# ACEM Fellowship Written\_Resuscitation/Anaesthetics

## Feb 19 2019\_Rebecca Day

**Hot Topics in The Tropics**

RSI

LMA

High flow

CICO and Surgical Airways

Protective (ARDS) vs Obstructive Ventilation Strategies

Non Invasive Ventilation ? high flow

Cardiac Arrest

Special situations – trauma/preg/paed/hypothermia

Central Lines

Inotropes

Age Specific Differences

Local Anaesthetic Blocks

Procedural Sedation

**Q1 (20 marks)**

**A 40kg 13 years old female presents in extremis with severe asthma. She has been treated with ventolin, atrovent, hydrocortisone, MgSo4 and IM adrenaline 500mcg SC. She has had several ICU admissions previously and has been ventilated twice. She requires urgent intubation in ED**

**Sats 78% on 8L O2 driven nebuliser**

**RR 50 shallow**

**P 40**

**Temp 36.7**

**BP 70/50**

**GCS 8**

**a. In the table below, list 4 potential peri-intubation complications that you may encounter in this patient and 2 measures you will take to minimise the likelihood or effect of each (12 marks)**

|  |  |  |
| --- | --- | --- |
| Complication | Measure 1 | Measure 2 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**After the patient is intubated and commenced on SIMV-PS ventilation on an oxylog ventilator, the nurse asks you what ventilator settings you would like**

**b. List four (4) ventilator settings you will utilise for the first few mins post intubation before reassessing (4 marks)**

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**Shortly after you commence ventilation the nurse tells you that the systolic BP is 60**

**c. List 4 potential reasons for this (4 marks)**

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**Q2 (marks)**

**A 10 month old child who weighs 9kg presents with breathing difficulties and fever, the presentation is entirely consistent with bronchiolitis. They were commenced on 4L simple nasal prong oxygen for increased work of breathing and saturations on air of 88%. They are grunting and have unable to feed properly for 2 days due to incresased work of breathing**

**RR 70**

**P 170**

**Temp 37.8**

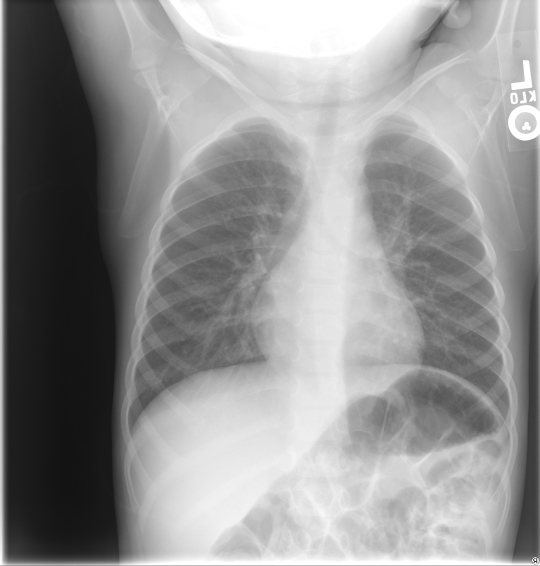
**BP 80/50**

**Sats 89%**

**a. List the two (2) next appropriate therapies that you will commence now in this child with brief details of each (4 marks)**

|  |  |
| --- | --- |
| **Therapy** | **Details** |
|  |  |
|  |  |

**A CXR has been performed by the GP in the pre-hospital phase.**



**b. List 1 abnormal features on this XRay (1 marks)**

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**The emergency buzzer is pressed in the resus room. The child is having a tonic clonic seizure in the context of a fever of 38.9C**

**c. List the 3 initial actions or instructions you will perform when entering the resus room (3 marks)**

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**The parents ask what they should do if a seizure ever occurs at home.**

**d. List four (4) instructions or pieces of information you normally give to the parents about febrile seizures, assuming they will not be provided with benzodiazepine for home administration (3 marks)**

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**Q3 (14 marks**)

**You are called in from home to assist the sole overnight junior registrar with a difficult intubation in a rural centre. A 34 year old man has been hit in the face and chest with a baseball bat and requires emergent intubation. There are no additional airway trained doctors to assist you and the retrieval service are 90 minutes away**

**GCS 3**

**BP 100/60**

**P 110**

**Sats 90% RA**

**RR 13**

**T 37.2**

**a. In the table below list your stepwise intubation plan for this patient assuming failure at each attempt due to inadequate laryngeal view, and slowly deteriorating saturations despite bag valve mask ventilation. Provide brief details of each stage (8 marks)**

|  |  |
| --- | --- |
| **Attempt 1** |  |
| **Attempt 2** |  |
| **Attempt 3** |  |
| **Attempt 4** |  |

