle /LocSSIPS* • Aseptic Non-Touch Technique (ANNT) • Early Onset Sepsis (NICE) • Central line Insertion and care (BAPM)

*Local Safety Standards for Invasive Procedures

Key Findings from NWNODN Survey

All units from the 3 localities across the NWNODN completed the survey, with a 100% response rate.

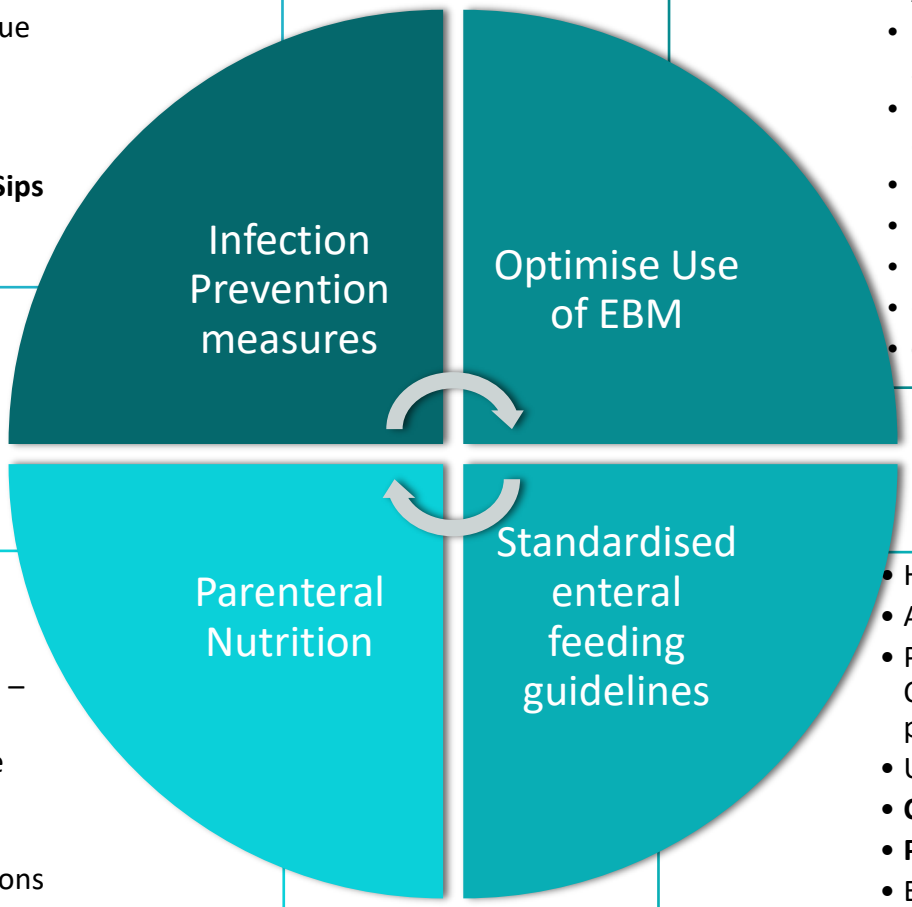
Areas of consensus:

- Universal agreement for the need for a standardised approach to enteral feeding across the NWNODN.
- Universal support for the use of Probiotics
- All NICUs and the majority of LNUs/SCUs in the NWNODN follow enteral feeding guidelines
- In one locality both NICUs and two other providers use the locality network feeding guideline and PN guideline
- All NICUs have central line (CVC) insertion and maintenance guidelines in place

Areas of variation or gaps in guidelines or practice:

- Methods of handling and preparing EBM were not consistent e.g. use or not of ANTT and purple trays
- Various methods of warming EBM are used
- Lack of awareness of the NWNODN Infection Control and Prevention guideline
- Not all LNUs have CVC guidelines in place

COMPONENTS OF NEC Care Bundle **'ORION'**
Overall **R**educed **I**nfections, **O**ptimising **N**utrition



- Matching Michigan
- Aseptic Non-touch technique (ANTT®)
- Chloroprep/ Curos
- BAPM PICC guidelines
- **Improve VAD Chart/ LoCCSips**
- **Antibiotic Stewardship**

- Antenatal information
- Breast feeding nursing team / support
- Medic awareness and education
- Early hand expression
- **Early Colostrum**
- Breast pumps
- Continued used of EBM
- **Consolidate practice**

