

# UCL Anaesthesia and Perioperative Medicine Revision

Google UCL Stephens

MB BS Anchor Day 2021





# What's this about?

- Stuff to pass finals
  - Stuff to use as a FY
  - Hopefully no irrelevant stuff
  - Fun
- 
- I'll post link in chat

# General stuff: Exams

- There is life outside medicine
- MBBS exams will soon seem like a memory
- You can't get every question correct = fine!
- You might not finish all OSCE = fine!

# Drug doses

- Adrenaline Cardiac Arrest  
= 1mg in 10 ml IV 'minijet'



- Adrenaline Anaphylaxis  
= 0.3 - 0.5mg  
= 0.3- 0.5ml of 1mg/ml
- Others : 'Ask my senior and look in BNF'

Google MailWorkHomePopularTravelFoodMusicLondonKidshouse work

My homeUCL Moodle: Log in to the siteFw: UMP Module Managemen...Fwd: MSC conversion costs ~...Christopher Ingold Auditoriu...students | Centre for An

CENTRE FOR ANAESTHESIA CRITICAL CARE & PAIN MEDICINE

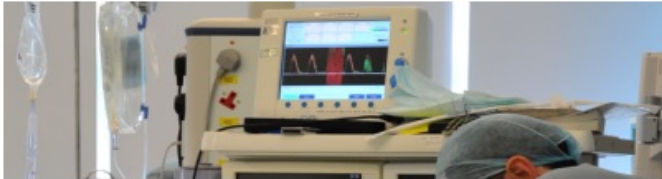
Google UCL Anaesthesia Student

HomeFor PatientsStudents, Trainees & FellowsEducation, Courses & MeetingsCareersResearch & TrialsClinical Quality & Innovation

PublicationsPeopleAbout UsContact Us

Google UCL Stephens

students



Medical Students

Dear UCL Students, welcome to this part of the site. You're *always welcome* in theatres at **any** of the sites. If you'd like to come outside of your conventional times just email us!

Introduction

We provide

Teaching for medical students in anaesthesia, resuscitation, critical care, pain and perioperative medicine,



# SSC y6 MBBS Learning

Dear SSC crew we've got together some learning material relevant to you..  
If you're familiar with it- skip!.. maybe do one every few days..

## Critical Care + Physiology

[Starting on the ICU](#)- how to review and describe and ICU patient

[Intro to ABG](#).. from the start.. useful even if you go through the worked examples

[Introduction to Respiratory Support](#)

## Perioperative Medicine

[Our guide to the key elements of Perioperative Medicine](#) Our key bit of teaching on Periop Medicine.

## Refreshers

[Y6 CXR: a refresher](#)

[CXR in Respiratory Disease](#)

[CXR in Cardiac Disease](#)

[Y6 CT head Scan](#)

**At the borders of ICU series** looking at issues you may come across as an FY 1-2

[Y6 Case: At the borders of ICU 1](#)

[Y6 Case: At the borders of ICU 2](#)

[Y6 Case: At the borders of ICU 3](#)

[Y6 Case: At the borders of ICU 4](#)

[Y6 Case: At the borders of ICU 5](#)

[Y6 Case: At the borders of ICU 6](#)

[Y6 Case: At the borders of ICU 7](#)

[Y6 Case: At the borders of ICU 8](#)

[Y6 Case: At the borders of ICU 9](#)

[Y6 Case: At the borders of ICU 10](#)

[Y6 Case: At the borders of ICU 11](#)

youtube.com

Work Google Mail Home Popular Travel Food Music London Kids house work

thewolseley.assets.d3r.com/p... And now for something comp... www.holidaylettings.co.uk/tu... An introduction to Anaesthesi... Medical Students Department of Anaesthes

YouTube/E3

What to Watch My Channel My Subscriptions History Watch Later

PLAYLISTS Liked videos

SUBSCRIPTIONS UCLxTend Browse channels Manage subscriptions

Department of Anaesthesia Videos Playlists Channels Discussion About

Single Best Answer Chapter 4 – Question 2 the centre for Anaesthesia UCL 3:18 Single Best Answer: Chapter 4 - Question 2 96 views • 6 months ago

WATCHED Single Best Answer Chapter 3 – Question 1 the centre for Anaesthesia UCL 2:52 Single Best Answer: Chapter 3 - Question 1 112 views • 6 months ago

WATCHED Single Best Answer Chapter 8 – Question 5 the centre for Anaesthesia UCL 1:07 Single Best Answer: Chapter 8 - Question 5 42 views • 6 months ago

Single Best Answer Chapter 8 – Question 4 the centre for Anaesthesia UCL 1:54 Single Best Answer: Chapter 8 - Question 4 34 views • 6 months ago

Single Best Answer Chapter 8 – Question 3 the centre for Anaesthesia UCL 2:55 Single Best Answer: Chapter 8 - Question 3 40 views • 6 months ago

Single Best Answer Chapter 8 – Question 2 the centre for Anaesthesia UCL 2:12 Single Best Answer: Chapter 8 - Question 2 38 views • 6 months ago

Single Best Answer Chapter 8 – Question 1 the centre for Anaesthesia UCL 1:44 Single Best Answer: Chapter 8 - Question 1 32 views • 6 months ago

A Stop the transfusion. Give an intramuscular injection of adrenaline 1:1000  
B Stop the transfusion and give 10mg chlorpheniramine IV  
C Continue the transfusion at the current rate  
D Consider slowing or stopping the transfusion. Give 1g paracetamol and monitor closely  
E Speed up the transfusion 2:00 Single Best Answer: Chapter 7 - Question 4 33 views • 6 months ago

Single Best Answer Chapter 7 – Question 3 the centre for Anaesthesia UCL 2:38 Single Best Answer: Chapter 7 - Question 3 38 views • 6 months ago

Single Best Answer Chapter 7 – Question 2 the centre for Anaesthesia UCL 1:53 Single Best Answer: Chapter 7 - Question 2 39 views • 6 months ago

Single Best Answer Chapter 7 – Question 1 the centre for Anaesthesia UCL 1:25 Single Best Answer: Chapter 7 - Question 1 45 views • 6 months ago

Single Best Answer Chapter 6 – Question 1 the centre for Anaesthesia UCL 5:21 Single Best Answer: Chapter 6 - Question 1 85 views • 6 months ago

Single Best Answer Chapter 5 – Question 3 the centre for Anaesthesia UCL Single Best Answer: Chapter 5 - Question 3

WATCHED Single Best Answer Chapter 4 – Question 4 the centre for Anaesthesia UCL Single Best Answer: Chapter 4 - Question 4

Single Best Answer Chapter 4 – Question 3 the centre for Anaesthesia UCL Single Best Answer: Chapter 4 - Question 3

Only 50 minutes!!

Search ..'department of anaesthesia'



**Teaching  
files to download**

**Welcome all students!** Please feel free to use these files. Do contact [Dr Rob Stephens](#) if you have any suggestions

**PROCEDURES**

How to do: **Blood Transfusion**

How to insert an **Arterial Line**

How to insert a **Central Line**

How to insert a **Chest Drain**

How to look after an **Epidural** on the Ward

How to insert an **Emergency Airway**

How to Manage **Airway Obstruction**

**OTHER TOPICS**

**Basics of anaesthesia:** handout

Introduction to **Anaesthesia**

Introduction to **Postoperative Complications**

Introduction to **Preassessment**

How to prescribe **Perioperative Analgesia**

Introduction to **Pain Pathways** and Mechanisms

How to prescribe **Perioperative Analgesia for Children**

How to prescribe **Fluid Therapy**

NICE ward- based **fluid guidelines** 2013

Basics of **Intensive Care**

How to use **Inotropes** and vasopressors

Introduction to **Trauma** Care

Introduction to **Pain Pathways**

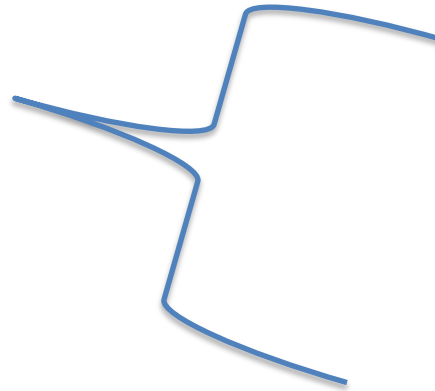
How to Recognise **Critical Illness**

**Oxygen delivery** and consumption (more advanced)

History  
Examination  
Investigation  
Discussion  
Management

**Side Effects**

CVS  
RS  
GI  
GU  
NS  
Other



Danger  
**DR**  
Response?

Before **During** After



# Contents

Physiology – relevant only! =  $MAP = CO \times SVR$

Anaesthesia- not much!

