

Investigations

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Guidelines produced by the UK's National Institute for Health and Care Excellence (NICE) set out the investigations needed for various categories of elective surgery and American Society of Anesthesiologists (ASA) score of the patient. The following are some of the tests done preoperatively, although not all are done routinely or are recommended by NICE.

- Full blood count (FBC). An FBC is needed for major operations, in the elderly and in those with anaemia or pathology with ongoing blood loss and chronic disease.

Figure 21.2 Ability to protrude jaw.

Figure 21.3 Normal head extension.

measured in patients with diabetes who have not had it measured in the last 3 months.

- Sickle cell test. Not routinely offered, but in cases of suspicion of a sickle crisis or a family history of sickle cell disease a sickle cell test is needed.
- Urea and electrolytes (U&Es). U&Es are needed before all major operations, in patients over 65 years of age, in patients with cardiovascular, renal or endocrine disease or if significant blood loss is anticipated. They are also needed in those on medications that affect electrolyte levels, e.g. steroids, diuretics, digoxin, non-steroidal anti-inflammatory drugs, intravenous fluid or nutrition therapy, and in those with endocrine problems.
- Liver function tests. These are indicated in patients with jaundice, known or suspected hepatitis, cirrhosis, malignancy, alcohol excess or poor nutritional status.
- Clotting/coagulation screen. This is needed if a patient has a history suggestive of a bleeding diathesis, liver disease, eclampsia or cholestasis, is on antithrombotic or anticoagulant agents or has a family history of a bleeding disorder. It should be noted that the effects of antiplatelet agents, low-molecular-weight heparins (LMWHs) and newer agents affecting factor Xa cannot be measured by routine laboratory tests.
- Electrocardiogram (ECG). This is required for patients over 65 years of age or symptomatic patients with a history of rheumatic fever, diabetes or cardiovascular, renal or cerebrovascular disease, with or without severe respiratory problems. It will also depend on whether the surgery is minor/intermediate or major, as described in NICE guidance.
- Chest radiograph. Not routinely offered unless there is concern on clinical examination.
- Echocardiogram (echo). Consider in those with heart murmurs who are symptomatic or in those with signs of heart failure.
- Urine tests. Only consider microscopy and culture of midstream urine if infection would influence the decision to operate.
- β -Human chorionic gonadotrophin (pregnancy test). Women of childbearing age should be asked sensitively about their pregnancy status as this will affect the surgical plan and consent. Pregnant patients must be consented for the risk to a fetus that surgery and anaesthetic pose, and obstetric advice sought. In addition, on the day of surgery the woman should be consented for a urine/serum pregnancy test.
- Others:
 - Venous bicarbonate. For

patients who have screened as being at high risk for obstructive sleep apnoea (OSA). Followed by formal sleep studies if significant OSA is a concern. Arterial blood gases . A low-cost tool that can give quick and vital information in acute or chronic severe respiratory conditions, acid-base disturbances and conditions where there is a changing milieu, e.g. immediately before kidney transplant. loss >500 mL. Methicillin-resistant Staphylococcus aureus (MRSA) swabs. Coronavirus 2019 (COVID-19) polymerase chain reaction (PCR) swabs. Spirometry . Cardiopulmonary exercise testing to assess fitness for high-risk surgery . Specialist radiological views are sometimes required. If imaging is going to be needed during surgery , this needs to be planned in advance.

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