



ATSP Re:

... The **ultimate guide** to
being a **confident FY1**
out of hours

ATSP Team 2023

**Dr Alex Muston
Dr Alice Bishop
Dr Koushan Kouranloo
Dr Kristianne Jones
Dr Tom Havenhand
Dr Hayley McManus**

Acknowledgments

**Dr Sarah Raywood, Emergency Medicine Consultant
Dr Hannah Coles, Emergency Medicine Consultant
Dr Andrew Stevens, Acute Medicine/Renal Consultant
Dr Osman Mukhtar, Internal Medicine/Stroke Consultant
Hannah Sheridan, Clinical Pharmacist
Dr Besa Ziso, Consultant Neurologist**

All contributed to the 2020 ATSP Booklet updates.

Authors

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Introduction

A note from the authors

Dear all new FY1s!

We know how daunting starting life as a newly qualified junior doctor can be, particularly if you start your first shift on-call or working nights. During our foundation experience in medicine we found that medical school had prepared us well for emergency situations with numerous courses like ILS, AIMS and similar with the main emphasis being on ABCDE and managing acute presentations.

When you are asked to see patients on hospital wards this sort of training only gets you so far, it's a great structure to start with but often the presentations are not that acute and a basic ABCDE assessment just isn't enough!

The aim of this teaching material is NOT TO TEACH you medicine you already know. It is there as a guide and a prompt to help you out in situations you may not have covered as a student and to make sure you are a safe practitioner. It is also not a substitute for senior advice.

The individual case scenarios have been presented to you in a layout which should help with your documentation as well as assessment and management plan for the patient. The presentation on blood in the catheter bag is set out as an example of good documentation, whereas the other examples are shortened versions with emphasis on the most important aspects of each presenting complaint. Make sure you don't just read them mindlessly, you still always need to think about your course of action regarding ABCDE initially! You should also be able to come up with differentials and take an appropriate history for most scenarios which is why we have not included detailed prompts for this. We have focused on the areas which ourselves and our colleagues struggled with initially.

Whenever you have an encounter with a patient it really is important that you document what you have done in a systematic way. This is to firstly protect yourself from a legal perspective should any harm come to the patient and secondly to help your colleagues who are in charge of their care. You will understand this soon enough for yourself!

We hope you find this booklet useful and that it provides you with the majority of information you'll need when you are ATSP'd! Please always check for local trust guidelines before following the guidance in this booklet. Also, the guidance in this book applies only to adult patients. Seek specialist advice when managing children.

If you have any further feedback for us on the material or anything you would like to add please feel free to contact us with your suggestions.

ATSP Team

Troubleshooting

When answering your bleep find out:

1. Reason for bleep
 2. Quick background info
 3. Further relevant clinical info e.g. **OBSERVATIONS** and compare these to how they normally run. If it's a patient with high EWS just inform a senior to make them aware and ready for action!
 4. What they want you to DO (**PURPOSE** of call)
 5. Ask for the following things to be ready when you arrive:
 - Notes
 - Prescription chart if applicable
 - Obs chart/nursing file
 - Equipment e.g cannulas/bloods/catheter etc
 6. Give appropriate **instructions** if they need to do anything acutely before you arrive. For example if reason for bleep is haematemesis ask for IV access and bloods to be taken or if a patient has spiked a temp of $>38^{\circ}\text{C}$ get the nurses or night practitioner to do cultures/bloods/lactate (remember sepsis six) before you arrive. It saves a lot of time once you are on the ward.
 7. Decide where this lies in your list of priorities or whether it is a job nurse practitioners can do to help you.
- NB. Try not to have arguments with nurses on the phone, some of them are just starting out like you and may also be petrified, sometimes they need reassurance too!

When you get there:

Find the nurse who bleeped you (or requested the bleep!) and get a more detailed account of what's going on.

Look at the patient before delving into notes or looking on the computer following the standard ABCDE assessment. It won't take you long to figure out if they are acutely unwell/ unstable or not!

Once you have done your initial assessment and any immediate management, document what you have done using a logical and systematic approach. This way you won't forget anything. You will also look really slick and competent, plus, you might find you paint yourself a picture of what's going on, even if you were clueless initially!

Sit down at a computer with the nursing file and medical notes and go straight for the clerking. It should give you a succinct list of P/C and other co-morbidities to create a more complete clinical picture. Flick through the ward notes and find anything you can read, it may be of some use. Look at the last entry in particular as there may be a plan of what to do should the situation you have been bleeped for arises!

Check the imaging and lab system for any recent imaging or tests. NB ALWAYS compare recent results to previous ones! Just go down the lists looking for cultures, unusual blood tests, INRs etc and document what you find. Sometimes the best summaries of a patient are created when someone manages them on-call! Be thorough at the beginning but if you are hard pushed for time refer back to the help sheets- they are designed to make you **SAFE**, not to make you a brilliant diagnostician who can cowboy their way through FY1 'House' style!

Have a good browse through the prescriptions looking at which meds may have contributed to the situation, which may have prevented it if they had been given and which ones you might need to initiate to make sure the patient is SAFE.

Once you have all this information create a PROBLEM list and from this document your IMPRESSION of the situation. Write a PLAN and document whether you involved a senior and their name and grade. Also document the amount of time you were there, sometimes you need to stay with a patient to see if your treatment works e.g fluids for low BP meanwhile you can scribble down everything you've done to save time!

Whenever you are assessing a patient think to yourself:

'What do I need to DO to make sure this patient is SAFE?' If this patient deteriorates or dies unexpectedly and you were the last doctor to see them you need to make sure your documentation is adequate. Your management, appropriate or not, will mean nothing if it has not been written down in the eyes of the law!

In summary:

- Answer your bleep in a systematic way- it will help you prioritise and become more efficient.
- Delegate certain tasks to nurses, don't be afraid of asking them, you are part of a TEAM!
- Prioritise your jobs and don't be afraid to off-load some onto your ward SHO, YOU are the one who gets bleeped first so you will be asked to do EVERYTHING!
- When you get to a patient:
 1. ABCDE approach ALWAYS!
 2. Document your initial assessment and management
 3. Review the nursing file for obs chart, fluid balance, warfarin charts, fluid prescriptions
 4. Review medical notes and clerking then summarise
 5. Review prescription chart
 6. Problem list
 7. Working diagnosis
 8. ACTION PLAN (use tick boxes for investigations you have ordered)
 9. **Keep their details (sticker on handover sheet) and make sure you check on them later or handover to day team.**

ALWAYS MAKE SURE YOU ARE SAFE, IF IN ANY DOUBT WHATSOEVER YOU MUST INFORM A SENIOR.

ATSP Re: ABDOMINAL PAIN

Initial Assessment



A V P U

ABCDE

Is this patient acutely unwell?
Are they post-op?



If ACUTE ABDO i.e. perforation or bleed

- BP + feel the pulse
- IV Access & bloods
- Erect CXR+AXR
- Senior HELP

Examination



- ABDO EXAM
- **PR EXAM** if appropriate (i.e. if there is history of haematemesis/meleana, if you suspect obstruction, or if you think the patient may be faecally loaded)
- **VASCULAR EXAM** – feel the pulses!