Analgesia - how to classify + key drugs

Preop assessment and drugs

IV fluids

Blood + Products

ABG

Risk

Airway

Critical Care, iSBARd

Other stuff if we have time



# Physiology

- Mean Arterial Pressure =  $CO \times SVR$
- Cardiac Output =  $SV \times Hr$

Hypoxaemia = low  $O_2$  in blood

Deadspace

= ventilation with no gas exchange

= ventilation with no perfusion eg PE, Hemorrhage

Shunt

= perfusion with no ventilation

eg Pneumonia, collapsed lung, puss

$$\text{Mean Arterial Pressure} = \text{CO} \times \text{SVR}$$

Mean Arterial Pressure =  
Cardiac Output x  
Systemic Vascular Resistance

$$\text{MAP} - \text{CVP} = \frac{\text{tiny SV} \times \text{HR}}{\text{CO}} \times \text{SVR}$$

‘Cardiogenic’ = of the heart = CO changes

‘Vaso...Veno ...dilation/constriction’ = SVR changes

# Mean Arterial Pressure = CO x SVR

What causes low blood pressure....

CO      Cardiac causes or changes in blood volume

SV x HR

SVR      Sepsis and Anaphylaxis

Myocardium- muscle  
Rhythm- rate  
Valves - forward flow  
Oxygenated blood coming  
back to the heart =  
normal venous return  
Relax + fill properly



# Mean Arterial Pressure = CO x SVR

You go to see someone with low blood pressure....

Hx Ex Ix Discuss Mx

?Hands feel **warm** = low SVR

?Hands feel **cool** = low CO (with raised SVR to compensate)

SVR low    Sepsis    and Anaphylaxis

**SV x HR**

CO low    Cardiac causes or changes in  
blood volume

Myocardium- muscle  
Rhythm- rate  
Valves - forward flow  
Oxygenated blood coming  
back to the heart =  
normal venous return  
Relax + fill properly



# Anaesthesia Basics

- Triad of Anaesthesia
  - **Hypnosis**
  - Analgesia
  - +/- Neuromuscular paralysis



# Anaesthesia depresses function

Hypnosis= reducing consciousness

$$\text{MAP} = \text{CO} \times \text{SVR}$$

Either I/v or volatile

- I/V Thiopentone Propofol

- CVS RS NS Depressants

- Volatiles- gasses- Sevoflurane, Isoflurane

- Breathe in, then out

- CVS RS NS Depressants

- I/V Ketamine

- Different side effects

# Anaesthesia depresses function

Depresses

- (D)R
- Airway
- Breathing
- Circulation
- Disability
- Everything else

CVS  
RS  
GI  
GU  
NS  
Other

$$\text{MAP} = \text{CO} \times \text{SVR}$$

# Anaesthesia depresses function

Depresses

- (D)R
- Airway
- Breathing
- Circulation
- Disability
- Everything else

## So what?

If you can't

- compensate /
- raise the CVS function

.....you're in trouble

Ht Failure

Breathlessness walking up stairs

IHD

# Anaesthesia

- Triad of Anaesthesia
  - Hypnosis
  - **Analgesia**
  - +/- Neuromuscular paralysis

How to insert a **Central Line**

How to insert a **Chest Drain**

How to look after an **Epidural** on the Ward

How to insert an **Emergency Airway**

How to Manage **Airway Obstruction**

### OTHER TOPICS

**Basics of anaesthesia:** handout

Introduction to **Anaesthesia**

Introduction to **Postoperative Complications**

How to prescribe **Perioperative Analgesia**

Introduction to **Pain Pathways** and Mechanisms

How to prescribe **Perioperative Analgesia for Children**

How to prescribe **Fluid Therapy**

NICE ward- based **fluid guidelines** 2013

Basics of **Intensive Care**

How to use **Inotropes** and vasopressors

Introduction to **Trauma** Care

Introduction to **Pain Pathways**

How to Recognise **Critical Illness**

**Oxygen delivery** and consumption (more advanced)

Hypotension

The **Airway**

Basics of **Fluids and Analgesia**

Basics of **Renal Failure**

**Course booklet to Introduction to Anaesthesia Course -**

**Please contact robcmstephens[at]goolemail.com to obtain the password to this FY-1 stage document. The MBBS year 4 booklet is higher up the page**



# Anaesthesia: Analgesia

- DR ABCDE      Hx Exam   Ix   Discuss   Mx
- 'SOCRATES'
- RAT **Recognise Assess Treat**
- **Psychology** – chat, explain etc = important
- **Physical** – splint, fix #, cold compress, acupuncture
- **Systemic** – 'ladder' plus adjvants (extras)
  - Simple –Paracetamol
  - NSAID
  - Opioids = any drug acting on opioid receptors
  - Gabapentin, Amitriptyline, Nitrous oxide etc
- **Local/regional** –  $\text{Na}^+$  channel eg Lignocaine / Bupivacaine
- eg wound infiltration
  - eg 'Instillagel' for urinary catheters (lignocaine)

# Anaesthesia: Analgesia

- Psychology eg explain, kindness, Physical cold compress, #
- Systemic – ‘ladder’ plus adjuvants (extras)
  - Simple – Paracetamol 1g iv oral
  - NSAID – Ibuprofen oral, i/v Side effects CVS RS GI GU
  - Opioids
    - Weak Opioid Dihydrocodeine 30mg tds
    - Strong Opioid Morphine, Fentanyl, Oxycodone
    - What route? Side effects
  - Gabapentin, Amitriptyline, Nitrous oxide etc
- Local/regional – Spinal, Epidural

# Anaesthesia: Analgesia Ladder

Simple =

- Paracetamol 1g iv, oral, pr (adult dose)
- Never more than 4x day
- Never less than 4 hours apart
- Codydramol+ Cocodamol have Paracetamol in
- First analgesia drug to start, last to finish

# Anaesthesia: Analgesia Ladder

## Non Steroidal Anti- Inflammatory Drugs

- Cyclo-oxygenase 1 + 2 'COX' Inhibitors
- Ibuprofen 200-400mg 3x-4x
- s/e **CVS**      **RS**      **GI**      **GU**      NS
- Caution
  - Increasing age
  - Worsening eGFR
  - Never give- renal transplant/ 1 kidney
  - Give short course eg 5 days then reassess

# Anaesthesia: Analgesia Ladder

## Weak Opioids

- Opioid receptors  $\mu$ ,  $\delta$ ,  $\kappa$
- Dihydrocodine 30mg 3x-4x Oral
- Regularly or as needed
- s/e **CVS**      **RS**      **GI**      GU      **NS**
- Tramadol
- Caution
  - Increasing age
  - Worsening eGFR
  - Resp disease



# Anaesthesia: Analgesia Ladder

## Strong Opioids

Morphine      Fentanyl      Oxycodone

Different preparations, doses, routes

- Morphine fast or slow release Oral, IV as PCA
- Fentanyl IV as PCA
- Oxycodone fast or slow release Oral, IV as PCA
- s/e


# Anaesthesia: Analgesia Ladder

## Strong Opioids

- **Morphine** fast release Oral 'Oromorph' 5-15mg
- Morphine slow release 'MST' Oral
- Morphine IV as PCA
- **Fentanyl** as IV PCA, patch etc
- **Oxycodone** as PCA or Oral (slow and fast release)
- s/e **CVS**                      **RS**                      **GI**                      GU                      **NS**
- Caution
  - Increasing age
  - Worsening eGFR use Oxycodone
  - Give with laxative, Oxygen, PRN antiemetic, PRN Naloxone

# Anaesthesia: Analgesia Ladder

## Strong Opioids

- Controlled drugs
- On ward- Never give IV apart from PCA
- Low  eGFR consider Oxycodone
- Give
  - Regular laxative, oxygen,
  - PRN antiemetic, PRN Naloxone
- Morphine IV 3x strong as oral

If converting add up 24hr oral dose, divide/3 = IV dose

# You see a patient in pain **RAT**

- Psychology, physical, systemic/ladder, ?local, regional
- Assess the patient.. “out of 10 how bad is..” SOCRATES
  - Where is the pain ? ‘expected’? acute vs chronic
  - Can they eat and drink – determines route
- Systemic – ‘ladder’ plus adjvants
  - Simple –Paracetamol oral or IV regular 1g 4x
  - NSAID – oral regular 3-4x (?PPI?)
  - Opioids
    - Oral Dihydrocoedine regular 3-4 x
    - Oral Long acting morphine ‘MST’ BD
    - + PRN ‘Oral Quick relaease morphine 3hrly’
    - IV- PCA Morphine Fentanyl
  - Opioids - Oxycodone less renal elimination
  - Other Gabapentin, Amitriptyline, Nitrous oxide etc

SBA

A 55 year old woman has 7/10 hip pain 5 hours following an elective total right hip arthroplasty (joint replacement). She has been prescribed paracetamol 1g four times a day and ibuprofen 400mg three times a day but is still in pain.

