



Toxicology SAQs

Emergency Medicine Fellowship Program

How to use this book:

1) Complete SAQs

- < 3 months until exam: Exam conditions – focus on clear answers ‘to time’
- 3-6 months until exam: Transition towards exam conditions
- > 6 months until exam: Open book is ok, ‘focus on good answers and developing knowledge acquisition

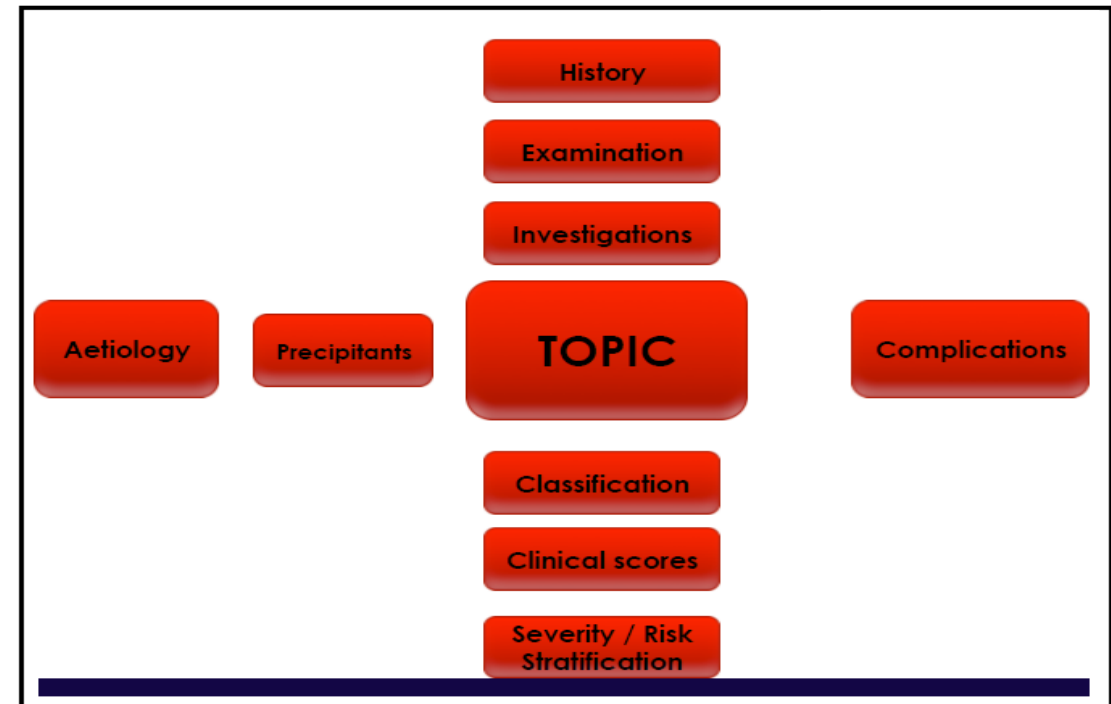
2) Read and study around SAQ

- Use each SAQ as motivation to study around the individual topic
- Think about the different ways the topic could come up in the SAQ exam (use the topic structure provided by APEM course)

3) Write SAQs to further develop this program

- Review syllabus of medical expertise
- Create SAQs relating to topics not covered in this book, please format to be in exam-format, include answers
- This will help further develop this program as well as help you think like an examiner
- Return to ben.shepherd86@gmail.com

ALL THE BEST!



7. TOXICOLOGY

7.1 General principles

- a) Prehospital care M H
 - b) Epidemiology and prevention of poisoning T H
 - c) Management issues
 - i) Emesis M Ex
 - ii) Gastric lavage M Ex
 - iii) Activated charcoal M Ex
 - iv) Cathartics M Ex
 - v) Whole bowel irrigation M Ex
 - d) Poison centres M/S G
- Demonstrate knowledge of the role of poison centres in the management and prevention of poisoning M/S G
- e) Risk assessment/prediction of toxicity DIS H
 - f) Toxidromes E Ex

7.2 Analytical toxicology

- a) Principles I H
- b) Drug testing and screening I H

7.3 Chemical dependency and substance abuse

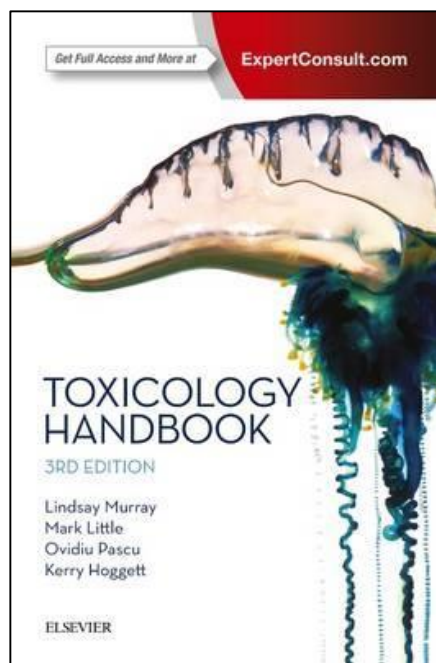
- a) Drug abuse T G
- b) Drug dependence DIS G
- c) Drug withdrawal DIS H
- d) Tolerance T G

7.4 Antidotes

- a) Anticholinergics D H
- b) Chelation agents D G
- c) Benzodiazepine antagonists D H
- d) Calcium D H
- e) Cyanide treatment D H
- f) Desferrioxamine D H
- g) Fuller's earth D H
- h) Glucagon D H
- i) Methylene blue D H
- j) Opioid antagonists D Ex
- k) Physostigmine D H
- l) Pyridoxine D G
- m) Oximes D H
- n) Protamine D H
- o) Vitamin K D Ex
- p) Folinic acid D H
- q) Oxygen – normobaric D Ex
- r) Oxygen – hyperbaric D H
- s) N-acetylcysteine D EX
- t) Digibind D EX

7.5 Anti-inflammatory agents and analgesic poisoning

- a) Paracetamol D Ex
- b) NSAIDs D H
- c) Salicylates D H
- d) Gout drugs D H
- e) Opioids D Ex



7.6 Antimicrobial poisoning

- a) Antibiotics D G
- b) Antifungal D G
- c) Antiparasitic D G
- d) Antiseptics D H
- e) Antiviral D G
- f) Anti-tuberculous D H

7.7 Autonomic agent poisoning

- a) Anticholinergics D Ex
- b) Antihistamines D H
- c) Serotonergic drugs D H
- d) Cholinergics D H
- e) Ergot alkaloids D G
- f) Methylxanthines D H
- g) Sympathomimetics D Ex

