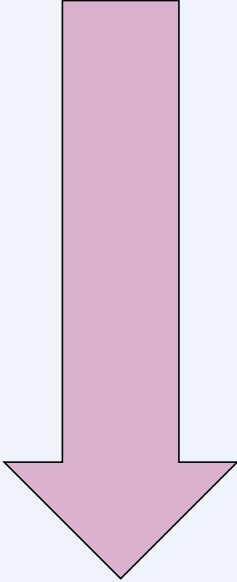
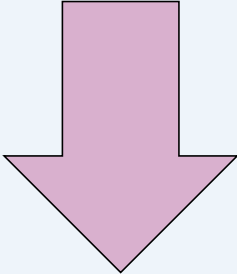


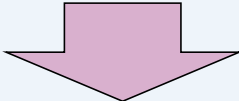
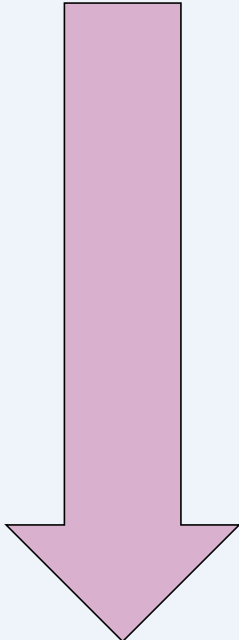
Antenatal Care

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Team Organisation:

	Thermoregulation	Nursing team	Medical team
BEFORE BIRTH: 	<ul style="list-style-type: none"> ➤ Pre-warm incubator ➤ Pre-warm resuscitaire & towels ➤ Set room temperature to 23-25 (>25 if ≤28/40) ➤ Agree a plan for thermoregulation during deferred cord clamping 	<ul style="list-style-type: none"> ➤ Allocate admission nurse ➤ Check ventilator/CPAP ➤ Check: Monitors Infusion Devices Scales Procedure trolley/ emergency medication Alarm settings Resuscitaire 	<ul style="list-style-type: none"> ➤ Identify medical team ➤ Inform consultant (Attendance required in extreme prematurity) ➤ Check resuscitaire ➤ Check provision of ET tubes ➤ Set blender to appropriate FiO₂ ➤ Discuss with obstetric & midwifery team: <ul style="list-style-type: none"> ➤ Antenatal Steroids ➤ MgSO₄ ➤ Pertinent history: ➤ Fetal Anomalies ➤ Antenatal scans ➤ Anticipated delivery complications ➤ Agree plan for deferred cord clamping ➤ Counsel parents ➤ Contact PaNDR
AT DELIVERY: 	<ul style="list-style-type: none"> ➤ Apply Hat ➤ Dry/wrap in warm towels OR use plastic bag/suit if ≤32 weeks Aim to facilitate a parental cuddle prior to transfer to NICU once baby is stable and temperature is optimal, continue to support the babies breathing. 	<ul style="list-style-type: none"> ➤ Apply SaO₂ (Right Hand) ➤ Management according to NLS principles ➤ Apply labels ➤ Secure ETT prior to transfer ➤ Take axillary temperature prior to transfers to NICU, take action if the temperature is outside the normal range (36.5 – 37.5) 	<ul style="list-style-type: none"> ➤ Management according to NLS principles ➤ Give surfactant early if prophylaxis required. Consider LISA technique ➤ Give rescue surfactant early if clear indication ➤ Speak with parents ➤ Make all efforts possible to allow 1st parental Cuddle* ➤ Check cord gases ➤ Consider placenta for pathology

Team Organisation:

	Thermoregulation	Nursing team	Medical team
TRANSFER TO NNU: 	<ul style="list-style-type: none"> ➤ Consider use of heated infant transport mattress if very low birth weight & cool transport incubator OR transferring on resuscitaire ➤ Cover with pre-warmed towels 	<ul style="list-style-type: none"> ➤ Ensure appropriate portable medical gas supply to transfer device ➤ Monitor work of breathing & SaO₂ on transfer 	<ul style="list-style-type: none"> ➤ Escort infant to NNU ➤ Ensure appropriate supply of medical airways, bag & mask and laryngoscope available for emergencies en route
1st HOUR WITHIN NNU 	<ul style="list-style-type: none"> ➤ If ≤32 weeks: keep in plastic bag/suit until incubator at correct temperature/ humidity & lines inserted ➤ Check infant admission temperature & initiate skin temperature monitoring as appropriate 	<ul style="list-style-type: none"> ➤ Weigh baby ➤ Attach to monitoring as appropriate ➤ Baseline observation ➤ Blood Pressure ➤ Administer Vit K (if not done in delivery suite) ➤ Commence IV fluids as appropriate ➤ Administer antibiotics as required ➤ Measure head circumference ➤ Insert naso-/oro- gastric tube (BEFORE x-rays) ➤ Skin integrity score ➤ Admission Swabs ➤ Blood spot screening ➤ Admission documentation 	<ul style="list-style-type: none"> ➤ Divide workload appropriately between team members. Ensure all medications and infusions are prescribed as a priority – so nursing staff can prepare medications whilst procedures undertaken <div style="border: 2px solid orange; padding: 5px;"> <p>1st Doctor/ANNP</p> <ul style="list-style-type: none"> ➤ Re-assess on admission: <ul style="list-style-type: none"> ➤ Airway/Breathing/Circulation ➤ Establish IV access (PVL/UVV/UAC) ➤ Administer surfactant as required ➤ Send bloods: U&E, FBC, BC, Group & DCT, CRP (Clotting) ➤ Admission Documentation </div> <div style="border: 2px solid orange; padding: 5px;"> <p>2nd Doctor/ANNP</p> <ul style="list-style-type: none"> ➤ Prescribe: IV Fluids/ PN/ Vit K Antibiotics/ Caffeine (<34wks)/ Oxygen limits ➤ Inotropes ➤ Request X-Ray ➤ Update: Consultant/Parents/PaNDR </div>
WHEN COMPLETE - STOP - HANDS OFF			
ONGOING CARE:	<ul style="list-style-type: none"> ➤ Physical examination Consent for Blood transfusion Photograph for parents Discuss expressing milk with mother & midwife Consider 2nd Dose Surfactant Commence PN (as indicated) Complete Badgernet Debrief BLISS Handbook 		