Which of the following options would be most appropriate?

- A. Adding co-codamol 30mg/500mg four times a day orally with lactulose 10 ml twice a day orally.
- B. Adding codeine sulphate 30mg once daily orally and as required oral morphine
- C. Increasing analgesia to paracetamol 1g six times daily, dihydrocodeine 30mg three times daily + fentanyl patch
- D. Prescribing her Fentanyl 20 micrograms intravenously up to 100 micrograms with lactulose 10 ml twice a day orally.
- E. Regular dihydrocodeine 30mg three times daily orally with lactulose 10 ml twice a day orally and as required oral morphine.



# Analgesia

- Psychology, physical, systemic, local, regional
- Postop pain – depends on expected needs  
Bigger surgery, more pain
- ?Intraop local /block/epidural + systemic
- Everyone gets Paracetamol regularly 1G QDS
- ?add NSAID regularly eg Ibuprofen 200mg-400mg TDS
- ?add Dihydrocodine regular 30mg TDS
- ?need stronger – oral PRN Oral Morphine
- ? need stronger – PCA i/v + call for help

# OSCE

**Allergies, sensitivities and adverse drug reactions**

No known allergies ☒ Not possible to ascertain ☐ *[Signature]* Initials & date

Medicine/substance	Reaction and severity	Name and date

Personal details/addressograph

NHS / Hospital number *1234567*

Surname *STEPHENS*


First name *Robert*

Date of birth *28.2.1969*

Other prescriptions continued

bronchodilator



Discontinuation (indication for MPE prescriptions) prescriptionstoppage.indication.indication					Date ▶ 7-2
Drug Paracetamol	Route 0	Frequency QID	Start date 7-2	Stop date 12	Enter notes ▼
New this admission (circle): Yes / No					
Dose 1g					
Signature 	<input checked="" type="checkbox"/> Sleep Ind.				
Additional instructions					
Drug					

1<sup>st</sup> name  
2<sup>nd</sup> name  
DOB  
Hosp No

NHS / Hospital number 1234567  
Surname STEPHENS  
First name Robert  
Date of birth 28.2.1969

Additional instructions

NHS / Hospital number 1234567  
Surname STEPHENS  
First name Robert  
Date of birth 28.2.1969



# Allergies, sensitivities and adverse drug reactions

Patient details/addressograph

No known allergies ☒ Not possible to ascertain ☐ Initials & date

Weight (kg)

NHS / Hospital number

Surname

First name

Date of birth

Height (cm)

Surface Area (m<sup>2</sup>)

Medicine/substance	Reaction and severity	Name and date

1234567

STEPHENS

Robert

28.2.1969

## Regular prescriptions continued

### Thromboprophylaxis All patients must be reassessed at 24 hours and thereafter to ensure appropriate prophylaxis is prescribed (see guidelines on intranet)

1st choice for mechanical prophylaxis graduated elastic compression stockings. Nurses to check fitting and skin integrity daily and sign.

Graduated elastic compression stockings

Right leg ☐ Left leg ☐ Both ☐

Intermittent pneumatic compression device (IPC)

Drug

Dose

Route

Frequency

Start date

Stop date

Signature

Bleep no.

Pharmacy

Document reason(s) for NOT prescribing pharmacological VTE prophylaxis

Document reason(s) for NOT prescribing pharmacological VTE prophylaxis

Enter times

Enter dates below

Enter times

Enter dates below

Date

Enter times

Drug

New this admission (circle): Yes / No

Dose

Route

Frequency

Start date

Stop date

Signature

Bleep no.

Pharmacy

Additional instructions

Drug

New this admission (circle): Yes / No

Dose

Route

Frequency

Start date

Stop date

Signature

Bleep no.

Pharmacy

Additional instructions

Drug

New this admission (circle): Yes / No

Dose

Route

Frequency

Start date

Stop date

Signature

Bleep no.

Pharmacy

Additional instructions

T1As continue

Y N

Duration

Dr sign

Date

T1As continue

Y N

Duration

Dr sign

Date

T1As continue

Y N

Duration

Dr sign

Date

# Analgesia- PCA

Patient Controlled Analgesia- the only IV opioid on a ward



Morphine IV

1mg/ml

1mg bolus

No background

5 min lockout

Oxygen

Nursing Obs

Naloxone

Laxative & anti emetic



#### Patient details/addressograph

Weight (kg)	No. / Hospital number
	1234567
	Surname
	STEPHENS
	First name
	Robert
Height (cm)	Date of birth
	28.2.1969
Surface Area (m <sup>2</sup> )	

Additional instructions

10

Additional instructions:

Figure 10-10

Additional instructions


Signature	Block no.	Pharmacy
-----------	-----------	----------

100

The image shows a large, multi-page grid form used for data collection. The form is divided into several horizontal sections, each with a header row and multiple data rows. The header rows include columns for 'Date', 'Time continue', 'Duration', 'Dr sign', and 'Date'. The data rows are organized into groups of 12, 18, and 22 rows each. A red vertical line is drawn on the left side of the form, indicating a specific column or section.

## Patient details/addressograph

## NORTH CENTRAL LONDON

University College London Hospitals 

NHS Foundation Trust

## IN- PATIENT MEDICATION PRESCRIPTION AND ADMINISTRATION RECORD

Prescriptions for once only, pre-medication or surgical prophylaxis

## Guidance for prescribers

- Write prescriptions legibly
- Ensure all demographic details have been completed
- Write doses less than 1mg in micrograms
- Changes in dose and/or frequency: discontinue drug and re-prescribe on a new line. Do not alter existing instructions
- Discontinue medicine (s) with a vertical line through the

## Guidance for recording administration

Nurse initials to indicate medicine administered. When medicine (s) are not given as prescribed, record the appropriate code in the administration box and initial. Ensure appropriate action is taken as a result of drug omission to promote continuity.

- 1 Patient away from ward.  
2 Patient unable to receive e.g. NBM, vomiting.  
3 Patient refused.

## Routes of administration

I.V. – intravenous  
I.M. – intramuscular  
S.C. – subcutaneous  
P.O. – oral  
TOP – topical  
S.L. – sublingual  
P.V. – vaginal

# Anaesthesia

- Triad of Anaesthesia
  - Hypnosis
  - Analgesia
  - **+/-Neuromuscular paralysis**

# Anaesthesia: Neuromuscular

To allow intubation and easy ventilation

No movement for surgery

- NMJ Nicotinic Cholinergic antagonists
  - Non-competitive/depolarising
    - = Suxamethonium = 2 acetylcholine molecules
  - Competitive/non- depolarising
    - = Others – Atracurium, Rocuronium, Vecuronium..
- Reversal- inhibit the enzyme that breaks down Ach (Cholinesterase) with Neostigmine
  - used in Myasthenia Gravis

# Anaesthesia: 3 classical phases

- Preoperative – v important
- **Induction** – going to sleep
  - Dangerous
  - Mostly Analgesia, Iv hypnosis, paralysis
  - O<sub>2</sub>, Air, ABCD
- **Maintenance** – during surgery
- **Emergence** – once surgery has ended
- Postoperative, recovery, home

SBA

# SBA: Preoperative

A 73 year old woman with stable mild chronic obstructive pulmonary disease, has hypertension and mild renal impairment is to undergo scheduled laparotomy. She walks 3+ flights stairs. Which preoperative measures are most appropriate?

- A. ECHO cardiogram
- B. Abdominal XR
- C. Prophylactic  $\beta$  blockers
- D. Full blood count, Urea and Electrolytes
- E. Chest X-ray

# Preoperative: Assess

CVS

History Examination Investigation Discuss Management

SOBOE < 2 flights stairs? = Heart Failure

Can't assess exercise tolerance?

FBC, Group & Save, U & E, other preop bloods

ECG if over 55 or for major surgery or Hx

ASA risk score 1-5 and others

Many other issues....

risk vs benefit of surgery vs other options

?postpone elective surgery to 'optimise' ?



# Preoperative Fasting

- Food, milk, 6 hours
- Clear fluids 2 hours
- Ok to take sip of water with drugs

# Preoperative: Drugs

Don't stop CVS drugs except ACE

ie continue B Blockers,  $\text{Ca}^{++}$  antagonists, Nitrates etc

Don't stop Aspirin/Clopidogril with Coronary Stents –  
discuss with surgeon

Carry on most other drugs including analgesia

Type 1 DM: no food, alter insulin (complex)

Type 2 DM: no food, reduce hypoglycaemics (complex)

'NBM' –sips of water ok for drugs until surgery

# Preoperative: How can I optimize?

- 'Preassessment'?
- Consent / WHO / Understand / Anaesthesia
- Ward? ICU postop? Theatre booked?
- Usual drugs carry on?
  