7.8 CNS drugs and muscle relaxant poisoning

- a) Alcohols D Ex
- b) Anticonvulsants D Ex
- c) GHB and related compounds D H
- d) Anti-Parkinsonian drugs D G
- e) Psychiatric drugs D H
 - i) Antipsychotic agents D H
 - ii) Antidepressants D H
 - iii) Lithium D Ex
- f) Hallucinogens D H
- g) Sedatives, hypnotics, anxiolytics D H
- h) Smooth muscle relaxants D G

7.9 Cardiovascular

- a) Antiarrhythmics D H
- b) Anticoagulants D Ex
- c) Anti-hypertensives D H

7.10 Environmental toxicology

- a) Plant ingestions D H

7.11 GI agents

- a) Antacids D G
- b) Antidiarrhoeals D G
- c) Laxatives D G

7.12 Industrial toxicology

- a) Metals
 - i) Arsenic D G
 - ii) Lead D G
 - iii) Mercury D G
 - iv) Metal fumes D G
 - v) Other D G
- b) Toxic gases
 - i) CO D H
 - ii) Chlorine D H
 - iii) CO₂ D G

- iv) Cyanide D H
 - v) Hydrogen sulphide D H
 - vi) Hydrocarbons D H
 - vii) Phosgene D G
- c) Hydrogen fluoride/hydrofluoric acid D H
 - d) Nitrites D G

7.13 Pesticides, herbicides and rodenticide poisoning

- a) Organophosphates D H
- b) Carbamates D H
- c) Glyphosate D H
- d) Paraquat D H
- e) Naphthalene/camphor D H
- f) Strychnine D H
- g) Phosphine D G
- h) Super warfarins D H

7.14 Pharmacology principles

- a) Techniques for drug removal M H
 - b) Drug delivery vehicles/diluents D G
 - c) Drug interactions D H
 - d) Adverse drug reactions D H
 - e) Pharmacokinetics D H
- Demonstrate knowledge of pharmacokinetic principles, including drug absorption, distribution, metabolism and clearance

7.15 Vitamins, minerals, bone and endocrine agents

- a) Hypoglycaemic agents D H
- b) Electrolytes and minerals D H
- c) Iron D H
- d) Steroids D G
- e) Thyroid drugs D G
- f) Vitamins D G
- g) Hormones D G

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

DIS - Diseases/Injuries/Symptoms	D - Pharmacological & toxicological agents	Ex - Expert
E - Physical Examination	P - Procedures	H - High
I - Investigations	Eq - Equipment	G - General
M - Medical Interventions	T - Theories	
	S - Systems	
	NCI - Non-clinical/clinical interface	

COLUMN "LP" – LEVELS OF PRACTICE

An 84 year-old female attended your ED after allegedly taking 38 tablets of Paracetamol 16 hours ago (total 16 grams). Observations are stable and her GCS is 15.

1. What is the pathophysiology of paracetamol toxicity (1 mark)

2. List investigations you would perform and why (2 marks)

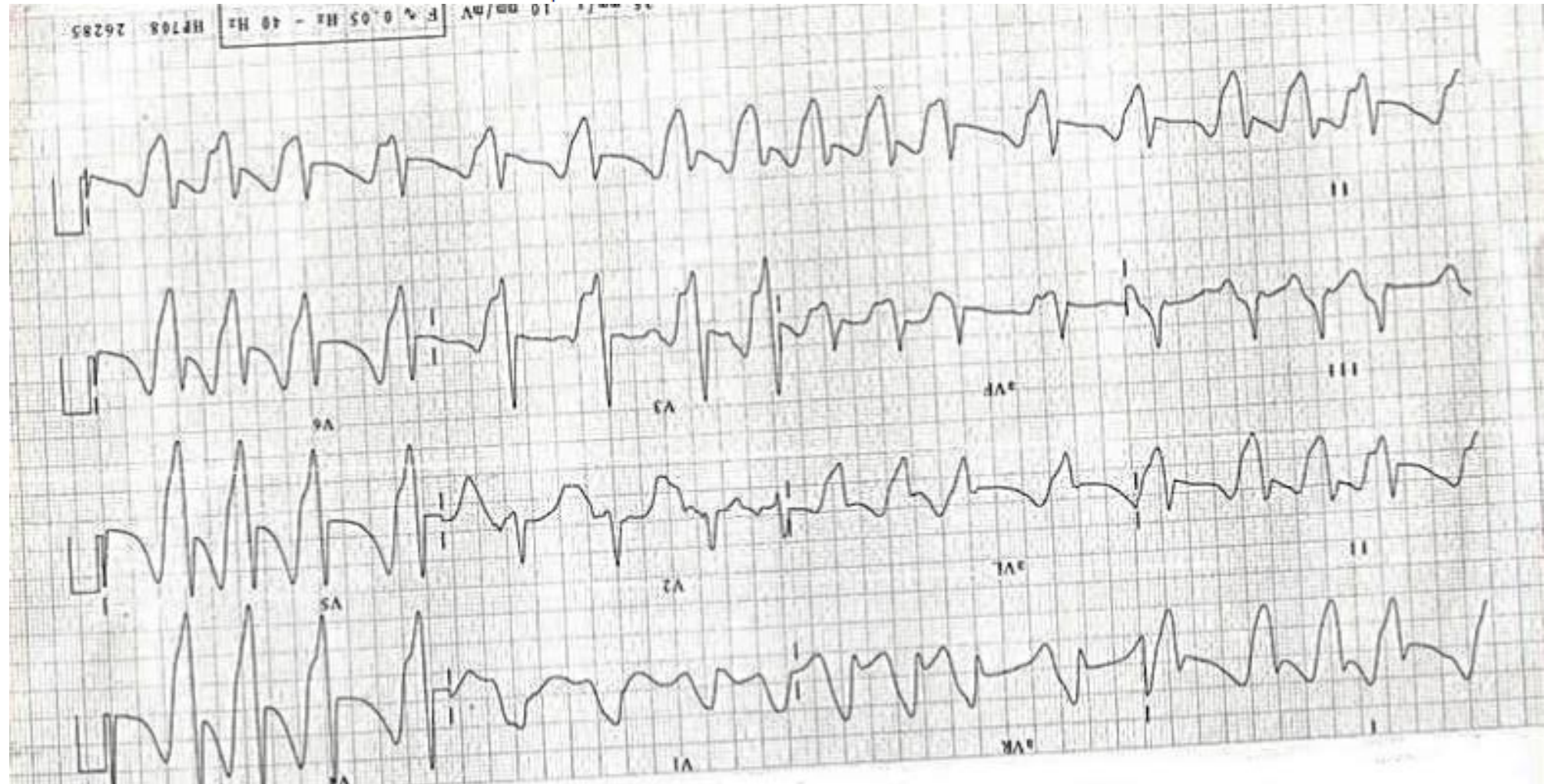
3. State 3 elements required to demonstrate competence (3 marks)

4. She refuses treatment and wants to discharge herself. Upon assessment, you find that she lacks capacity. List your important actions (5 marks)

A 35 year old woman is brought to the emergency department by ambulance having apparently taken an overdose 4 hours ago. She is triaged to the resuscitation room.

