PREOPERATIVE ASSESSMENT & PREMEDICATION
OUTLINE

- Goals of assessment.
- Clinical picture of the patient (H & P/E).
- Evaluating cardiac and respiratory systems.
- Airway examination.
- ASA classification.
- Pre-operative testing.
- Fasting status.
- Premedication.
Goals of assessment

• Screen for and manage co-morbid disease
• To assess and minimise risks of anaesthesia
• To identify need for specialised techniques
• To identify need for advanced post-op care
• To educate about anaesthesia
• To obtain informed consent
• To avoid unnecessary delays/cancellations
• To motivate patients to improve pre-op
Overview

• Setting the scene
• Preoperative testing
• Components of the preoperative visit
  – History & Physical Examination [emphasis on Airway]
• Introduction to organ-specific issues
  – Evaluating Cardiovascular Disease
  – Evaluating Respiratory Disease
• Perioperative Medication Management
  – Stopping patient medications....or not
  – Premedication
• Fasting
Pre-operative Evaluation

- General
- Specific
Pre-operative

This applied both in evaluation & investigations

- **General**
  This include the following:
  1. General condition of the patient.
  2. Psychological condition. (Specially in major operations).

- **Specific**
  This include the following:
  1. Related to anaesthesia.
  2. Related to the surgery.
Assessment

- Air way.
- Class and grade of surgery.
- General condition of the patient.
Significant History
(Suggests increased risk of difficult intubation)

- Stridor
- Significant Snoring
- Sleep Apnea
- Advanced Rheumatoid Arthritis
- Dysmorphic Facial Features
- Upper Respiratory Infections
- Obesity
Clinical Picture

- Full medical history and physical examination
- Points of specific relevance to anaesthesia:
  - General health of patient and functional capacity
  - Surgical procedure
  - Concurrent medical conditions and medication
  - History of reactions and allergies to anesthesia
  - THE AIRWAY
  - Fasting Status
ASA Minimum Pre-op Visit Components

- Medical, anaesthesia and medication history
- Appropriate physical examination
- Review of diagnostic data (ECG, labs, x-rays)
- Assignment of ASA physical status
- Formulation and discussion of anesthesia plan
History

- Medical problems (current & past)
- Previous anaesthesia & related problems
- Family anaesthesia history
- Allergies and drug intolerances
- Medications, alcohol & tobacco
- Review of systems (include snoring and fatigue)
- Exercise tolerance and physical activity level
Physical Examination

• Minimum requirements
  – Airway
  – Heart & lungs
  – Vital signs including $O_2$ saturation
  – Height & weight (BMI)

\[
\text{BMI} = \left( \frac{\text{Weight in kilograms}}{\left( \frac{\text{Height in meters}}{\text{Height in meters}} \right)} \right)
\]
Evaluating Cardiac Disease

- Ischaemic heart disease
- Heart failure
- Arrhythmia
- Abnormal ECG
- Undiagnosed murmur
- Pacemaker
CVS evaluation for non-cardiac surgery

Coronary revascularization within 5 years and NO symptom recurrence or Coronary evaluation (stress test, cath) within 2 years with favorable results and NO symptom recurrence

Proceed to surgery with medical risk reduction

**Major Clinical Predictors**
- Unstable coronary syndromes
- Decompensated CHF
- Significant arrhythmias
- Severe valvular disease

Postpone surgery until stabilization or intervention

**Intermediate Clinical Predictors**
- Mild angina pectoris
- Prior MI
- Coronary artery disease
- Compensated or prior CHF
- Diabetes mellitus
- Renal insufficiency

High risk surgery

Stress testing

Intermediate risk surgery and moderate to excellent functional capacity

Proceed to surgery with medical risk reduction

Intermediate risk surgery and poor functional capacity

Stress testing

Low risk surgery

Proceed to surgery with medical risk reduction

High risk surgery and poor functional capacity

Stress testing

Low or intermediate risk surgery

Proceed to surgery with medical risk reduction

**Functional capacity**
- Poor: <4 Mets (can’t walk flight of stairs)
- Moderate–excellent: >4 Mets (can walk flight of stairs)

