



# **Registrar Survival Guide**

**NORTH WEST PAEDIATRIC TRAINEES**

# INTRODUCTION

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This document is a collection of resources compiled by trainees during their first registrar jobs. All information is taken from local/national guidelines, with the aim to have the most useful links in one place. The content of this handbook is dynamic, with the intention to be edited/added to as you progress through your training.

Good luck!

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# Top tips to becoming a registrar

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## PREPARATION

Making the transition from SHO to your first registrar job can feel daunting and a little scary, But, with all the experience you have gained in the last couple of years, you are more prepared than you think. You've got this!

Here are a few simple things you can do in the few weeks before you transition to make you feel more confident:

- Ask a friendly registrar, you are on call with, if you could 'step up', don't forget to ask for some feedback
- Speak to peers who have recently transitioned
- Form a support network with colleagues who are transitioning at the same time
- Familiarise yourself with common guidelines and dust off those APLS/NLS books
- Familiarise yourself with some of the key things from this handbook

## YOUR PLACEMENT

- Attend the local induction
- Familiarise yourself with the layout of the hospital, noting how to get from the ward to A+E
- Make a note somewhere easily accessible of door codes/ IT passwords
- Ensure your ID badges and computer logins work before starting your first shift

## REFERRALS

- You will take referrals from GPs/A+E/ Midwives and other hospitals

- Although your bleep can feel like it is going off constantly – they are only calling because they need help or advice, so try not to get frustrated. Be kind, the majority of calls are appropriate and come from experienced clinicians.
- Understand where GP referrals can be directed to, including rapid access clinics, community services, general outpatients – speak to the consultant on call, if you are unsure

## GET TO KNOW YOUR TEAM

### Doctors and ANNPs

Remember, when working in a DGH you are part of a team of doctors from different specialities. You will have a range of FY1/FY2s, GP trainees and ST1-2s and ANNPs. Each one with their own strengths and experiences. Learn their skill sets and paediatric experience. That way you know when you can delegate tasks.

Remember, you can also teach and although it might feel like you are doing all the cannulas at the beginning of a rotation, teach those with little paediatric experience and after a few weeks, you could have a team of juniors who are all proficient at cannulation, making your life easier.

### Key team members

- Nurse in charge out of hours - touch base at the start of the shift and identify any 'watchers' on the ward
- Bed manager - they will know where there are bed spaces

# Top tips to becoming a registrar

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## DIFFICULT PROCEDURES

- If you can't get that cannula in, who else could you ask? Is there a second registrar on, any ANNPs or Paeds/NICU nurses. If you are really stuck, could anaesthetics help?
- Is it time to consider IO? Or do they really need a cannula, could you give a dose of antibiotics IM – could you stop their antibiotics?
- And remember, how many times have you tried? Is it appropriate to keep trying?
- If you can't intubate and ventilate, you can bag

## CALLING THE CONSULTANT OUT OF HOURS

In most DGHs a consultant is onsite until 10pm. Before they go home, identify any potential problems and sick patients so you can make a plan in advance. Discuss if there are any specific cases they want to be called about.

There are some situations when the consultant expects to be called:

- Sick and deteriorating patients
- Transfers
- Expected early pre-terms
- Safeguarding cases
- Remember when you call them to be clear and concise and use **SBAR**.
- They may have just woken up when you call, so don't be alarmed if they are asking you to repeat things
- Be clear at the start you are calling '**For advice**' or '**I need you to come in**'

- If it is an emergency and you are busy, ask the SHO/nurse to call for you
- If you think they will need to come in and you can call pre-emptively do it.
- Document the conversation.

## TOP TIPS TO ORGANISING YOUR NIGHT SHIFT

- Sit down with your SHO after handover and create a jobs list: reviews, prescriptions, d/cs etc and divide up jobs, most of the time this can be done before you need to rush off to A+E and will save you time later in the night.
- Identify the watchers on the ward
- Touch base with the nurse in charge
- Identify any patients who can go home
- Don't forget to take breaks and make sure your junior has a break / refuel when needed.

