

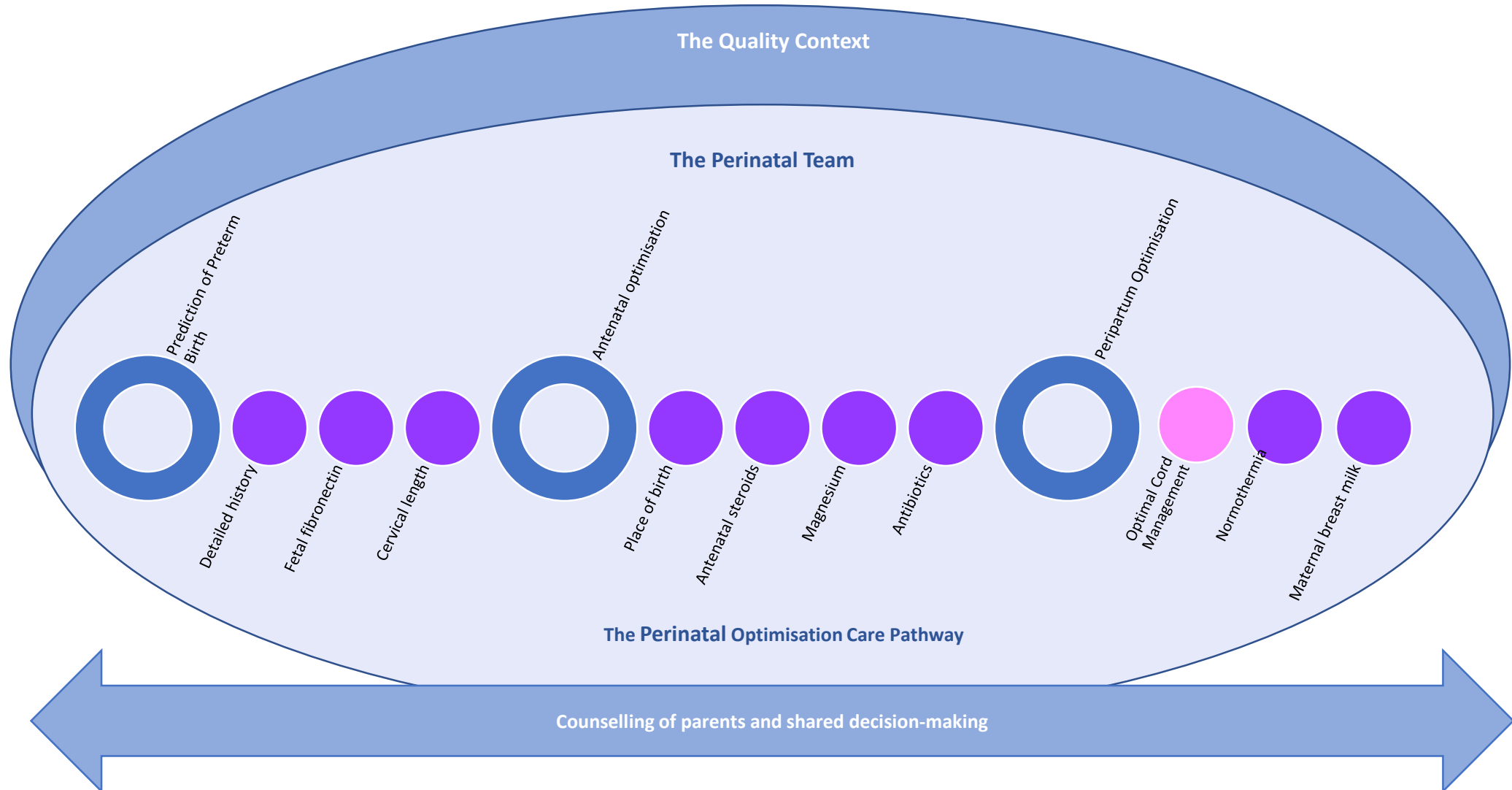


Optimal Cord Management in Preterm Babies: A Quality Improvement Toolkit

British Association of Perinatal Medicine
In collaboration with the
National Neonatal Audit Programme
December 2020