See Chapter 7 and Table 4–7 for medical risk reduction strategies

**Minor Clinical Predictors**
- Advanced age
- Abnormal ECG
- Rhythm other than sinus
- Low functional capacity
- History of stroke
- Uncontrolled hypertension

Proceed to surgery with medical risk reduction
Arrhythmias/ECG abnormalities

- Further work-up or therapy needed
  - New onset AF
  - Symptomatic bradycardia
  - High-grade heart block (2\textsuperscript{nd} or 3\textsuperscript{rd} degree)
  - Uncontrolled AF
  - VT
  - Prolonged QT
  - New LBBB
  - RBBB with ST elevation
Pacemakers

- Determine type
- Determine features
- Pacemaker check
- Disable rate-adaptive mechanisms
- Disable anti-tachyarrhythmia functions
Pulmonary Hypertension

- High risk
- ECG & echo
- Disease severity indicators
  - SOB at rest
  - Metabolic acidosis
  - Hypoxaemia
  - Right heart failure
  - Syncope
Airway Examination

- Teeth and bite
- Ability to protrude lower incisors beyond upper
- Mouth opening (inter-incisor distance)
- Mallampati score
- Facial hair
- Thyromental distance
- Length & thickness of neck
- Range of motion of head & neck
Airway Examination

Normal

- Opens mouth normally (Adults: greater than 2 finger widths or 3 cm)
- Able to visualize at least part of the uvula and tonsillar pillars with mouth wide open & tongue out (patient sitting)
- Normal chin length (Adults: length of chin is greater than 2 finger widths or 3 cm)
- Normal neck flexion and extension without pain / paresthesias
Airway Examination

Abnormal

- Small or recessed chin
- Inability to open mouth normally
- Inability to visualize at least part of uvula or tonsils with mouth open & tongue out
- High arched palate
- Tonsillar hypertrophy
- Neck has limited range of motion
- Low set ears
- Significant obesity of the face/neck
Mallampati & Samsoon Score

Class I

Class II

Class III

Class IV
Mallampati test

Figure 3: Mallampati views
<table>
<thead>
<tr>
<th>Difficult Mask Ventilation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beard</td>
<td>0.00001</td>
</tr>
<tr>
<td>History of snoring</td>
<td>0.001</td>
</tr>
<tr>
<td>BMI &gt; 30</td>
<td>0.00001</td>
</tr>
<tr>
<td>Mallampati III or IV</td>
<td>0.001</td>
</tr>
<tr>
<td>Age &gt; 50</td>
<td>0.01</td>
</tr>
<tr>
<td>Severely limited jaw protrusion</td>
<td>0.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difficult Mask Ventilation &amp; Intubation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely limited jaw protrusion</td>
<td>0.00001</td>
</tr>
<tr>
<td>Thick neck/mass</td>
<td>0.02</td>
</tr>
<tr>
<td>History of sleep apnoea</td>
<td>0.04</td>
</tr>
<tr>
<td>BMI &gt; 30</td>
<td>0.05</td>
</tr>
<tr>
<td>History of snoring</td>
<td>0.05</td>
</tr>
</tbody>
</table>
# Cormack & Lehane Score

<table>
<thead>
<tr>
<th>Original Cormack and Lehane system</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full view of the glottis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial view of the glottis or arytenoids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only epiglottis visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither glottis nor epiglottis visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>View at laryngoscopy</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>E Li</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As for original Cormack and Lehane above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial view of the glottis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arytenoids or posterior part of the vocal cords only just visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As for original Cormack and Lehane above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As for original Cormack and Lehane above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Factor</td>
<td>Detail</td>
<td>Level of Risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>&lt; 90 kg</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>90-110 kg</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 110 kg</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head &amp; Neck Movement</td>
<td>&gt; 90 °</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx 90 °</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 90 °</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaw movement</td>
<td>IG &gt; 5 cm or Slux &gt; 0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IG &lt; 5 cm or Slux = 0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IG &lt; 5 cm or Slux &lt; 0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receding Mandible</td>
<td>Normal</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protruding maxillary teeth</td>
<td>Normal</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dr. John Ferguson
URTI & anaesthesia

