

# Theme of the week learning pack: Neonatology

This learning pack can be used for local teaching and for individual reading and reflection. Several activities have been designed and they have been mapped to the RCPCH Progress curriculum.

Feel free to use any or all of this pack in your department. If you wish, you can reflect on the learning activity and upload to your e-portfolio and link to the relevant domains.

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## **Blood transfusion in Jehovah's Witness patients**

### **Objectives**

- Learn about the law with regards to consent and the right to refuse treatment
- Learn how to demonstrate compassion for parents who are Jehovah's witnesses and the difficulties they may be facing

### **Activity 1: Group Discussion (45-60 mins)**

**Target Level:** 2

**Instructions for facilitator - Consultant:**

- Review the case entitled "[Family planning for peri-operative planning – case study](#)" as a group (5 mins)
- Ask below questions to the group and facilitate a discussion:
  - If a small group, encourage everyone to answer and participate
  - If a larger group, suggest to break off into smaller groups of 2-3 to discuss each point
- After each question, review the recommended references to consolidate knowledge as a group

**Instructions for group – Registrars (SHOs can also participate):**

- Participate in the discussion for each question and review the related references as a group to consolidate knowledge

**Activity: With below references<sup>1</sup> as supplementary material, discuss (45 mins):**

1. *What is the core reason for Jehovah's witnesses refusing blood transfusions? What do we already understand about their beliefs? ([Reference 1, C.1 and C.2](#), [Reference 2, slides 14-16, 19-20](#))*
2. *Do we know of any services available to support parents who are Jehovah's Witnesses? What is available in your local hospital? ([Reference 1, C.3](#))*
3. *What would we do in a non-emergency situation? What are the alternatives? ([Reference 2, slides 7, 13](#))*
4. *What would we do in an emergency situation in the NICU setting? ([Reference 1, D.2.1 and D.2.2](#); [Reference 2, Slides 7-10](#))*

<sup>1</sup>Reference 1 [Royal College of Surgeons: Caring for Patients who refuse blood](#)

Reference 2 [M Macken: Approach to the Child of Jehovah's Witness with a bleeding disorder \(Joint UK Blood Transfusion Professional Advisory Committee\):](#)

## **Blood transfusion in Jehovah's Witness patients (ctd)**

### **Activity 2: Individual Learning Session (45 mins)**

**Target Level:** 1 and 2

**Reading time (20 mins):**

1. Read [Woolley S, Children of Jehovah's Witnesses and adolescent Jehovah's Witnesses: what are their rights? Archives of Disease in Childhood 2005;90:715-719](#)
2. Read the the guideline [Royal College of Surgeons: Caring for Patients who Refuse Blood](#), with particular focus on sections C, D2.1 and D.2.2:
3. Review the presentation provided by the [Joint UK Blood Transfusion Professional Advisory Committee](#):

**Reflection (25 mins):**

**Following the reading, answer the following questions for reflection**

1. *What do I now understand about the beliefs of Jehovah's Witnesses?*
2. *Do I know of any services available to support parents who are Jehovah's Witnesses, and what is available at my local hospital?*
3. *Who would I consult for advice in this situation in my department?*
4. *What would I do in a non-emergency situation?*
5. *What would I do in an emergency situation, and what legal options are available?*

## **Antenatal Preterm Counselling**

### **Objectives**

- ❑ Communicate effectively with an anxious parent, demonstrating effective listening skills, cultural awareness and sensitivity.

### **Activity: Communication Skills Session (45 mins)**

#### **Target Level:**

- 1 - trainees due to sit MRCPCH Clinicals examination
- 2 - registrar can run teaching session and receive feedback

**Facilitator:** Consultant or Registrar

**Role-player:** Registrar

**Trainee:** SHO (particularly trainee due to sit MRCPCH Clinical exam)

#### **Case:**

You are an SHO working in a DGH. A mother has presented in preterm labour at 25+4 weeks with fever and contractions. She thinks her waters may have broken a few days ago. The baby's growth is normal, and she has received a full course of antenatal steroids. This her first baby, and she is understandably anxious.

Instruction for trainee:

- *Counsel the mother in the above case (20 mins)*

Instruction for facilitator:

- Appoint a trainee to do the counselling, and another (registrar) for role-playing
- Review the following:
  - Does the trainee introduce themselves and explain their role?
  - Do they explore the parents' concerns and expectations?
  - Do they explain what will happen and who will be at the delivery?
  - Do they explain what will occur in terms of "resuscitation"?
  - Do they summarise at the end and give an opportunity for the mother to ask any questions?