- CVS Hb, IVI fluid up? G&S XM ?Iron, drugs
- RS
- GI NBM appr
- GU fluid?

# Surgical Safety Checklist 'Time out'



World Health  
Organization

Patient Safety  
A World Alliance for Safer Health Care

## Before induction of anaesthesia

(with at least nurse and anaesthetist)

**Has the patient confirmed his/her identity, site, procedure, and consent?**

☐ Yes

**Is the site marked?**

☐ Yes

☐ Not applicable

**Is the anaesthesia machine and medication check complete?**

☐ Yes

**Is the pulse oximeter on the patient and functioning?**

☐ Yes

**Does the patient have a:**

**Known allergy?**

☐ No

☐ Yes

**Difficult airway or aspiration risk?**

☐ No

☐ Yes, and equipment/assistance available

**Risk of >500ml blood loss (7ml/kg in children)?**

☐ No

☐ Yes, and two IVs/central access and fluids planned

## Before skin incision

(with nurse, anaesthetist and surgeon)

☐ **Confirm all team members have introduced themselves by name and role.**

☐ **Confirm the patient's name, procedure, and where the incision will be made.**

**Has antibiotic prophylaxis been given within the last 60 minutes?**

☐ Yes

☐ Not applicable

### Anticipated Critical Events

**To Surgeon:**

☐ What are the critical or non-routine steps?

☐ How long will the case take?

☐ What is the anticipated blood loss?

**To Anaesthetist:**

☐ Are there any patient-specific concerns?

**To Nursing Team:**

☐ Has sterility (including indicator results) been confirmed?

☐ Are there equipment issues or any concerns?

**Is essential imaging displayed?**

☐ Yes

☐ Not applicable

## Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

### Nurse Verbally Confirms:

☐ The name of the procedure

☐ Completion of instrument, sponge and needle counts

☐ Specimen labelling (read specimen labels aloud, including patient name)

☐ Whether there are any equipment problems to be addressed

### To Surgeon, Anaesthetist and Nurse:

☐ What are the key concerns for recovery and management of this patient?

How to insert a **Central Line**

How to insert a **Chest Drain**

How to look after an **Epidural** on the Ward

How to insert an **Emergency Airway**

How to Manage **Airway Obstruction**

### OTHER TOPICS

**Basics of anaesthesia:** handout

Introduction to **Anaesthesia**

Introduction to **Postoperative Complications**

How to prescribe **Perioperative Analgesia**

Introduction to **Pain Pathways** and Mechanisms

How to prescribe **Perioperative Analgesia for Children**

How to prescribe **Fluid Therapy**

NICE ward- based **fluid guidelines** 2013

Basics of **Intensive Care**

How to use **Inotropes** and vasopressors

Introduction to **Trauma** Care

Introduction to **Pain Pathways**

How to Recognise **Critical Illness**

**Oxygen delivery** and consumption (more advanced)

Hypotension

The **Airway**

Basics of **Fluids and Analgesia**

Basics of **Renal Failure**

**Course booklet to Introduction to Anaesthesia Course -**

**Please contact [robcmstephens\[at\]goolemail.com](mailto:robcmstephens[at]goolemail.com) to obtain the password to this FY-1 stage document. The MBBS year 4 booklet is higher up the page**

SBA

# SBA Fluids

You're called about Mr N, 72, who has had a revision hip replacement today, including a 2 unit transfusion.

His urine output has been 15ml, then 20ml, 15ml, 10 ml and 0ml per hr. Mr N weighs 72 kg, has hypertension and type 2 diabetes and is eating and drinking normally. The most appropriate management is.....

- A) Assess him and prescribe some oral saline or oral Hartmann's.
- B) Assess the patient, ask for a bladder washout and give a fluid challenge with 500ml Hartmann's solution.
- C) Check the patency of the urinary catheter with a 'bladder washout' and check bloods looking for markers of hypoperfusion
- D) Give a unit of blood as he's probably lost blood during surgery.
- E) Give some diuretics (eg Furosemide) as with the fluid's he's likely to be 'overloaded'

# Fluid Therapy

Low urine  
Low blood pressure  
High heart rate  
Nil By Mouth

- Everyone gets confused!
- Think about why you're called to see patient
- Hx, Exam, Ix, Discuss, Management vs DR ABCD
- Ward Guidelines- NICE

mmol/L	Na <sup>+</sup>	K <sup>+</sup>	Ca <sup>++</sup>	Cl <sup>-</sup>	Lactate <sup>-</sup>	Glucose
<b>Hartmanns'</b>	131	5	2	111	29	
<b>Saline</b>	150			150		
<b>Glucose 5%</b>						50g/L
<b>Glucose 4%</b>	30			30		40g/L



# Fluid: Crystalloids

Hartmann's Solution =  
Compound Sodium Lactate



Saline 0.9%



Glucose 5%



Glucose 4% with 1/5 Saline



**Algorithm 1: Assessment**

Using an ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach, assess whether the patient is hypovolaemic and needs fluid resuscitation

Assess volume status taking into account clinical examination, trends and context. Indicators that a patient may need fluid resuscitation include: systolic BP <100mmHg; heart rate >90bpm; capillary refill >2s or peripheries cold to touch; respiratory rate >20 breaths per min; NEWS ≥5; 45° passive leg raising suggests fluid responsiveness.

Yes

**Algorithm 2: Fluid Resuscitation**
**Initiate treatment**

- Identify cause of deficit and respond.
- Give a fluid bolus of 500 ml of crystalloid (containing sodium in the range of 130–154 mmol/l) over 15 minutes.

Reassess the patient using the ABCDE approach  
Does the patient still need fluid resuscitation? Seek expert help if unsure

Yes

No

Does the patient have signs of shock?

Yes

No

Seek expert help

>2000 ml given?

No

Give a further fluid bolus of 250–500 ml of crystalloid

**Assess the patient's likely fluid and electrolyte needs**

- History: previous limited intake, thirst, abnormal losses, comorbidities.
- Clinical examination: pulse, BP, capillary refill, JVP, oedema (peripheral/pulmonary), postural hypotension.
- Clinical monitoring: NEWS, fluid balance charts, weight.
- Laboratory assessments: FBC, urea, creatinine and electrolytes.

Can the patient meet their fluid and/or electrolyte needs orally or enterally?

Yes

Ensure nutrition and fluid needs are met  
Also see [Nutrition support in adults](#) (NICE clinical guideline 32).

No

Does the patient have complex fluid or electrolyte replacement or abnormal distribution issues?  
Look for existing deficits or excesses, ongoing abnormal losses, abnormal distribution or other complex issues.

Yes

**Algorithm 4: Replacement and Redistribution**
**Existing fluid or electrolyte deficits or excesses**

Check for:

- dehydration
- fluid overload
- hyperkalaemia/hypokalaemia

Estimate deficits or excesses.

**Ongoing abnormal fluid or electrolyte losses**

Check ongoing losses and estimate amounts. Check for:

- vomiting and NG tube loss
- biliary drainage loss
- high/low volume ileal stoma loss
- diarrhoea/excess colostomy loss
- ongoing blood loss, e.g. melaena
- sweating/fever/dehydration
- pancreatic/jejunal fistula/stoma loss
- urinary loss, e.g. post AKI polyuria.

**Redistribution and other complex issues**

Check for:

- gross oedema
  - severe sepsis
  - hypernatraemia/hyponatraemia
  - renal, liver and/or cardiac impairment
  - post-operative fluid retention and redistribution
  - malnourished and refeeding issues
- Seek expert help if necessary and estimate requirements.

Prescribe by adding to or subtracting from routine maintenance, adjusting for all other sources of fluid and electrolytes (oral, enteral and drug prescriptions)

Monitor and reassess fluid and biochemical status by clinical and laboratory monitoring

**Algorithm 3: Routine Maintenance**
**Give maintenance IV fluids**

Normal daily fluid and electrolyte requirements:

- 25–30 ml/kg/d water
- 1 mmol/kg/day sodium, potassium, chloride
- 50–100 g/day glucose (e.g. glucose 5% contains 5 g/100ml).

Reassess and monitor the patient  
Stop IV fluids when no longer needed.  
Nasogastric fluids or enteral feeding are preferable when maintenance needs are more than 3 days.