• Mild symptoms - can usually proceed
  – huge inconvenience to patient if cancelled
• Severe symptoms or underlying disease
  – postpone
• Intermediate severity - ?
• ? risk of increased bronchial reactivity
Sleep-disordered Breathing

- 24% of middle aged men (< 15% diagnosed!)
- OSA - complete obstruction for 10s +
- OH (obstructive hypopnoea) ≥ 4% drop in sats
- CVS disease common
- Berlin Questionnaire

<table>
<thead>
<tr>
<th>Snoring</th>
<th>Daytime sleepiness</th>
<th>Hypertension</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 or more = high risk for OSA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
American Society of Anesthesiologists
Patient Classification

1 = A normal healthy patient

2 = A patient with a mild systemic disease

3 = A patient with a severe systemic disease that limits activity, but is not incapacitating

4 = A patient with an incapacitating systemic disease that is a constant threat to life

5 = A patient not expected to survive 24 hours with or without operation
ASA – 1

ASA 1

- A normal, healthy patient. The pathological process for which surgery is to be performed is localized and does not entail a systemic disease.

Example: An otherwise healthy patient scheduled for a cosmetic procedure.
ASA 2

A patient with systemic disease, caused either by the condition to be treated or other pathophysiological process, but which does not result in limitation of activity.

Example: a patient with asthma, diabetes, or hypertension that is well controlled with medical therapy, and has no systemic sequelae.
ASA 3

A patient with moderate or severe systemic disease caused either by the condition to be treated surgically or other pathophysiological processes, which does limit activity.

Example: a patient with uncontrolled asthma that limits activity, or diabetes that has systemic sequelae such as retinopathy.
ASA – 4

ASA 4

- A patient with severe systemic disease that is a constant potential threat to life.

Example: a patient with heart failure, or a patient with renal failure requiring dialysis.
ASA 5

A patient who is at substantial risk of death within 24 hours, and is submitted to the procedure in desperation.

Example: a patient with fixed and dilated pupils status post a head injury.
Emergency Status (E)

This is added to the ASA designation only if the patient is undergoing an emergency procedure.

Example: a healthy patient undergoing sedation for reduction of a displaced fracture would be an \textit{ASA1 E}. 
The ASA Physical Status Classification

<table>
<thead>
<tr>
<th>ASA</th>
<th>Description</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal healthy patient</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mild systemic disease - no impact on daily life</td>
<td>0.1%</td>
</tr>
<tr>
<td>3</td>
<td>Severe systemic disease - significant impact on daily life</td>
<td>0.2%</td>
</tr>
<tr>
<td>4</td>
<td>Severe systemic disease that is a constant threat to life</td>
<td>1.8%</td>
</tr>
<tr>
<td>5</td>
<td>Moribund, not expected to survive without the</td>
<td>7.8%</td>
</tr>
<tr>
<td>6</td>
<td>Declared brain-dead patient - organ donor</td>
<td>9.4%</td>
</tr>
<tr>
<td>E</td>
<td>Emergency surgery</td>
<td></td>
</tr>
</tbody>
</table>
Pre-operative Testing

• Only when indicated
  – from history/examination, or
  – based on surgical plan

• ECG for example
  • Abnormal in 62% of patients with known cardiac disease
  • Abnormal in 44% of patients with strong IHD risk factors
  • Abnormal in 7% of over-50s with no risk factors
  • Abnormal in 3% of 50-70 year olds with no risk factors
  • New Q waves or arrhythmias < 2%
  • Limited use as predictor of outcome - may alter plan
Pre-operative Investigations

General:

1 – FBP all patients.
2 – Clotting screen all patients and those on anticoagulants.
3 – Liver function.
4 – ECG all patients > 40Ys.
5 – Echocardiogram Abnormal ECG, ischemic heart....
6 – Chest x-ray All patients >30Ys.
7 – Blood sugar level.
Full blood count