The Perinatal Optimisation Care Pathway



Purpose of toolkit

- To support the implementation of optimal cord management in all preterm babies less than 34 weeks gestation, defined by waiting at least 60 seconds before clamping the umbilical cord.
- To support clinicians leading and participating in QI in maternity units by providing practical resources in the form of a toolkit and supporting materials
- This toolkit will:
 - Provide the evidence base for optimal cord management in preterm babies less than 34 weeks gestation
 - Facilitate units in interrogating their own data and processes in order to undertake selected quality improvement activities suited to the local context
 - Assist units in interpreting and monitoring the results of their QI activity
 - Provide and signpost resources to facilitate QI to improve optimal cord management in all preterm babies less than 34 weeks gestation



Rationale for OCM

- Optimal Cord Management reduces death in preterm babies by nearly a third
- The number of babies needing to receive OCM to prevent a death is around 30-50 overall and may be as low as 20 in the least mature babies
- OCM also:
 - Increases BP and reduces the need for inotropes
 - Reduces the need for blood transfusion

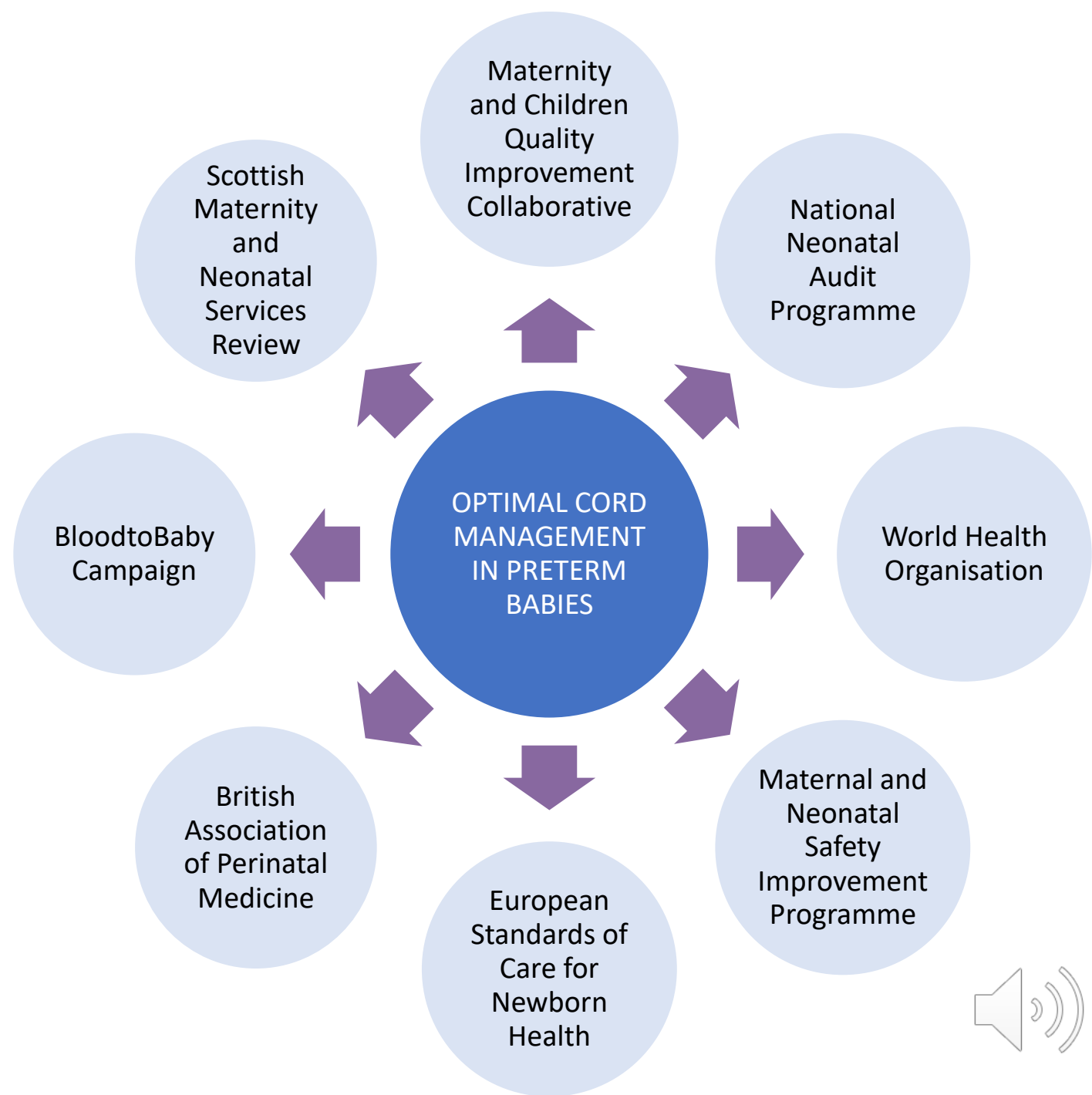


Evidence and professional recommendations for OCM in preterm babies

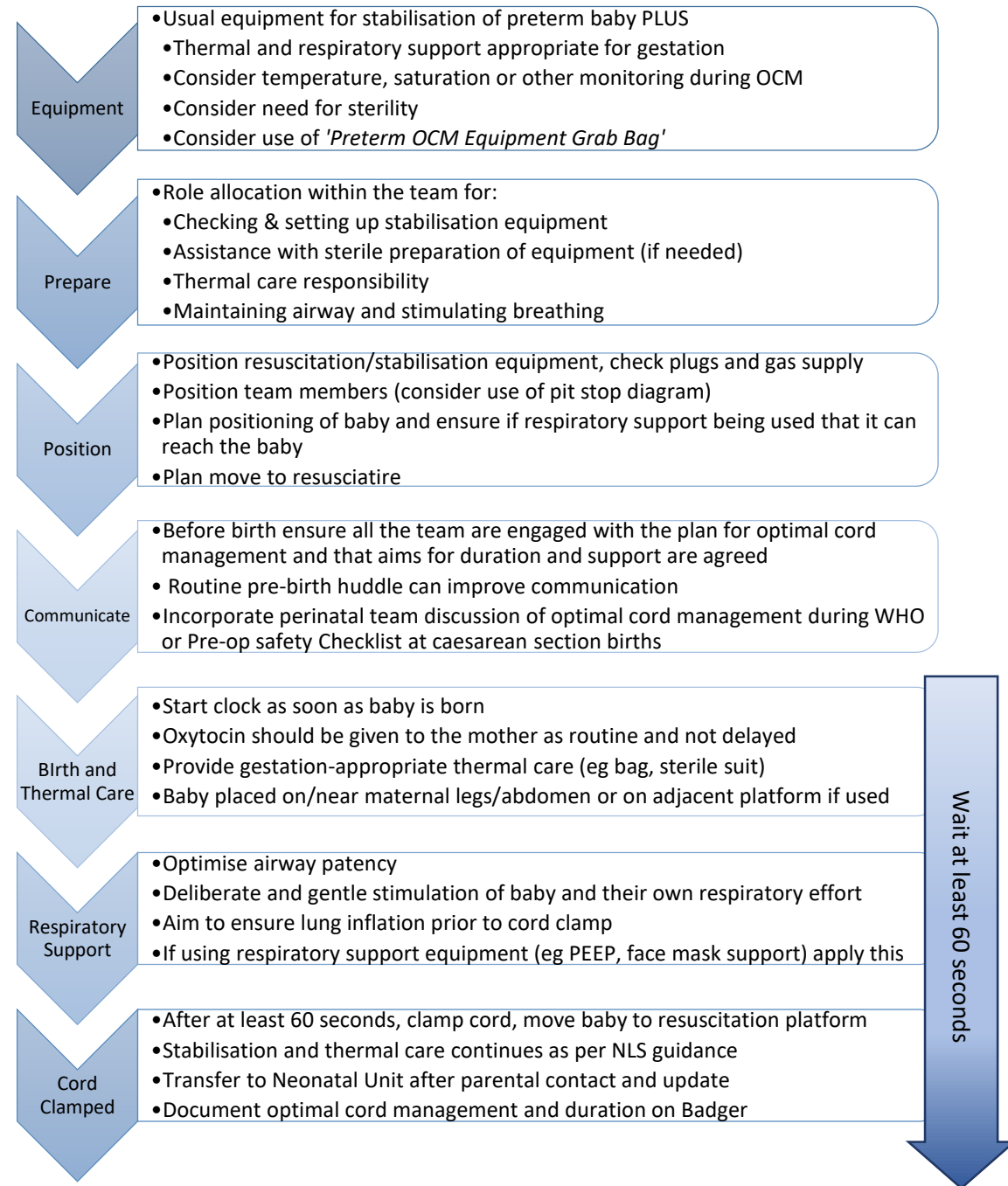
- **Mortality.** Preterm babies have reduced mortality risk of at least 27% if they receive OCM (NNT=33-55). Babies ≤ 28 weeks have reduced mortality risk of 32% if they receive OCM (NNT=20)
- **Cardiovascular benefits.** Preterm babies have higher mean blood pressure (mean increase 2.87 mmHg, (95% CI 1.09-4.64 mmHg) and lower requirement for inotropes (RR 0.37, 95% CI 0.17 to 0.81)
- **Blood transfusion requirements.** OCM reduces red blood cell transfusion by 9-10% during the first 6 weeks
- **OCM is recommended by** WHO, ILCOR, NICE, BAPM and other national and international guidelines