History



1. **SOCRATES - CHECK BOWELS**
Associated symptoms should include urinary and gynae
2. **PMHx** including
 - alcohol consumption
 - constipation/diarrhoea
 - Previous abdo/pelvic surgery
 - BPH
3. **REASON FOR ADMISSION**
and most recent procedures/operations

For a non-acute situation think about **common causes** for in-hospital abdominal pain

- **Constipation - remember this may present as overflow incontinence**
- **Urinary retention**
- **Pre-existing pathology** e.g partial obstruction, Cholecystitis, Pancreatitis, Gastritis (ulcer, GORD, infective causes,)
- **UTI** (catheterised?)
- **Infection** e.g C.diff

Investigations



- Consider:**
- Bloods - FBC, U&E inc Ca2+, LFT, Lipase/Amylase, coag, **X-match** if signs of bleed
 - AXR/ erect CXR
 - ECG
 - Dipstick urine, MSU or CSU
 - Stool sample (C.diff if on abx)

Discuss need for abdo USS/CT abdo/pelvis with senior



Medication Review

Unless this is an ACUTE situation you should focus on symptom control when out of hours.

Consider holding:

- NSAIDS if suspect gastritis/GOR
- OPIATES if constipated

Consider starting:

- OMEPRAZOLE/PRN GAVISCON
- Analgesia – Pain ladder (not NSAIDS!)
Try BUSCOPAN (see BNF) for any cramp like colicky sounding pain
- Laxatives or enema if constipated. Only use an **enema** if patient is **faecally loaded**.
- Antibiotics if suspect UTI- check previous MSUs

Plan



- Depends on working diagnosis
- Keep NBM if vomiting/potential for theatre
 - IV access +/- FLUIDS
 - Analgesia
 - Monitor BP & urine output. Consider catheterising for strict fluid balance
 - Consider NGT if vomiting
 - Keep details and check on them later

Hint

Constipation and/or pre-existing chronic pathology is often cause of abdo pain in this group of patients unless they are post-op. Symptomatic treatment is most often sufficient.

ATSP Re: AGITATION/CONFUSION

Initial Assessment



Ensure your safety first & contact hospital security if hx of aggression/violence
ABCDE & Blood Glucose



Is patient in PAIN?
Fluid balance
Temperature, AMT, GCS
?Septic (e.g. UTI/LRTI/HAP)

Examination



- Consider risk factors
- Chest, Abdominal and NEUROLOGICAL EXAM (Neuro exam may be limited)
- Exposure for **source of sepsis**, (e.g. venous access, catheters, wounds/sores, signs of UTI)
- Signs of **head trauma or fractured neck of femur**, especially if patient has fallen

History



Is this person normally like this?
Any history of dementia?
How/when have they changed?
Any precipitants e.g. meds/
alcohol withdrawal?
Liaise with family/carers for
collateral history to establish the
patient's baseline

THINK ABOUT RISK FACTORS for:

- **Infection** - Lungs, skin, UTI, recent surgery
 - **Hypoxia** - PE, pneumonia, respiratory depression
 - **Pain** (including constipation / urinary retention)
 - **Dehydration/Nutrition**
 - **Medication side effects/Polypharmacy**
 - CVA/TIA
 - Hypoglycaemia
 - **Head injury or fractured NOF** (?recent fall)
- Treat the reversible causes **before** prescribing any sedatives

Investigations



- Consider (according to clinical picture)
- **Bloods:** FBC, U&Es, LFTs, Bone profile, CRP
 - **Dipstick / MSU**- check previous MSUs and check catheter for signs of infection
 - **Cultures & lactate** (remember the sepsis six) if temperature has spiked
 - **CXR**
 - **ECG**
 - **ABG** if patient unwell
 - **?CT** head (senior decision)

Medication Review



Notorious drugs that cause confusion:

- **OPIATES** especially **TRAMADOL**
- **BENZODIAZEPINES**
- **INSULIN** (too much!)
- **ZOPICLONE**

Plan



Treat the suspected cause +/- analgesia if necessary

DO NOT SEDATE PATIENTS WHO HAVE FALLEN AND MAY HAVE SUFFERED A HEAD INJURY

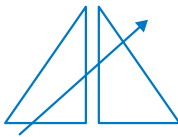

Only use sedation if you think the patient is putting themselves or others at **risk of harm** **NOT** if they are just being disruptive. **ALWAYS** discuss with senior
Consider contacting the On Call Psychiatry Team in a patient with a background of mental health disorders before prescribing sedatives

- Regular nursing obs, ideally in a bay
- Ensure staff present to reorientate and reassure patient
- Address any sensory impairment (ensure hearing/visual aids in working order)
- Regular ward staff must review bloods/try and elicit cause for change in mood/AMT, but remember to check FBC/CRP to ensure no new/worsening infection
- If *serious* cause excluded and senior agrees sedation is appropriate:
 - For delirium/agitation: Haloperidol or Lorazepam (depending on patient's PMH) - see BNF

For more information, see **NICE Guideline: Delirium: Prevention, Diagnosis and Management**

Check your Trust guidelines for the reducing regimen prescription for alcohol withdrawal.
A separate prescription chart may be required.

EXAMPLE OF DOCUMENTATION: ATSP Re: **BLOOD IN CATHETER BAG**

Name of Dr: Melanie Crowther, FY1 Bleep 1234		Patient Details: NAME, DOB, Hosp No	
<p>A A V P U Speaking full sentences RR 17</p> <p>B Sats 98% on air</p>		<p>Description:</p> <p>Chest clear Good bilat A/E</p>	
<p>C HR 86 reg BP - lying: 139/72 - standing: 132/74</p> <div style="border: 2px solid red; padding: 5px; margin: 5px 0;"> <p>Fluid balance IN: 1500 ml/12hr OUT: 1200 ml/12hr</p> </div>	<p>HS  + 0</p>	<p>JVP Not raised</p> <p>Calves Soft and non tender. No oedema</p> <p>CRT < 2 secs</p> <p>Mucus membranes Moist, well hydrated</p>	
<p>D Temp 37.2 AMT 10/10</p> <p>E BM N/A Agitation/mood no change</p>	<p style="color: red;">Further relevant examinations</p> <div style="border: 1px solid blue; padding: 5px; width: fit-content; margin: 5px auto;"> <p style="text-align: center; margin: 0;">ABDO EXAM</p> </div> <p style="color: red;">Inspection of catheter site</p> <ul style="list-style-type: none"> No evidence of trauma <p style="color: red;">Appearance of urine</p> <ul style="list-style-type: none"> 520ml in bag. Blood stained but translucent. No clots. <p>BS: normal, Soft and non-tender, No organomegaly No ascites Bladder not palpable</p>		