## Algorithm 1: Assessment

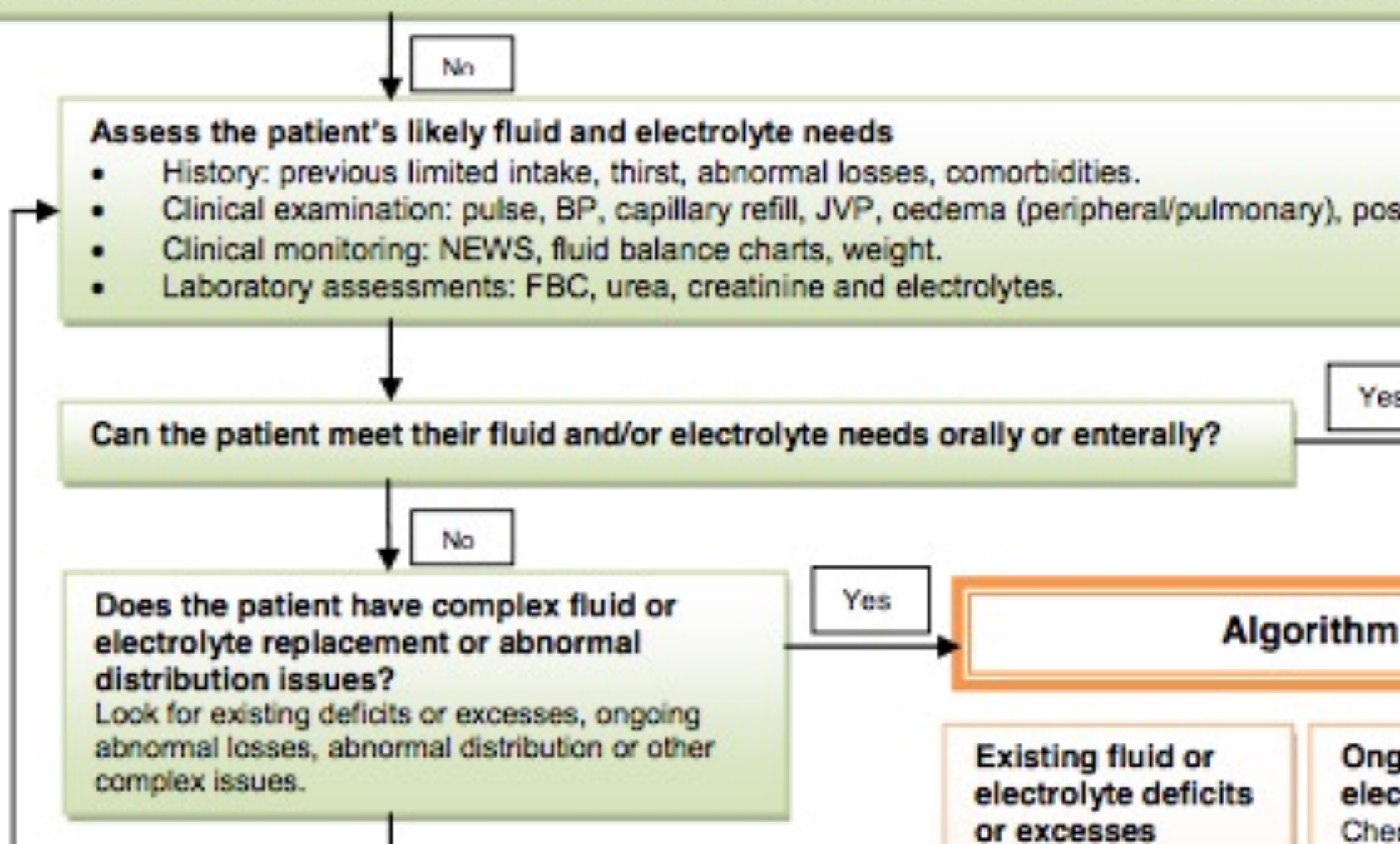
Use the ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach, assess whether the patient is hypovolaemic. Take into account clinical examination, trends and context. Indicators that a patient may need fluid resuscitation are: capillary refill >2s or peripheries cold to touch; respiratory rate >20 breaths per min; NEWS  $\geq 5$ ; 45° passive leg raise.

on

d.  
aloid

E

sure



Yes

## Algorithm 2: Fluid Resuscitation

### Initiate treatment

- Identify cause of deficit and respond.
- Give a fluid bolus of 500 ml of crystalloid (containing sodium in the range of 130–154 mmol/l) over 15 minutes.

Reassess the patient using the ABCDE approach  
Does the patient still need fluid resuscitation? Seek expert help if unsure

Yes

No

Does the patient have signs of shock?

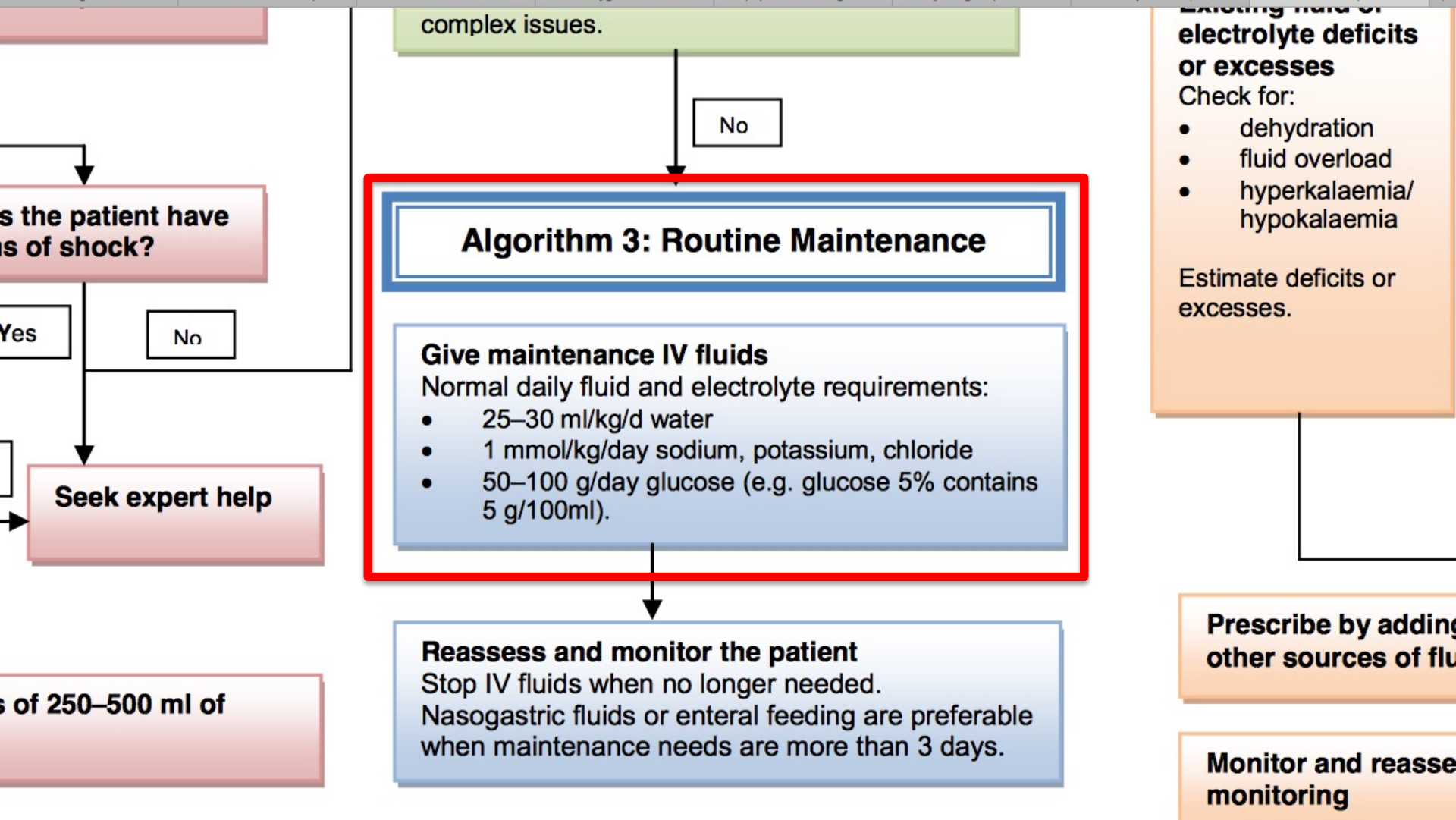
### Assess the patient's

- History: previous
- Clinical examination
- Clinical monitoring
- Laboratory assessment

Can the patient meet

Does the patient have electrolyte replacement distribution issues?  
Look for existing deficits, abnormal losses, abnormal complex issues.