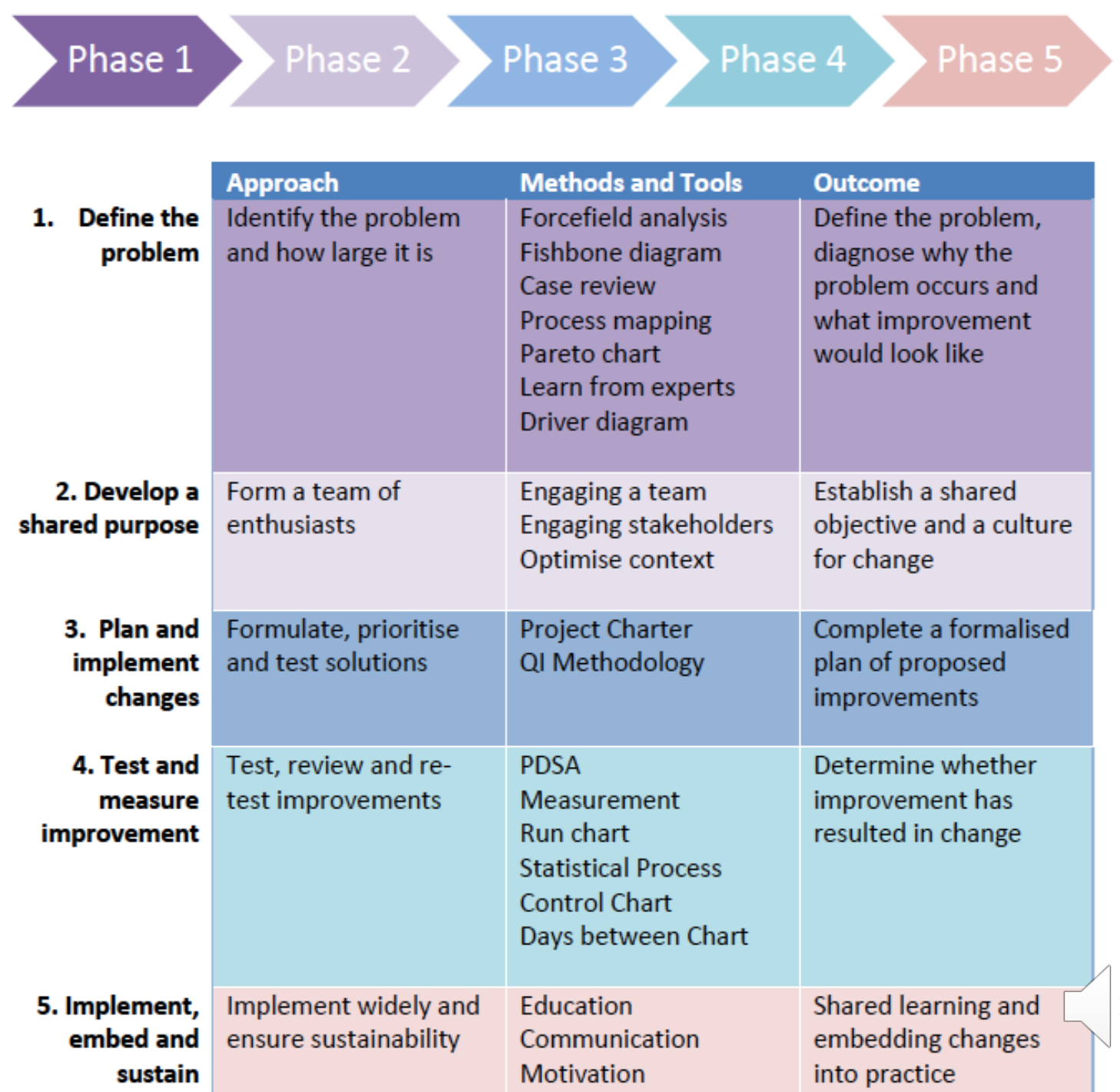
The drivers for Optimal Cord Management in Preterm Babies within the UK



