

Pre-operative care

Pre-operative consultation

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

Pre-operative investigations

- FBC :all patients.
- U & E : all patients.
- ECG : all patients > 40 years.
- Chest x-ray : all patients >30 years
- Liver functions : all patients.
- Hepatitis : ?all patients

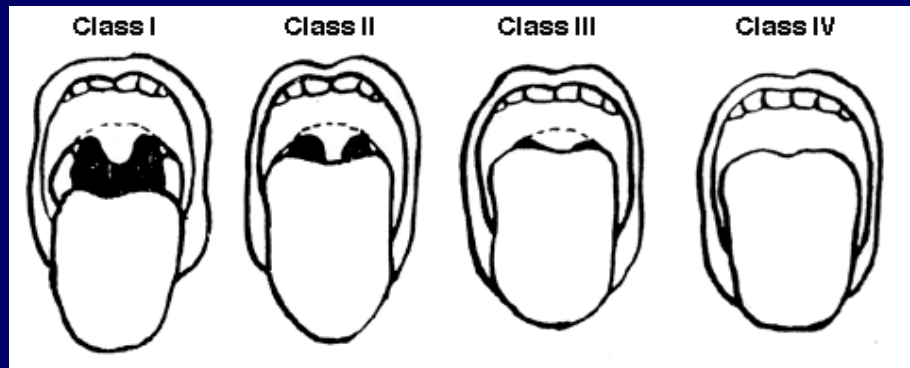
- Echocardiogram : abnormal ECG, ischemic heart , heart failure.
- Clotting screen: anticoagulants, abnormal LFTs
- Calcium: Thyroid and Laryngectomy.
- Pulmonary functions: abnormal chest x-ray, partial Laryngectomy, Oesophagectomy.

Significant History

(Suggests increased risk for sedation)

- Stridor
- Significant Snoring
- Sleep Apnea
- Advanced Rheumatoid Arthritis
- Dysmorphic Facial Features
- Down's Syndrome
- Upper Respiratory Infections

Mallampati modified test.



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 Exam

- 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

Airway assessment: predictive tests

Sensitivity = 50-60%

- Mallampati modified test.

Visibility of pharyngeal structures.

- Patil test.

Thyro-mental distance <6.5cm

- Mandibular protrusion.

Class C : inability to protrude lower incisors beyond the upper.

- Wilson test.

- Radiological assessment of the mandible and cervical spine.

CLASSIFICATION OF OPERATION

Class Definition

- **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.

CLASSIFICATION OF OPERATION

Class Definition

Clean-contaminated Operations

in which the respiratory, alimentary or genitourinary tracts are entered

but without significant spillage.

CLASSIFICATION OF OPERATION

Class Definition

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.

CLASSIFICATION OF OPERATION

Class Definition

Dirty Operations:

In the presence of pus.

where there is a previously perforated hollow viscus,

or compound/open injuries more than four hours old.

ASA CLASSIFICATION OF PHYSICAL STATUS

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 moribund patient not expected to survive 24 hours with or without operation

American Society of Anesthesiologists Patient Classification

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.

American Society of Anesthesiologists Patient Classification

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

American Society of Anesthesiologists Patient Classification

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

American Society of Anesthesiologists Patient Classification

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.

American Society of Anesthesiologists Patient Classification

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.

American Society of Anesthesiologists Patient Classification

E Emergency status

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 ASA 1E

co-morbidity and duration of operation

- Risk index 0 = when neither risk factor is present
- Risk index 1 = when either one of the risk factors is present
- Risk index 2 = when both risk factors are present.

