

Pre-operative Assessment

Dr William Dooley



Plan

- Assessment structure
- Investigation options
- Exam format



Why is it important??

- Reduce morbidity and mortality
- Risk management
- Keep surgeon/anaesthetist happy & reduce cancellations
- **Commonly examined in Finals...**

How do you structure a pre-op assessment?

Please perform a pre-operative assessment on this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .

- History
- Examination
- Investigation
- Management

What further investigations and management options would you consider?



Communication Skills OSCE Station

Please TAKE A HISTORY from this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .



Background

Mr Griffin has been admitted twice for urinary retention in the past year before being discharged a catheter with a leg bag. PR revealed smooth enlarged prostate. PSA was only marginally elevated.



85yo for TURP

Mr Griffin has suffered **two "mini-strokes"** in the past two years, since which he taken **"blood thinning tablets"**. He has never had a heart attack and has had **no previous operations**. He has smoked **twenty cigarettes a day since aged 15**. He is a retired farm worker.

He lives in a **warden controlled** flat and has 'meals-on-wheels'. He can walk to the garden with his frame but is **limited by his breathing**. He states his breathing has been "bad for years" and he has a cough productive of clear sputum all year round. He states he gets a bad **acidic taste** when he ties his laces.

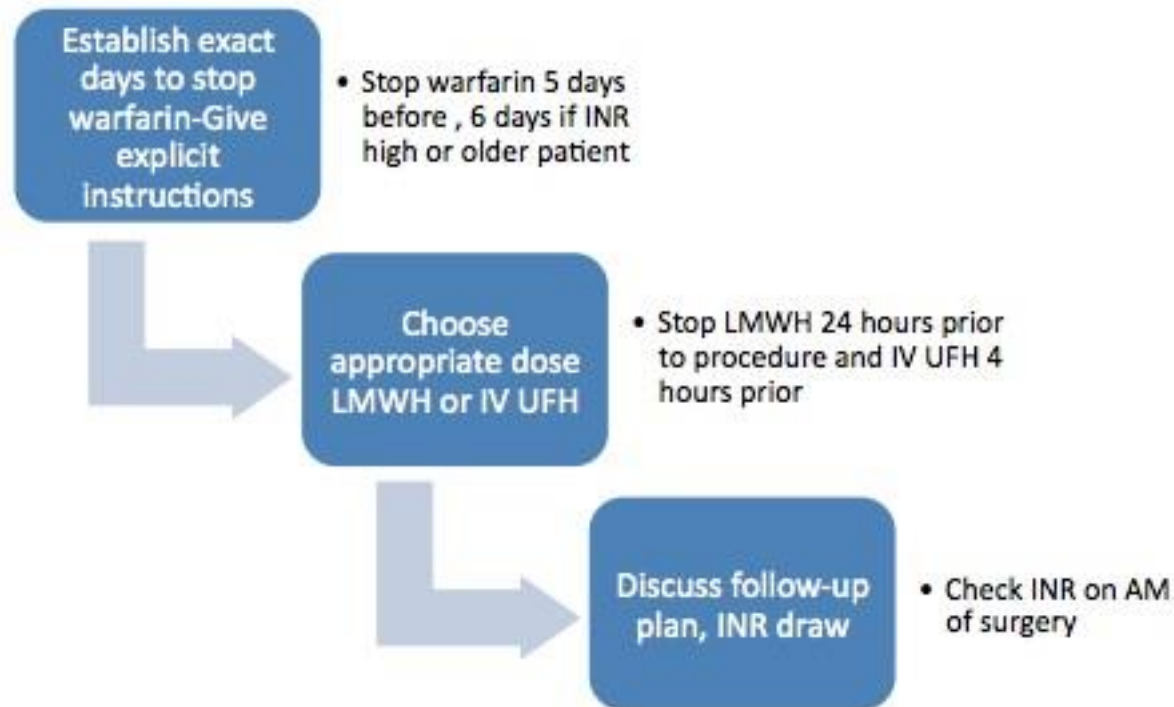


Repeat Prescription		
Last dispensed	Medication	Medication Review
Last Month	Warfarin 2 or 3 mg OD <i>(as instructed)</i>	
Last Week	Salbutamol Inh. 2 puff prn	
Last Week	Seretide Inh. 2 puff BD	
Last Week	Tiotropium Inh. 1 puff OD	
Last Week	Paracetamol 1g QDS	
Last Week	Doxazocin 4mg OD	