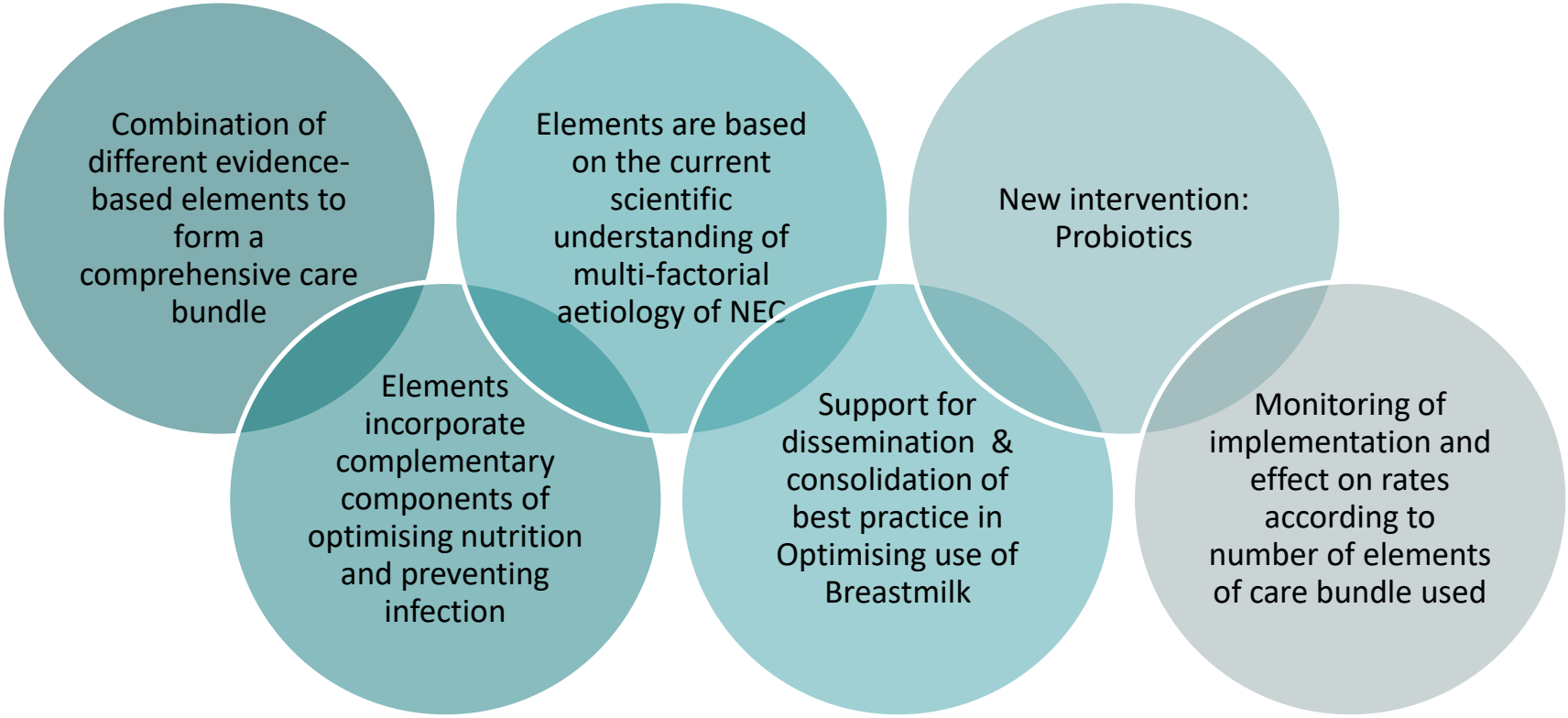
- Standardized start up bags – **100%**
- Standardised maintenance bags
- Duration of TPN
- Preterm vs Term formulations

- High, Moderate & low risk gps
- Automated Feeding schedules
- Progression of feeding. Consider a bolder approach post SIFT*
- Use of Donor Milk
- **Consistent fortification**
- **Probiotics**
- Evidence pending – Enteral feeds & Transfusion