**The patient is safely intubated. The retrieval service are 30 mins away. There is no CT scanner in your centre. The patient becomes bradycardic and hypertensive.**

**b. List the two (2) most important immediate management steps (2 marks)**

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**c. List four (4) other neuroprotective measures you will undertake (4 marks)**

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**Q4 (12 marks)**

**A pregnant female has been involved in a single car accident. Her car was seen to lose control on a bend and hit a tree at an approximate speed of 60kmhr. She has obvious head and chest injuries.**

**P 130**

**BP 60/40**

**Sats 90% 6L Hudson**

**RR 34**

**GCS 6**

**Temp 36.7**

**a. List four (6) important considerations when assessing and managing this pregnant female vs a similar but non-pregnant female (6 marks)**

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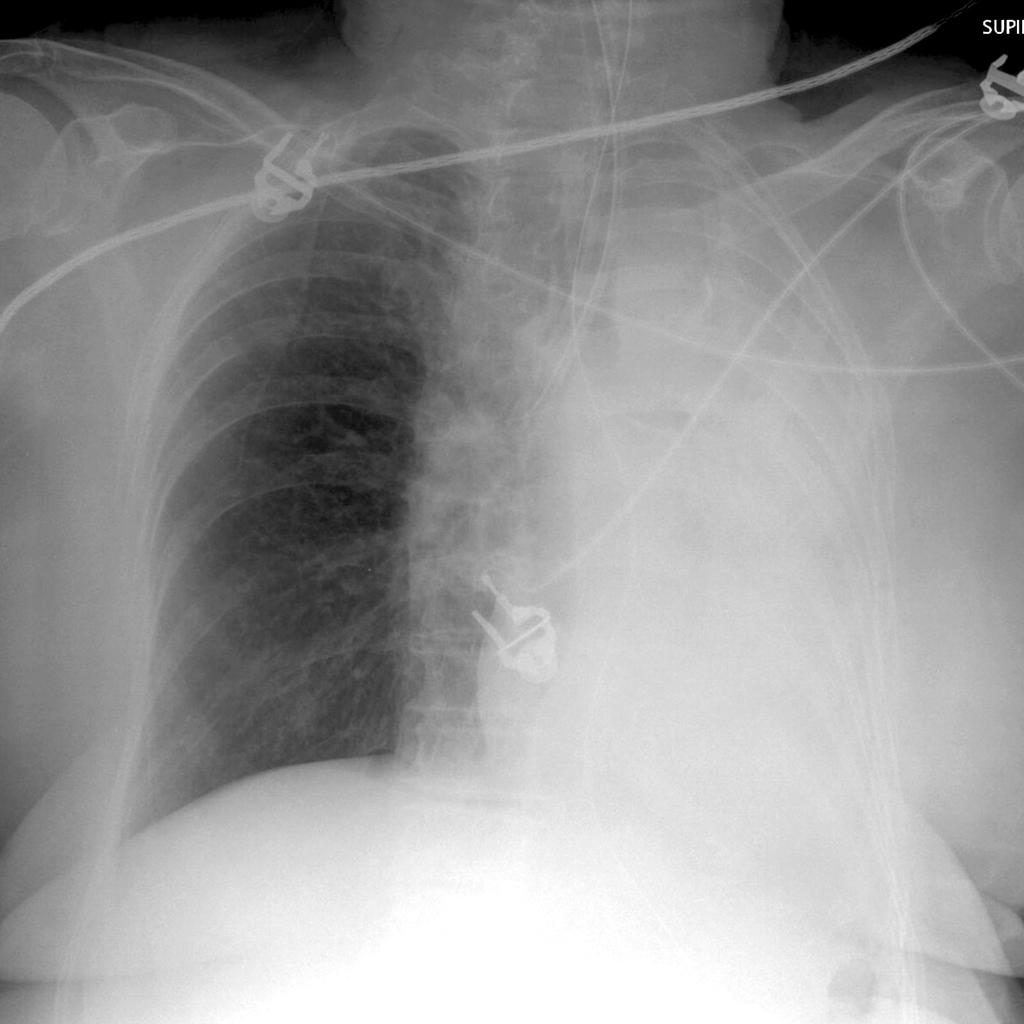
**The patient has a trauma series of X-Rays and subsequently suffers a cardiac arrest 5 minutes after arrival. She has already been intubated by the ED registrar.**