# Useful apps

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**BNF**



**BLOOD  
COMPONENTS**



**MICROGUIDE / TAP ON THE BUGS  
(STEPPING HILL)**



**NEOMATE**



**PAED EMERGENCIES**



**PICU (ROYAL CHILDRENS HOSPITAL,  
MELBOURNE).**



**RCH CLINICAL GUIDELINES (ROYAL  
CHILDRENS HOSPITAL, MELBOURNE)**



**UPTODATE**

# Useful websites / blogs

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**Child protection portal** - *RCPCH*

<https://childprotection.rcpch.ac.uk/>

**Don't forget the bubbles** - *Excellent blog*

<https://dontforgetthebubbles.com/>

**Life in the fast lane (ECGs)** - *Paediatric ECG interpretation*

<https://litfl.com/paediatric-ecg-interpretation-ecg-library/>

**Lumbar puncture** - *Useful article from ADC on technique, complications, contraindications*

<https://pubmed.ncbi.nlm.nih.gov/26104280/>

**Management and Referrals guideline** - *Top 20 Paediatric outpatient conditions*

<https://bwc.nhs.uk/download.cfm?doc=docm93jjm4n2598.pdf&ver=3660>

**Crash Call** - *drug dose calculator for emergencies* - *NWTS*

<https://www.nwts.nhs.uk/documentation/crashcall>

**NW Paediatric Allergy Immunology and Infection guideline** - *Antibiotic Guideline*

<https://www.networks.nhs.uk/nhs-networks/north-west-paediatric-allergy-immunology-infection/documents/antimicrobial-paediatric-guidelines-15-11-2018>

**The Greenbook** - *immunisation against infectious disease, from Public Health England*

<https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>

**The RCPCH guideline directory**

<https://www.rcpch.ac.uk/resources/clinical-guideline-directory>

**Toxbase** (*use your local trust login details, A+E usually have it if you don't*)

<https://www.toxbase.org/>

# Useful contact numbers

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**NWTS:** 08000 848382

**Cot bureau/neonatal transport team (connect NW):** 0300 330 9299 or via RMCH switchboard

**RMCH switchboard:** 0161 276 1234. Most specialities have registrar cover 8-4 Mon-Fri, contact the consultant if out of hours

**Alder Hey switchboard:** 0151 228 4811

**Liver team:** Via Leeds Teaching Hospitals switchboard 0113 2433144 (referrals via registrar during day or consultant if out of hours)

**Children's social care:**

**Bolton:** 01204 331500 (out of hours 01204 337777)

**Blackburn:** 01254 666400 (out of hours 01254 587547)

**Lancashire:** 0300 123 6720 (out of hours 0300 123 6722)

**Manchester:** 0161 234 5001

**Oldham:** 0161 770 7777 (out of hours 0161 770 6936)

**Salford:** 0161 603 4500 (out of hours 0161 794 8888)

**Stockport:** 0161 217 6028 (out of hours 0161 718 2118)

**Tameside:** 0161 342 4101 (out of hours 0161 342 2222)

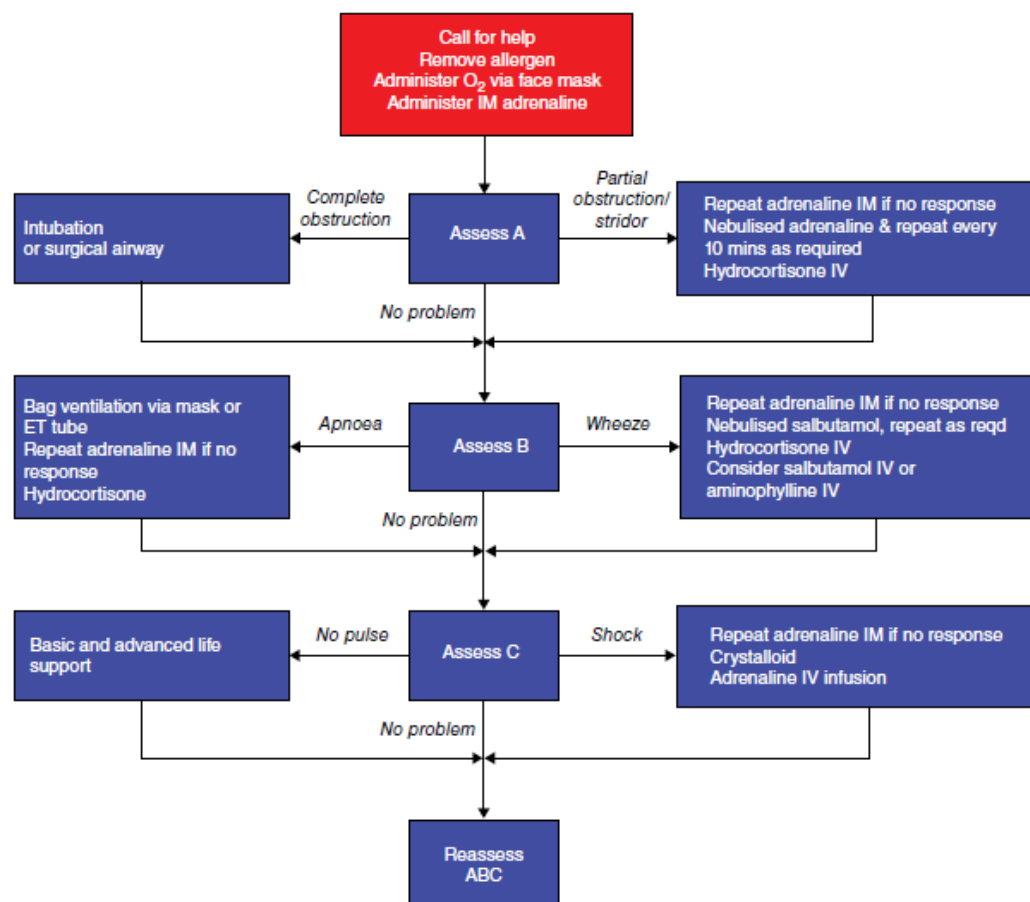
**Trafford:** 0161 912 5125 (out of hours 0161 912 2020)