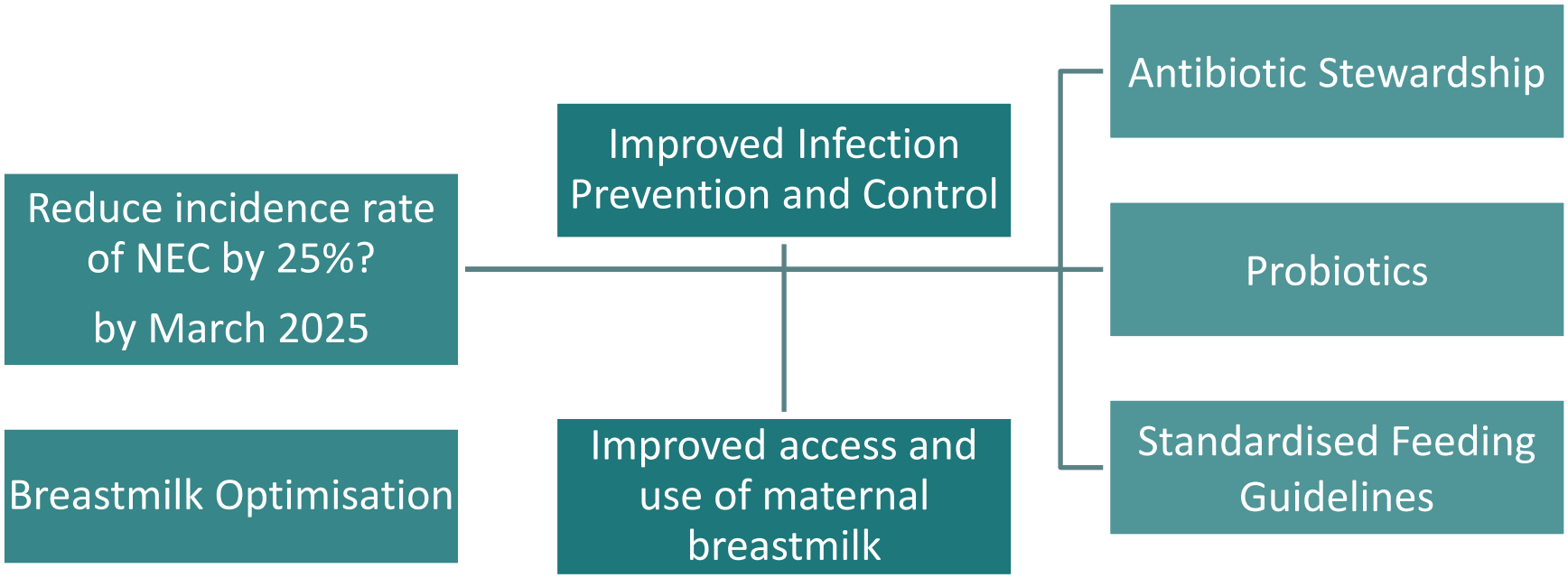
*SIFT – Speed of increasing feeds trail

Bold elements are recommended initial actions

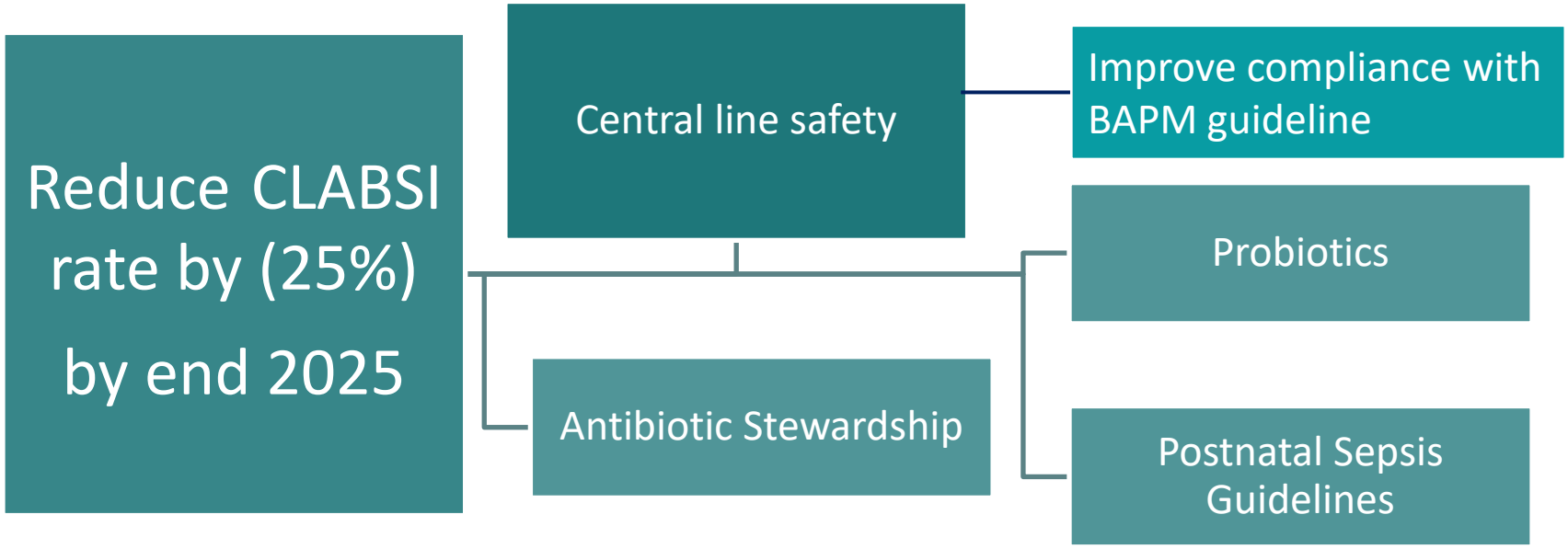
Additional aspects offered by a NEC Care bundle QI approach