**b. List the three (3) immediate interventions or treatments you plan to administer (3 marks)**

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**The patients chest X Ray is shown**



**c. List three (3) abnormal features on this CXR (3 marks)**

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**Q5 (10 marks)**

**A 69 years old male has been found unconscious outside of a pub at 4am. He was last seen heavily intoxicated leaving the pub at 11pm. There are no signs of external trauma**

**P 40 (atrial fibrillation on monitor)**

**BP 60/40**

**Sats 97% on 15L NRB**

**RR 8**

**T 26C (Rectal)**

**GCS 6**

**VBG (uncorrected values for temperature)**

**pH 7.1**

**pCO2 69**

**HCO3 15**

**Gluc 2.3**

**Lact 4.5**

**Na 145**

**K 5.1**

**Cr 230**

**a. In the table below list four (4) immediate management priorities in this patient with brief details of each (8 marks)**

|  |  |
| --- | --- |
| Management Priority | Details |
|  |  |
|  |  |
|  |  |
|  |  |

**The patient has a VF arrest during the first 5 minutes in ED**

**b. List 2 modifications you will make to the standard ALS algorithm in this patient (2 marks)**

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**Q6 (21 marks)**

**A 4 year old boy is brought to your Emergency Department having sustained a 4 cm full thickness eyebrow laceration following a fall at a playground.**

**You plan to suture the wound under procedural sedation using ketamine. You have introduced yourself to the mother and examined the child.**

**a. List four (4) contraindications to ketamine use in this setting? (4 Marks)**

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**b. List 6 essential pieces of information (other than contraindications) that you will cover with the parent during consent for this procedure (6 marks)**

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**c. Complete the following table regarding ketamine usage in paediatric procedural sedation by route of delivery (8 Marks)**

|  |  |  |
| --- | --- | --- |
|  | **Intra-muscular (i.m)** | **Intra-venous (i.v)** |
| **Initial dose** |  |  |
| **Top-up dose** |  |  |
| **Advantage** |  |  |
| **Disadvantage** |  |  |

**The child suffers laryngospasm at the commencement of the procedure, which is immediately ceased.**

**d. List the 3 stepwise actions you will take to address this complication (3 marks)**

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**Q7 (12 marks)**

**You are called in overnight by a junior registrar to help with the management of a 39 year old man with cellulitis. He presented 2 hrs ago with swollen, painful legs and a fever. He has been unwell for 3 days. He has a history of type 1 diabetes and harmful alcohol use. No history of trauma or burns. A clinical photo is shown**

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**P 130**

**BP Initially 100/60, now 70/40**

**RR 32**

**Temp 39.4**

**Sats 99% RA**

**GCS 13**

**Urine dip positive for red cells only**

**pH 7.12**

**pCO2 45**

**HCO3 12**

**Lact 5.6**

**K 6.7**

**BSL 39**

**WCC 21**

**Hb 89**

**Creat 540**

**He has received 4L of NaCl 0.9% in the last 2 hrs and a single dose of IV flucloxacillan 1g**

**3 sets blood cultures and wound swabs sent**

**a. In the table below list your six (6) immediate priorities with brief details of each (12 marks)**

|  |  |
| --- | --- |
| **Priority** | **Details** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Q8 (11 marks)**

**A 67 years old female has a colles fracture that requires reduction on ED for neurovascular compromise. The registrar has taken the patient to the resus room to perform a Biers Block.**

**You are called 5 mins into the procedure to assist as there has been a clinical error that led to inappropriately early cuff deflation at 4mins post 0.5% prilocaine injection of 0.5ml/kg**