**Wigan:** 01942 828300



# Clinical Emergencies

## ANAPHYLAXIS



Drugs in anaphylaxis	Dosage by age			
	Less than 6 months	6 months to 6 years	6–12 years	More than 12 years
Adrenaline IM – pre-hospital practitioners	150 micrograms (0.15 ml of 1:1000)		300 micrograms (0.3 ml of 1:1000)	500 micrograms (0.5 ml of 1:1000)
Adrenaline IM – in-hospital practitioners	10 micrograms/kg 0.1 ml/kg of 1:10 000 (infants and young children) OR 0.01 ml/kg of 1:1000 (older children) <sup>1</sup>			
Adrenaline IV	Titrate 1 microgram/kg*			
Crystalloid	20 ml/kg			
Hydrocortisone (IM or slow IV)	25 mg	50 mg	100 mg	200 mg

\*1 microgram/kg given over 1 minute (range 30 seconds to 10 minutes), e.g. according to local protocol, one of these adrenaline doses can be diluted in saline to a volume of 10 ml, giving a solution of 1 mcg/kg/ml.

<sup>1</sup>The strength of IM adrenaline is not intended to be prescriptive, 1:1000 or 1:10 000 could be used depending on what is practicable. The problem with sticking solely to 1:1000 is that when used in infants and small children, you are then drawing up very small volumes.

Figure 6.1 Emergency treatment of anaphylaxis. [ET, endotracheal]

# Clinical Emergencies

## APLS

NWTS “crash call” drug dose calculator for emergencies:  
<https://www.nwts.nhs.uk/documentation/crashcall>

WETFLAG (from wetflag.com)

FORMULA	RESULT
<b>Weight</b> (Kg) ages 1-10 only	$(\text{Age} + 4) \times 2$
<b>Energy</b> (J)	$4 \text{ J} \times \text{Weight}$
<b>Tube</b> (cm)	Internal Diameter = $\text{Age} / 4 + 4$  Length (oral) = $\text{Age} / 2 + 12$  Length (nasal) = $\text{Age} / 2 + 15$
<b>Fluids</b> (ml)	Medical = $20\text{ml} \times \text{Weight}$
<b>Lorazepam</b> (mg)	$0.1\text{mg} \times \text{Weight}$ (max 4mg)
<b>Adrenaline</b> (ml)	$0.1\text{ml} \times \text{Weight}$ of 1:10,000 Adrenaline
<b>Glucose</b> (ml)	$2\text{ml} \times \text{Weight}$ of 10% Dextrose

Check all doses against most recent guidelines

# Clinical Emergencies

## ASTHMA

Check all doses against most recent guidelines

### Salbutamol nebs (BNFc):

<5y = 2.5mg

>5y = 5mg

**Inhalers with spacer are at least as effective as nebs in patients not requiring oxygen**

### Ipratropium nebs (BNFc):

- **1 month–11 years:** 250 micrograms every 20–30 minutes for the first 2 hours, then 250 micrograms every 4–6 hours as required.
- **12–17 years:** 500 micrograms every 4–6 hours as required.