PROBABILITY OF WOUND INFECTION BY TYPE OF WOUND AND RISK INDEX

| | Risk Index | | |
|---------------|------------|------|-------|
| | 0 | 1 | 2 |
| Clean | 1.0% | 2.3% | 5.4% |
| Clean-contam. | 2.1% | 4.0% | 9.5% |
| Contaminated | 3.4% | 6.8% | 13.2% |

Summary of Fasting Recommendations to Reduce the Risk of Pulmonary Aspiration

| • Ingested Material | Minimum Fasting Period (hours) |
|---------------------|--------------------------------|
| – Clear liquids | 2 |
| – Breast milk | 4 |
| – Infant formula | 6 |
| – Non-human milk | 6 |
| – Light meal | 6 |

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

Risk factors for DVT

(I) Low risk

- (a) Surgery lasting less than 45 min. No risk factor other than age
- (b) Surgery lasting more than 45 min. Aged under 40 years and no other risk factor
- (c) Minor medical illness not requiring prolonged bed rest

(II) Moderate risk

- (a) Surgery lasting more than 45 min and aged over 40 years.
- (b) Low-risk surgery plus risk factors for thromboembolism (other than age)
- (c) Surgery lasting less than 45 min in patients with a history of DVT, PE or thrombophilia

(III) High risk

- (a) Major surgery (including the neck), trauma or illness in a patient over 60 years, or who has a history of DVT, PE or thrombophilia
- (b) Lower limb paralysis
- (c) Trauma involving a fracture of the pelvis, hip or lower limb

Incidence of DVT and fatal pulmonary embolism in hospital patients

- Low risk = <10% , <0.01%
- Moderate risk = 14% , 0.5%
- High risk = 40-80% , 5%

- Incidence of fatal pulmonary embolism in high risk patients increases 500 folds.

Prophylaxis against DVT

- (I) **Low risk** Early mobilization
- (II) **Moderate risk** Early mobilization
 Graduated compression stockings until fully mobile
- (III) **High risk** Perioperative and postoperative subcutaneous heparin (tinzaparin 3500 units once daily) until mobile
 Graduated compression stockings until mobile
 Perioperative intermittent pneumatic compression
- History of DVT/PE**
 - (a) Is operation necessary?
 - (b) **Low risk** becomes **moderate risk**
 Consider subcutaneous low molecular weight heparin (tinzaparin 3500 units once daily)
 - (c) **Moderate risk** becomes **high risk**
 Consider full anticoagulation
 - (d) If heparin or warfarin are contraindicated then use graduated compression stockings and intermittent pneumatic compression
 Consider postoperative heparin if feasible
 - (e) Consider haematological advice regarding alternative anticoagulants

Pre-operative investigations

- FBC :all patients.
- U & E : all patients.
- ECG : all patients > 40 years.
- Echocardiogram : abnormal ECG, ischemic heart , heart failure.
- Liver functions : all patients.
- Clotting screen: anticoagulants, abnormal LFTs
- Calcium: Thyroid and Laryngectomy.
- Pulmonary functions: abnormal chest x-ray, partial Laryngectomy, Oesophagectomy.

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

Routine Preoperative care for the Adult Patient

3. Bring a list or container of current medications
4. Bring an adult escort who can drive if they are having an outpatient procedure with sedation or general anesthesia
5. Wear loose clothing that can easily be removed (eg, avoid clothing that pulls on and off over the head)

Routine Preoperative care for the Adult Patient

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

Routine Preoperative care for the Adult Patient

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
 - c. AM meds with sip of water if ordered by physician/anesthesiologist

before 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
- 6. Undergarments

Surgery grades

| | |
|------------------------|--|
| Grade 1 (minor) | Excision of lesion of skin; drainage of breast abscess |
| Grade 2 (intermediate) | Primary repair of inguinal hernia; excision of varicose vein(s) of leg; tonsillectomy/adenotonsillectomy; knee arthroscopy |
| Grade 3 (major) | Total abdominal hysterectomy; endoscopic resection of prostate; lumbar discectomy; thyroidectomy |
| Grade 4 (major+) | Total joint replacement; lung operations; colonic resection; radical neck dissection |
| Neurosurgery | – |
| Cardiovascular surgery | – |

ASA grades

| | |
|-------------|---|
| ASA Grade 1 | "Normal healthy patient" (that is without any clinically important comorbidity and without clinically significant past/present medical history) |
| ASA Grade 2 | "A patient with mild systemic disease" |
| ASA Grade 3 | "A patient with severe systemic disease" |
| ASA Grade 4 | "A patient with severe systemic disease that is a constant threat to life" |