Her relevant vital signs are:

GCS	7	E1, V2, M4
BP	80/40	mmHg
RR	7	/min
Temperature	36.1	°C



i. List four (4) abnormal ECG findings.

1. _____

2. _____

3. _____

4. _____

____ / 4

ii. List three (3) drug classes that can cause these ECG changes with one (1) example of each.

	Drug classes	Example
1		
2		
3		

____ / 6

iii. In the event of cardiac arrest, list two (2) modifications to your standard resuscitation, with one (1) rationale for each modification.

	Modification	Rationale
1		
2		

A 14 year old male presents after ingesting "GHB" (gamma-hydroxybutyrate) one hour earlier. There are no co-ingestants. A venous blood gas shows normal acid-base status and electrolytes.

1. List four (4) important complications of a GHB overdose.

2. List four (4) indications for intubation of this patient.

3. Ten hours later the patient is GCS 14 (E4, V4, M6) and states he wants to leave. He moves towards the emergency department exit. List three (3) interventions in sequence to manage this scenario.

A 16 year old boy presents to the emergency department with confusion, agitation and blurred vision. His mother suspects that he has taken an overdose of promethazine.

i. What is the likely diagnosis?

ii. List four (4) other precipitants of this syndrome.

1

2

3

4

iii. List three (3) other clinical signs you would assess for.

1

2

3

Shortly after arrival he becomes more restless and agitated. He appears to be hallucinating and is trying to climb out of bed.

iv. Outline four (4) key treatment steps including two (2) medication options with doses for sedation.

1

2

3

4

A 2 year old is brought to your emergency department after a witnessed ingestion of two of his grandmother's slow release verapamil tablets 2 hours ago. He is alert with a HR of 110/min and appears well perfused.

i. What is your risk assessment of this ingestion? Justify this assessment. (4 marks)

Risk Assessment (2 marks)	Justification (2 marks)

ii. What is the role of decontamination for this ingestions? (2 marks)

iii. What is the role of enhanced elimination for this ingestion? (2 marks)

2 hours after arrival the child deteriorates. His observations are as follows:

GCS	13	(E3, V5, M5)
HR	60	/min
BP	60/40	mmHg

iv. List four (4) key steps in your supportive care or specific treatment. Provide detail for each step. (8 marks)

	Supportive care / specific treatment (4 marks)	Detail (4 marks)
1		
2		
3		
4		

v. State your disposition and provide justification for your decision. (3 marks)

- vi. List four (4) other medications, with specific examples of potential toxic effects, that could result in severe morbidity or death in a toddler following ingestion of only 1-3 tablets (or a mouthful). (8 marks)

	Medication (4 marks)	Potential toxic effect (4 marks)
1		
2		
3		
4		

For an asymptomatic child with a witnessed ingestion of an unknown medication:

- vii. List three (3) key investigations. (3 marks)

1 _____

2 _____

3 _____

For an asymptomatic child with a witnessed ingestion of an unknown medication:

- viii. State and provide justification for your disposition (3 marks)

A 5 year old presents after eating some mushrooms that were growing naturally on the side of the road. His mother brought in the specimen shown in PROPS booklet ; page 4.

1. List four (4) historical or examination findings that assist in differentiating non toxic from toxic mushroom ingestion. (4 marks)

- 1. _____
- 2. _____
- 3. _____
- 4. _____



2. List three (3) investigations that you perform with justification. (3 marks)

- 1. _____
- 2. _____
- 3. _____

3. You are concerned about potential toxic ingestion. How long would you keep the child for monitoring? (1 mark)

4. List the three (3) stages of amatoxin poisoning? (3 marks)

- 1. _____
- 2. _____
- 3. _____

5. List four (4) treatments that may be effective in severe amatoxin poisoning. (4 marks)

- 1. _____
- 2. _____
- 3. _____
- 4. _____

A grandmother brings a 4-year old female to the Emergency Department, 1 hour after she was witnessed to have taken 3 tablets of 240 mg extended-release Diltiazem tablets. The patient's heart rate is 40, her BP is 60/40 and she is responding to pain only.

- i) Other than cardiovascular and central nervous system effects, list one other expected toxic effects of this ingestion. (2 marks)

Physiological system	Toxic effect

- ii) State two (2) methods of decontamination that may be indicated in this case. List one (1) indication for the use of each method in this case.(4 marks)

Method	Indication
1	
2	

- iii) State five (5) key steps in the management of this patient over the first 1 hour in the emergency department. Provide one (1) point of detail for each step (10 marks)

	Treatment	Detail
1		
2		
3		
4		
5		

A 26 year old male presented to your emergency department complaining of right upper quadrant pain and vomiting. He has recently been suffering with a sore throat and coryzal symptoms and admits to taking regular paracetamol tablets in addition to frequently taking a paracetamol cold and flu drink preparation for the past four days.

a) List three (3) risk factors for hepatic injury from supra-therapeutic paracetamol ingestion (3 marks)

1. _____

2. _____

3. _____

b) What is the paracetamol dose that may be associated with hepatic injury in the following situations? (3 marks)

	Paracetamol dose associated with hepatic injury
Adult with risk factors	
Adult with no risk factors and supra-therapeutic ingestion over < 24 hour period	
Adult with no risk factors and supra-therapeutic ingestion over > 24 hours	

c) He is judged to be at risk and requires biochemical risk assessment.State one (1) relevant test results that require either no treatment or further treatment (2 marks)

No treatment required	
N-acetylcysteine required	

d) He is assessed to require an N-acetylcysteine infusion. List five (5) important pieces of information that you would tell patient regarding the N-acetylcysteine infusion and ongoing management of his supra-therapeutic ingestion. (5 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

e) List two (2) measures that could be undertaken in an emergency department to educate patients regarding paracetamol (2 marks)

1. _____

2. _____

It is Friday 1600 hrs and You are the consultant in charge of emergency department in a tertiary hospital. You have been notified that a truck carrying Chlorine Gas has rolled over in one of the busiest motorways close to your hospital. Initial ambulance communication suggests that at least Thirty (30) bystanders, including 4 children may be affected.

a) State (2) specific preparations that you would you make for this particular exposure (2 Marks)

1. _____

2. _____

b) List Seven (7) steps in preparing your department (7 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

c) List four (4) signs or symptoms of chlorine exposure that you would look for. (4 marks)

1. _____

2. _____

3. _____

4. _____

You have been asked to review the current guidelines for Disaster management in your department,

d) State three (3) important steps for this review process (3 marks)

1. _____

2. _____

3. _____

A 46 year old woman weighing 50kg presents to the emergency department 4 hours after ingesting 100 aspirin 300mg tablets. She has a past history of alcohol abuse and had been drinking heavily prior to ingesting the aspirin tablets. She is complaining of tinnitus but has no other symptoms at present.