### Prednisolone (BNFc):

- **Up to 11y:** 1-2mg/kg up to 40mg for 3 days
- **>11y:** 40-50mg for 5 days

### IV magnesium sulphate (BNFc):

**Child 2-17 years:** 40mg/kg (max 2g) over 20 minutes

### IV salbutamol (APLS):

- **<2 years:** 5micrograms/kg over 10 mins
- **2 years and over:** 15micrograms/kg over 10mins (1.5mcg/kg/min)

Then IV infusion 1-2 micrograms/kg/min while monitoring ECG and serum potassium

### IV aminophylline (BNFC):

Severe acute asthma in patients not previously treated with theophylline

*By slow intravenous injection:*

- **For Child:** 5 mg/kg (max. per dose 500 mg), to be followed by intravenous infusion.

*By intravenous infusion*

- **For Child 1 month–11 years:** 1 mg/kg/hour, adjusted according to plasma-theophylline concentration.
- **For Child 12–17 years:** 500–700 micrograms/kg/hour, adjusted according to plasma-theophylline concentration.

# Clinical Emergencies

## CROUP

Check all doses against most recent guidelines

### Severe stridor (BNFc):

- Adrenaline nebs 400 micrograms/kg – 0.4ml/kg of 1:1000, max 5ml

### Dexamethasone (BNFc):

Severe croup (or mild croup that might cause complications)

### For Child

- Initially 150 micrograms/kg for 1 dose, to be given before transfer to hospital,
- then (by mouth or by intravenous injection) 150 micrograms/kg,
- then (by mouth or by intravenous injection) 150 micrograms/kg after 12 hours if required.

### Westley score (UpToDate, nb advises higher dex doses than BNFc):

#### Westley croup severity score

Clinical feature	Assigned score
Level of consciousness	Normal, including sleep = 0 Disoriented = 5
Cyanosis	None = 0 With agitation = 4 At rest = 5
Stridor	None = 0 With agitation = 1 At rest = 2
Air entry	Normal = 0 Decreased = 1 Markedly decreased = 2
Retractions	None = 0 Mild = 1 Moderate = 2 Severe = 3

Score	Severity	Description	Management
≤2	Mild	Occasional barking cough, no stridor at rest, mild or no retractions	Home treatment: Symptomatic care including antipyretics, mist, and oral fluids  Outpatient treatment: Single dose of oral dexamethasone* 0.15 to 0.6 mg/kg (maximum 16 mg) or oral prednisolone (1 mg/kg)
3 to 7	Moderate	Frequent barking cough, stridor at rest, and mild to moderate retractions, but no or little distress or agitation	Single dose of oral dexamethasone 0.6 mg/kg (maximum 16 mg)*  Nebulized epinephrine†  Hospitalization is generally not needed, but may be warranted for persistent or worsening symptoms after treatment with glucocorticoid and nebulized epinephrine
8 to 11	Severe	Frequent barking cough, stridor at rest, marked retractions, significant distress and agitation	Single dose of oral/IM/IV dexamethasone 0.6 mg/kg (maximum 16 mg)*  Repeated doses of nebulized epinephrine† may be needed  Inpatient admission is generally required unless marked improvement occurs after treatment with glucocorticoid and nebulized epinephrine
≥12	Impending respiratory failure	Depressed level of consciousness, stridor at rest, severe retractions, poor air entry, cyanosis or pallor	Single dose of IM/IV dexamethasone 0.6 mg/kg (maximum 16 mg)  Repeated doses of nebulized epinephrine† may be needed  Intensive care unit admission is generally required  Consultation with anesthesiologist or ENT surgeon may be warranted to arrange for intubation in a controlled setting

# Clinical Emergencies

## DKA

Check all doses against most recent guidelines

### Guideline

BSPED guidelines – paediatric diabetes guideline and care pathway (interim dka) <https://www.bsped.org.uk/clinical-resources/guidelines/>

Also has good guidelines for children with diabetes – sick day rules

### Definition

- pH <7.3 or HCO<sub>3</sub> <15

### AND

- Ketones >3
- Glucose >11 (although can be normal)

### Fluids

In shock?