**The patient became rapidly confused and is now hypotensive**

**P 120**

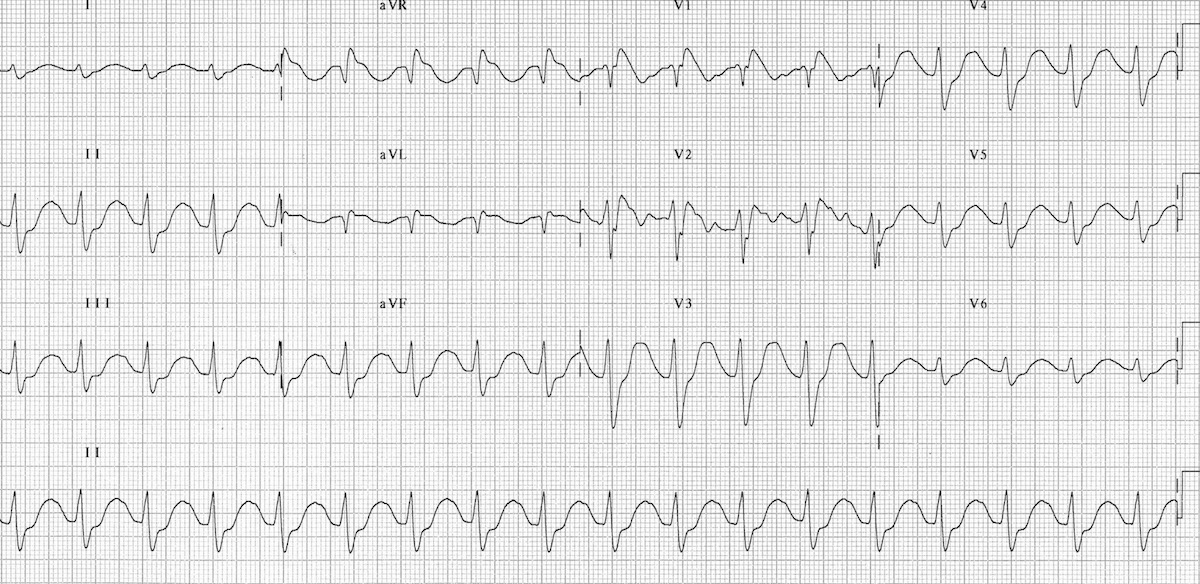
**BP 60/40**

**Sats 89% RA**

**RR 26**

**Temp 37.0**

**Her ECG is shown**



**a. List four (4) abnormal features in this ECG (4 marks)**

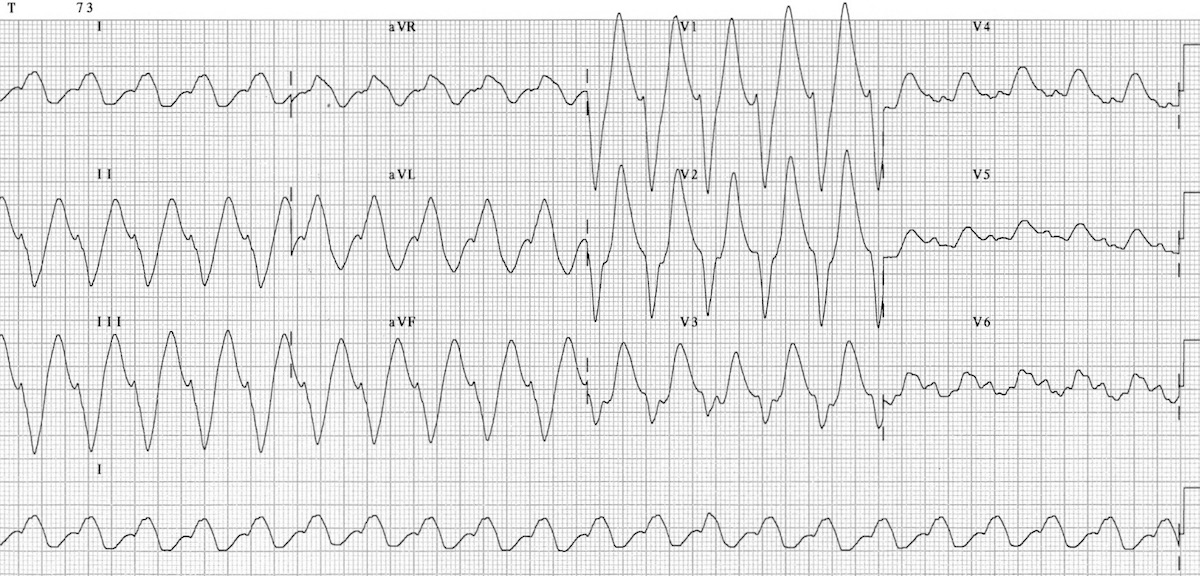
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**A second ECG 2 minutes later is also shown**



**b. List the 5 steps you will take in managing this patient assuming no clinical improvement at each stage (5 marks)**

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**c. List the further complication of local anaesthetic toxicity that you predict may occur in this patient and the medication you will prepare for that eventuality (2 marks)**

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**Q9 (14 marks)**

It is 2 am and you are on call for a rural emergency department. You are the only available doctor with advanced airway skills.

You have been called in from home to assist the junior registrar with a 1 years old boy who presented with stridor and acute respiratory distress 1 hour ago. The registrar has already treated for presumed croup with 3 rounds of adrenaline nebulisers, and dexamethasone 0.3mk/kg. There are 2 patent IV access. The child is deteriorating, has rest stridor and appears exhausted. There is no option for immediate transfer to theatres or elsewhere. The paediatric retrieval service will arrive in 1 hour.