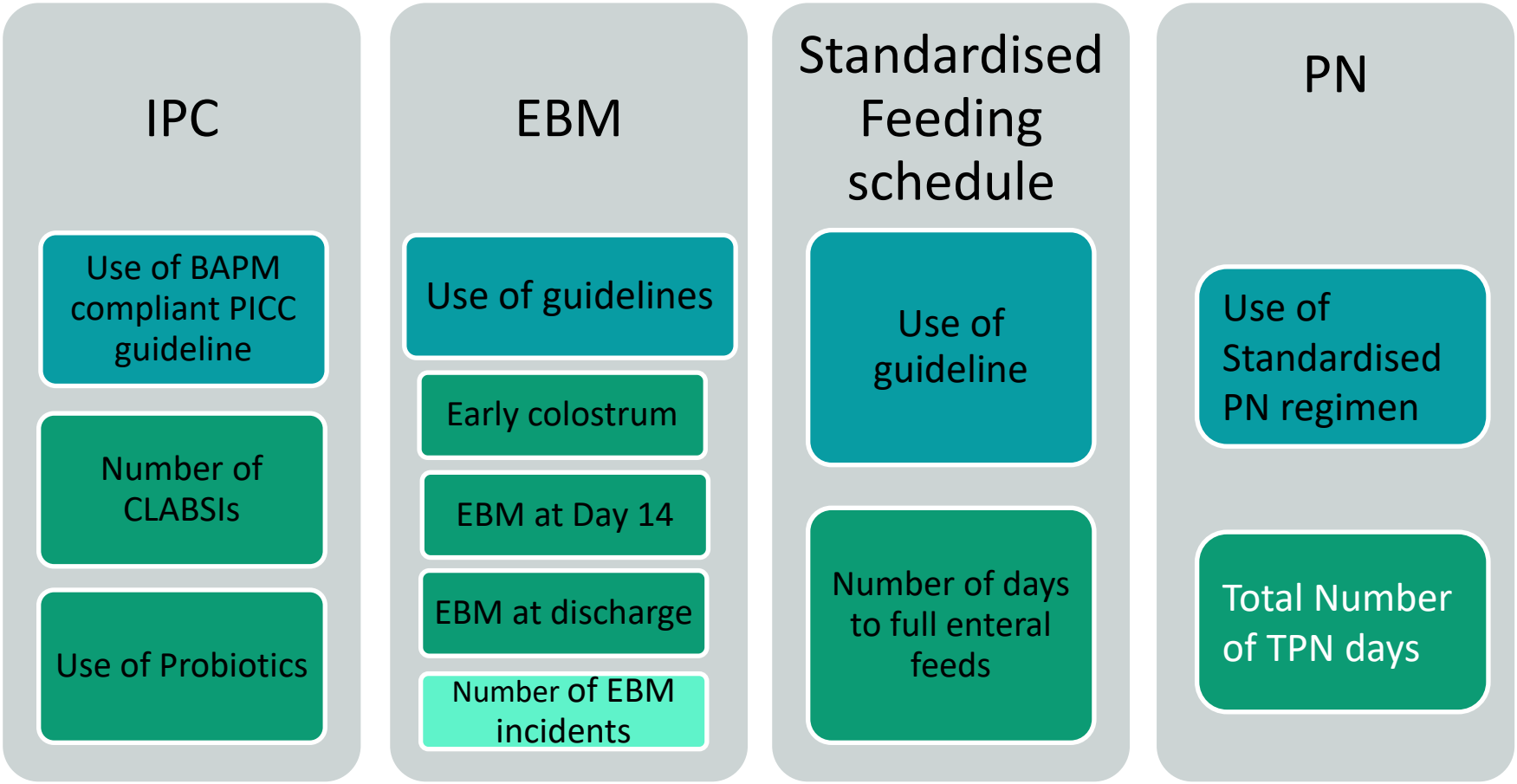
Example of driver diagram overview summary