Investigations

Bloods

	prev	now		prev	now
Hb	11.1		Na	138	
WC	8.9		K	4.2	
Plt	435		Cr	198	
MCV	89		Ur	9.8	
INR	1.1		CRP	57	

History

Any relevant PMHx? e.g. TURP No

Past Hx of same thing? None previously

When was catheter put in? Catheter inserted 3/7 ago

Any record of difficulties? Doctor was called to perform as several nurses struggled to pass tube

Why was pt catheterised? Urinary retention

Any immediate distress or raised EWS? No

Medication Review

Consider holding:

Clexane and PO anticoags

MUST CHECK WITH SENIOR FIRST

Patients may be on anticoagulants
e.g for AVR

Plan

- 1.) Ensure IV access
- 2.) Send bloods FBC, U&E, CROSS MATCH, CLOTTING
- 3.) Regular obs (2-4 hourly)
- 4.) Strict fluid balance recording (maintain urine o/p >30mls/hr)
- 5.) Change catheter bag (to re-measure with time)
- 6.) Dipstick urine and send for CSU
- 7.) Consider urology review for 3-way catheter if clots present

SIGNED M. Crowther GMC 7895432

ATSP Re: DECREASED GCS

Initial Assessment



ABCDE - Are they able to protect their airway? If snoring/grunting, consider Guedel/NPA and **ESCALATE TO SENIOR**
GCS - Remember "if GCS <8 then intubate", involve seniors +/- anaesthetics early if risk of airway compromise
Pupils - ?signs of reversible drug overdose, ?equal and reactive
BM +/- Ketones



MUST rule out serious causes

History



Look at medical notes, PMH, prescriptions
Ask nursing staff; did patient deteriorate quickly or over a few hours, were there any witnessed falls/seizures, have they left the ward for any length of time?

Think about RISK FACTORS for:

- Sepsis
- Stroke or MI
- Low or high BM
- Drug toxicity (opiates/sedatives)
- Renal Failure
- Seizures
- Intracranial pathology

Examination



- Any signs of head injury?
- **Full Chest and Abdo examination**
- **Neuro examination** including reflexes and cranial nerves if possible (asymmetrical neurological deficit, ongoing seizure activity)

Medication Review



- Review medications chart, especially STAT/PRN meds given recently
- Consider altered metabolism of regular sedatives in acute renal/hepatic injury
- Illicit drugs if leaving ward regularly
- Notorious drugs that cause sedation:
 - **OPIATES (OD)**
 - **BENZODIAZEPINES**

Investigations



Consider (according to clinical picture)

- Bloods including VBG/ABG
- Dipstick Urine/Chest X-Ray
- ECG

Plan



Depends on suspected diagnosis, of which there are LOTS of differentials. Common examples include:

- **Hypoglycaemia:** Give Glucogel if GCS >14, IM Glucagon if unsafe swallow. Involve senior if severe and refractory, consider IV Dextrose infusion
- **Sepsis:** Try to localise source and prescribe antibiotics as per Trust policy
- **CVA:** Escalate to senior. Will need urgent CT Head and possibly thrombolysis/thrombectomy if within appropriate timeframe (note variations in policy by region)
- **Seizure:** Treat as per 'Seizures' page if ongoing, escalate to senior if not known epileptic. May need urgent CT +/- antiepileptic loading if status epilepticus.
- **Cardiogenic/MI:** Escalate to senior if any concern based on ECG or if not confident interpreting the ECG
- **Opiate OD:** Naloxone/"Narcan" 400mcg IV and repeat until responsive
In opioid toxicity reversal with naloxone produces instantaneous results once it has reached therapeutic levels. Remember it is very short acting and the patient may require a naloxone IVI depending on the amount and nature of the opiate OD. Refer to the BNF or local trust policy for this and discuss with a senior first.
- **Benzodiazepines:** unlikely with in-hospital patients but the reversing agent is FLUMAZENIL. You should never be using this on your own and most wards do not stock it anyway. Regular (2-4hrly) nursing obs, in well lit room

If you are in ANY DOUBT or suspect an acute event has occurred you MUST seek SENIOR HELP

ATSP Re: DYING PATIENT

Ideally dying patients have been identified by the parent team and appropriate plans/medication will already be in place, however this isn't always the case.

If not; escalate to senior if you think the patient may not survive.

If already on End of Life Care plan; Ensure DNACPR valid and in front of notes.

Initial Assessment and Examination

A V P U

A - is this obstructed? Are there excess secretions?

B - is respiration regular or agonal?

C - is patient tachycardic? **This may be only sign of pain**

D - is the patient agitated or uncomfortable?

- is patient vomiting or c/o nausea?

- is the patient having seizures?

E - is the patient itchy?

History

Are the patient and family aware of the situation?

What are their instructions about being contacted if patient deteriorates e.g. in middle of the night?

Medications for Symptom Control

- **Pain/shortness of breath:** Morphine
- **Nausea/vomiting:** Levomepromazine
- **Secretions:** Glycopyrronium
- **Restlessness/agitation:** Midazolam
- **Itchiness:** Chlorpheniramine (Piriton)

See your local Trust guidelines on end of life prescribing, which should advise on the conversion of opioids. Don't forget that doses may need to be adjusted for patients with a reduced eGFR.

Do NOT withdraw life-prolonging medications e.g. antibiotics – this is a consultant's/MDT decision

Further info available in the **NICE Guideline: Care of dying adults in the last days of life.**

After Death

Verifying:

- If family are present, explain what you need to do and ask if they'd like to stay
- Confirm correct patient by checking wristband
- Check for heart sounds, breath sounds/respiratory effort, central and peripheral pulses for 5 minutes
- Check for pupillary response to light, and corneal reflex (use some gauze)
- Check for response to voice, then supraorbital or nail bed pressure
- Check for pacemaker/implant

Documentation:

- Include name, grade, GMC number, time and location
- Time of death is once all of the examination criteria have been confirmed absent
- Clearly document any discussion with family members/next of kin

ATSP Re: FALLS/COLLAPSE

Initial Assessment and Examination



ABCDE
GCS
BM

For **Head Trauma** ensure you:

- Discuss any red flags with senior
- Consider and document the following:

1. Mechanism of injury
2. Any LOC/Reduced GCS/Confusion/Amnesia
3. Any vomiting or seizures
4. Head examination eg. Bruising/Laceration/Boggy swellings/Haemotympanum
5. Full neurological examination
6. Medication Hx (e.g. Warfarin, Clopidogrel, NOACs)
7. Always plan for neuro obs

Assess for signs of trauma (before moving patient):



- Any fractures? (e.g. hips)
- Head injury
- Neck or spine injury

History



• Always take a **FALLS HISTORY** but remember you are focussing on making the patient **SAFE** rather than diagnosing a cause for their fall.