Last Week	Atorvastatin 10mg nocte	
Last Week	Aspirin 75mg mane <i>(with food)</i>	
END		
Allow 24 hours for your repeat prescription		
Page 1/2		

Last dispensed	Medication	Medication Review
Last Week	Amlodipine 5mg OD	
Last Week	Ramipril 5mg OD	
Last Week	Bendroflumethiazide 2.5mg OD	
Last Week	Betahistine 24mg OD	
Last Week	Imipramine Hydrochloride 10mg nocte	
Last Week	Digoxin 62.5mcg OD	
END		
Allow 24 hours for your repeat prescription		
Page 2/2		



“Bridging” Warfarin



History structure

Current state

- Baseline

PMH

- Especially cardiovascular and respiratory

PSH

- Any anaesthetic or surgical complications

DH

- Including allergies

SH

- Smoking
- Dependence
- Exercise Tolerance



Clinical Skills OSCE Station

Please EXAMINE from this 85yo life long smoker who has been booked for transurethral resection of prostate (TURP) .



Examination

Tar staining

CV : Pulse irregularly irregular

HS- I+II+ ES murmur loudest aortic region no radiation to carotid

RS : Widespread wheeze

Observations

BP 125/80

HR 78

RR 14

Sats 91%



Examination

- A
 - Any intubation concerns (including dentures)
- B
 - Examine chest (respiratory system)
- C
 - Examine chest (cardiovascular system)
 - **Any signs of heart failure or respiratory distress**
- D
 - BM
- E

Practical Skills OSCE Station

What investigations would you order for this patient?

Anything else you may consider doing?



NICE Guideline

Age

85

ASA Grade

Grade 3

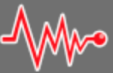
System of major comorbidity

- Cardiovascular
- Respiratory
- Renal

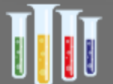
Calculate

Recommended Tests

ECG



Full Bloodcount



Renal Function

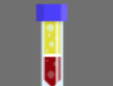


Tests to consider if clinically indicated

Chest X-Ray



Haemostasis



Urine Analysis

Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)