#### **Feedback (25 mins):**

- Facilitator and group to provide structured and constructive feedback according to the above checklist
- If time, review the latest [BAPM framework for management of extreme preterm birth](#) as a group

## **Ambiguous Genitalia**

### **Objectives**

- Learn how to effectively communicate where there is a range of differential diagnoses and where management is uncertain
- Respond appropriately and empathise with parents experiencing difficulty and distress
- Learn to demonstrate spoken communication with the parent

### **Activity: Group Learning Session (45 mins)**

**Target Level:** 1 - trainees due to sit MRCPCH Clinicals examination

2/3 - registrar can run teaching session and receive feedback

Watch the following [video of a communication skills session, where parents are being counselled about their baby who was born with ambiguous genitalia](#). (6 mins 34s)

**Instructions for Trainees:** Watch the video (15 mins) and make notes on good points and points you would do differently, including

- What key points did she provide?
- Questions asked, summary, language used etc

**Instructions for facilitator (Consultant/Registrar):**

- Encourage the group to make notes on the video as they go along
- Discuss as a group **(30 mins)**
- Highlight below key points to the group:
  - Important to congratulate the parents on the birth of their baby
  - Important to avoid using “he” or “she” when referring to the baby
  - If the baby is well, it is important to reassure the parents
  - It can be helpful to explain what is normal first
  - It is important to advise parents not tell family members of any particular sex until it is confirmed by the doctor
  - Parents should be informed that a few tests will need to be done, and this may take some time
  - We should always emphasise the importance of excluding a hormonal abnormality which can be easily treated
  - Parents should be reassured that a male or female gender will eventually be assigned, but this may take some time, even weeks and registration should be deferred until this is done
  - Birth registration can be delayed for 6 weeks so this shouldn't be a worry for them
  - If parents are feeling guilty or to blame, it is important to reassure them that they are not to blame for this situation

Further reading: [Ogilvy-Stuart AL, Brain CE. Early assessment of ambiguous genitalia. Archives of Disease in Childhood 2004;89:401-407](#)

## **Communicating preterm nutrition plans with parents**

### **Objectives**

- ❑ Participates effectively in multidisciplinary teams (MDTs) and engages with patients and families, facilitating shared decision making; recognises complex discussions and when to seek assistance.

### **Activity: MDT-led Teaching Session (30 mins)**

#### **Target Level: 2-3**

Ask your local paediatric dietician to lead a teaching session on communicating nutrition plans with parents of preterm babies in a SCBU or outpatient setting

#### **Examples:**

1. How do they explain to families the benefits of breast milk in preterm infants?
  
2. How do they support preterm weaning in the community?
  
3. How are the various formula types explained to parents, as this can be a confusing topic? e.g. extensively hydrolysed, amino acid, LCT/MCT fat-based formulas
  
4. What advice is given to parents in outpatient clinics for preterm babies post-discharge?
  - Support of feeding (breast/formula)
  - Use of post-discharge formulas
  - Use of BMF post-discharge
  - Use of vitamin and iron supplementation, when certain supplementation is recommended

## Procedure – neonatal intubation

### Objectives

- Revise the skills needed for neonatal intubation
- Consider the human factors around intubation situations

### **Activity: Group Simulation and Discussion (45-60 mins)**

**Target Level:** 1-3

#### Instructions for group:

- Watch this video (16min) by [DFTB, T. Neonatal intubation: Shabs Rajapaksa at DFTB18, Don't Forget the Bubbles, 2018](#) on neonatal intubation as a high-risk procedure, and the different factors affecting it.

#### Instructions for facilitator – Consultant or other:

A 27/40 baby has been born after spontaneous preterm labour. They were born in good condition and transferred to the unit on CPAP. Unfortunately, over the next four hours they develop significant respiratory distress, tachypnoea, and their oxygen requirement has risen to 50%. A decision is made for intubation and curosurf administration. The process of intubation can be as easy or difficult as you feel appropriate for the team members involved.

#### Instructions for group – Registrars/SHOs/ANNPs, nursing team as available:

- Using local equipment, including intubating head, run a simulation of the intubation process, include drug prescriptions and preparation, securing of the tube, and explaining the management changes to the parents.
- Discuss ventilation settings and plans going forward.
- In debriefing, consider the technical and other factors in this situation.

