

Essentials of Safe Care

Safe Clinical & Care Processes

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Safe Clinical & Care Processes

The Preterm Bundle

Princess Royal Maternity, Glasgow



Background

Perinatal optimisation relates to the delivery of the numerous evidence based antenatal, intrapartum and neonatal interventions that are vital in improving outcomes for preterm babies.

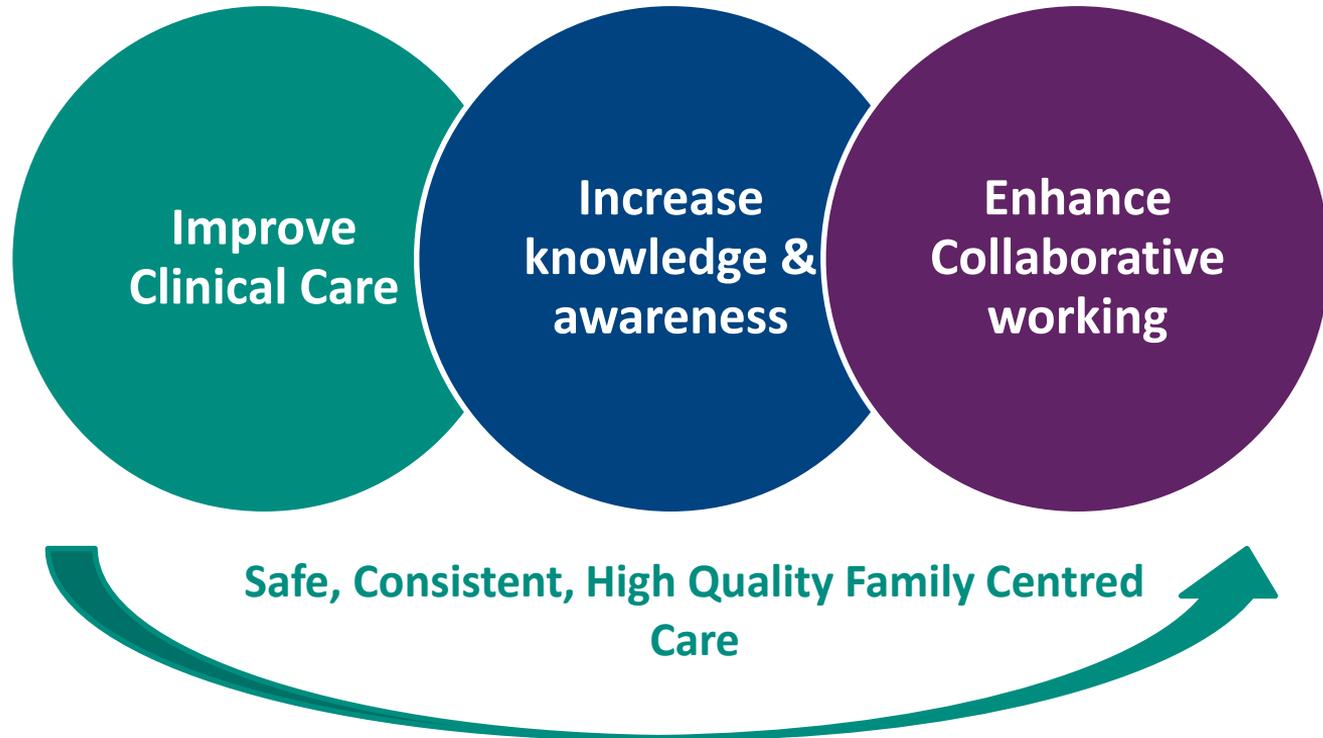


MATERNITY
AND CHILDREN

Preterm Perinatal Package

<p>NICU</p>  <p><27</p>	<p>Steroids</p>  <p><1w <34</p>	<p>Magnesium</p>  <p><24h <30</p>	<p>Cord Clamping</p>  <p>≥60s</p>
<p>Temperature</p>  <p><1h ≥36.5 ≤37.5 <32</p>	<p>Mum's Milk</p>  <p><24h <32</p>	<p>Caffeine</p>  <p><3d <27</p>	<p><34w</p> 

Aims of the Project



Education

PRETERM PERINATAL PACKAGE

A group of multidisciplinary interventions clinically proven to reduce morbidity and mortality, resulting in significantly improved outcomes for preterm babies.

