Model of Care for Preassessment Services

National Clinical Programme for Anaesthesia

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* Refer to HSE National Framework for developing Policies, Procedures, Protocols and Guidelines (PPPGs)

Contents

1. FOREWORD

The Model of Care for Pre-admission Units was first published in 2014 and contributed greatly to providing guidance and setting standards for preassessment units. A working group was formed in the summer of 2022 with the intention of updating the original document. As part of this update the members of the working group have recognised the importance of the contribution of the multidisciplinary healthcare team in the preassessment and optimisation of patients attending for elective procedures. For this reason, we have changed the title of the document to the 'The Model of Care for Preassessment Services (PAS)'. This change of title will take account of the multi-faceted nature of the team providing the preassessment service including contributions from anaesthesiology, surgery, medicine, nursing, pharmacy, physiotherapy, occupational therapy, dietetics, psychology and administrative staff.

This document outlines the local governance structures that are required in each hospital to support the preassessment service. A lead anaesthesiologist is required in each hospital to chair the Preassessment Service Operational Group, which will consist of representatives from all the specialties contributing to the work of the preassessment service. A section on workforce planning allows the number of essential staff required for the service to be determined depending on the numbers of patients attending the hospital for elective surgery. The number of staff allocated to the preassessment service will be dependent on the size and resources of the hospital concerned. Appropriate resources and staffing for preassessment services will be required for the proposed new surgical hubs and new elective hospitals that are being planned by the HSE.

The nominated lead anaesthesiologist will be responsible for the application of recognised guidelines for the preassessment service, education of the staff and for the regular audit of the service. The lead anaesthesiologist will liaise with preassessment services in the Health Regions or Hospital Group (HG) with a view to standardisation of practice and sharing of educational resources.

All patients due to attend for elective procedures involving the services of an anaesthesiologist should be preassessed. The National Clinical Programme for Anaesthesia/Healthcare Pricing Office (NCPA/HPO) Annual Report for 2019 (which is the last year pre-COVID-19 for which complete data are available and is more representative of a typical year's clinical activity) indicates that 217,457 patients who were discharged were administered an anaesthetic in that year in publicly funded hospitals in Ireland. Of these 48,350 (22.5%) were emergencies, 41,554 (19.1%) were maternity cases and 127,553 (58.6%) were elective procedures. Of the elective procedures, 74,955 were day-procedures, i.e. 58.7% of all elective procedures were patients who attended for a day-procedure.

The patients in 2019 who underwent anaesthesia in publicly funded hospitals were categorised by ASA grade as follows: ASA I - 67,358 (29.2%), ASA II - 95, 378 (41.4%), ASA III – 31,928 (13.8%), ASA IV – 3,079 (1.3%), ASA V – 241 (0.1%). Therefore, the majority of patients (70.6%) who received an anaesthetic in 2019 were ASA grade I or II. Many of these patients who were undergoing elective procedures, and who were graded ASA I or II, may have been suitable for telephone preassessment and would not necessarily require attending in person for preassessment depending on the type of procedure being planned.

Patients who are ASA grade III or IV, or any patient for whom intermediate (e.g. inguinal hernia, varicose veins, tonsillectomy, knee arthroscopy) or major surgery (e.g. total abdominal hysterectomy, TURP, total joint replacement, radical neck dissection, colonic resection, lung, cardiac or brain surgery) is planned should attend in person for preassessment.

According to the most recent survey carried out, which was in 2012, private hospitals perform 39% of the total number of surgical cases per annum in the Republic of Ireland. 94% of these were for elective surgery and approximately 85% were ASA I-II (Jonker et al. 2014).

The anaesthesiologist providing anaesthetic care for a patient should see the patient prior to surgery in addition to the patient's review by the Preassessment Service. The responsible anaesthesiologist must ensure that the patient has been adequately assessed and is fit for surgery on the day of surgery. The Association of Anaesthetists of Great Britain and Ireland (AAGBI) in 2010 made a key safety recommendation as follows: 'Operating sessions and the individual anaesthetist's job plan must be arranged to allow time for the anaesthetist responsible for an individual's care to visit them preoperatively at an appropriate time before surgery. In all but exceptional circumstances this should take place in a designated reception area, dedicated clinic room or in the ward ensuring privacy and respecting patients' dignity, and not in the anaesthetic room'.

The National Institute for Health and Care Excellence (NICE) published an updated guideline on 'Routine preoperative tests for elective surgery' in April 2016, which indicated that preoperative investigations should not routinely be carried out unless there is a specific indication or involves high-risk patients for intermediate surgery or any patient undergoing major surgery. A copy is reproduced in Appendix I. The ASA (American Society of Anaesthesiologists) published similar guidance in March 2022. The ANZCA (Australia and New Zealand College of Anaesthetists) published guidelines in 2017 which also concurs, as does the Association of Anaesthetists/Centre for Perioperative Care (CPOC) document on preoperative assessment which was published in 2021.

Appropriate risk assessment screening and assessment of functional capacity are important components of preassessment, particularly for patients in ASA grades III or IV, or for any patient undergoing major surgery. A selection of assessment tools is described in this document, the use of which should be agreed at local level.