Best Practice Flowchart for Optimal Cord Management

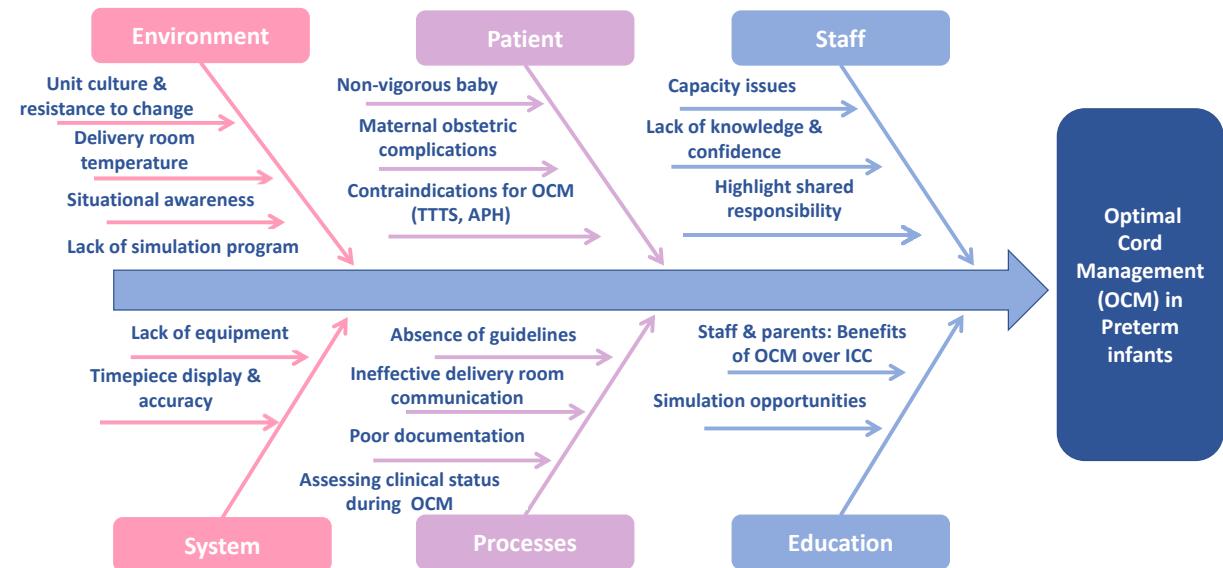


The Improvement Journey



Phase One: Define the Problem

- Understand your local data, both now and in recent past
- Consider data in context of national standards/benchmarking
- Use one or two of the following tools to understand your data:
 - Forcefield analysis
 - Fishbone diagram
 - Case review
 - Process mapping
 - Pareto chart
- Develop an improvement plan using a driver diagram
- Learn what works by talking to high performing units
- Listen to parents



Phase Two: Develop a Shared Purpose

1. Engage your team

- An overall project lead (can be medical or nursing)
- Parent representation
- People with QI expertise
- Data analyst
- Service manager
- Staff educators (maternity and neonatal)
- Other multidisciplinary representation including a range of seniority from neonatologists/paediatricians, neonatal nurses, midwives, obstetricians, labour ward and maternity operating theatre representatives



Phase Two: Develop a Shared Purpose

2. Engage your stakeholders:

Which teams need to be reached to make your project successful?