Algorithm 3: Fluid



# NICE 2013- ward fluid

- Assess - usual ways
- Resuscitate — Hartmann's/ ~~Saline~~ 500ml 15minutes x 4
- Routine Maintenance
  - Oral ideally, if needed i/v
  - Glucose 50-100g /day
  - 25-30ml / kg / day
  - Na K Cl 1mmol/kg/day
- (Replace + Redistribution)

Until the problem you've been called about is sorted

Saline= metabolic acidosis



# OSCE & SBA

- OSCE- write a fluid prescription for
  - Resuscitation
  - Maintenance
- SBA ..
  - The following is the best...fluid prescription for a 100kg person who needs IV fluid replacement. ..

# Fluid Therapy

- |                        | mmol/L            | Na <sup>+</sup> | K <sup>+</sup> | Ca <sup>++</sup> | Cl <sup>-</sup> | Lactate <sup>-</sup> | Glucose |
|------------------------|-------------------|-----------------|----------------|------------------|-----------------|----------------------|---------|
| • Re <b>Hartmanns'</b> |                   | 131             | 5              | 2                | 111             | 29                   |         |
| • Re <b>Saline</b>     |                   | 150             |                |                  | 150             |                      |         |
|                        | <b>Glucose 5%</b> |                 |                |                  |                 |                      | 50g/L   |
|                        | <b>Glucose 4%</b> | 30              |                |                  | 30              |                      | 40g/L   |
- 25-30ml / kg / day
  - Na K Cl 1mmol/kg/day
  - Saline – Na<sup>+</sup> 150mmol/L – too much
  - Hartmann's- Na<sup>+</sup> 131 – too much
  - 4% Glucose 'Dextro-saline' 1/5 Na<sup>+</sup> Cl<sup>-</sup> 30mmol
  - 5% Glucose 'Dextrose' 50g/L Na<sup>+</sup> Cl<sup>-</sup> 0mmol



# Fluid Therapy

- Routine Maintenance
  - Glucose 50-100g /day
  - 25-30ml / kg / day
  - Na K Cl 1mmol/kg/day
- 100 kg.. = 2500- 3000ml/day

## Classic

1000ml 5% Glucose & 40 KCL 50g glucose 40 K+Cl- mmol

1000ml 5% Glucose & 40 KCL 50g glucose 40 K+Cl- mmol

500ml Na<sup>+</sup>Cl<sup>-</sup> & 20 KCL 75mmol NaCl, 20 K+

100g Glucose 75 Na K+ 100 Cl – lots

# Fluid Therapy

- Routine Maintenance
  - Glucose 50-100g /day
  - 25-30ml / kg / day
  - Na K Cl 1mmol/kg/day
- 100 kg.. = 2500- 3000ml/day

Alternative- use 'dextro-saline' with extra KCL

1000ml 4% Glucose 'Dextro-saline'	& 40 KCL	40mmol KCL	Na 30mmol
1000ml 4% Glucose 'Dextro-saline'	& 40 KCL	40mmol KCL	Na 30mmol
1000ml 4% Glucose 'Dextro-saline'	& 40 KCL	40mmol KCL	Na 30mmol

120g Glucose    90 Na    K+ 120            Cl – lots

# Fluid and electrolyte infusions

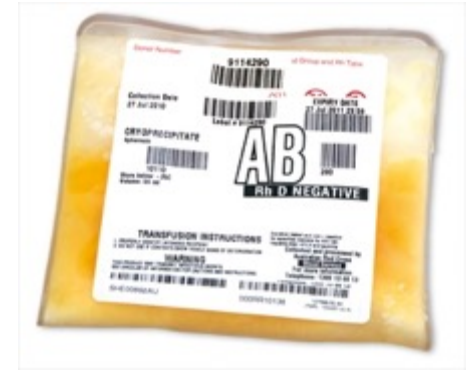
Patient ID

Patient name: Miss Imaginary Hospital number 1 2 3 4 5 6

Administrator to complete all administration sections and enter infusion fluid on fluid balance chart. Monitor cannulae and document on adult cannulae recording form.

Prescription										Administration and infusion rate check							
Date	Infusion fluid	Infusion volume	Additive name	Additive dose	Infusion rate	Route and line	Prescriber			Start		First infusion check			Second infusion check		
							Sign	Print or stamp name	Bleep	Date and time	Given by	Checked by	Date and time	Checked by	Second checked by	Date and time	Checked by
20/07/12	0.9% Saline	500ml	KCL	20 mmol	4 Hrs	IV	<i>Tijana Radosavljevic</i>		1234								
20/07/12	5% Glucose	1 L	KCL	20 mmol	10 Hrs	IV	<i>Tijana Radosavljevic</i>		1234								
20/07/12	5% Glucose	1 L	KCL	20 mmol	10 Hrs	IV	<i>Tijana Radosavljevic</i>		1234								
7/1/2020	4% Glucose 'dextrose –saline'	1L	KCL	20 mmol	8 hrs	IV	Rob Stephens		1234								
7/1/2020	4% Glucose 'dextrose –saline'	1L	KCL	20 mmol	8 hrs	IV	Rob Stephens										
7/1/2020	4% Glucose 'dextrose –saline'	1L	KCL	20 mmol	8 hrs	IV	Rob Stephens										

Attach additional pages here



**'Blood'**  
**Packed Red Cells**

**Platelets**

**FFP**

**Fresh Frozen Plasma**

**'Cryoprecipitate'**  
**Fibrinogen**

Haemoglobin  
O<sub>2</sub> carriage

Low Plt number  
Abnormal Plt Fn

Clotting Factors

Fibrinogen

# Blood

Group save= just saving info  
X Match= actually ordering blood

## Packed Red Cells Transfusion

- Immune, Infection, Under/Overload, Chronic (Fe)

## PRC Massive transfusion

- Blood = cold, ↑K, ↓Ca, Coagulopathy
- Given with FFP and Platelets
- Cryoprecipitate if Fibrinogen low

## Stable

- Usually aim for 70-80g/L..
- 80-90g/L in CVS/RS disease

## ?About to have surgery

- Higher c100g/L



# OSCE

# Risk

- Go through
  - Benefits
  - Risks
  - Any alternative Rx
  - What if we do nothing ?
  - Caveats
- Legal stuff.. 'Montgomery vs Lanarkshire



# 'talk to this patient about blood transfusion'

- Hello I'm....
- Can I just check I've got the correct patient...
- I've been asked to talk to you about....
- Is there anything you're specially worries about?

- Go through

- benefits

Oxygen to cells to work  
Less tired  
Heart has to work less hard

- risks

Blood risks

- any alternative Rx

cell saver, erthropoetin

- what if we do nothing ?

Risk of poor perfusion, anaemia

- caveats

Only use if really need

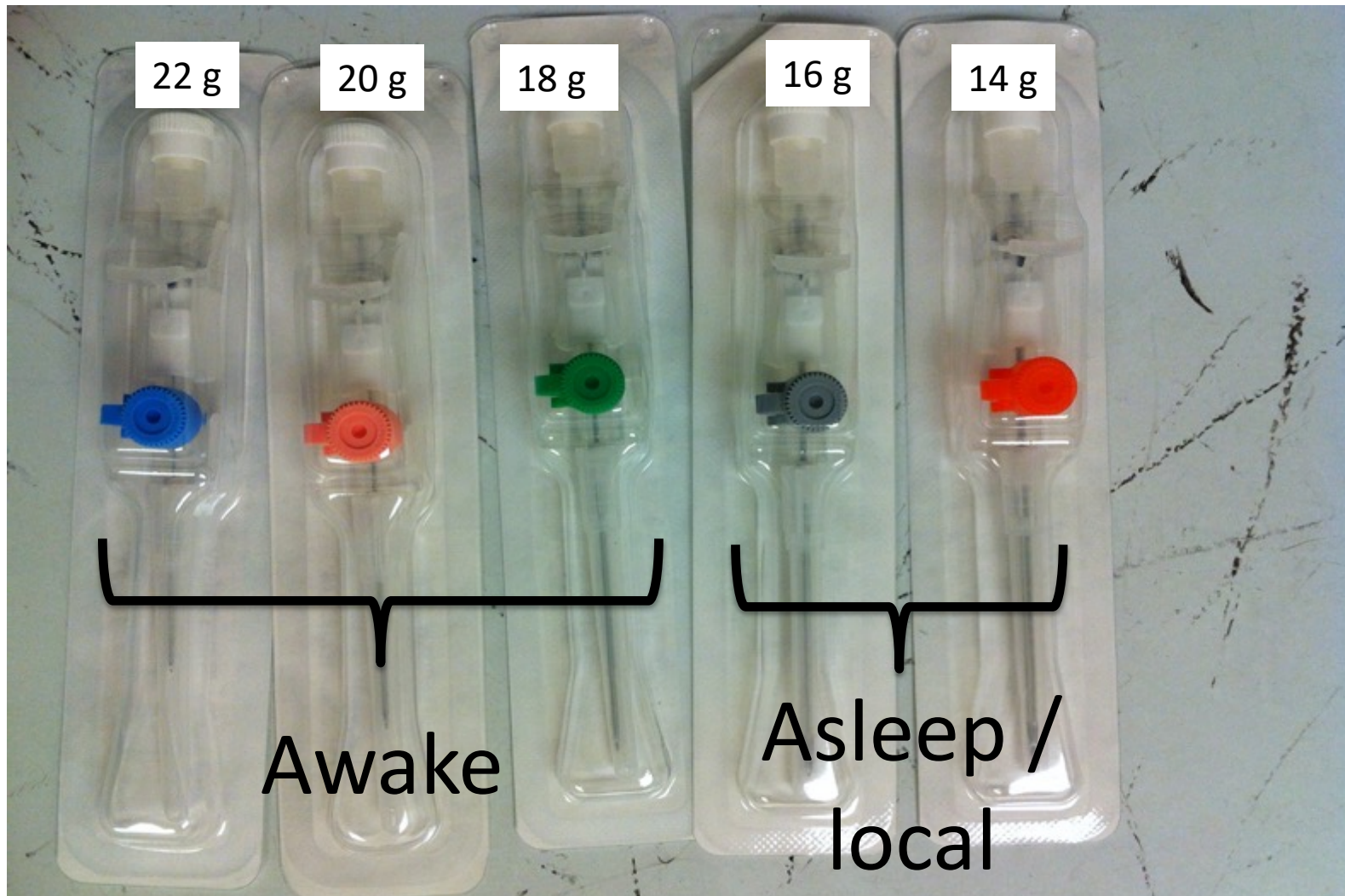
- Would you like to ask anything else
- Thanks for talking to me