On arrival her vital signs are:

HR	125	beats/min
RR	22	/min
BP	130/70	mmHg
O ₂ Saturation	95	% on room air
Temperature	37	°C

- i. List five (5) factors on history that form part of a toxicological risk assessment and give the specific examples in this patient's presentation.

	Risk	Example in this patient
1		
2		
3		
4		
5		

- ii. Using your risk assessment and the vital signs outline three (3) conclusions about this presentation.

1. _____
2. _____
3. _____

- iii. List two (2) factors that affect your management of this patient's airway and breathing. Provide your action to address each factor based on this patient's presentation.

	Factor	Action to address
1		
2		

- iv. List five (5) options for decontamination and/or enhanced elimination you could use in the management of this patient. Complete the table and provide a rationale for each option.

	Options for decontamination and/or enhanced elimination	Rationale
1		
2		
3		
4		
5		

A 40 yr old female is brought to your Emergency Department following a 2.5g propranolol overdose taken 3 hours ago.

Vital signs:

Pulse 45

Temp 36.8 °C

BP 82/45

GCS 13 (E=3, V=4, M=6)

RR 16

BSL 6.7 mmol/L

a. Outline a step-wise approach to the patient's hypotension? (4 Marks)

b. Clinical toxicology have been consulted and advised commence HDI therapy.

How is HDI administered ? (4 Marks)

c. What are the potential complications associated with HDI therapy ? (2 Marks)

A 25 yr old male is brought to your Emergency Department following an overdose of Dothiepin.

His vital signs are:

BP	95/62	Temp	37.5 °C
Sats	95% on 15 Lmin ⁻¹	GCS	7 (E=2 M=4 V=1)
BSL	6.8		

His ECG is on the following page.

a. What is the dose related risk assessment for this poisoning ? (4 Marks)

b. List 4 ECG abnormalities shown on his ECG ? (4 Marks)

1. _____

2. _____

3. _____

4. _____

c. Which two ECG features are predictive of which two clinical features of this overdose ? (2 Marks)

1. ECG Feature	Clinical feature
_____	_____
2. ECG Feature	Clinical feature
_____	_____



A 48 yr old male is brought to your Emergency Department following an intentional overdose. The ambulance crew report he has ingested 15 diltiazem 180mg XR tablets 2 hours ago.

His vital signs are:

HR 72 bpm
BP 138/67
RR 18

Sats 99% RA
Temp 36.7 °C
BSL 6.4

a. List 4 factors associated with significant toxicity following calcium channel blocker poisoning? (2 Marks)

1. _____

2. _____

3. _____

4. _____

b. List clinical features associated with significant calcium channel blocker toxicity (3 Marks)

c. Several hours later the patient becomes agitated and hypotensive, BP 87/40. Outline a step-wise approach to the patient's hypotension (5 Marks)

A 36 yr old female presents your Emergency Department. She has a history of self-harm. She states she ingested a 1kg box of rat poison pellets 14 hours ago. Her vital signs are within normal limits.

a. What toxic agents are contained in rat poison pellets ? (1 Mark)

b. List 4 clinical features that may manifest in the setting of toxicity ? (2 Marks)

1.

2.

3.

4.

c. What investigations are required in this patient ? (4 Marks)

d. What is the preferred antidote in the presence of toxicity and what are the challenges faced in treating patients who manifest toxicity ? (3 Marks)

A 5 year old has fed her 2 year old sister an unknown quantity of 100% eucalyptus oil 30 minutes ago.

One of the ED senior nurses mentions that she thinks this is the third paediatric eucalyptus oil ingestion that has presented to your ED in recent weeks.

- i. Briefly describe 3 of the possible clinical effects of eucalyptus oil poisoning (6 marks)

- ii. Outline the key aspects of the management of this child including any specific treatments or decontamination requirements (3 marks)

- iii. List 4 steps that could be taken given this information (4 marks)

An 83 year old man presents with a 2 week history of lethargy, anorexia and dehydration. He has a past history of atrial fibrillation.

An ECG is obtained at triage.

- i. Describe the key features of the ECG (3 marks)

AN ECG IS SHOWN IN THE PROPS BOOKLET, PAGE 4

- ii. List 3 possible causes of these ECG abnormalities (3 marks)