• all patients undergoing major (grade 3 or 4) surgery
• patients with severe (ASA 3) cardiac or respiratory disease
• severe renal disease (creatinine > 200)
• patients with a history of anaemia
• patients who require a cross match or group

• patients with a bleeding disorder
• patients with chronic inflammatory conditions such as rheumatoid arthritis.
Urea and electrolytes

- all patients with known or suspected renal dysfunction
- all patients with cardiac disease (including hypertension on treatment)
- all patients on diuretic treatment
- patients with severe respiratory disease on steroid or theophylline therapy
- all patients with diabetes
- all patients for major (grade 3 or 4) surgery
• all patients aged 60 and over

• all patients with cardiovascular disease, including hypertension

• all patients with severe (ASA 3) respiratory or renal disease aged 40 and over
Predictors of increased perioperative risk are:

- Severe aortic or mitral stenosis
- Severe left ventricular dysfunction
- Cardiomyopathy
- Pulmonary hypertension
Chest x-ray (CXR)

- all patients for major vascular surgery
- suspected malignancy including
- lymph node biopsy – all children; adults with any respiratory signs or symptoms
- patients with cardiac or pulmonary disease for grade 4 (major+) surgery
- patients who have severe (ASA 3) cardiac or pulmonary disease
- anticipated ICU admission
Coagulation screen

- personal or family history of abnormal bleeding

- suspected liver dysfunction (cirrhosis, alcohol abuse, metastatic cancer)

- current anticoagulant therapy
Cervical spine x-ray (flexion and extension views)

- ideally all patients with rheumatoid arthritis whether or not they have neck symptoms
- cooperative patients with Down’s Syndrome
- alternatively such patients could be considered to have an unstable cervical spine and treated accordingly
Glycosylated haemoglobin (HbA1c):

• recent result within past 3 months for all diabetic patients
• current random blood glucose in known or suspected diabetes

g) Liver function tests:
• hepato–biliary or pancreatic disease
• known alcohol abuse
• major gastrointestinal surgery
Arterial blood gases:
• patients with severe (ASA 3 or 4) respiratory or renal disease for major surgery
• consider venous blood gases and oxygen saturation (pulse oximeter) as an alternative to ABG sampling

k) Lung function tests:
• patients with severe (ASA 3) respiratory disease undergoing major surgery
• patients having scoliosis surgery
• asthmatics need a peak flow recorded
Other tests

Thyroid function tests:

• Results within past 3 months for patients about to undergo thyroid surgery or if thyroid replacement therapy has been recently changed
• Results from within the last year for patients stable on thyroid replacement therapy

Pregnancy test

• if there is any doubt that a female patient may be pregnant (with her consent)
• women must be made aware of the risks of surgery and anaesthesia to the fetus
This will determine:
1– What sort of general investigations to be done.
2– The degree of risk.
3– Expected morbidity.
Classification of Operations

- Clean Surgery.
- Clean–Contaminated.
- Contaminated.
- Dirty.
Clean Operations

- *In which no inflammation is encountered.*

- The respiratory, alimentary or genitourinary tracts are not entered.

- There is no break in aseptic operating theatre technique.
In which the respiratory, alimentary or genitourinary tracts are entered.

but without significant spillage.
Contaminated Operations

- Where acute inflammation (*without pus*) is encountered.

- Or where there is visible contamination of the wound.

- Examples include gross spillage from a hollow viscus during the operation

- Or compound/open injuries operated on within four hours.
Dirty Operations

- *In the presence of pus.*
- where there is a previously perforated hollow viscus,
- Or compound/open injuries more than four hours old.
# Probability of Wound Infection

<table>
<thead>
<tr>
<th></th>
<th>Risk Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Clean</td>
<td>1.0%</td>
</tr>
<tr>
<td>Clean–contam.</td>
<td>2.1%</td>
</tr>
<tr>
<td>Contaminated</td>
<td>3.4%</td>
</tr>
</tbody>
</table>
Grades of Surgery

- **Grade I** *(Minor)* Excision of a skin lesion or drainage of abscess.
- **Grade II** *(Intermediate)* Tonsillectomy, correction of nasal septum, arthroscopy…….
- **Grade III** *(Major)* Thyroidectomy, total abdominal hysterectomy....
- **Grade IV** *(Major+)* Radical neck dissection, joint replacement, lung operations...
This can help in estimating:
1 – Expected time.
2 – Morbidity & risk.
3 – Need for blood transfusion.