RISK FACTORS for:



- Mechanical Falls
- Stroke
- Low BM
- Drug toxicity (opiates/sedatives)
- Arrhythmias
- Seizure
- Infection

Also consider environmental factors

Investigations



Depends on history and exam findings. Consider:

- X-Ray imaging (if injury suspected)
- Lying/standing BP (if safe to stand)
- ECG
- Bloods
- Urine dipstick
- CT head – refer to NICE guidelines criteria (and discuss with senior first)

Medication Review



Consider withholding the following:

- **Antihypertensives**
- **Sedatives**, until head trauma ruled out
- **Warfarin /anticoagulants** if patient is at risk of falling again or if head injury sustained. Discuss with senior first, patient may have artificial valve replacement.
- **Inform nursing staff of any changes**

Plan



- Regular observations
- Consider cardiac monitoring/telemetry if concerns re. cardiac syncope
- Always consider neuro obs if possibility of head injury (frequency as per trust protocol)
- Consider adaptations to bed space or nursing supervision to reduce chance of further falls
- Address underlying cause if appropriate
- DATIX all inpatient falls

Further info available in the NICE Guideline: Head injury assessment and early management

ATSP for: FLUID REVIEW & INSULIN INFUSION

Assessment for repeat prescription



1. **WHY?** - Read the patient's medical notes to find out why they are on IV fluids
2. **WHAT?** - What is the patient's fluid status? Calculate input and output to decide whether they are in a positive or negative fluid balance. Consider output such as drains, NG tubes & catheters
3. **CHECK U&E** - pay particular attention to electrolytes. This will influence the choice of fluid you prescribe and if additional K⁺ should be added to the bag. If no bloods for >24-48hrs ideally repeat U&Es before re-prescribing. Consider telemetry based on ECG changes and electrolytes
4. Always refer to your local guidelines regarding maintenance and resuscitation fluids. NICE Guidelines for IV fluid therapy for adults in hospital are also a good information source

More info: NICE guidelines for IV fluid therapy for adults in hospital

IMPORTANT!



Always examine the patient to check their hydration status prior to re-prescribing - inspect for dry mucous membranes, examine the chest for pulmonary oedema & inspect for peripheral/sacral oedema. Look for any documented fluid restriction e.g. CCF, Dialysis or Ascites patients

Variable Rate IV Insulin Infusion (VRII)

Always check your hospital's local guidelines & discuss with a senior before commencing Insulin infusions - many Trusts will update their guidelines regularly

Indications:

- Diabetic patient who has uncontrolled hyperglycaemia or is unable to have oral intake e.g. vomiting, NBM, severe illness requiring good glycaemic control (THINK SEPSIS!)
- Other circumstances: TPN/enteral feeding, pregnancy, steroid use, ACS or stroke

Key Points

- Continue patient's usual long-acting Insulin whilst on the infusion, but stop their rapid acting insulin whilst on VRII
- Regularly review blood glucose & potassium levels to ensure correct use of VRII & ongoing need. Discuss with senior when correcting abnormal potassium
- If hypoglycaemic stop VRII, treat promptly and restart VRII within 20 minutes to reduce risk of rebound hyperglycaemia

Contact your local diabetes team for advice and/or review of patient where unsure

High BM

Does the patient have diabetes? Is this a new problem?

ABCDE - does the patient have Kussmaul breathing? (associated with Diabetic Ketoacidosis (DKA))

1. Review previous BM recordings to identify any trends
2. Check food and fluid charts if available
3. Check urine and/or blood ketone levels
4. Consider an ABG to review blood pH if the patient looks unwell. Could this be DKA or Hyperglycaemic Hyperosmolar Non-Ketotic State (HHS)?
5. Review medications e.g. oral antihyperglycaemic medications, insulin or newly prescribed steroids
6. Document your findings and treatment given if appropriate e.g. Actrapid

ATSP Re: HAEMATEMESIS/COFFEE GROUND VOMIT/MELAENA

True Haematemesis or Melaena is a medical emergency and will often be accompanied with a high EWS. Treat accordingly if this is the case. In-hospital patients often suffer simple coffee ground vomits without any systemic disruption but must still be considered as a potential emergency

Initial Assessment



A V P U
ABCDE



IV Access and bloods
Work out EWS
Does the patient look unwell?

Examination



Check in any vomit bowls/stool samples to visualise yourself.
Chest Exam - Could this actually be haemoptysis? Any concerns of aspiration?

ABDO EXAM - -Any signs of perforation? Tender?

- **PR EXAM** – ALWAYS check for evidence YOURSELF even if witnessed Haematemesis/ Coffee Ground Vomit

History



Presentation:

Haematemesis, Melaena, Coffee Ground Vomit, PR Bleeding, Syncope

If pt has had significant upper GI bleed:

1. Assess for shock. A significant **postural drop (>20mmHg)** in BP may be noted
2. The urea will usually become proportionally higher than creatinine, often with little other evidence of renal failure
 - Remember Hb won't drop immediately after a GI bleed - therefore normal Hb isn't reassuring.

RISK FACTORS for GI Bleed:

- Gastric irritant medications (NSAIDS)
- Hepatic disease
- Oesophageal varices
- Cardiac failure
- Lack of gastro-protective medication
- Ulcers
- Oesophageal varices (rv previous endoscopies if time allows)
- Reflux/GORD
- Persistent vomiting
- Endoscopy/stenting procedures
- Post abdo surgery

Investigations



Mandatory:

- Bloods - FBC, U&E including Ca^{2+} , LFT, INR and clotting, **X-match** send as URGENT

Consider:

- AXR/erect CXR
- ECG
- Urgent endoscopy if patient is unstable - Seniors definitely need to be informed before considering this!
- Check BP lying and standing if patient stable enough to do so
- VBG

Medication Review



WITHOLD:

- Any anti-coagulants
- NSAIDS
- SSRIs

CONSIDER:

- Antiemetic
- PPI (check Trust guidelines regarding initiating PPI - most often Pantoprazole)

Plan



Follow local trust guidelines; most have Upper GI Bleed Pathways and Major Haemorrhage Protocols

- Consider activating massive haemorrhage protocol if large bleed
- Risk assessment - calculate Glasgow-Blatchford score
- Keep NBM until ward team assessment / until you are satisfied the patient is stable
- IV access +/- FLUIDS
- Supplemental Oxygen if required
- Regular observations - at least hourly if unstable and follow Trust policy
- Fluid balance. Monitor urine O/P and maintain to >30ml/hr.
- Keep details and check on them later

NB Always discuss with a senior before initiating a blood transfusion overnight

ATSP Re: HIGH EWS

NB always ask nurses for **VALUES OF PARAMETERS** and what they are **COMPARED TO NORMAL**
 Check whether patient is on adjusted EWS Scale due to COPD
 Familiarise yourself with your trust guidelines on response to EWS



Initial Assessment



Examination



Possible CAUSES to consider

A	Patients own or compromised RR, sats	CHEST- THOROUGH clinical respiratory exam is vital to guide further management	Respiratory - Pneumonia - PE - Pneumothorax	- Asthma - COPD - Respiratory failure
C	HR, BP, CRT, fluid balance	HS JVP Calves Mucus membranes CRT	Cardiovascular: - MI - Heart failure - Pulmonary oedema	- Renal failure - Dehydration - Fluid overload
D	Temp, BM, GCS or AVPU		Abdominal/other - AAA - Bowel perforation - Peritonitis	- DVT - Sepsis
E	Exposure			

Investigations- depend on scoring parameters



Consider

- ECG
- Urine dip
- ABG
- G&S and X-match if bleeding suspected
- Cultures from other sources e.g: Urine, Sputum, Stool, Wound, Lines, Drains
- CXR

INITIAL SEPSIS MANAGEMENT (SEPSIS 6)

- High Flow O2
- Blood Cultures
- IV Antibiotics
- Fluid Challenge
- Lactate (can be Venous)
- Urine Output

Medication Review



Review patient medications for any **IATROGENIC** causes of above e.g NSAIDs/warfarin, bleed.
 Is the patient over sedated?