His blood results show

K 6.4 mmol/L

Urea 20 mmol/L

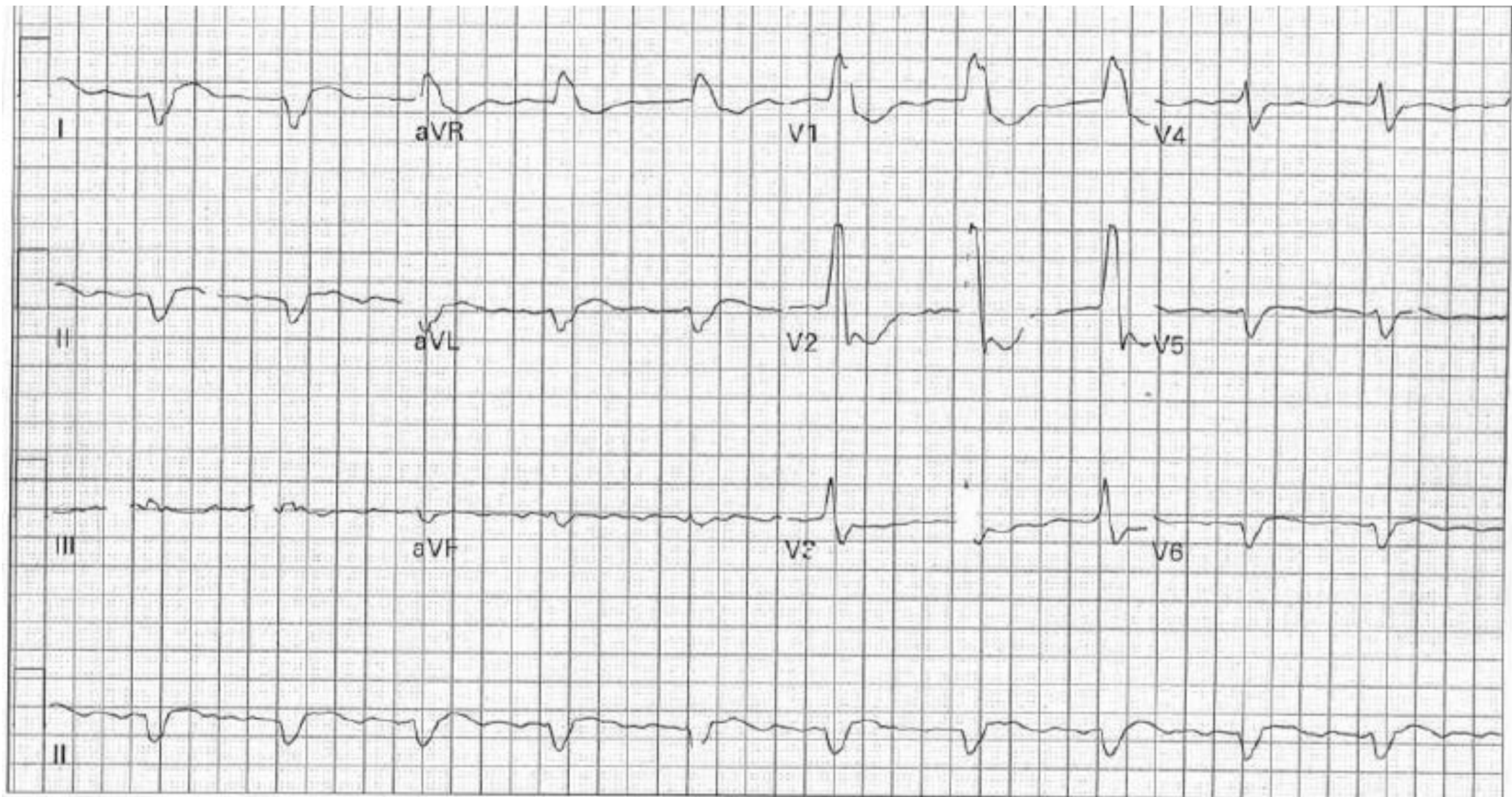
Cr 200 umol/L

Digoxin 3.0 nmol/L

His HR has dropped to 30 with a SBP 100.

- iii. List 5 treatment steps (5 marks)

- iv. Briefly explain the controversy surrounding the use of intravenous calcium in this setting (2 marks)



A 2 year old boy has ingested iron tablets. He presents with his mother and he currently seems well. You calculate that he has possibly ingested 90mg/kg elemental iron.

i. Complete the table (4 marks)

Elemental iron dose	System involved/Effects
<20mg/kg	
20-60mg/kg	
>60-120mg/kg	
>120mg/kg	

ii. Complete the table of classical stages of iron toxicity (5 marks)

Time post ingestion	Clinical features
0-6 hours	
6-12 hours	
12-48 hours	
2-5 days	
2-6 weeks	

iii. You obtain an Xray. List 2 relevant findings (2 marks)

AN XRAY IS SHOWN IN THE PROPS BOOKLET, PAGE 5

iv. How does this xray alter your management plan (2 marks)

v. List 3 blood tests that you will order and your reasoning for doing so (3 marks)

CR Fall-Back

L

Supine



You receive a batphone regarding a usually well 83 year old man who was well this morning. His wife prepared him a drink, he went upstairs to drink it and a few minutes later his wife rushed upstairs to find him unconscious on the ground, possibly not moving his left side.

On arrival in ED he has the following vital signs:

HR 145, RR 40, BP 124/75, SaO₂ 98% on 15L NRBM, GCS 9 (E2V2M5), mottled peripheries

- i. List 5 potential causes for this presentation (5 marks)

You perform a CT head with contrast which is completely normal. His clinical status remains unchanged and the following VBG is obtained:

	Result
pH	7.15
CO ₂	26
Na	135
K	3.7
Cl	105
Gluc	8
Lactate	19
HCO ₃	9
Creat	80

- ii. Interpret the blood gas and list 4 possible toxicological causes for the findings (6 marks)

His wife shows you the packet bought from the health food store from which she had prepared his drink. You realise that the likely cause of his presentation is likely to be cyanide toxicity.

- iii. List 5 signs or symptoms of moderate or severe cyanide toxicity (5 marks)

- iv. Name 2 of the possible antidotes used in the treatment of cyanide toxicity and for each antidote list 2 potential problems with its use (6 marks)

Antidote	Potential problems

A 42-year-old man presents to the ED by ambulance following ingestion of 200mL of anti-freeze. He is drowsy with slurred speech.

His observations are: HR 110 bpm, BP 130/75 mmHg, RR 24 bpm, SaO2 95% room air.

His initial blood results include:

pH	7.21	(7.35-7.45)
pCO2	24	(35-45)
HCO3	6	(24-32)
Na+	140	(135-145)
K+	3.9	(3.5-5.0)
Cl-	100	(95-110)
glucose	5	
ethanol	- undetectable	
Urea	5	(3-8)
Osmolality	330	(275-295)

a) Provide two (2) calculations to help you interpret these results. (2 marks)

Derived value 1:

Derived value 2:

b) List three (3) possible life-threatening features that could occur from this ingestion (3 marks)

1.

2.

3.

c) What is the role of decontamination in this poisoning? (1 mark)

d) List three (3) key steps in your management of this patient. State one (1) justification for your choice of each step. (6 marks)

	Management step	Justification
1		
2		
3		

It is Friday 1600 hrs and You are the consultant in charge of emergency department in a tertiary hospital. You have been notified that a truck carrying Chlorine Gas has rolled over in one of the busiest motorways close to your hospital. Initial ambulance communication suggests that at least Thirty (30) bystanders, including 4 children may be affected.

a) State two (2) specific preparations that you would you make for this particular exposure (2 Marks)

1. _____

2. _____

b) List four (4) steps in preparing your department prior their arrival. (4 marks)

1. _____

2. _____

3. _____

4. _____

c) List Three (3) signs or symptoms of chlorine exposure that you would look for. (3 marks)

1. _____

2. _____

3. _____

You have been asked to review the current guidelines for Disaster management in your department,

d) State Three (3) important steps for this review process (3 marks)

1. _____

2. _____

3. _____

A young woman has presented following a deliberate self-poisoning of an unknown amount of venlafaxine. She appeared slightly drowsy on arrival, but was otherwise well. BP 120/70, pulse 80.

She was seen by your junior registrar and had agreed to drink 50g of charcoal and was admitted for observation to a non-monitored bed in your short stay unit.

You are called to review her 6 hours later due to a change in her status. She now looks unwell, and you are concerned she may have serotonin syndrome.

1. What are the clinical features of serotonin syndrome? (3 marks)

2. What are the pharmacodynamics effects of venlafaxine? (1 mark)

3. List **two** errors made by your registrar in the management of this patient. Why were these errors? (2 marks)

(1) _____

(2) _____

4. How would you manage her suspected serotonin toxicity? (4 marks)

5. List **3** classes of drugs that can cause serotonin toxicity, with **2** examples from each class. (4 marks)

(1) _____

Example 1. _____

Example 2. _____

(2) _____

Example 1. _____

Example 2. _____

(3) _____

Example 1. _____

Example 2. _____

A 32 year old with diabetes and bipolar disorder presents with disruptive behavior. She appears disorientated, ataxic and complains of nausea and vomiting for the last two weeks.