# Fluid

- Intravenous Cannulae / 'Venflons'



# Bloods Day 1 Post Op

You're with a 65 woman who has had a laparoscopic hysterectomy yesterday. She looks ok to you from the end of the bed. On a postop ward round you're handed some bloods by a medical student.

The medical student asks you what you think of the bloods and what would you do about them.

You know it's very important to look cool (aka 'professional') in these sort of situations, but you're not sure what to do!  
They look ok but....

# Bloods Day 1 Post Op

Test	Result	Normal Range
Hb	110	115 – 155 g/L
WCC	13	3 - 10 x 10 <sup>9</sup> /L
Plt	250	150 – 400 x 10 <sup>9</sup> /L
Na	135	135 – 145 mmol/L
K	4.2	3.5 – 5.0 mmol/L
Ur	5.1	1.7 – 8.3 mmol/L
Cr	65	49 – 92 $\mu$ mol/L
eGFR	88	> 90
CRP	35	0 – 5 mg/L
Alb	36	35-55

# Arterial blood gas

- Essentially like venous – apart from Oxygen.
- pH - free H<sup>+</sup>
- pCO<sub>2</sub> - respiratory
- sBEx or sHCO<sub>3</sub> - Metabolic
  
- Oxygen- what's the FiO<sub>2</sub>
- Other stuff the hospital has bought
  - Eg Na, K, lactate, CO, Hb, MetHb
- New way of thinking- 'Stewart' (gold medal)

# 4 pathologies

There are 4 pathologies of Acid base balance

Respiratory Acidosis  
Respiratory Alkalosis

Metabolic Acidosis  
Metabolic Alkalosis

They can be

- Acute = sudden, new, hours
- Chronic = longer term, persistent, days

The body compensates to limit pH changes

- Respiratory compensation immediate
- Metabolic compensation 12+ hours

# Blood gas values

↓ pH	7.212		[ 7.350 - 7.450 ]
↑ pCO <sub>2</sub>	9.79	kPa	[ 4.67 - 6.00 ]
pO <sub>2</sub>	12.4	kPa	[ 10.7 - 13.3 ]
Hct <sub>C</sub>	45.4	%	

## Oximetry values

ctHb	148	g/L	[ 115 - 174 ]
sO <sub>2</sub>	95.3	%	[ 75.0 - 99.0 ]
↓ FO <sub>2</sub> Hb	93.3	%	[ 95.0 - 99.0 ]
FCOHb	1.7	%	[ 0.5 - 2.5 ]
FHHb	4.6	%	[ 1.0 - 5.0 ]
FMethHb	0.4	%	[ 0.4 - 1.5 ]

## Electrolyte values

cK <sup>+</sup>	4.2	mmol/L	[ 3.5 - 4.5 ]
cNa <sup>+</sup>	139	mmol/L	[ 135 - 148 ]
cCa <sup>2+</sup>	1.17	mmol/L	[ 1.12 - 1.32 ]
cCl <sup>-</sup>	104	mmol/L	[ 98 - 107 ]

## Metabolite values

↑ cGlu	6.8	mmol/L	[ 3.3 - 6.1 ]
cLac	0.7	mmol/L	[ 0.4 - 2.2 ]

## Oxygen status

ctO <sub>2</sub> C	19.5	Vol%	
p50 <sub>C</sub>	4.38	kPa	

## Acid-base status

cBase(Ecf) <sub>C</sub>	1.6	mmol/L	
cHCO <sub>3</sub> <sup>-</sup> (P.st) <sub>C</sub>	23.9	mmol/L	

Notes

Notes

## Telephone Numbers

J Registrar South  
 07939 135 452  
 J Registrar North  
 07984 183 141  
 I Bed Co-ordinator  
 07736 330 331  
 CU Bed Co-ordinator  
 07908 617 681  
 ite Pain Nurse  
 Bleep 2257  
 NN  
 ext 84706 / 83123  
 J ext 83574 / 8457  
 ite Pain Nurse  
 2248



pH  
pCO<sub>2</sub>  
HCO<sub>3</sub> or BEx

Metabolic Acidosis  
Partial Respiratory  
Compensation

### Blood Gas Values

pH	7.25	
pCO <sub>2</sub>	3.6	kPa
pO <sub>2</sub>	29.6	kPa

Low  
low

### Temperature Corrected Values

pH(T)	7.380	
pCO <sub>2</sub> (T)	6.35	kPa
pO <sub>2</sub> (T)	29.6	kPa

### Acid Base Status

cBase(Ecf) <sub>c</sub>	-10	mmol/L
cHCO <sub>3</sub> <sup>-</sup> (P,st) <sub>c</sub>	15	mmol/L

Low  
Low

### Oxygen Status

ctO <sub>2c</sub>	13.7	Vol%
p50 <sub>e</sub>	3.48	kPa

### Oximetry Values

ctHb	100	g/L
FO <sub>2</sub> Hb	94.1	%
FO <sub>2</sub> Hb	94.1	%
FMetHb	1.8	%

### Electrolyte Values

cK <sup>+</sup>	3.5	mmol/L
cCl <sup>-</sup>	100	mmol/L
cNa <sup>+</sup>	137	mmol/L

### Metabolite Values

cGlu	5.1	mmol/L
cLac	1.3	mmol/L

Let's think about  
this stuff later

# Arterial blood gas

- Essentially like venous – apart from Oxygen.
- pH     $p\text{CO}_2$      $s\text{BEx}$  ( $s\text{HCO}_3$ )
- Oxygen- what's the  $\text{FiO}_2$
- Other stuff the hospital has bought
  - Eg Na, K, lactate, CO, Hb, MetHb
- New way of thinking- 'Stewart' (gold medal)

# Airway

Airways obstruct

- Under Anaesthesia
- If consciousness reduced eg alcohol, CVA
- Likely if GCS <8

# Oxygen

Nasal Cannulae

1-3L/min

Variable Flow 'Hudson Mask' 1-15L/min



**Additional information:**

# Oxygen

If oxygen saturation drops **below** target range, on prescribed oxygen: patient needs to be reviewed by a doctor  
 If oxygen saturation **above** target range, on prescribed oxygen: reduce/remove oxygen and ask doctor to review

<b>Device*:</b> N	<b>Additional information:</b>		<b>Date</b> → March 2022				
			7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>		
<b>Flow rate (L/min or %):</b> 2L/Min		<b>Time</b>					
<b>Signature:</b> Rob Stephens	<b>Bleep:</b> 1234						
<b>Target saturation (circle):</b> 88-92% <b>94-98%</b>							
<b>Other (Specify):</b> Not applicable							

**Device\*** N= nasal cannula, V = Venturi, H = humidified, RM = reservoir mask, OTH = other

# Oxygen in practice..

Emergency: 15L/min  $O_2$  Non-rebreathe bag

Then

- turn down to 10L/min..... $SpO_2 > 95\%$ ?
- wait 5-10 mins
- turn down to 5L/min..
- turn down to 2L/min or nasal  $O_2$
- nasal  $O_2$  – 1-2L/min

# Airway

0 Give Oxygen – different ways

1 Airway Manouvers

Jaw thrust / Head tilt / chin lift /

2 Airway Adjuncts

Guedel / Naso-Pharyngeal

3 Airway kit eg Laryngeal Mask Airway

4 'Definitive' Airway

Intubate- Cuffed Oral EndoTracheal Tube / Tracheostomy

5 Surgical Airway –

Cricothyroid /Tracheostomy

# Airway Equipment





# Critical Care

More than Ward care

- More Nurses + Drs, immediately present
- More Equipment & Monitors
- Preventing Organ dysfunction
- Treating Organ dysfunction



..same in  
trauma, wards, ED, ICU



History  
Examination  
Investigation  
Discussion  
Management

# Basic Obs; which ones?

Hr

RR

NiBP

SaO<sub>2</sub>... on...??