SYMPTOM control

- Is the patient in **pain?**- analgesia
- Is the patient **vomiting?**- antiemetic (IV/IM)
- Is the patient **dehydrated?** – PO/IV fluids
- Is the patient **septic?** – What is the source?
 - Antibiotics (see trust guidance)
 Should the patient have been on prophylactic LMWH? -?PE

History - ALWAYS look in the notes!



Has the patient suffered an acute event?
 Has anything **CHANGED** and **HOW/WHY** has this happened?
Working diagnosis

Plan



A high EWS can often resolve with SYMPTOM control. e.g. hypovolaemic hypotension due to dehydration will respond to fluid resuscitation, and tachycardia should improve

1. Regular observations as per local policy
2. Treat suspected cause
3. Consider fluid balance monitoring +/- catheterisation
4. Analgesia and general symptom control
5. Review your treatment/action- has it had an effect?

Senior review if no improvement with your initial plan

ATSP Re: **HYPERKALAEMIA**

If patient is symptomatic/unstable this is a medical **EMERGENCY** and needs a senior doctor involved

Initial Assessment



A V P U
ABCDE

ECG



Unwell or stable?
Fluid balance

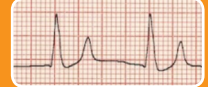
Examination



CHEST and CVS
Hydration Status



ECG



History



- Does the patient have chest pain?
- Does the patient have CKD or new AKI?
- Symptoms e.g. palpitations/dizziness
- Is this acute?
- Is it a chronic accumulation?
- Cardiac history
- Look at fluid Px charts
- Is the patient diabetic?
- Is the patient septic?

ECG changes in hyperkalaemia:

- Arrhythmias
- Prolonged PR interval with flattened Pwaves
- Wide QRS with slurry ST segment
- Tall, tented T waves

Investigations



- **ECG**
- **ABG** - helpful if you suspect a spurious result. If pH <7.2 consult senior advice urgently.
- **Bloods** – Repeat sample if unsure of accuracy of hyperkalaemia e.g. haemolysis.



Medication Review

- Diuretics - K+ sparing or losing?
- ACE/A2RB inhibitors e.g. Ramipril/Losartan.
- NSAIDs
- IV fluids
- Potassium supplements IV/PO
- Nutritional drinks

Plan



Hyperkalaemia treatment - always follow any local guidelines if available. As a general rule:

- If <6.5 **AND WITHOUT** ECG changes:
Insulin and dextrose IV- refer to local trust policy for exact instructions. If unable to find then 10 units of short-acting insulin in 250 ml of 10% dextrose IV over 15-30 mins.
- If >6.5 **OR WITH** ECG changes:
Calcium Gluconate 30ml of 10% IV over 5 min for cardiac protection (more slowly if patient takes digoxin), or Calcium Chloride 10ml of 10%. Ensure patient is on cardiac monitoring.
Insulin and Dextrose IV then **INFORM A SENIOR** as patient may well need: **Salbutamol** 5-10mg neb

Hold medications as appropriate (see above)

REPEAT BLOODS post treatment, - Haemodialysis may be required in persistent hyperkalaemia (>7mmol/L), metabolic acidosis (pH <7.2), encephalopathy.
Consult senior advice - in severe cases may require referral to ICU.

ATSP Re: LOW URINE OUTPUT (Catheterised Patient)

Initial Assessment



ABCDE
CHECK THE CATHETER- IS IT
BLOCKED/TWISTED?



THINK SEPSIS?
?Inadequate fluid resuscitation

Assessment of Fluid Balance



1. Look at the fluid chart - what is the patient's total input and output? Calculate the fluid balance (usually over 24hr period but for post-op patients calculate the balance since returning from theatre)
2. Optimum urine output should be $\geq 0.5\text{ml/kg/hr}$
3. Remember to consider TPN, insensible losses and stoma or drain output

Examination



HYDRATION STATUS - Is the patient hypo, euvo or hypervolaemic?

CHEST - Can you hear signs of overload on auscultation? Can you see a JVP?

ABDO - Is the patient in pain? Palpable bladder? Bowel sounds? (post-op ileus can cause urinary retention) Does the stoma site look infected?

Try to correct any acute urgent pathologies then reassess

History



- Check the medical notes - has the patient had an operation? This problem is commonly seen post-op
- Review the operation note and look for important details before speaking to a senior
- Ensure that the patient is not on a fluid restriction e.g. CCF, ascites or dialysis patient
Discuss with senior if this is the case but if they appear clinically dry - they may still benefit from careful fluids if illness has left them behind on their normal fluid intake

Think about RISK FACTORS for:



- Infection or Sepsis
- Urinary obstruction e.g. BPH in males
- Dehydration - vomiting, diarrhoea, poor oral intake, high stoma output
- Drugs e.g. anticholinergics, antimuscarinics

Investigations



Consider:

- Bloods - FBC to review haematocrit, U&Es to review renal function
- VBG - review lactate
- CXR or AXR
- Urine dipstick and/or culture, stool culture if diarrhoea present
- Septic screen

Discuss further imaging with a senior if suspecting intra-abdominal sepsis!

Plan



- **Hypovolaemia** - give a fluid challenge if appropriate e.g. 0.9% NaCl - refer to your local guidelines for the best choice of crystalloid. Review the patient in no more than 1hr and check their response. **IMPORTANT - BE CAUTIOUS WITH CCF/ESRF PATIENTS!**
- Correct any identified abnormality
- Monitor BP, HR, RR and urine output
- **Hypervolaemia** - consider diuretics if the patient is fluid overloaded e.g. IV Furosemide stat. Always check U&Es, drug allergies and consult with a senior where unsure

ATSP Re: SEIZURE

0-5 Minutes



- A:**
 - Consider early 2222 call and an airway skilled person to manage the airway
 - Put in recovery position if possible
- B:**
 - Oxygen 15L non-rebreathe mask
- C:**
 - IV access if possible
 - Take: VBG, U&E, FBC, LFT, Ca, Antiepileptic Drug level, Glucose
 - Consider: Blood Cultures, Toxicology, Pregnancy Test, ECG after seizure resolved ?cardiac cause
- D:**
 - BM, Assess for response (could it be a non-epileptic attack), assess pupils, GCS
- E:**
 - Prevent injuries, Check for tongue biting, incontinence and post-seizure signs (?post-ictal)