Blood Gases



Random Glucose



Lung Function



Investigations

Bedside

- ECG
- Random blood glucose
- Urine Analysis (if symptomatic)
- Peak Flow

Bloods

- FBC
- U+E
- Clotting— e.g. PT / APTT / INR

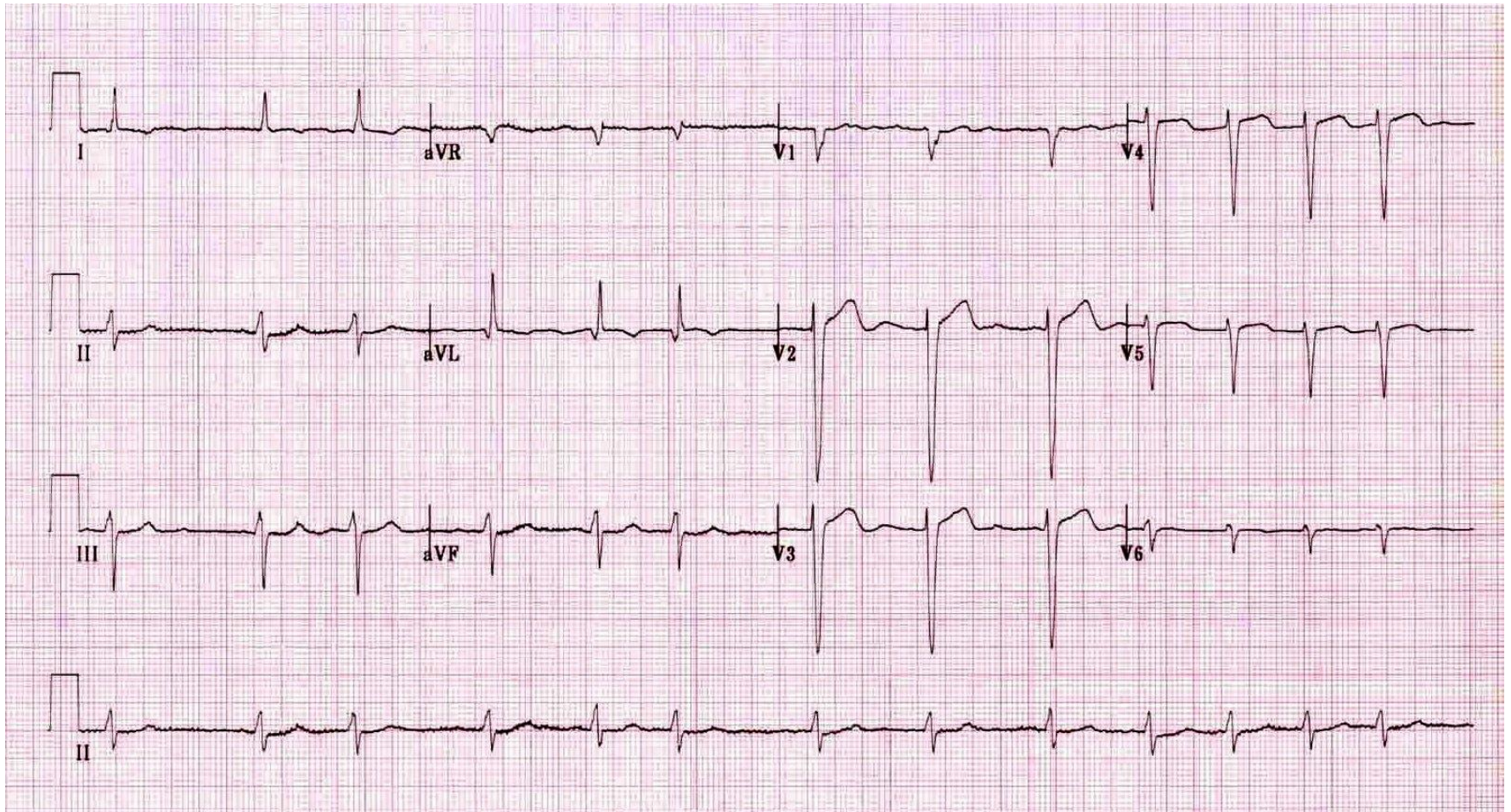
Imaging

- Chest X-ray

Special tests (for ASA 2/3 consider):

- ABG
- Lung Function Tests
- Echocardiogram





Atrial fibrillation

Investigations

PH	7.37	7.35-7.45
PO ₂	7.8	>10.6 kPa
PCO ₂	4.5	4.7-6 kPa
HCO ₃ ⁻	24.6	
BE	0.6	
S _p O ₂	91%	
HB	16.7	
GLUC	5.6	

APTT	32	30-45 sec
PT	31	10-12 sec
TT	6.9	10-15 sec
INR	2.6	

INR in therapeutic range

Type 1 respiratory failure



Hyperexpansion
Flat diaphragms
Right middle zone bullae

Height: 1.72m Weight: 58 Age: 86 Gender: Male
 Date: One year ago Race: Cauc Doctor: Dr Wilson-Brown