Prioritise us
Understand us
Inform us

- Senior and junior paediatricians/neonatologists
- Neonatal nurses
- Senior and junior obstetricians
- Midwives of all grades of seniority
- Maternity Care Assistants and Maternity Support Workers
- Maternity operating theatre staff including anaesthetic teams
- Parent groups

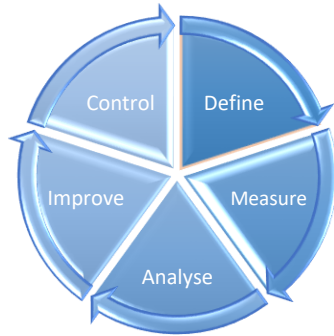
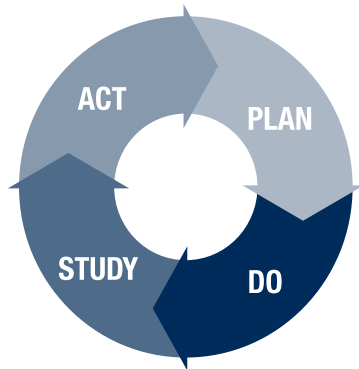


Phase Three: Plan and Implement Changes

- Construct a Project Charter:

Detail your proposed improvement, including the resources required and the potential benefits to patients

- Formulate, prioritise and test solutions using established QI methodology, e.g:
 - Model for Improvement and PDSA cycles
 - LEAN
 - Six Sigma



Phase Four: Test and Measure Improvement

1. Collect the best data for your needs

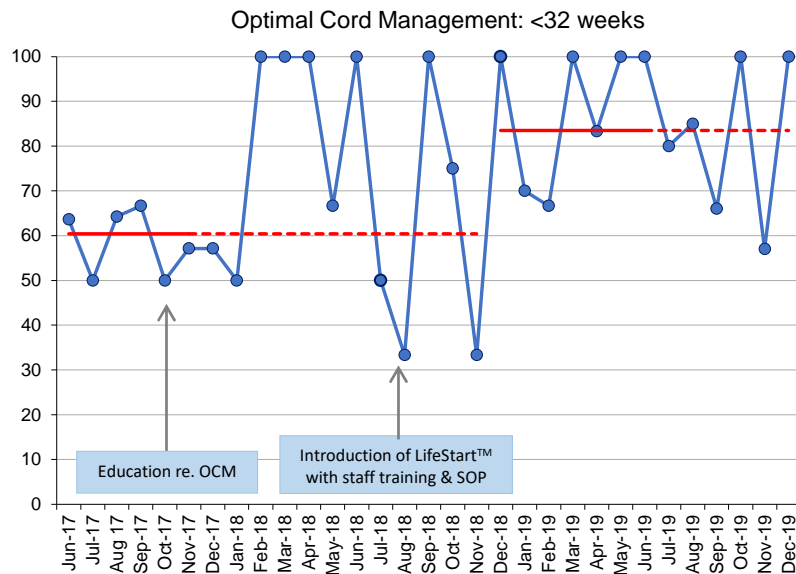
- **Outcome measures:** reflect the impact on the patient e.g. mortality, NEC, IVH
- **Process measures:** the way systems and processes work to deliver the desired outcome e.g. number of babies receiving OCM with cord clamping greater than 60 seconds
- **Balancing measures:** this is what may be happening elsewhere in the system as a result of the change e.g. the number of babies admitted with a temperature outside the normal range