Get admission history from patient's notes and/or nurse



STATUS EPILEPTICUS IS A MEDICAL EMERGENCY
Call 2222



Possible Causes:

- Known epilepsy
- Hypoxia/Cardiac Disease
- Hypoglycaemia
- Electrolyte disturbance & DKA
- Trauma
- CNS infection
- CVA/Subdural Haemorrhage
- Drugs/Alcohol
- Pregnancy - Eclampsia
- Tumour, Metastases

5-15 Minutes



If seizure not stopped after 5 minutes - ENSURE SENIOR HELP BEEN CALLED/ARRIVED/ON THE WAY

1. Lorazepam bolus IV - 0.1mg/kg, usually 4mg IV at 5 minutes
2. Repeat after 10mins if not terminated
3. *If no IV access then give Buccal Midazolam 10mg or PR Diazepam 10mg PR at times above*
4. Give 250ml of 10% Glucose IV and Pabrinex if history of ETOH XS or nutritional deficiency
5. **If seizures continue >15 mins:** Ensure Anaesthetic & ITU support has been called/on the way
6. If no response to 2 doses of Benzodiazepine, need to load with AED - follow local guidelines

If Seizure Stops



- Give maintenance AED therapy
- Discuss with senior - may consider loading with phenytoin
- Reverse any recent discontinuations of AED



Documentation

- Eye witness account of seizure
- Length of seizure
- Doses given to terminate seizure or if self-terminating
- Injuries sustained

Remember: Check bloods and treat cause



Next Steps: These should be discussed with a Senior

- May need CT/MRI Head - discuss with Senior, may need LP after CT if infection suspected
- A new onset seizure is often an indication of a major underlying disease, ensure a senior knows about the patient after the event and get senior help early on
- Neurology opinion may be needed once patient has been stabilised

ATSP Re: SHORTNESS OF BREATH

Make a very quick decision as to whether or not you are confident in treating this patient on your own. Patients who are short of breath can deteriorate very quickly indeed. Call for a Senior immediately if you are unsure

A V P U

ABCDE

OXYGEN!! (If oxygen saturations below target (either 88-92% or >94%) give oxygen as per their agreed target saturation, then reassess following further investigations.)

ABG (consider VBG if not desaturating)

Possible Differentials:

- Pulmonary Embolism
 - Infection / COVID
 - Fluid overload
 - Pneumothorax
 - Anaphylaxis
 - Cardiac cause
 - Acute Respiratory Distress Syndrome (ARDS)
- If peri-arrest, activate medical emergency call**

Examination

- Think appropriate **PPE** based on history/trust guidelines prior to examination
- **THOROUGH exam** is vital to guide management
- Hydration assessment

JVP and ankles (or sacrum if largely bedbound)
Calves / thighs

History

- Onset
- Duration
- Exacerbating or relieving factors
- Recent infections / travel
- Check clerking proforma for co-morbidities

Ask about **FEATURES** and **RISK FACTORS** for:

- DVT/PE
- Overload, e.g. recent transfusion/fluid therapy
- MI
- Infection (hospital acquired??)
- Anxiety
- Asthma/COPD exacerbation
- Recent surgery (atelectasis)
- Thyroid dysfunction

Investigations- depending on scoring parameters

- ABG – immediately, then repeat after treatment?
- CXR: Check most recent one. **Don't be afraid to repeat CXR if things have changed clinically. Order a portable film if you feel the patient is too unstable to be transported**
- ECG
- Cultures: Blood and sputum if appropriate and/or check previous for sensitivities
- Bloods

Medication Review

Is patient on thromboprophylaxis?

What can I give?

- Think about your choices for oxygen therapy depending on patient's chronic disease status and ABG result!
- **Wheeze:** Salbutamol 5mg neb+/- Ipratropium 500mcg neb (can be given with O2), Steroids (Consider cardiac wheeze - requirement for accurate fluid assessment)
- **LRTI/CAP/HAP:** Antibiotics (check local guidelines)
- **Pulm oedema:** Furosemide 40mg IV
- Steroids/Initiation of randomisation process to appropriate clinical trials if concerns regarding COVID-19 (**discuss with senior**)

Plan

- Sit patient up or the position that is most comfortable for them Stay with patient until you are happy they are stable
- Regular observations (such as 1-2 hourly)
- Review bloods/CXR etc
- Escalation to Level 2/3 if appropriate (**inform senior**)

CALL FOR SENIOR HELP IF YOU ARE UNSURE: THESE PATIENTS CAN DETERIORATE VERY QUICKLY INDEED

In patients with shortness of breath in the last days of life/end stage respiratory failure, an opioid can be considered for symptomatic relief. Always consult a senior doctor before prescribing, as per NICE guideline on care of dying adults in the last days of life.

ATSP Re: TACHYCARDIA/PALPITATIONS

TACHYARRHYTHMIAS ARE A MEDICAL EMERGENCY if patient has developed a new tachyarrhythmia on ECG (SVT/Fast AF), a senior needs to be involved. Make sure you perform the following:

Initial Assessment



A V P U
ABCDE

BP
Manual HR



EXPOSE for sources of sepsis
PULSE: REGULAR OR IRREGULAR?
If seen in any dangerous rhythms (e.g. VT to activate medical emergency team)

Examination



- Full clinical examination
- Fluid balance - is patient dehydrated?

History



- Is the patient symptomatic?
- **CARDIAC HISTORY**
- Previous cardiac history and RISK FACTORS for MI, AF, Arrhythmias
- Previous ECGs
- **For arrhythmias: IS THIS NEW? Assume it is unless proven otherwise**
- Look at prescriptions for any anti-arrhythmic medications for clues
- How much tea/coffee has the patient had?



Possible reasons for simple tachycardia

- Pain
- Anxiety
- Sepsis
- Hypovolaemia – bleed/dehydration
- PE
- MI
- Medication side effects

- Has patient been on any drugs which put them at increased risk of the above? E.g Warfarin/NSAIDs-bleed. Should the patient have been on prophylactic LMWH?-?PE

Investigations - depending on scoring parameters and clinical judgement



Mandatory:

- ECG

Consider:

- Routine bloods +/- CULTURES + lactate for septic screen (remember the sepsis six) if temp spiked
- X-match if suspect patient is bleeding
- Urine dipstick
- Troponin
- D Dimer



Medication Review

IATROGENIC causes of tachycardia

- SALBUTAMOL overuse
- EYEDROPS e.g PHENYLEPHRINE
- THEOPHYLLINE toxicity
- DIPYRIDAMOLE

MEDICAL MANAGEMENT (check the BNF for interactions)

If AF consider **digoxin** or **bisoprolol** (unless contraindicated e.g. low BP / Asthma) once cause has been identified, but discuss with senior first.