Vital signs Temp 37.4 deg C
 HR 110 bpm
 BP 90/60 mmHg
 RR 22 bpm
 SaO2 97% on RA

Her lithium level is 3 mmol/L.

i. List four potential precipitating factors you would consider in this patient that may have resulted in lithium toxicity (4 marks)

ii. Urine testing bHCG confirms pregnancy and a probable UTI. List four antibiotics used to treat UTI and discuss why you would or would not use them in pregnancy (4 marks)

iv. Name 3 toxicokinetic features of a drug that make it amenable or appropriate to enhanced elimination by haemodialysis (3 marks)

v. List 4 drugs whose elimination is enhanced by haemodialysis (4 marks)

iii. Name 3 classes of drugs (with 2 examples each) seen in overdose that are not bound by charcoal (3 marks)

A 32 year old female presents 6 hours after ingesting 20 x 240mg SR verapamil tablets.

She is vomiting and listless.

GCS 14

HR 40

BP 75/40

1. What is your risk assessment of this patient? (1 mark).

2. What are the pathotoxicological mechanisms of this agent? (2 marks).

3. Her BSL is 12, what is the significance of this? (1 mark)

As you assess her, she deteriorates further, has a poorly palpable pulse. GCS drops to 9/15.

Repeat ECG shows a junctional rhythm at 30 bmp.

4. Outline your management steps. Give doses of any medications used. (6 marks).

A 54 year old lady presents with alcohol intoxication. 2 hours after arrival you are asked to review her as she is increasingly drowsy.

Vital signs HR 75 bpm
 BP 102/64 mmHg
 SaO2 93% RA
 GCS 9
 Temp 36.5 deg C

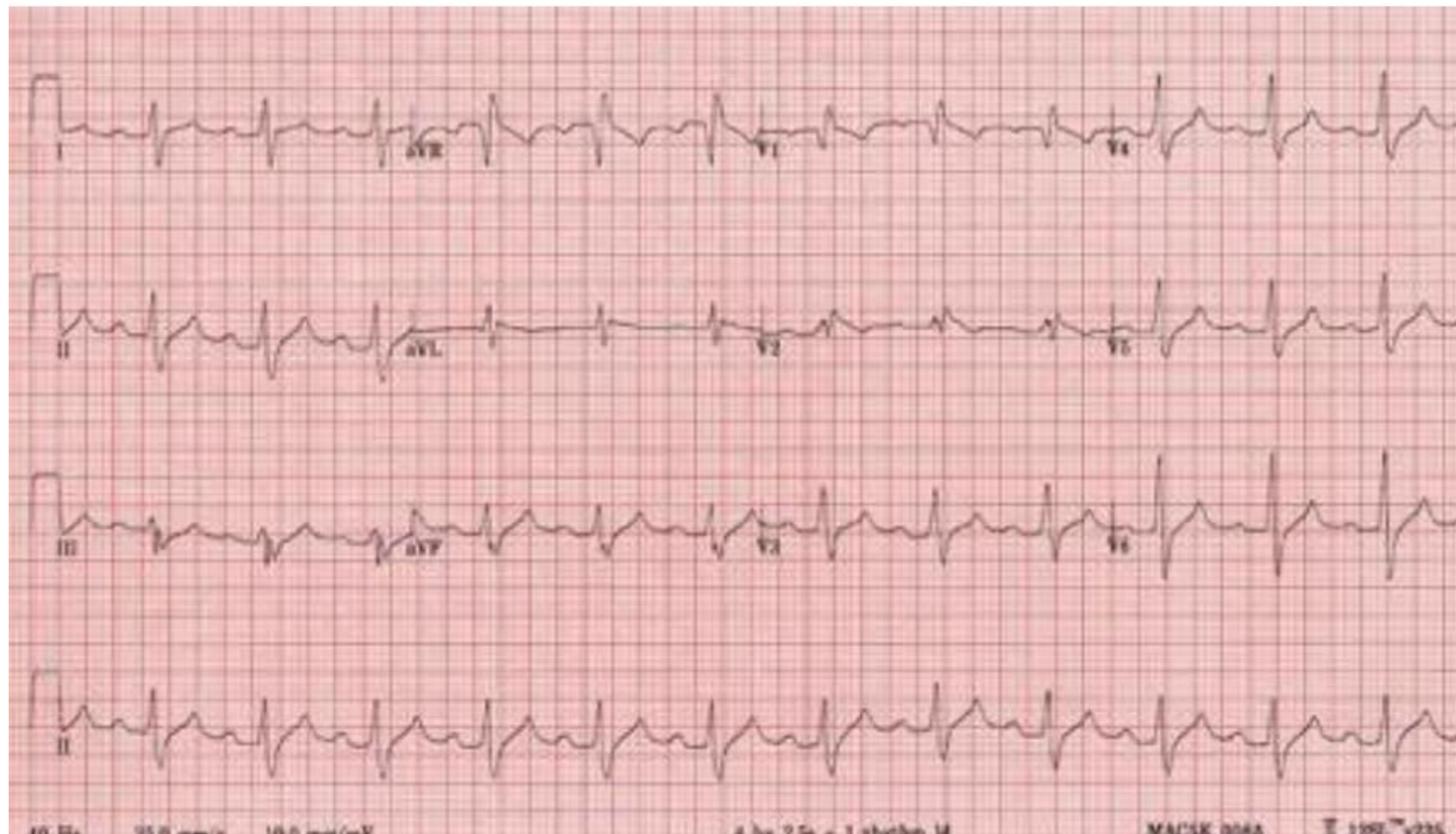
i. List 5 differentials for her condition (5 marks)

ii. List 3 relevant findings on the ECG (3 marks)

A 12 LEAD ECG IS SHOWN IN THE PROPS BOOKLET, PAGE 4

iii. List 4 immediate life threats following a propranolol overdose and a specific treatment for each (8 marks)

Life threat	Specific treatment



An 18 year old female presents to ED after an ingestion of 200 x 62.5mcg digoxin tablets. She has no past medical history of note and weighs 65kg.

i. What is the potential lethal dose of digoxin (1 mark)

ii. List the clinical features of ACUTE digoxin toxicity (3 marks)

iii. List 3 relevant investigations you would perform in this patient (3 marks)

iv. List the indications for the use of digoxin immune Fab (Digibind) (5 marks)

v. What dose of digoxin immune Fab would be required for this patient (1 mark)

A 3 year old boy is brought to ED by his mother with abdominal pain and vomiting. Mum is concerned that he may have ingested some of her iron tablets. She is sure that there are more than 10 tablets missing.

i. List 3 details that will assist your risk stratification (3 marks)

ii. Complete the following table (4 marks)

Elemental Iron dose	Clinical Effect
<20mg/kg	
20-60mg/kg	
>60-120mg/kg	
>120mg/kg	

iii. List 4 investigations with a rationale for each that you would perform to determine the severity of toxicity (4 marks)

iv. List 3 options for decontamination in this child (3 marks)

A 50 year old female presents with chronic lithium poisoning. Investigations reveal a lithium level of 3.1 mmol/L, and serum creatinine 180 micromol/L.

i. What is the volume of distribution of lithium (1 mark)

ii. List 6 possible signs or symptoms of chronic lithium poisoning (6 marks)

iii. Outline the principles of management in this patient (5 marks)

iv. List 2 major differences between ACUTE and CHRONIC lithium poisoning (2 marks)

A 28 year old male with a known history of ice abuse has been brought into your tertiary ED by ambulance having required pre-hospital sedation with intramuscular droperidol.