- Yes = 20ml/kg NaCl bolus (doesn't count towards deficit)
- No = 10ml/kg NaCl over 60mins (counts towards deficit)

### Assess severity of DKA:

- **Mild:** pH 7.2-7.29/HCO<sub>3</sub> <15 = 5% dehydration
- **Moderate:** pH 7.1-7.19/HCO<sub>3</sub> <10 = 7% dehydration
- **Severe:** pH <7.1/HCO<sub>3</sub> <5 = 10% dehydration
- *Hourly rate = (Deficit – initial bolus) / 48hr + Maintenance per hour*
- *After bolus, add potassium to fluids. Check U+Es 4hrly*

### Insulin

- Start 1h after starting fluids
- 50 units actrapid in 50ml 0.9% NaCl
- Start 0.05 units/kg/h (0.1 if severe, adolescents likely to need this rate)
- When glucose <14 add 5% dextrose to fluids
- Only stop when ketones <1 and 1-2 hours after giving subcut insulin
- Don't reduce insulin rate until ketones <3. Can increase from 5 to 10% dextrose if necessary
- Can stop infusion 30mins after giving subcut insulin

Cerebral oedema - mannitol or hypertonic saline.

# Clinical Emergencies

## EMERGENCY DRUG DOSE CALCULATOR

<https://www.nwts.nhs.uk/documentation/crashcall>

## MENINGOCOCCAL DISEASE

See guidelines at <https://www.meningitis.org/healthcare-professionals/resources>

## METABOLIC DISEASE EMERGENCIES

BIMDG emergency guidelines: <https://www.bimdg.org.uk/site/guidelines.asp>

## NEONATAL RESUS

### AIRWAY

#### ETT sizes (NeoMate)

**23-26/40 (0.5-1Kg)** size 2.5 (5.5-6cm at lips)

**27-29/40 (1- 1.4Kg)** size 3 (6.5-7cm at lips)

**30-33/40 (1.4-2kg)** size 3 (7-8cm at lips)

**34-37/40 (2-3kg)** size 3.5 (8-8.5cm at lips)

**>38/40 (3Kg +)** size 3.5-4 (8.5-9cm at lips)

**CIRCULATION** - go for UVC in a neonatal emergency as it allows central administration of drugs. IO is also an option if access difficult but drug delivery to heart less effective

**UVC (NeoMate)** =  $1.5 \times \text{BW (kg)} + 5.5\text{cm}$

**UAC (NeoMate)** =  $3 \times \text{BW (kg)} + 9\text{cm}$

### UVCs in an emergency

Insert the catheter until blood can easily be aspirated i.e. in a large vessel. Secure with a piece of tape across the abdomen. When the baby has been stabilised, remove the catheter and replace it using sterile technique.

## DRUGS

**Neonatal resus drugs (from Royal Oldham protocol)**

### Adrenaline 1:10,000

- IV: 0.1 to 0.3ml/kg (10-30micrograms/kg)
- ET (if IV access not possible): 0.3 to 1ml/kg
- NLS suggests trying 10mcg/kg IV first. If no response, give bicarbonate then try a second, larger dose of adrenaline at 30mcg/kg.