Temperature

S

situation

B

background

A

assessment

R

recommendation

I

Introduction

Hi I'm one of the FY Drs. Is that the ICU Dr please? Can I ask you about a patient on the surgical ward? Floor 6

S

situation

She's on the surgical ward? Floor 6 She's on 15 L oxygen and still her oxygen saturations are still low!

B

background

She's the 36 year old lady who's just had a laparoscopic hysterectomy. I noticed her saturations were 98% on air on the preassessment chart and she's previously well.

A

assessment

**airway** is OK-her **breathing** her resp rate is 27 and it looks really shallow. She's needed 15L of Oxygen to have a saturation of 94% since she's arrived in recovery. In terms of her **circulation**: Her BP is 105/74 and heart rate 98 and (**disability**) she's pretty sleepy – only responding to pain. She's certainly great on the ward!

R

recommendation

I think she needs to come to ICU

D

Decision

Could you come and see her?- she's in main surgical ward bed 12.  
Thank. You so much

# Critical Care/Ward Assessing

**DR** & Help!- “ Can you call 222 and...”  
**Reassure Patient** “ I’m Dr ...and I’m going to help sort..”  
**Airway** Oxygen 15L and turn down to get SaO<sub>2</sub> 95%  
**Breathing** Assess  
**Circulation** Assess

- HR BP SaO<sub>2</sub>, Capillary refill
- IVI, Fluids, Bloods, VBGas incl Glucose

**Disability** + Drugs + Glucose

## Stuff you can do to cover yourself in glory

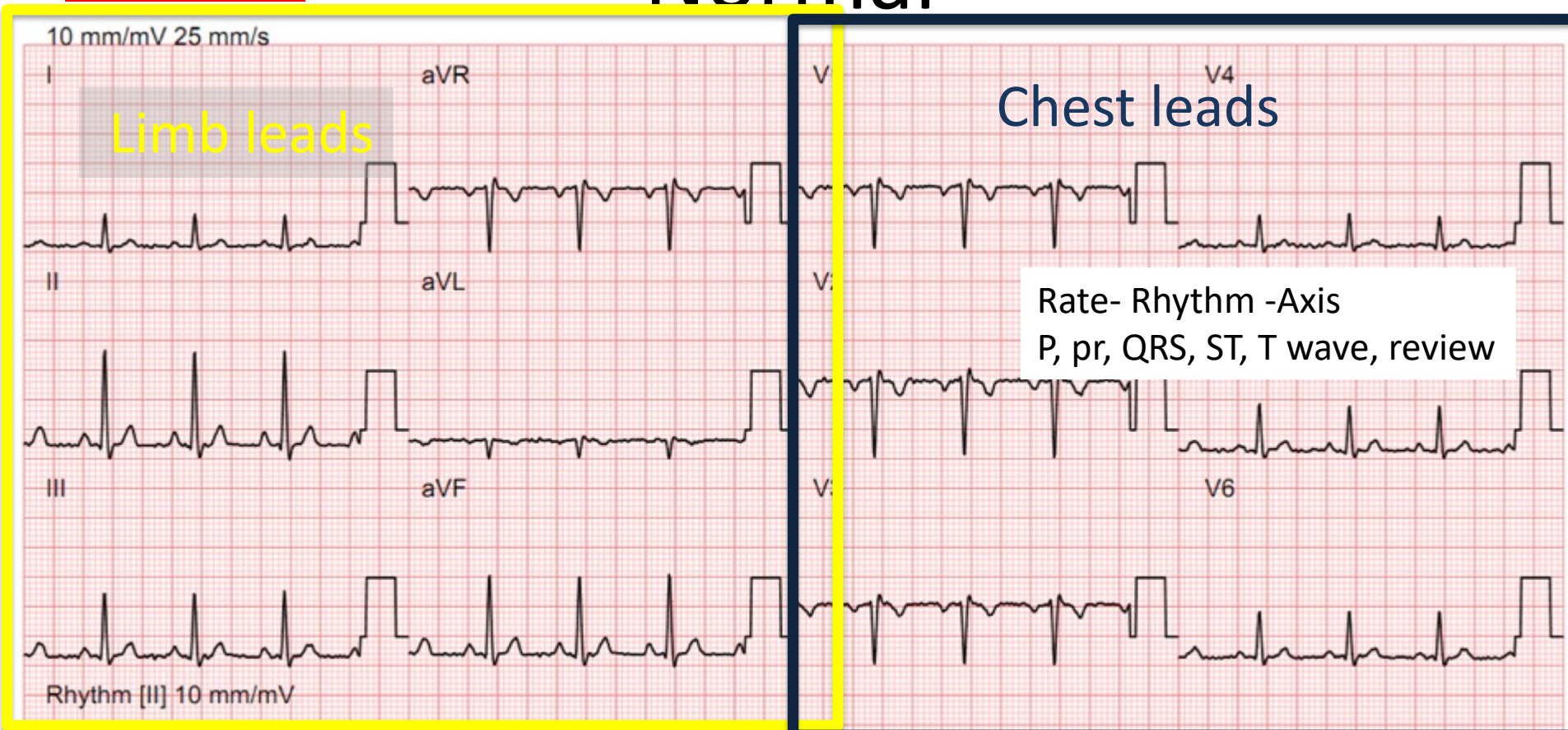
- Give O<sub>2</sub>, Get IVI in – send off Vbg and Bloods
- Fluid challenge 500ml Hartmann’s
- Continuous monitor, 12 lead ECG, CXR

Ask for History, Notes, Drug Charts

First Name  
Second name  
Date of birth  
Hospital Number

Date taken  
Clinical Info  
Speed and Amplitude

# Normal



**Rhythm strip**



The acronym "**PIPER ABCDE**" is a systemic approach to interpreting an X ray.

First Name  
Second name  
Date of birth  
Hospital Number

+

Image quality

**P**atient info  
**P**rojection  
**I**nspiration  
**P**enetration  
**E**xposed area  
**R**otation



Sequence of interpretation

**A**irway  
**B**reathing  
**C**irculation  
**D**iaphragm  
**E**verything else



SBA

# DVT Prophylaxis

You are asked to 'sort out the DVT prophylaxis' by your idiot registrar. He directs you to a 67 man who is having a laparoscopic cholecystectomy at about 1300 today. The man has essential hypertension but is otherwise well. You..

- A Prescribe TED stockings and aspirin
- B Prescribe TED stockings only
- C Prescribe TED Stockings and ½ dose of low molecular weight heparin 2 hours before surgery, with the first post operative low molecular weight heparin dose 4 hours after surgery starts
- D Prescribe TED stockings and first dose 6 hours after surgery finishes of low molecular weight heparin, to carry on whilst he's an inpatient
- E Prescribe TED stockings and first dose 2 hours after surgery finishes of low molecular weight heparin, carrying on whilst he's an inpatient

# DVT Prophylaxis

- Risk assess
  - Acute medical or inpatient surgery?
  - Other clotting things / risk of bleeding?
- General prophylaxis
  - Mobilise/ fluids/ pain relief
- TEDS
- Intermittant calf compression
- LMWH 6 hours post op, then 1800 daily

# Summary

- Anaesthesia- depresses CVS RS NS & ABCD
- Analgesia –general, systemic, local/regional
- Preoperative incl WHO
- Fluids + Blood
- ABG
- Oxygen and Equipment
- Critical Care
- Welcome in theatre anytime

[www.ucl.ac.uk/anaesthesia/people/stephens](http://www.ucl.ac.uk/anaesthesia/people/stephens)

Google UCL Stephens

Google UCL Anaesthesia Student