Vital signs are:

T	38.4 deg C
HR	128 bpm
BP	158/80 mmHg
RR	18 bpm
SaO2	100% on 6L via HM
GCS	9 (E2V2M5)

i. Describe 5 possible causes of his presentation (5 marks)

ii. List 5 investigations you would perform and provide your reasoning (5 marks)

iii. The patient promptly suffers a grand mal seizure. Describe your initial management, including drug doses where appropriate (5 marks)

iv. His Na⁺ level is 116 mmol/L. Outline the initial management of his hyponatraemia and plan for the next 24 hours (4 marks)

A 68 year old female presents to your tertiary emergency department intoxicated, 2 hours after deliberately ingesting 120 x 600mg tablets of slow release potassium. She has been vomiting and has a GCS of 14 (confused). An initial VBG is performed.

pH	7.32	(7.35-7.45)
pCO ₂	35 mmHg	(35-38)
Lactate	5 mmol/L	(0.6-1.5)
Creat	110 μmol/L	(45-90)
BSL	6.3 mmol/L	(3.9-5.8)
Na	133 mmol/L	(136-146)
K	6.1 mmol/L	(3.9-5.2)
HCO ₃	18 mmol/L	(21-28)
BE	-4 mmol/L	(-1.5-3.0)

i. Outline your risk assessment with regard to her ingestion (4 marks)

ii. List and briefly describe 2 specific toxicological interventions that may be used to manage her potassium ingestion (2 marks)

iii. List an advantage and disadvantage for each of the methods listed above (4 marks)

iv. List 4 other management priorities (4 marks)

A 30 year old 90kg lady presents to your emergency department having taken a poly-pharmacy overdose including panadeine forte, carbamazepine and temazepam. You are considering treating her with activated charcoal (AC).

i. What dose would you use if you decided to administer AC (1 mark)

ii. List 5 general contraindications for this therapy (5 marks)

After a short period, she becomes drowsy, tachycardic (120 bpm) and hypotensive (85/43 mmHg). Further history reveals that she has taken up to 9g of carbamazepine.

iii. List 4 investigations that should be performed in this patient (4 marks)

iv. List 5 clinical features you would expect from a significant carbamazepine overdose (5 marks)

v. During your management, the patient has a generalized tonic-clonic seizure. List 4 conditions that should be excluded (4 marks)

A 24yo female is BIBA with fever, mutism and increased muscle tone.

(a) List 5 drug induced syndromes that have hyperthermia as a presenting sign. (10%)

(a) What are the cardinal features of the history and clinical examination that define this as Neuroleptic Malignant Syndrome as distinct from Serotonin Syndrome? (40%)

(a) What are the indications for intubation in this woman with NMS? (25%)

(a) How would you manage her hyperthermia? (25%)

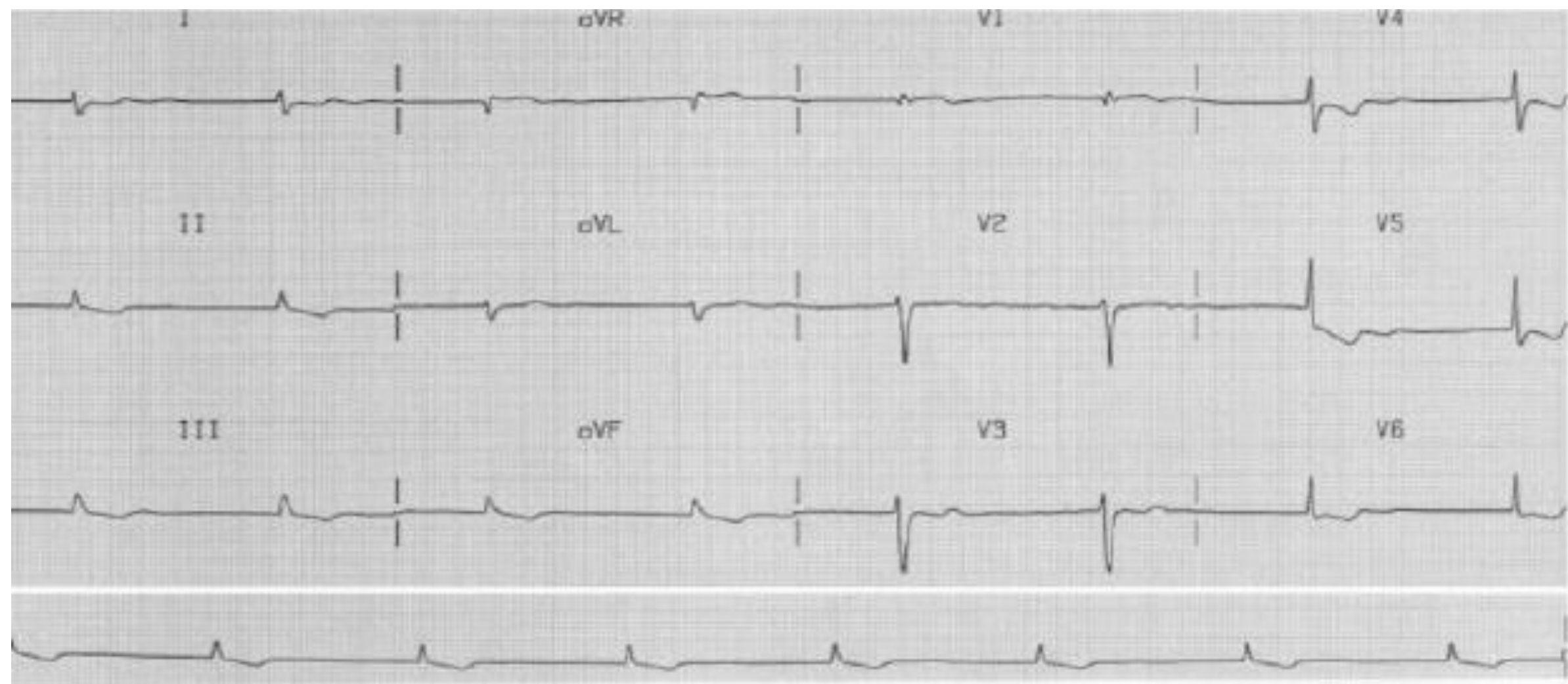
A 65 year old man is sent to your ED by his LMO with confusion and vomiting. He is known to be on Digoxin to treat AF. He has a BP 95 systolic and HR 40/minute at triage.