SPIROMETRY

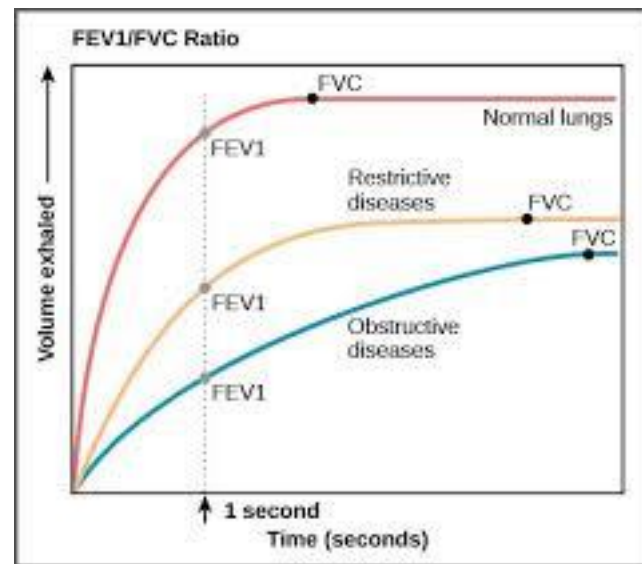
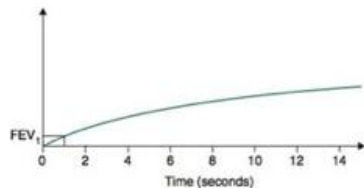
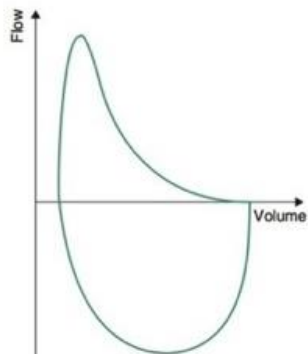
		Ref	Pre Meas	% Pred	Post Meas	% Pred	% Chg
FVC	Litres	3.61	1.23	34			
FEV1	Litres	2.73	1.98	72			
FEV1/FVC	%	80	38				
FEF25-75%	L/sec	2.8	0.8	28			
FEF50%	L/sec	3.84	2.8	73			
FEF75%	L/sec	6.75	5.5	85			
PEF	L/sec	439	210	48			
MVV	L/min						
MVV Length							

PLETHYSMOGRAPH LUNG VOLUMES

		Ref	Pre Meas	% Pre Ref
TLC	Litres	6.63	6.9	104
Vt	Litres	416	370	89
RV	Litres	2.67		
FRC	Litres	3.61		
VC	Litres			
IC	Litres	3.7		
ERV	Litres			
Raw	cmH ₂ O/L/sec			
RV/TLC%	%	55.9	-	73

DIFFUSING CAPACITY


		Pre Meas	Ref	% Pre Ref
DLCO	mL/min/mmHg			
VA	Litres			
DLCO/VA	l/min/mmHg			



Obstructive disease

NICE Guideline

?Nice



● Test not recommended
● Consider this test (see page 2 of the NICE guideline)
● Test recommended

Preoperative tests

The use of routine preoperative tests for elective surgery

ASA Grades

- Grade 1** Normal healthy patient (i.e. without any clinically important comorbidity and without a clinically significant past/present medical history).
- Grade 2** Patient with mild systemic disease.
- Grade 3** A patient with severe systemic disease but the disease is not a constant threat to life.

Grade 1 surgery (minor)

Grade 2 surgery (intermediate)

Grade 3 surgery (major)

Grade 4 surgery (major+)

Neurosurgery

Cardiovascular surgery

Tests for the adult and young in adults and children

Pregnancy test

Patient consent

Clinical Guideline 3
Preoperative tests
April 2008

ASA Grade 1: adults ≥ 16 years

Test	Age (years)			
	16 to < 40	40 to < 60	60 to < 80	80
	N	N	N	N
Chest X-ray	No	No	No	No
ECG	No	Yes	Yes	Yes
Full blood count	No	No	No	No
Haemostasis	No	No	No	No
Renal function	No	No	No	No
Random glucose	No	No	No	No
Urine analysis*	Yes	Yes	Yes	Yes

Which tests?