#### Further resources:

- Use the [LSP part-task training guide for details of intubation skills and other basic and advanced airway management](#) (pages 3-12):
- If anyone has not seen the video of [Martin Bromiley discussing his wife's death during an apparently routine operation](#), it is worth watching (14min):
- Another discussion of neonatal procedures and how to develop them is here, from [UCLH NNU consultant Dr Sian Harding](#) (7min):

## Reducing term admissions to the neonatal unit

### Objectives

- Consider the management of term babies that might lead to neonatal unit admissions
- Discuss Quality Improvement methodology that is currently in use, and may be used, to improve these factors

### **Activity 1: Group Discussion (45-60 mins)**

#### **Target Level: 1-3**

Instructions for the group (MDT as available, including doctors, nurses, midwives, pharmacist, physiotherapist, dietitian):

- Watch the two short videos (3 min and 3 min) about [Running your QI Project, IHI \(Institute for Healthcare Improvement\)](#), as part of the East London NHS Foundation Trust QI programme.
- Consider your local findings from [the RCPCH's National Neonatal Audit Programme](#), and think about the different sections, particularly the section "Minimising separation of mother and baby (term and late preterm)".
- Consider [the ATAIN programme](#) (Avoiding Term Admissions Into Neonatal units).

Discuss as a group

- *What you feel are the important factors leading to term admissions locally*
- *What systems are already in place to reduce this?*
- *How are these being monitored to look for changes?*
- *Are there any small changes that could be made to improve things further?*
- *How could this be done using the QI methods?*

## Reducing term admissions to the neonatal unit (ctd)

### Activity 2: Individual Learning

**Target Level:** 1-3

**Resources available:**

- The e-Learning for Health website has [an e-learning programme](#) looking at the care of newborns and the particular clinical areas targeted by the ATAIN programme:
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- The RCPCH has an [e-learning module on Quality Improvement](#):
  
- For further inspiration on QI projects, have a look at the [RCPCH QI Central site](#), a sharing hub of different interventions and solutions people have used across paediatrics:
  
- If you are interested in learning more about Quality Improvement methodology with the London School of Paediatrics, watch out for future teaching sessions as part of the online learning, and consider signing up for a future [“Improve ONE Thing: Change Champions” programme](#):

## Managing respiratory distress syndrome

### Objectives

- Improving understanding of respiratory complications in preterm neonates
- Identifying the benefits of less invasive surfactant administration (LISA) vs conventional surfactant administration
- Be able to critically assess a paper

### Activity 1: Journal club (45-60 mins)

#### Target Level:

- Trainee Levels 1-3
- Excellent opportunity for trainees to develop their ability to critically assess a paper whilst keeping up to date with the latest evidence based practice for common neonatal presentations.

**Facilitator:** Consultant or Registrar

**Trainee:** SHO or registrar to present the journal

**Journal:** Aldana-Aguirre JC et al., "[Less invasive surfactant administration versus intubation for surfactant delivery in preterm infants with respiratory distress.](#)"

Archives Diseases in Childhood Fetal and Neonatal Edition. 2017. 102(1):F17-23.

#### Activity:

- Everyone to read the journal beforehand
- Trainee to present the paper, use the reference below for a guideline
- Discuss the merits and pitfalls of the paper
- Some discussion points could include:
  - Respiratory complications in preterm neonates
  - Challenges to using LISA in neonatal units
  - Benefits of LISA over traditional methods for surfactant administration
  - Clinical use of surfactant: indications other than prematurity, administration, monitoring, side effects, repeat doses

**Reflection:** link to domains 4 and 11

- Have I developed skills and confidence in critically analysing a paper?
- Would I feel confident presenting a paper in future journals clubs?
- What I have learned about respiratory distress in preterm infants and how can I integrate this into my clinical practice?

#### Further resources:

- How to critically assess a paper: "[Critical appraisal of a journal article](#)"
- UpToDate: "[Prevention and treatment of respiratory distress syndrome in preterm infants.](#)"
- [Caldwell C & Patel D: "Postnatal Steroids in premature babies – where are we now?"](#)

## **Neonatal prescribing**

### **Objectives**

- Prescribe commonly used medications safely
- Understand the processes required following a medication error
- Be able to counsel a mother regarding medication use and potential side effects

### **Activity 1: Individual learning (45 mins)**

**Target Level:** Level 1 and 2 trainees

**Online e-learning:** 25 minutes

Work through the [online Script Paediatric module in neonates](#). This is a great introduction to commonly used medications and medical scenarios in neonates. You will need to sign up to create an account, complete a 10 question pre-course quiz and work through the interactive e-learning module based on 3 clinical cases.