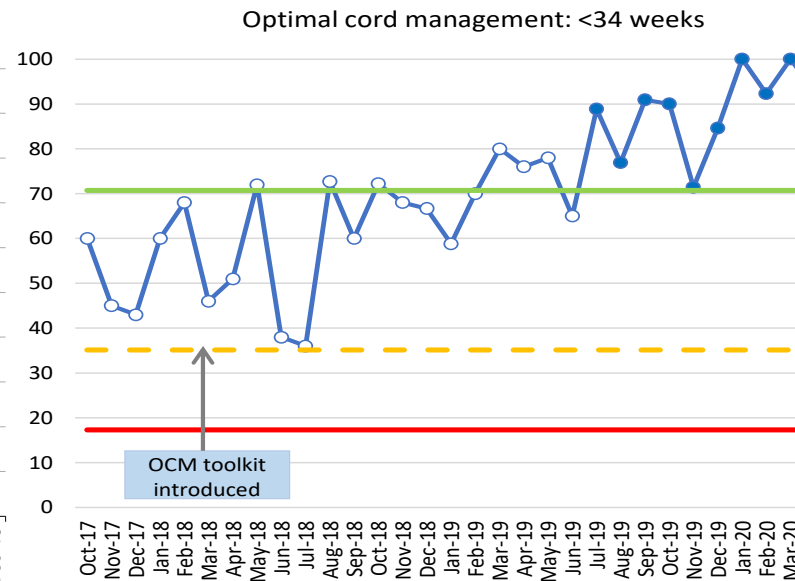
Phase Four: Test and Measure Improvement

2. Use well-described methods to analyse and display your data:

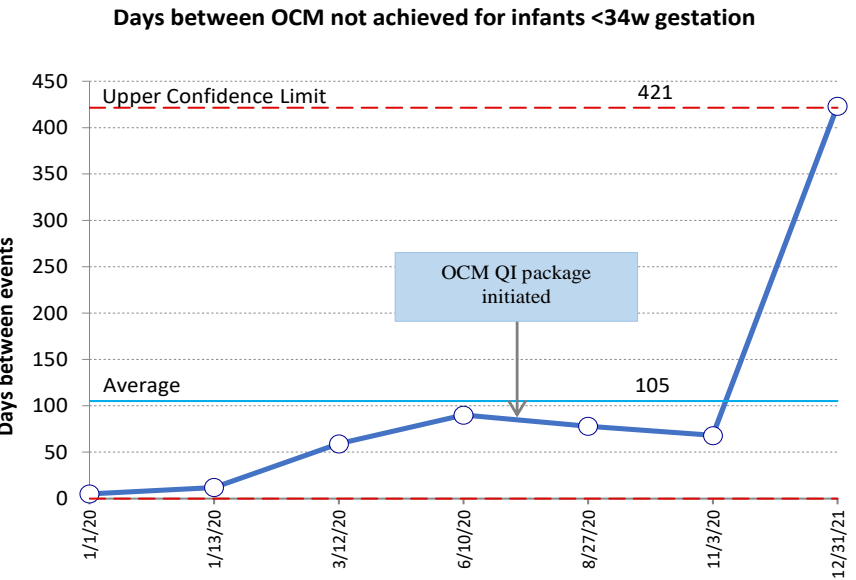
Run chart



Statistical Process Control Chart



Days between chart



Phase Five: Implement, Embed and Sustain

- Spread:
 - Dissemination: formal, e.g. presentations
 - Diffusion: informal, e.g. word of mouth
- Exception reporting:
 - Case review for noncompliant cases
- Barriers and loss of motivation:
 - Understand
 - Talk to key individuals
 - Observe clinical practice in action
 - Use a questionnaire to survey staff
 - Brainstorm with a focus group
 - Find solutions
 - Re-examine your change idea
 - Use impactful parent stories
 - Use lessons from high performers
 - Re-market your message
 - Use incentivisation to engage



QI tools and templates

BAPM Quality Webpages

Specific BAPM resources at

<https://www.bapm.org/qimadeeasy>

- Planning your QI project
- Investigating your current practice
- Planning your change idea
- Interpreting your data

Other QI resources at BAPM QI Signpost:

<https://www.bapm.org/signpost-qi-resources>



Organisational standards, guidelines and initiatives

NNAP Online. National Neonatal Audit Programme: Royal College for Paediatrics and Child Health

Maternity and Neonatal Safety Improvement Programme: NHS Improvement

Maternity and Children's Quality Improvement Collaborative- Scottish Patient Safety Programme

Neonatal Service Quality Indicators: Standards relating to structures and processes: British Association of Perinatal Medicine; 2017

PERIPrem Care Bundle: West of England Academic Health Sciences Network 2020

Preterm Perinatal Wellbeing Package: Maternity and Children Quality Improvement Collaborative, Scottish Patient Safety Programme. Health Improvement Scotland;

Preterm Labour and Birth: National Institute for Clinical Excellence; 2019