Plan - very different for acutely unwell patients and those who are stable



1. IV access +/- fluids and bloods
2. Follow Tachyarrhythmia algorithm if appropriate- senior must be involved in this!
3. Regular nursing obs (can do temp only every 30mins/half hour if you think have risk factors for sepsis)
4. Treat suspected cause, often this is actually SYMPTOM CONTROL and you may find that simple, stable tachycardias resolve once you have the following under control:
 - PAIN
 - AGITATION
 - ANXIETY
 - DEHYDRATION
 - SEPSIS
 - VOMITING

COMMONLY PRESCRIBED DRUGS AND DOSES

Below is a list of commonly prescribed drugs to aid your memory. Please always check in the latest BNF if you are prescribing for the first time or if you haven't prescribed a drug for a while, as doses, cautions and contraindications can change. Many Trusts have prescribing guidelines for the groups of medications below and these should be adhered to.

Always eye-ball a patient before doing so- the nurses may have the diagnosis wrong!

Don't forget to check for ALLERGIES, PMH and RENAL FUNCTION (if indicated). Look at KARDEX for any obvious interactions.

Most drugs you will prescribe on-call should be written in the PRN or 'once only' section if you do not know the patient.

ANALGESIA

Cautions NSAIDs in asthma/PU/CRF/IHD

Diclofenac is contraindicated in IHD, PAD, cerebrovascular disease and CHF

Buscopan is an anti-spasmodic and works on smooth muscle. Great for cramping abdo pain.

MEDICATION

PARACETAMOL
IBUPROFEN
DICLOFENAC/'Voltarol'

ROUTE

PO or IV
PO
PO / IM / PR

DOSAGE

500mg – 1g
200-400mg
75mg-150mg daily in divided doses

MAX/DAY

QDS
TDS

If <50kg give max 15mg/kg IV Paracetamol

Pts with renal colic respond well to PR diclofenac

CO-CODAMOL (8/500 OR 30/500)
CO-DYDRAMOL (10/500)
CODEINE PHOSPHATE
BUSCOPAN

PO
PO
PO or IM
PO or IV

1-2 TABLETS
1-2 TABLETS
30-60mg
10-20mg

QDS
QDS
QDS
QDS

5mg IV Morphine = 10mg oral Morphine

TRAMADOL
MORPHINE

PO
IV or PO

50-100mg
5-10mg

QDS
STAT

NB Opiates can cause nausea/vomiting and constipation. Always prescribe a PRN antiemetic and simple laxative. Opiates can also cause itching - may require Piriton

ANTI-EMETICS

You can try most of these in various combinations if previous attempts to control symptoms have failed.

Domperidone can cause ventricular arrhythmias. It is contraindicated in patients with cardiac conditions, severe hepatic impairment or those taking other medication which can prolong QT interval or potent CYP3A4 inhibitors

METOCLOPRAMIDE/'Maxalon' PO or IM or IV 10mg
(dopamine antagonist- works directly on GIT) 10mg dose only if weight >60kg
CYCLIZINE PO or IV 50mg
(antihistamine – works centrally)

PROCHLORPERAZINE/'Stemetil' PO 5 - 10mg
'Buccastem' BUCCAL 3 - 6mg
(dopamine antagonist- works centrally on chemo receptor trigger zone)

DOMPERIDONE PO max 10mg TDS QDS
(acts centrally on chemo receptor trigger zone)

ONDANSETRON PO or IM or IV 4 - 8mg TDS-max 5 day
(5HT3 antagonist)

Metoclopramide should not be used post GI surgery for 3 days. It can also cause extra-pyramidal reactions and oculogyric crises. Beware of this though, the antidote is procyclidine 5-10mg IV/IM.

GASTIC REFLUX

GAVISCON
RANITIDINE
OMEPRAZOLE

PO
PO
PO

5-10ml
150mg
20mg

TDS
BD
OD

Key:

PU = peptic ulceration; CRF = chronic renal failure; IHD = ischaemic heart disease; PAD = peripheral vascular disease; CHF = congestive heart failure; GIT = gastrointestinal tract

SOB

Salbutamol causes tachycardia!

SALBUTAMOL	NEB	5mg	STAT/PRN	
IPRATROPIUM BROMIDE (Atrovent)	NEB	500mcg	STAT/PRN	(Max 2mg/day)
PREDNISOLONE	PO	30-40mg	STAT/OD	(5-7 days max)
HYDROCORTISONE (if acute SOB or angiodema)	IV	100mg	QDS	
FUROSEMIDE	PO/IV	40-80mg	STAT	

LAXATIVES

Stimulants:	SODIUM DOCUSATE	PO	50-200mg	TDS	(Max 500mg/day)
	BISACODYL	PO	5-10mg	ON,	
		PR	10mg	OD	
Osmotic:	SENNA	PO	7.5-15mg	ON	(Max 30mg/day)
	MOVICOL	PO	1-2 sachets	BD/TDS	
If faecal loading:	LACTULOSE	PO	15ml	BD	
	GLYCERINE SUPPOSITORY	PR	4g	STAT	
	PHOSPHATE ENEMA	PR	128ml	STAT	

In-hospital patients are often constipated often due to decreased activity and medications. Try tackling constipation using different pharmacological approaches i.e. don't Px movicol if already on lactulose.

ITCH/RASH

CHLORPHENAMINE	PO	4mg	TDS	
(also known as "Piriton". Note side effects include drowsiness)				
CETIRIZINE	PO	10mg	OD	

AGITATION

DIAZEPAM PO/SLOW IV 5-10mg STAT/PRN, max 15-30mg day

SLEEPLESSNESS

ZOPICLONE PO 3.75-7.5mg ON

AGGRESSION

HALOPERIDOL Check BNF for indications and doses

Do not prescribe sedatives without first seeking senior advice

ALCOHOL WITHDRAWAL

Guidance differs between trusts, so refer to local guidelines if available.

CHLORDIAZEPOXIDE 20-30mg should be given when CIWA score >8

If requires more than 4 times in 12 hours, consider reducing regime:

(Example is given from NICE guidance based on severity of dependance, check own Trust guidelines before prescribing)

	Moderate SADQ (15-25)	Severe SADQ (30-40)
Day 1:	15mg QDS	30mg QDS
Day 2:	10mg QDS	25mg QDS
Day 3:	10mg TDS	20mg QDS
Day 4:	5mg TDS	15mg QDS
Day 5:	5mg BD	10mg QDS
Day 6:	5mg OD	10mg TDS
Day 7:	Stop	10mg BD (then reduce as with moderate)

Note: Do not use Chlordiazepoxide in patients at risk of hepatic encephalitis or with very severe ALD - look at local guidance for alternatives such as Lorazepam

For antibiotic prescribing advice refer to your Trust policy. Remember to check for any available microbiology results which may guide you on antibiotic sensitivities.

PRESCRIBING OUT OF HOURS

Warfarin

You will often get bleeped to prescribe warfarin for patients you don't know especially over the weekend/evenings if your colleagues haven't done them. If your local trust has guidelines on Warfarin prescribing, use them. **CHECK PATIENT IS NOT BLEEDING!** Are you prescribing maintenance or loading dose?