- Depends on ...

1. The Patient

- Age
- Co-morbidities and Risk grading

2. The Operation

- Severity / complexity



The operation...

Grading system of severity

Grade 1	Minor	Excision of skin lesion, drainage of breast abscess
Grade 2	Intermediate	Hernia repair, varicose veins excision, tonsillectomy
Grade 3	Major	Total Abdominal Hysterectomy, <u>prostate resection</u> , thyroidectomy
Grade 4	Major +	Total joint replacement, lung operation

Neurosurgery

Cardiovascular surgery



The patient...

American Society of Anesthesiologists

		Mortality (%)
ASA Grade 1	Normal Healthy Patient	0.1
ASA Grade 2	A patient with mild systemic disease	0.2
ASA Grade 3	A patient with severe systemic disease	1.8
ASA Grade 4	A patient with severe systemic disease that is a constant threat to life	7.8
ASA Grade 5	A moribund patient unlikely to survive 24hrs with or without surgery	9.4



ASA Grade 2/3 – What is mild/severe?

Current angina

Occasional use of GTN spray (2–3 times per month). Does not include patients with unstable angina who would be ASA 3

Regular use of GTN spray (2–3 times per week) or unstable angina

Angina

Hypertension

Hypertension

Well controlled using a single anti-hypertensive medication

Not well controlled, requiring multiple anti-hypertensive medications

Diabetes

Well controlled, no obvious diabetic complications

Not well controlled, diabetic complications (e.g. claudication, impaired renal function)

DM

COPD

COAD/COPD

Productive cough; wheeze well controlled by inhalers; occasional episodes of acute chest infection

Breathlessness on minimal exertion (for example, stair climbing, carrying shopping); distressingly wheezy much of the time; several episodes per year of acute chest infection

Asthma

Well controlled by medications/inhalers; not limiting life-style

Poorly controlled; limiting life-style; on high dose of inhaler/oral steroids; frequent hospital admission on account of asthma exacerbation

Asthma

Renal disease

Renal disease

Elevated creatinine (creatinine > 100 µmol/litre and < 200 µmol/litre); some dietary restrictions

Documented poor renal function (creatinine > 200 µmol/litre); regular dialysis programme, (peritoneal or haemodialysis)

NICE Guideline

Age

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ASA Grade

Grade 3

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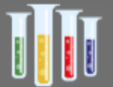
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Full Bloodcount



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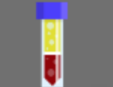


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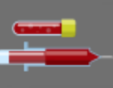


Urine Analysis

Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)



Blood Gases



Random Glucose



Lung Function



Which tests?

FBC

- child bearing women / all over 60
- Baseline if large estimated blood loss
- Significant co-morbidities

U+E

- Baseline if large estimated blood or fluid loss predicted
- Significant co-morbidities
- Medications- diuretics/Digoxin/ACE-i/Steroids/B-blockers



Which tests?

ECG

- Women over 50yo. Men over 40yo.
- Known dysrhythmia/pacemaker
- Meds- Dig/diuretics/potassium altering/anti-arrythmias

CXR

- Cardiovascular or respiratory disease
- Major surgery

Sickle Cell Disease

- ALL- African/Afro-carribean/Eastern Med/Mid Eastern



Management: Pre-op care

- Optimise the patient
- Consider
 - DM control
 - VTE control
 - Fasting times
 - Booking theatre
 - Post operative care ?HDU
 - MRSA
- Referral needed?
 - Anaesthetics / MDT involvement



How do you structure pre-op assessment?

- History
 - PC/PMH/PSH/DH/SH
- Examination
 - ABCDE
- Investigation
 - Bedside/bloods/imaging/special tests
- Management
 - Optimisation
 - MDT involvement



Summary

- Pre-operative care is a risk management process to reduce unexpected complications
- Level of investigation depends on patient and operation
- Aim to optimise the patient pre-op within the MDT