NICU Delivery

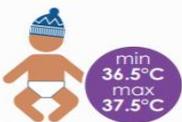


- Extreme preterm birth in a tertiary unit setting significantly improves survival and neurodevelopmental outcomes

AIM:

Optimally timed in-utero transfers should ensure infants <27 weeks are delivered in specialist tertiary neonatal units.

Maintain Temperature



- Early hypothermia (<36.5°C) increases mortality and risk of brain haemorrhage, NEC and sepsis
- Emerging evidence links early hyperthermia (>38°C) to adverse outcomes

AIM:

Ensure strict thermoregulatory measures to achieve normothermia (36.5 - 37.5°C) within an hour of birth.

Antenatal Steroids



- Reduces mortality by 32%
- Reduces preterm lung disease, brain haemorrhage, necrotising enterocolitis (NEC) and sepsis

AIM:

All mothers delivering <34 weeks should receive a full course of steroids, ideally in the 7 days before birth, for maximum efficacy.

Mum's Breast Milk



- Safest milk for preterm babies
- Significantly reduces the risk of sepsis and NEC
- Reduces mortality & improves neurodevelopmental outcomes

AIM:

All infants <32 weeks should receive maternal milk, ideally within the first 24 hours of life.

Magnesium Sulphate



- Reduces risk of cerebral palsy by 30%
- For every 37 women given magnesium sulphate, 1 less baby will develop cerebral palsy

AIM:

All mothers delivering <30 weeks should receive magnesium sulphate, ideally in the 24 hours before delivery for maximum efficacy.

Early Caffeine



- Reduces apnoea, invasive ventilation and preterm lung disease
- Improves survival without neurodevelopmental disability

AIM:

All infants born <30 weeks should receive caffeine within 3 days, ideally on admission to NICU.

Deferred Cord Clamping



- Reduces mortality by 32%
- Reduces brain haemorrhage
- Reduces the need for blood transfusion

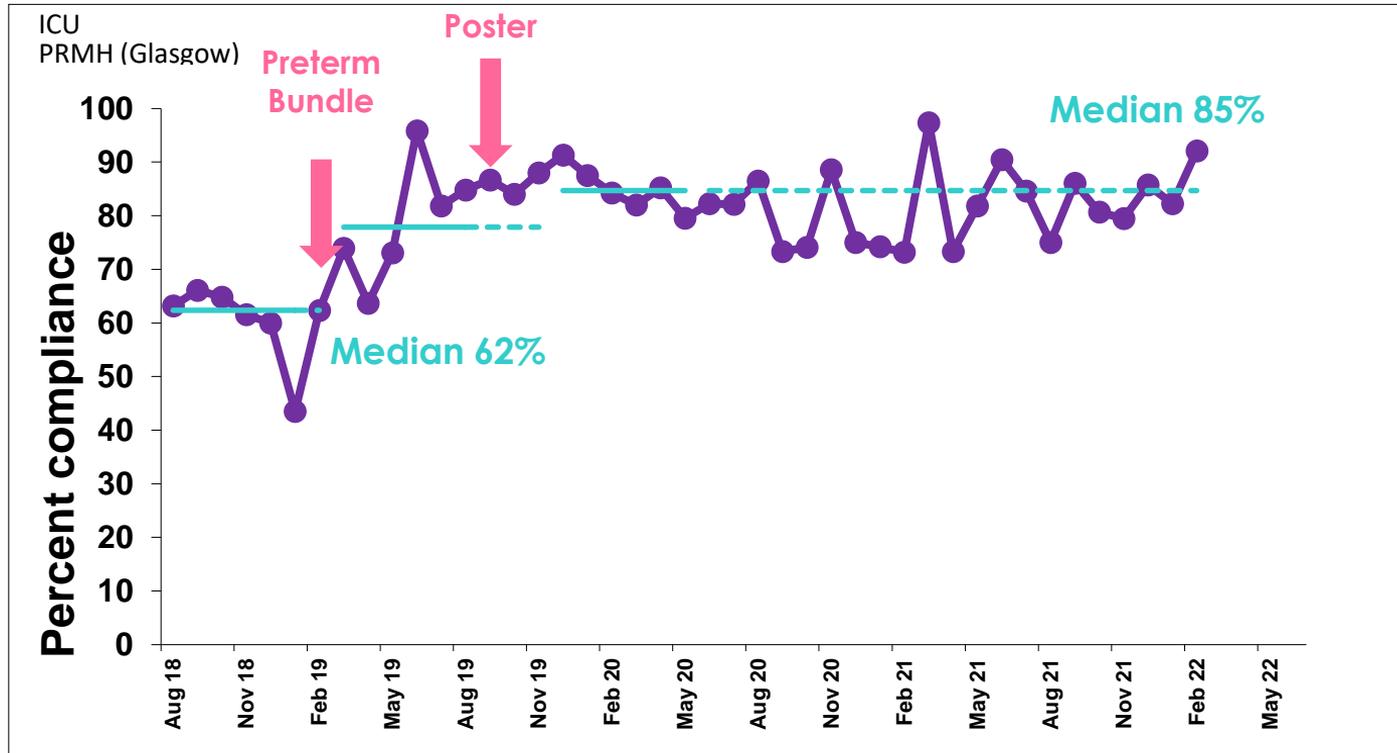
AIM:

To achieve these full benefits, all babies <34 weeks should receive deferred cord clamping of a MINIMUM of 60 seconds.

Produced by
Lynsey Sill and
Gemma Edwards for
the NICU, NEC, team
in partnership with



Results: Package Compliance



Results:

STEROIDS



2018
93%



2021
97%

MAGNESIUM



63%



85%

CORD
CLAMPING



57%



80%

TEMP



78%



85%

BREAST MILK



51%



60%

Scale Up & Spread

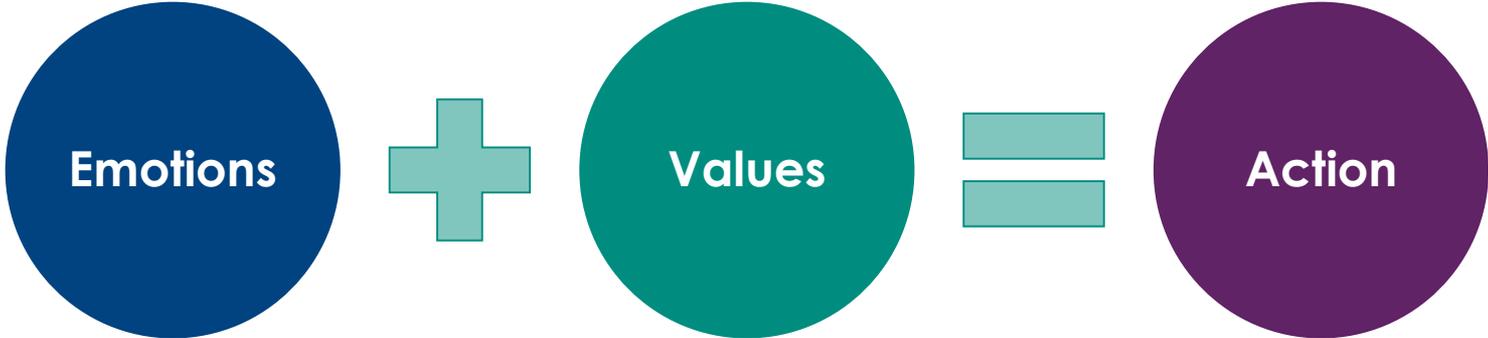
- Preterm Bundle is fully embedded as routine practice
- Adapted for use in sister units across Glasgow & shared with multiple units throughout UK
- Poster endorsed by MCQIC to share poster nationally with every maternity and neonatal unit across Scotland
- Evolution of National Preterm Bundle



Safe Clinical Care & Processes

Transferrable Learning

Education



Standardisation

The Preterm Bundle

NAME _____
 GESTATION _____ + _____
 DOB ____/____/____ TIME OF BIRTH ____ : ____

ANTENATAL

PLACE OF BIRTH: ALL BABIES <27 WKS SHOULD DELIVER IN A TERTIARY LEVEL NICU YES [] NO []  ^{<27 wks}

ANTIBIOTICS: FOR ALL WOMEN IN ESTABLISHED PRETERM LABOUR YES [] NO []  ^{<34 wks}

STEROIDS: FOR ALL WOMEN <34 WKS & WITHIN 7 DAYS OF DELIVERY YES [] NO []  ^{<34 wks}

MAGNESIUM: FOR ALL WOMEN <30 WKS & WITHIN 24HRS OF DELIVERY YES [] NO []  ^{<30 wks}

COUNSELLING: IMPORTANCE OF EBM YES [] NO []
 NEONATAL TEAM YES [] NO []