Cardiovascular disease

ASA Grade 2: mild systemic disease

ASA Grade 3: severe systemic disease

| | | |
|-------------------------------------|--|--|
| 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 |
| Exercise tolerance | Not limiting activity | Limiting activity |
| 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) |
| Previous coronary revascularisation | Not directly relevant – depends on current signs and symptoms | Not directly relevant – depends on current signs and symptoms |

Respiratory disease

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

Renal disease

Elevated creatinine
(creatinine $> 100 \mu\text{mol/litre}$
and $< 200 \mu\text{mol/litre}$); some
dietary restrictions

Documented poor renal function
(creatinine $> 200 \mu\text{mol/litre}$);
regular dialysis programme,
(peritoneal or haemodialysis)

Minimum dataset at time of ordering test

1. ASA grade of patient (potentially available from other sources since it is proposed that this item of information will become part of the Hospital Episode Statistics minimum dataset)
2. Main comorbidity (e.g. renal, respiratory and cardiovascular; main categories could be pre-coded on the test order form)
3. Grade of surgery
4. Reasons for ordering

Grade 1 surgery (minor)

Grade 1 surgery

ASA Grade 1: children < 16 years

| Test | Age | | | | |
|--|------------|--------------------|------------------|-------------------|--------------------|
| | < 6 months | ≥ 6 to < 12 months | ≥ 1 to < 5 years | ≥ 5 to < 12 years | ≥ 12 to < 16 years |
| Chest X-ray ECG Full blood count Haemostasis Renal function Random glucose Urine analysis* | | | | | |
| *Dipstick urine testing in asymptomatic individuals is not recommended (UK National Screening Committee) | | | | | |

Grade 1 surgery (minor)

ASA Grade 1: adults ≥ 16 years

| Test | Age (years) | | | |
|------------------|---------------------|---------------------|---------------------|-----------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis* | | | | |

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

Grade 1 surgery (minor)

ASA Grade 2: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-----------------|-----------------|-----------------|---------|
| | 16 to < 40 N | 40 to < 60 N | 60 to < 80 N | 80 N |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 1 surgery (minor)

ASA Grade 3: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-------------|------------|------------|-----|
| | 16 to < 40 | 40 to < 60 | 60 to < 80 | 80 |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 1 surgery (minor)

ASA Grade 2: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 1 surgery (minor)

ASA Grade 3: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 1 surgery (minor)

ASA Grade 2: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|--------------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray [*] | | | | |
| ECG [†] | | | | |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

^{*}Chest X-ray may be considered if the patient has signs of other comorbidities often associated with renal disease, such as hypertension and coronary heart failure

[†]Depending on the cause of renal disease (e.g. diabetes and hypertension)

Grade 1 surgery (minor)

ASA Grade 3: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray* | | | | |
| ECG | | | | |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

*Chest X-ray may be considered if the patient has signs of other comorbidities often associated with renal disease, such as hypertension and coronary heart failure

Grade 2 surgery (intermediate)

ASA Grade 1: children < 16 years

| Test | Age | | | | |
|------------------|------------|--------------------|------------------|-------------------|--------------------|
| | < 6 months | ≥ 6 to < 12 months | ≥ 1 to < 5 years | ≥ 5 to < 12 years | ≥ 12 to < 16 years |
| Chest X-ray | | | | | |
| ECG | | | | | |
| Full blood count | | | | | |
| Haemostasis | | | | | |
| Renal function | | | | | |
| Random glucose | | | | | |
| Urine analysis* | | | | | |

Grade 2 surgery (intermediate)

ASA Grade 1: adults ≥ 16 years

| Test | Age (years) | | | |
|------------------|---------------------|---------------------|---------------------|-----------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | Yes |
| Full blood count | | | Yes | Yes |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis* | | | | |

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

Grade 2 surgery (intermediate)

ASA Grade 2: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-------------|------------|------------|-----|
| | 16 to < 40 | 40 to < 60 | 60 to < 80 | 80 |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 2 surgery (intermediate)