### Sodium bicarbonate 4.2%

- 2-4ml/kg

### Dextrose 10%

- 2.5ml/kg

### Volume expander 0.9% saline

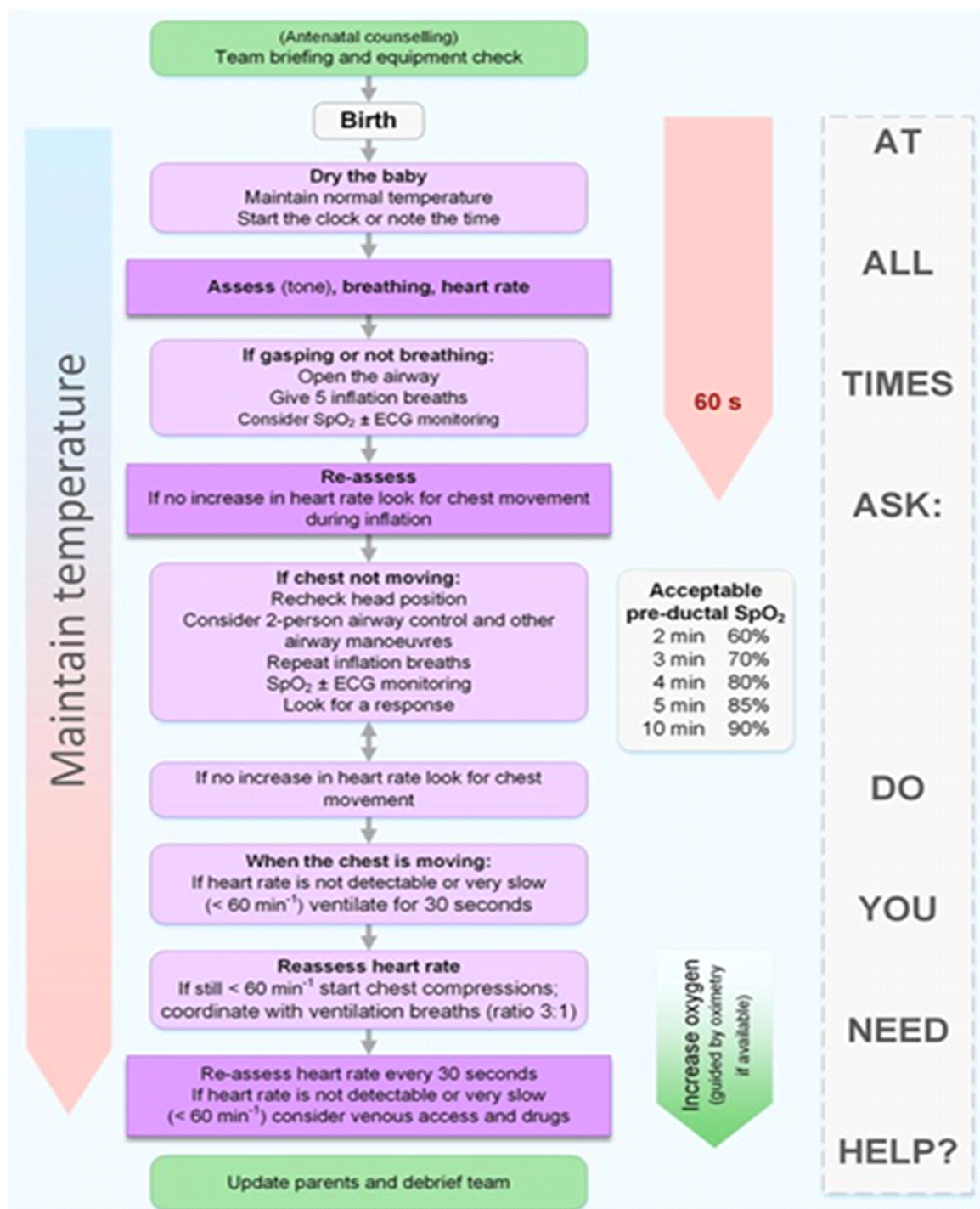
- 10ml/kg
- Consider blood if history of foetal blood loss

Check all doses against most recent guidelines



# Clinical Emergencies

## NEONATAL RESUS



# Clinical Emergencies

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## PIMS-TS

See RCPCH guidelines

<https://www.rcpch.ac.uk/resources/paediatric-multisystem-inflammatory-syndrome-temporally-associated-covid-19-pims-guidance>

## SAFEGUARDING

RCPCH – child protection companion handbook can be accessed via the child protection portal  
<https://childprotection.rcpch.ac.uk/>

## SEIZURES

APLS protocol: *(see flow chart)*

NWTS seizure guidelines: <https://www.nwts.nhs.uk/clinicalguidelines>

## SEPSIS

NWTS guidelines:

<https://www.nwts.nhs.uk/clinicalguidelines>

## STROKE

<https://www.rcpch.ac.uk/resources/stroke-childhood-clinical-guideline-diagnosis-management-rehabilitation>

Pathway: [https://www.rcpch.ac.uk/sites/default/files/2018-04/2017\\_stroke\\_in\\_childhood\\_-\\_pathway\\_poster.pdf](https://www.rcpch.ac.uk/sites/default/files/2018-04/2017_stroke_in_childhood_-_pathway_poster.pdf)

## VENTILATION (NEONATAL)

Good summary of neonatal ventilation modes, how to act on gas results.

<http://www.walesneonatalnetwork.wales.nhs.uk/sitesplus/documents/1034/Ventilation%20Guideline.pdf>



# Clinical Emergencies

## SEIZURES