Bloods performed by his LMO earlier in the day reveal: Na 142, K 6.7, Creatinine 502 and Urea 50.1. A digoxin level has been sent but the result is not yet available. An ECG is performed on arrival:

a) List 3 features of this patient's ECG that confirm your clinical suspicion of digoxin toxicity. (3 marks)

a) Name an 2 indications for digibind treatment *in this patient* and 2 other general indications. (4 marks)

b) List 3 further treatments specific for this patient and give a brief reason justifying each. (3 marks)

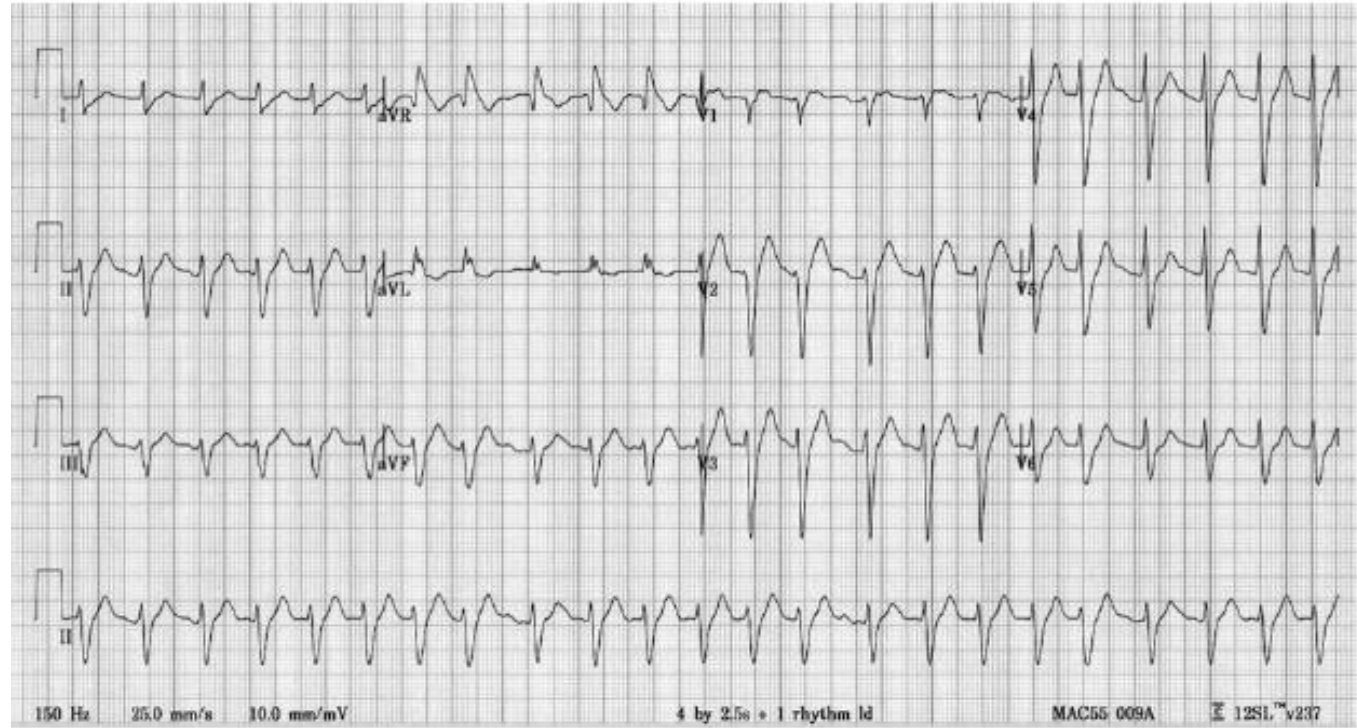


A 46 year old man is brought to your emergency department by ambulance following an overdose of unknown medications. He has had a brief generalized seizure en route. His observations on arrival and initial ECG are shown below.

a) Give the most likely diagnosis and the abnormal ECG findings which support it. (5 marks)

b) Outline the key management priorities for this patient (5 marks)

GCS	12		
BP	85/60	mmHg	
Temperature	37.0	°C	
O ₂ Saturation	100	%	on 8 L/min O ₂

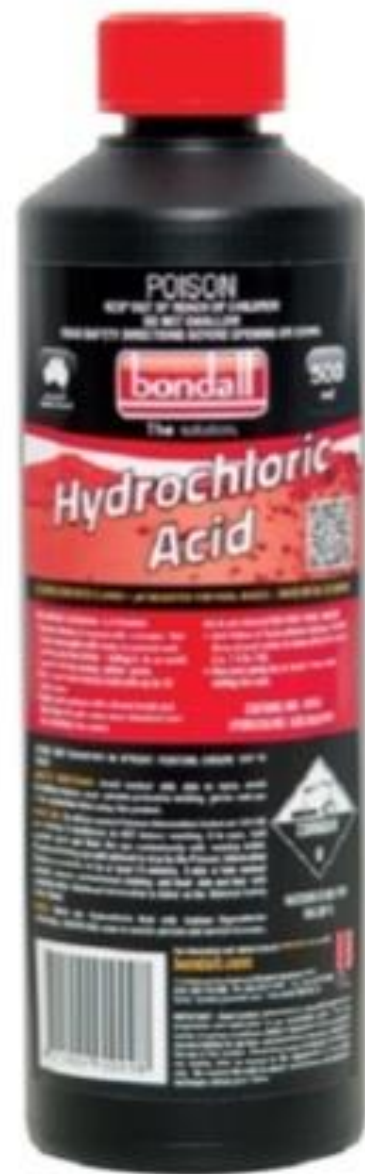


A 2 year old boy weighing about 20 kg was brought to your regional ED by his mother having accidentally swallowed hydrochloric acid kept near a BBQ. The ingestion took place 20 minutes prior to arrival

1. What are 5 features would alert you to impending airway compromise? (5 marks)

2. How would you decontaminate this ingestion? (1 mark)

3. What are the indications for endoscopy within the first 24 hours? (4 marks)



A 25 year old male presented to your ED after taking an overdose of 150 tablets of aspirin 300mg.

1. List three specific clinical features of salicylate toxicity that you might expect him to develop? (3 marks)

2. A VBG is performed. What would you expect? (3 marks)

3. What reasons would you consider haemodialysis? (4 marks)

You are working in a tertiary emergency department when AFP officers bring a 32 year old male into the department from the international airport

1) Describe the findings of the CT abdomen



2) Compare and contrast the approaches to the patient if they admitted to carrying oxycodone vs cocaine

3) If the patient had refused to be assessed and treated, what would be your response?