Antenatal Corticosteroids:

- Antenatal steroids are associated with a significant reduction in rates of neonatal death, RDS and intraventricular haemorrhage
- Cochrane review also suggests a reduction in systemic infection in the first 48 hours and a reduction in Necrotising Enterocolitis

INDICATIONS FOR ANTENATAL CORTICOSTEROIDS: (Ultimately to give or with-hold is responsibility of the Obstetric Team)

- From viable gestation to 34+6 weeks. NICE-recommends:
 - Women between 24⁺⁰ and 33⁺⁶ weeks of gestation who are at risk of preterm birth
 - Antenatal corticosteroids can be considered for women <23⁺⁶ weeks of gestation who are at risk of preterm birth and there is an agreed active plan for resuscitation at birth
- Women Consider maternal corticosteroids for women between 34+0 and 35+6 weeks of pregnancy who are in suspected, diagnosed or established preterm labour, are having a planned preterm birth or have P-PROM

SUGGESTED DOSAGE & TIMING:

Betamethasone 12 mg IM x2 doses* OR Dexamethasone 6 mg IM x4 doses*

- Antenatal corticosteroids are most effective in reducing RDS in pregnancies that deliver 24 hours after, and up to 7 days after, administration of the second dose of antenatal corticosteroids]
- Antenatal corticosteroid use reduces neonatal death within the first 24 hours and therefore should still be given even if delivery is expected within this time

Nice suggest: Do not routinely offer repeat courses but take into account interval since last course, gestational age and likelihood of birth within 48 hours

LONG-TERM NEONATAL ADVERSE EFFECTS & REPEAT DOSAGE:

- Women may be advised that the use of a single course of antenatal corticosteroids does not appear to be associated with any significant short-term maternal or fetal adverse effects. Evidence on the longer-term benefits and risks of a single course of antenatal corticosteroids shows no clear difference in adverse neurological or cognitive effects.
- ***There is still insufficient evidence on the longer-term benefits and risks of multiple courses of antenatal corticosteroids***

FHOC Reference: NICE (2015) Preterm labour and birth. NG25. NICE. London

Antenatal Magnesium Sulphate (MgSO₄) – NEUROPROTECTION REGIME:

In meta-analysis involving 5 trials (total 6145 infants)*:

- Antenatal Magnesium Sulphate therapy given to women at risk of preterm labour significantly reduces:
 - Cerebral palsy (RR 0.68; 95% CI 0.54 - 0.87) | Gross motor dysfunction (RR 0.61; 95% CI 0.44-0.85)

INDICATIONS FOR ANTENATAL MAGNESIUM SULPHATE:

Ultimately, the decision to give or with-hold Magnesium Sulphate, and the relevant fetal and maternal monitoring, is the responsibility of the Obstetric Team. The neonatal team should ensure antenatal administration of Magnesium has been considered where appropriate.

- Based on number needed to treat (NNT) to prevent cerebral palsy or severe motor dysfunction, RCOG recognise <30⁺⁰ weeks gestation as a pragmatic cut-off for antenatal magnesium as a neuroprotection regime. *It may be considered for gestations ≤34 weeks*
 - NNT: 29 at <28⁺⁰ weeks gestation | NNT: 46 at 30 weeks gestation | NNT: 56 at 32 to 34 weeks gestation

SUGGESTED DOSAGE & TIMING:

- **Magnesium sulphate for neuroprotection should be offered in women at 29⁺⁶ weeks gestation or less, where a viable outcome is anticipated and where delivery is planned or definitely expected within 24 hours.**
 - The effect of Magnesium Sulphate is greatest if given more than 4 hours prior to delivery
 - If delivery is anticipated to occur *earlier than* 4 hours, there continues to be some advantage from administration of Magnesium and therefore it should be given if it does not distract from other areas of urgent care of the mother/fetus
 - If urgent delivery is required for maternal/fetal compromise then delivery should not be delayed to administer Magnesium Sulphate

There is no universally accepted regime - Many centres give a loading dose, followed by a continuous infusion for up-to 24 hours before birth

Loading Dose: 4g Magnesium Sulphate IV over 20 minutes

Maintenance Infusion: 1g/hour Magnesium Sulphate IV - Continue regimen until birth or 24 hours, whichever comes first

NEONATAL ADVERSE EFFECTS & REPEAT DOSAGE:

- Neonatal hypermagnesaemia may produce hyporeflexia leading to poor sucking and rarely respiratory depression. This effect lasts for up to 24 hours following birth
- If Magnesium Sulphate has been given and preterm birth does not occur but at a later time appears imminent then repeat doses of Magnesium Sulphate should be considered by the Obstetric Consultant

- RCOG Scientific Impact Paper No 29 August 2011: Magnesium Sulphate to Prevent Cerebral Palsy Following Preterm Birth

- *Doyle LW et al. Magnesium sulphate for women at risk of preterm birth for neuroprotection of the fetus. Cochrane Database Sys Rev 2009

- MAGNESIUM SULPHATE FOR FETAL NEUROPROTECTION PRIOR TO PRETERM BIRTH. Mid Essex Hospital Services NHS Trust. Guideline No. 15000