Weight 15kg

P 150

Sats 86% on 10L O2 driven nebuliser

RR 60

BP 80/40

Temp 38.2

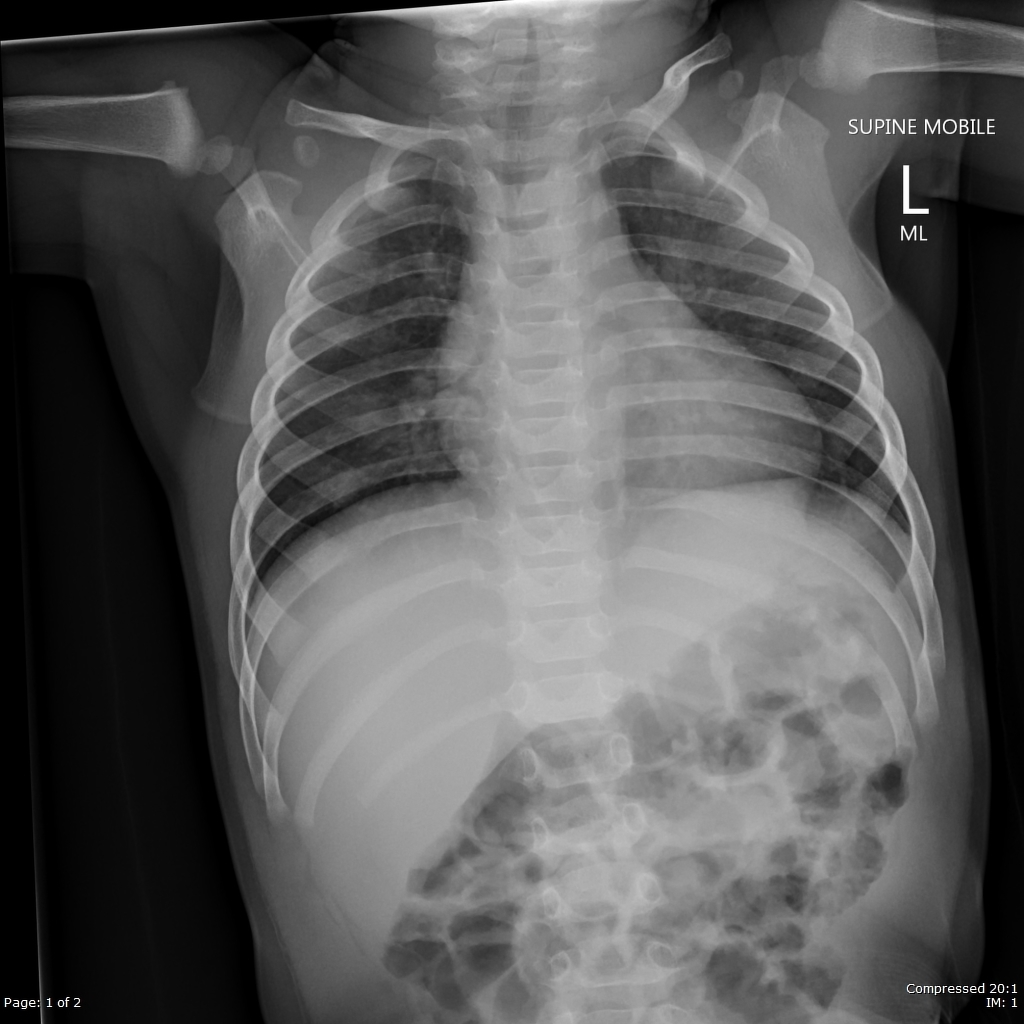
pH 7.02

pCO2 60

pO2 21

HCO3 14

Lact 3.2



**a. State the most relevant finding on the CXR (1 Mark)**

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**b. List three (3) potential complications during this intubation, and two (2) pre-emptive actions you will take to address each potential complication. (9 Marks)**

|  |  |  |
| --- | --- | --- |
| Complication | Action 1 | Action 2 |
|  |  |  |
|  |  |  |
|  |  |  |

**After your 3 best attempts at oral endotracheal intubation you are unable to secure the airway. The child has saturations of 79% that are not responding to BVM ventilation. There is no fibre optic scope in your rural ED.**

**c. List the 4 most important steps, with brief details of each, in your Failed Intubation Plan (4 Marks)**

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