DVT is related directly to the duration of surgery.
## Grade 1 (minor)

### Grade 1 surgery

ASA Grade 1: children < 16 years

<table>
<thead>
<tr>
<th>Test</th>
<th>&lt;6 months</th>
<th>≥6 to &lt;12 months</th>
<th>≥1 to &lt;5 years</th>
<th>≥5 to &lt;12 years</th>
<th>≥12 to &lt;16 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>ECG</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Full blood count</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Haemostasis</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Renal function</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Random glucose</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Urine analysis*</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

*Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)*
## Grade I (minor)

ASA Grade 1: adults ≥ 16 years

<table>
<thead>
<tr>
<th>Test</th>
<th>16 to &lt; 40</th>
<th>40 to &lt; 60</th>
<th>60 to &lt; 80</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>ECG</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full blood count</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Haemostasis</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Renal function</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Random glucose</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Urine analysis*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)*
Grade II surgery (intermediate)

ASA Grade 1: adults ≥ 16 years

<table>
<thead>
<tr>
<th>Test</th>
<th>16 to &lt; 40</th>
<th>40 to &lt; 60</th>
<th>60 to &lt; 80</th>
<th>≥ 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>ECG</td>
<td>No</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Full blood count</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Haemostasis</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Renal function</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random glucose</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine analysis*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee)*
### Grade III (Major)

ASA Grade 2: adults with comorbidity from renal disease

<table>
<thead>
<tr>
<th>Test</th>
<th>Age (years)</th>
<th>16 to 40</th>
<th>40 to 60</th>
<th>60 to 80</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECG†</td>
<td></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Full blood count</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Haemostasis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal function</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Random glucose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood gases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung function</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
FASTING STATUS

6 hrs solids

4 hrs liquids

2 hrs clear fluid / water
The Full Stomach Mechanisms

- Reflux
- Delayed gastric emptying
- Raised abdominal pressure
- Pharyngeal and laryngeal incompetence
The Full Stomach Clinical conditions

- GORD
- Opioids
- Autonomic neuropathy: diabetes
- Pregnancy
- Intestinal obstruction
- Trauma
- Head Injury
- Myopathies/ bulbar palsy
Preoperative measures to reduce risk of aspiration

- Proton pump inhibitors
- H2 blockers
- Metoclopramide
- Sodium citrate
- Nasogastric tube where applicable
Summary of Fasting Recommendations to Reduce the Risk of Pulmonary Aspiration

- **Ingested Material**
  - Clear liquids: 2 hours
  - Breast milk: 4 hours
  - Infant formula: 6 hours
  - Non-human milk: 6 hours
  - Light meal: 6 hours
Periop Medication Management

- What to stop
- What to keep
- What else to give
Hold on day of surgery

- Diuretics
  - unless thiazide for hypertension
  - unless severe heart failure
- Insulin & OHA - see hospital diabetic protocol
- Vitamins & iron
- ACEI’s or ARB’s (individual choice)
  - depends on procedure/risk of hypotension
<table>
<thead>
<tr>
<th>Preop Medicines Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stop 48 hours pre-op</strong></td>
</tr>
<tr>
<td>NSAIDs</td>
</tr>
<tr>
<td><strong>Stop 4 days pre-op</strong></td>
</tr>
<tr>
<td>Warfarin (convert to enoxaparin)</td>
</tr>
<tr>
<td><strong>Stop 7 days pre-op</strong></td>
</tr>
<tr>
<td>Clopidogrel</td>
</tr>
<tr>
<td>Aspirin 75 mg usually continued (check with consultant)</td>
</tr>
<tr>
<td>Herbal remedies</td>
</tr>
<tr>
<td>HRT</td>
</tr>
</tbody>
</table>
Risk factors for DVT