**Reflection on Kaizen:** 20 minutes, link to domain 7

1. Has this e-learning module improved my knowledge of medications required for neonates with common problems such as respiratory distress syndrome, hypotension, seizures and pain?
2. Am I able to prescribe fluids, nutrition and vitamins to support neonates growth and development?
3. Would I be able to list and prescribe the recommended medications for a neonatal resuscitation situation?

### **Other prescribing e-learning resources:**

- This online e-learning resource is for trainees who want to develop their prescribing skills in paediatrics further. [RCPCCH Compass prescribing e-learning module](#)

## Neonatal prescribing (ctd)

### Activity 2: Communication Skills Session (45 mins)

#### Target Level:

- Level 1-2
- Excellent opportunity for trainees due to sit MRCPCH Clinicals examination to practice their communication skills

**Facilitator:** Consultant or Registrar

**Role-player:** Registrar

**Trainee:** SHO (particularly trainee due to sit MRCPCH Clinical exam)

#### Case: (20 mins role play scenario)

You are an SHO working in a DGH. A midwife reports that she has just given the second dose of gentamicin to an infant for suspected early onset sepsis as prescribed on the chart. However, she has just realised that it was prescribed at a 24 hourly interval rather than the hospital's policy of a 36 hourly interval and therefore the infant has received the dose 12 hours early. The midwife wants you to talk to the mother and explain what has happened and what you are going to do next.

Instruction for trainee:

- Explain the situation to the mother, including what you are going to do next and how you intend to prevent this from happening again in the future

Instruction for facilitator:

- Appoint a trainee to be the mother, other trainees can make notes to provide feedback after the discussion
- These are the mother's concerns / questions:
  - What are the potential side effects of a gentamicin overdose?
  - How do you check for these side effects?
  - How will you prevent this from happening again?
  - If I want to make a complaint how do I do this?
- Points the trainee should cover:
  - Introduces themselves and their role
  - Explain the situation clearly and apologise
  - Explains next steps: stop medication, follow Toxbase guidelines, monitor for side effects, check gentamicin level and renal function, monitor for side effects, document in notes and as a DATIX, inform senior/consultant and feedback to the medical team.
  - Explain the side effects and how you intend to monitor them: renal function, audiology
  - Signpost them to Patient Advice and Liaison Service (PALS) if they still have concerns
  - Summarise and offer opportunity for questions

## **Neonatal prescribing (ctd)**

### **Feedback:**

- Facilitator and group to provide structured and constructive feedback according to the above checklist
- Discussion around duty of candour
- If time, go through how to complete a Datix, for any trainees who are not familiar with the process

### **Reflection:** link to domain 2 and 7

- How did I feel dealing with this challenging communication scenario?
- How could I improve my communication skills for when I need to do this in reality?

## **Activity 3: Practical Session (45 mins)**

**Target Level:** Level 1-2 trainees

**Facilitator:** Consultant or Registrar

**Trainee:** SHO or registrar

**Equipment:** ideally a flipchart / whiteboard for the initial discussion and then blank drug charts and pens for prescribing

### **Instructions for facilitator**

- Discussion around medications required during neonatal resuscitation including doses, route, timings. Use the [NLS guidance](#).
  - Adrenaline
  - Bicarbonate
  - Dextrose
  - Volume: blood / fluid
- Use it as an opportunity to practice prescribing on paper charts and give the trainees feedback on errors
- Signpost them to the [App NeoMATE](#) and give them advice on how to use it.

### **Reflection:** link to domain 4 and 7

- Has this facilitated discussion improved my awareness of drugs required during neonatal resuscitation?
- Would I be confident prescribing these medications in an emergency?

## **Cardiac collapse in the newborn quiz & learning**

**Target Level:** 1, 2 and 3

Small group or individual

Split into pairs/small groups and discuss and submit your answers to the 8 questions (5-10mins)

<https://www.paediatricfoam.com/2017/09/cardiology-quiz/>

Once submitted, answers and explanation given on same page

For more background reading, see

<https://www.paediatricfoam.com/2017/09/the-critically-ill-neonate-cardiac-causes-of-collapse/>