ASA Grade 3: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 2 surgery (intermediate)

ASA Grade 2: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 2 surgery (intermediate)

ASA Grade 3: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | | | | Yes |
| Haemostasis | | | | |
| Renal function | | | | |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 2 surgery (intermediate)

ASA Grade 2: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray* | | | | |
| ECG† | | | Yes | Yes |
| Full blood count | | | | |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

*Chest X-ray may be considered if the patient has signs of other comorbidities often associated with renal disease, such as hypertension and coronary heart failure

†Depending on the cause of renal disease (e.g. diabetes and hypertension)

Grade 2 surgery (intermediate)

ASA Grade 3: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 1: children < 16 years

| Test | Age | | | | |
|------------------|------------|--------------------|------------------|-------------------|--------------------|
| | < 6 months | ≥ 6 to < 12 months | ≥ 1 to < 5 years | ≥ 5 to < 12 years | ≥ 12 to < 16 years |
| Chest X-ray | | | | | |
| ECG | | | | | |
| Full blood count | | | | | |
| Haemostasis | | | | | |
| Renal function | | | | | |
| Random glucose | | | | | |
| Urine analysis* | | | | | |

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

Grade 3 surgery

ASA Grade 1: adults ≥ 16 years

| Test | Age (years) | | | |
|------------------|---------------------|---------------------|---------------------|-----------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | | | Yes | Yes |
| Random glucose | | | | |
| Urine analysis* | | | | |

Grade 3 surgery

ASA Grade 2: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-----------------|-----------------|-----------------|---------|
| | 16 to < 40 N | 40 to < 60 N | 60 to < 80 N | 80 N |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 3: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 2: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | | | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 3: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 2: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG [†] | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 3 surgery

ASA Grade 3: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

Grade 4 surgery

ASA Grade 1: children < 16 years

| Test | Age | | | | |
|------------------|------------|--------------------|------------------|-------------------|--------------------|
| | < 6 months | ≥ 6 to < 12 months | ≥ 1 to < 5 years | ≥ 5 to < 12 years | ≥ 12 to < 16 years |
| Chest X-ray | | | | | |
| ECG | | | | | |
| Full blood count | | | | | |
| Haemostasis | | | | | |
| Renal function | | | | | |
| Random glucose | | | | | |
| Urine analysis* | | | | | |

Grade 4 surgery (major+)

ASA Grade 1: adults ≥ 16 years

| Test | Age (years) | | | |
|------------------|--------------------------|-------------------|-------------------|----------------|
| | ≥ 16 to < 40 N | 40 to < 60 N | 60 to < 80 N | ≥ 80 N |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis* | | | | |

Grade 4 surgery (major+)

ASA Grade 2: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-----------------|-----------------|-----------------|---------|
| | 16 to < 40 N | 40 to < 60 N | 60 to < 80 N | 80 N |
| Chest X-ray | | | | |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

ASA Grade 3: adults with comorbidity from cardiovascular disease

| Test | Age (years) | | | |
|------------------|-----------------|-----------------|-----------------|---------|
| | 16 to < 40 N | 40 to < 60 N | 60 to < 80 N | 80 N |
| Chest X-ray | | | Yes | Yes |
| ECG | Yes | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

ASA Grade 2: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

ASA Grade 3: adults with comorbidity from respiratory disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

ASA Grade 2: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|--------------|--------------|------|
| | ≥ 16 to < 40 | ≥ 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG [†] | | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |

Grade 4 surgery (major+)

ASA Grade 3: adults with comorbidity from renal disease

| Test | Age (years) | | | |
|------------------|--------------|------------|--------------|------|
| | ≤ 16 to < 40 | 40 to < 60 | ≥ 60 to < 80 | ≥ 80 |
| Chest X-ray | | | | |
| ECG | | Yes | Yes | Yes |
| Full blood count | Yes | Yes | Yes | Yes |
| Haemostasis | | | | |
| Renal function | Yes | Yes | Yes | Yes |
| Random glucose | | | | |
| Urine analysis | | | | |
| Blood gases | | | | |
| Lung function | | | | |