- Age > 40 years
- Obesity
- Varicose veins
- High oestrogen pill
- Previous DVT or PE
- Malignancy
- Infection
- Heart failure / recent infarction
- Polycythaemia /thrombophilia
- Immobility ( bed rest over 4 days)
- Major trauma
- Duration of surgery.
Incidence of DVT and fatal pulmonary embolism

- Low risk = <0.01%
- Moderate risk = 0.5%
- High risk = 5%

*High risk is 500 times the low risk.*
Premedication

• Alleviate anxiety/sedation/amnesia
  • e.g. temazepam 10-20 mg, midazolam pre-induction

• Reduce risk of reflux
  • e.g. ranitidine/lansoprazole/citrate/metoclopramide

• Manage pain
  • e.g. paracetamol, gabapentin, topical LA

• Control perioperative risk
  • e.g. β blockade, α-2 agonists

• Dry secretions
  • e.g. glycopyrollate

• Decrease anaesthetic requirements
  • e.g. clonidine
Pre-operative counselling

- Ensure that indication for operation is still valid.
- Identify any other medical condition.
- Discuss options with patient / relatives.
- Consent.
- Prophylactic antibiotic
- Prophylactic against DVT.
- Pain control.
- Nutrition.

*Discussed with patient & his relatives.*
Routine Preoperative care for the Adult Patient

1. Avoid taking aspirin or aspirin–containing products for 2 weeks prior to surgery unless approved by physician

2. Discontinue nonsteroidal anti-inflammatory medications 48 to 72 hours before surgery

3. Bring a list or container of current medications

4. Bring an adult relative who can drive if they are having an outpatient procedure with sedation or general anesthesia
Routine Preoperative care for the Adult Patient

5. Wear loose clothing that can easily be removed (eg, avoid clothing that pulls on and off over the head).

6. Instruct the patient to bathe/shower the evening before or morning of surgery. Men should be cleanly shaved.

7. Instruct the patient on oral intake restrictions and medication schedule as ordered:
   a. NPO after midnight (including water)
   b. NPO after clear liquid or light breakfast if permitted
On going to the operating room

He/she will have to remove:

1. Dentures/partial plates
2. Glasses/contact lenses
3. Appliances/prosthesis
4. Makeup/nail polish
5. Hairpins/hairpiece
53 year old female for ligation of varicose veins
She has a history of asthma and neglects her medication
o/e anxious
RR 24/min
widespread rhonchi
PEF 65%
Other systems unremarkable
64 yr old male with intestinal obstruction for a laparatomy

History of COPD previous heavy smoker

Gets breathless walking uphill or fast on level ground

Coughing purulent sputum

$\text{FEV}_1$ 75%

On combined therapy with beta 2 agonist and anticholinergic
Patient sketch 3

- 55yr old female for hysterectomy
- Diabetic on twice daily insulin
- BP 140/90
- What investigations and management
22 kg child for removal of plaster cast

Fasting from midnight
In theatre at 10.00am
What is her fluid deficit?
84 yr old female with a fractured neck of femur
Tripped in bathroom lives alone and lay there for 20 hours
She is thin stature, lives on tea, toast and cake
History of CCF
On diuretics

? Considerations and management
Patient sketch 6

40 yr old male for elective cholecystectomy

Heavy smoker
HR 80/min  BP 200/115
Hb 14.0 gm/dl
Urea 8 mmols/l
Creatinine 140mmols/l
40 yr old male for cholecystectomy
HR 80/min reg
BP 150/95
Hb 12.8 gm/dl
Urea 5.8 mmols/l
Creatinine 115 µmols/l
Na 130mmols/l
K 4.5mmols/l
Patient sketch 8

- 44 year old female for mastectomy and reconstruction
- 5 year history of angina, becoming more frequent and increasing in severity over past 6 months
- Both parents died from myocardial infarction
- Coronary angiogram 2yrs ago no vessel disease
- Ca antagonists, glyceryl trinitrate, isosorbide dinitrate, verapamil

Risk Factors  Investigations Management
THANK YOU