Example of a driver diagram for infection prevention (IPC)



Potential outcome measures for the 4 key elements



Key:

Successful Implementation of guidelines

Data Audit

Incidents highlighted via CEG

Use of the Matrix
Mapping components against guidelines & resources

National (Mandatory) vs NWNODN vs locality vs Trust level

Compliance Statements :

- The unit has a guideline
- Unit has evidence of guideline usage

Outcomes

Potential Excel sheet and performance board as per Optimisation dashboards

Examples of Documents to support key

THEME	NATIONAL STANDARDS	REGIONAL/ NWNODN	LOCALITY GUIDELINES
BREASTMILK OPTIMISATION (including early colostrum)	NNAP/ UNICEF/ BFI/BAPM/ MatNeo Preterm Optimisation The Use of Donor Human Milk in Neonates | British Association of Perinatal Medicine (bapm.org)	https://www.neonatalnetwork.co.uk/nwnodn/wp-content/uploads/2023/07/GL-ODN-18-Enteral-Feeding-Guideline-awaiting-vitamins-May-23-1.pdf	https://www.neonatalnetwork.co.uk/nwnodn/wp-content/uploads/2023/11/GL-LSC-04-Accidental-Admin-of-EBM.pdf
STANDARDISED FEEDING	ESPGHAN/ BFI/ GIRFT		
PROBIOTICS	Probiotics & Preterm Infants: A position paper by ESPGHAN Thomson (bda.uk.com) Neonatal use of probiotics (GIRFT) Neonatology - Getting It Right First Time - GIRFT		
CENTRAL LINE SAFETY	BAPM/ https://www.bapm.org/resources/10-use-of-central-venous-catheters-in-neonates-revised-2018 NHSE https://improvement.nhs.uk/resources/national-safety-standards-invasive-procedures/		
ANTIBIOTIC STEWARDSHIP	https://www.nice.org.uk/guidance/ng195		
TPN	https://www.nice.org.uk/guidance/qs205 https://www.bapm.org/resources/42-the-provision-of-parenteral-nutrition-within-neonatal-services-a-framework-for-practice-2016	Awaiting NWNODN guideline	https://www.neonatalnetwork.co.uk/nwnodn/wp-content/uploads/2023/06/GL-LSC-02-TPN-Guideline.pdf

Examples of good practice from NW units have been uploaded to the Future NHS platform to assist units with the development of guidelines where gaps are identified

Additional resources to support the implementation of breast milk initiatives

BAPM Toolkits for Maternal Breast Milk

Safety Improvement Programme (MatNeo) optimisation passport*

Safety Improvement Programme (MatNeo) optimisation Parent Information Leaflet*

Safety Improvement Programme (MatNeo) optimisation poster on early colostrum

NWNODN website information pages*

BFI official resourses The Unicef UK Baby Friendly Initiative

Infant feeding team resources – LMNS, NWNODN, unit level*

Link to BAPM toolkit Maternal BreastMilkToolkit | British Association of Perinatal Medicine (bapm.org)

*Available at ODN website: North West Neonatal Operational Delivery Network (neonatalnetwork.co.uk)

Implementation questions for units to self-evaluate

- Is there is a guideline? Yes/ No
- Is there training to support the guideline? Yes/ No
- Are there are resources to support training? Yes/ No
- Is the use of guidelines monitored? Yes/ No
- Is compliance with the guideline monitored? Yes/ No
- Is all the data relevant to the bundle being entered on Badgernet? Minimum data set should be TPN & probiotics if applicable, NEC diagnosis, line infections & early colostrum

If NO:

- Refer to National /Network/ Locality guidance
- Refer to training resources on the FutureNHS platform
- Refer to local policies regarding compliance with national and regional guidelines
- Refer to national audit measures (e.g. NNAP/ Optimisation)

Progress to date / Next steps

Pre-implementation

- Stakeholders - NEC SIG set up 2021
- Scoping all units prior to implementation – survey completed 2022
- Resource gathering – Repository of guidance/ webinars/ how to guides

Implementation

- NWNODN Standardised Enteral Feeding guidelines ratified 2023
- NWNODN Parenteral Nutrition Task &Finish working party set up 2024
- NEC SIG to continue to meet & on-going review of progress
- Dissemination & Training – NWNODN AHPs, Lead Nurse & Education team / Deanery / external speakers
- Monitoring & modifying – existing and additional bespoke dashboards

Post-Implementation (embedding & sustaining)

- Continue NEC SIG – Revised format to support education
- Monitoring
- Modifying

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