LOADING: this is the regimen prescribed initially until INR stable and in target range. If rapid anticoagulation is required, NICE guidelines suggest 5-10 mg once a day for 2 days then check INR on day 3. (Instant anticoagulation requires heparin therapy – discuss with senior). For AF, less rapid anticoagulation is acceptable over a few weeks and doses can start at 1 or 2 mg each day.

MAINTENANCE: usual dose once INR established to keep within target range. Check yellow book for regular prescriptions.

- Once an INR has been obtained for one of your patients make sure you prescribe the warfarin for about 3-4 days then re-check. Mark open brackets on warfarin charts to indicate when you want the next INR to be checked (usually between 3-4 days in the initial period, or more frequently if there are difficulties establishing a maintenance dose.)
- **INR high** (but <5) - reduce the dose and/or 1-2 doses may need omitting.
- **INR <6** but >0.5 units above target – reduce dose or stop. Restart when INR <5
- **If INR is 6-8 and patient not actively bleeding** Stop Warfarin. Restart when INR <5. Discuss with senior to lower maintenance dose. Recheck INR at least 48hrs after as it takes between 48-72hrs for your change to have an effect.

Reason for longterm warfarin Tx?

AF	2-3
Recurrent DVT	2-3
PE	2-3
Recurrent PE	3-4
Prosthetic heart valve	Check individual range



Check drug chart for **INTERACTIONS** which may affect INR. Discuss with senior/ day team/ pharmacy before stopping any drugs. Common interactions:

- Inducers reduce effect of Warfarin. **REDUCES INR (PCBRAS)**
 - Phenytoin, carbamazepine, barbiturates, rifampicin, alcohol (chronic excess), sulphonylureas.
- Inhibitors increase effect of warfarin. **INCREASES INR (ODEVICES)**
 - Omeprazole, disulfiram, erythromycin/clarithromycin, valproate, isoniazid, cimetidine/ciprofloxacin, ethanol intoxication, sulphonamides.

If actively bleeding and/or INR >8 discuss urgently with Senior for advice

Digoxin

You will occasionally get bleeped to review digoxin levels:

Toxicity is an emergency and would normally require the use of 'Digibind' which is an antidote for digoxin OD. You will need to get an ECG and assess the patient clinically before proceeding/getting senior help.

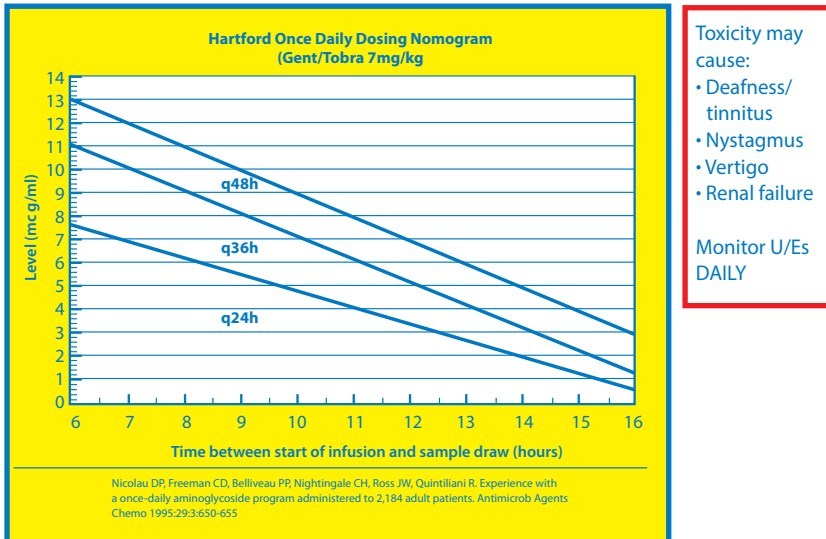
Sub-therapeutic levels are common! They are not so worrying but you should clinically assess the patient in particular their CVS paying particular attention to their pulse (is it regular/irregular?) and are they haemodynamically stable?

If digoxin levels are out of range make sure you **check their potassium** and keep a regular eye on it as this needs to be stable for digoxin to be a safe and effective choice of therapy.

Gentamicin

You may get bleeped to check the gentamicin levels of ward patients and subsequently prescribe the next dose. You may have Trust guidelines on this. If in doubt, discuss with your ward or on call pharmacist.

For once daily doses: The blood level needs to be taken 6-14 hours after the start of the **first** IVI. You are basically looking for the levels to be within therapeutic range. If they are not you need to refer to the **Hartford nomogram**. This is a chart which indicates WHEN the next dose should be according to how out of range the levels are. You **DO NOT change the DOSE**, just the **TIMING** of the next one (either 24, 36 or 48hrs later). Make sure, if you have been asked to take the blood yourself you note exactly how many hours post IVI the blood has been taken on the blood card, it may be another of your peers who has to review the level!



For TDS doses: The first level that needs to be recorded is after the 3rd/4th dose ensuring at least 24 hours of treatment is given. It should be taken 1 hour post IVI i.e. the PEAK or POST level and be between 3-5mg/L. A trough or PRE Dose level is taken approx 1 hour before any administered dose and should be <1mg/L. The reason for this is that they are on a TDS regimen so renal function needs to be closely monitored. It is important that gentamicin levels do not rise to toxic amounts, which is more common in patients with renal impairment.

ABBREVIATIONS

It's advisable to avoid using acronyms and abbreviations in patients' notes as it is a legal document, and should be easily understood by other medical professionals reading the notes at a later date.

Unfortunately, you will inevitably encounter them occasionally, so we've compiled a list of commonly used abbreviations just in case!

AED	Anti-epileptic drugs
AMT	Abbreviated mental test
AVR	Aortic valve replacement
AXR	Abdominal X-ray
BIBA	Brought in by ambulance
CBG	Capillary Blood Glucose
CVA	Cerebrovascular accident (AKA Stroke!)
CXR	Chest X-ray
DOAC	Direct-Acting Oral Anticoagulant
EWS	Early warning score
GCS	Glasgow Coma Score
HAP	Hospital acquired pneumonia
LOC	Loss of consciousness
LRTI	Lower respiratory tract infection
MI	Myocardial infarction (AKA "heart attack!")
MOA	Maintaining own airway
MSU	Mid-stream urine
NBM	Nil by mouth
NOF	Neck of femur
OD	Overdose
PE	Pulmonary embolism
SNT	Soft, non-tender
TIA	Transient ischaemic attack
UTI	Urinary tract infection
VBG	Venous blood gas

Disclaimer

The findings and conclusions in this document are those of the authors, who are responsible for its content. All information is to be interpreted on an individual basis in context with the clinical situation to which it refers. The information is not a replacement for local guidelines and protocols, nor is it a document with any legal standing. No statement in this document can be construed as an official position of NHS England NW.

Contacts

atsp@live.co.uk

Follow us on twitter  [@ATSP_UK](https://twitter.com/ATSP_UK)

www.askedtoseepatient.co.uk

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