STABILISATION

DCC: MINIMUM OF 60 SECONDS YES [] NO []  ^{>60 sec}
 CONTRAINDICATIONS TO DCC YES [] NO []

RESPIRATORY: GENTLE LUNG INFLATION IF REQUIRED 20-25cm H₂O
 AIM TO ESTABLISH CPAP 6-8cm <5 MINS OF AGE
 INTUBATION IF PERSISTENT APNOEA/BRADYCARDIA
 SURFACTANT 200MG/KG IF INTUBATED FOR STABILISATION
 VOLUME LIMITED STRATEGY FIRST LINE

TEMP: CONTINUOUS TEMP MONITORING YES [] NO []  ^{34.0°C}
 TEMP LEAVING LW _____ °C
 TEMP ON ARRIVAL TO NICU _____ °C

MATERNAL CHI _____
 INDICATION FOR DELIVERY _____
 RF FOR SEPSIS YES [] NO []

PREPARATION & PAUSE

UNIT PREP: COTSPACE, VENTILATOR, LINE TROLLEYS, PN, LIPID, DRUGS
ALLOCATE ROLES: AIRWAY, CIRCULATION, MONITORING, TEMP
EQUIPMENT: RESUSCITAIRE, FIO₂ <28 WKS 30% >28 WKS 21-30%,
 PLASTIC BAG, AIRWAY, SURFACTANT, MONITORING
 MEASURING TAPE OFC _____ cm
 TRANSPORT INCUBATOR
MDT PAUSE: DELIVERY INTO PLASTIC BAG IF <32 WKS
 DEFERRED CORD CLAMPING FOR MINIMUM 60 SECS
 CORD BLOODS
 PLAN FOR DELIVERY ROOM CUDDLE

NICU ADMISSION

PAUSE: ALLOCATION OF ROLES
IV ACCESS: PVC/UAC/UVC
FLUIDS: < 30 WEEKS PN @90ML/KG/DAY, LIPID @2G
DRUGS: CAFFEINE ALL BABIES <30 WKS YES [] NO []  ^{<30 wks}
 ANTIBIOTICS IF RF FOR SEPSIS YES [] NO []

MEBM: MATERNAL EBM FOR ALL BABIES < 32 WKS WITHIN 24 HRS
 OF BIRTH YES [] NO []  ^{<32 wks}

CRANIAL US: <32 WKS, IF NORMOTHERMIC & STABLE
RESEARCH: ELIGIBLE FOR TRIAL? YES [] NO []
PARENTS: DATE & TIME OF SENIOR UPDATE ____ / ____ / ____ @ ____ : ____

- QI tools & resources to help your teams
- All patients to receive the same gold standard of care
- If not, why not?

Standardisation

The Preterm Bundle

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 DOB ____/____/____ TIME OF BIRTH ____ : ____

MATERNAL CHI _____
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MAGNESIUM: FOR ALL WOMEN <30 WKS & WITHIN 24HRS OF DELIVERY YES [] NO []

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 NEONATAL TEAM YES [] NO []

PREPARATION & PAUSE

UNIT PREP: COTSPACE, VENTILATOR, LINE TROLLEYS, PN, LIPID, DRUGS

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MDT PAUSE: DELIVERY INTO PLASTIC BAG IF <32 WKS
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CRANIAL US: <32 WKS, IF NORMOTHERMIC & STABLE

RESEARCH: ELIGIBLE FOR TRIAL? YES [] NO []

PARENTS: DATE & TIME OF SENIOR UPDATE ____/____/____ @ ____:____

- Visual
- Consistent messaging
- Clear communication with teams
- Easy to use & follow

Preterm Bundle Monthly Summary

Our Compliance with the PPWP

February 2022

Total number of babies born <34 weeks

10

Gestation	No. of Babies
< 27 weeks	2
27 – 29+6	2
30 – 33+6	6



Proportion of babies achieving full perinatal optimisation

80%

Proportion of all optimisation interventions given

92%

Think About Your Team...