Prehabilitation involves assisting the patient to become physically optimised prior to their operation as this improves outcomes. This includes addressing malnutrition, excess weight, anaemia and encouraging appropriate exercise to improve physical fitness. Lifestyle advice regarding smoking, alcohol and recreational drug consumption is important. Preparing the patient to have a positive psychological attitude towards their surgery is also helpful and this may include breathing exercises and visualisation techniques to reduce anxiety. The preassessment service provides an opportunity to encourage patients to take measures to optimise their general health preoperatively which will assist in their postoperative outcome.

The preassessment service also provides an opportunity to preoperatively optimise the management of co-morbidities, including chronic diseases. The 'Integrated Model of Care for the Prevention and Management of Chronic Disease' (HSE 2020) indicated that there are four major chronic diseases that affect over one million people in Ireland: cardiovascular disease, type 2 diabetes mellitus, chronic obstructive pulmonary disease (COPD) and asthma.

The perioperative management of medications has become quite a complex area particularly as many patients are taking multiple medications for the management of long-term conditions such as cardiovascular disease, respiratory disease, cancer, renal disease or diabetes. Attention is required in the safe management of all medications in the perioperative phase. Particular care is required in the perioperative management of anticoagulants. Guidance is regularly updated from various reliable sources, e.g. Handbook of Perioperative Medicines UK Clinical Pharmacy Association (UKCPA) available at https://www.ukcpa-periophandbook.co.uk/. The preassessment service will provide the appropriate advice in this respect based on local Policies, Procedures, Protocols and Guidelines (PPPGs) and advice from the members of the multidisciplinary team.

The preassessment service provides an ideal opportunity for healthcare professionals to make every contact count by recognising the opportunity they have through this interaction to talk to patients about chronic disease prevention and management. It also gives an opportunity to empower and support people to make healthier lifestyle choices, as outlined in HSE 2016 document, Making Every Contact Count, for which a training programme is available on HSeLand for all healthcare professionals. Further information is available at https://www.hse.ie/eng/about/who/healthwellbeing/making-every-contact-count/making-every-contact-count-framework.pdf

This document also includes a section on paediatrics and obstetrics. Preassessment is essential for the obstetric patient to detect those who may be at risk under anaesthesia and to optimise the condition of those patients identified at high-risk.

Sources of reference are provided regarding perioperative management of hospital acquired infections (HAIs) and multi-drug resistant organisms (MDROs). A source of reference for the latest guideline regarding elective surgery for COVID-19 patients, or patients recently recovered from COVID-19, is included.

The NCPA participated in the third iteration of the Sprint National Anaesthesia Projects (SNAP-3). The Sprint National Anaesthesia Projects (SNAP) examine important themes in anaesthesia and perioperative care. They are intended to provide a ‘snapshot’ evaluation of clinical activity and patient centred outcomes. One of SNAP-3's aims is to describe how perioperative services are organised, with a particular focus on the older person undergoing surgery.

Appendix II contains questions asked by the NCPA alongside the SNAP 3 organisational survey. This also contains a focused review in which we present an update of the evidence underpinning both the rationale and key components of preassessment units in Ireland. We await completion and publication of the SNAP-3 survey from the authors.

I would like to thank all the members of the working group and contributors to the Model of Care for Preassessment Services, but particular thanks are due to Ms Aileen O’Brien, NCPA Nurse Lead, and Ms Una Quill, NCPA Programme Manager, for their patience, perseverance and professionalism in helping to complete this document. The purpose of this Model of Care is to provide guidance on the resources, methods and standards required primarily to optimise the health of patients undergoing elective surgery with a view to improving surgical outcomes for this group of patients.

An efficient preassessment service will also greatly aid the process of patient flow for elective surgery by minimising unexpected delays or cancellations on the day of surgery, thereby contributing to the reduction of waiting lists, which is consistent with the objectives of Sláintecare.

https://www.gov.ie/en/publication/49c5c-slaintecare-action-plan-2023/

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2. EXECUTIVE SUMMARY

1. All elective procedures requiring the services of an anaesthesiologist should be preassessed.

2. The Preassessment Service is provided by a multidisciplinary team including contributions from anaesthesiology, surgery, nursing, pharmacy, health and social care professions (HSCPs) and administrative staff.

3. The number of day cases in publicly funded hospitals in Ireland had quadrupled over the twenty years prior to the Covid-19 pandemic. In 2019 (the last year pre-Covid-19 for which complete data are available), 58.7% (74,955 patients) of all elective procedures (127,553) were patients who attended for a day-procedure.

4. Up to 70% of elective surgical cases in publicly funded hospitals may be suitable for day-case surgery. A significant proportion of the remaining elective cases should be suitable for day of surgery admission (DOSA). As a high volume of patients are grade ASA I and II, the use of virtual/telephone preassessment will improve efficiency of the preassessment service.

5. The advantages of day-case surgery and DOSA are a decreased length of hospital stay, decreased incidence of hospital-acquired infections, higher patient satisfaction, improved cost-efficiency, improved utilisation of surgical beds and theatre availability which in turn will contribute to a reduction in waiting lists.

6. Shared decision making should be embedded throughout the patient pathway and involve the patient and multidisciplinary team with the aim of promoting patient centered care.

7. The preoperative assessment of the older patient should include an assessment of frailty and memory. Also, the older patient should be given the opportunity to be involved in shared decision-making in relation to all the options available for their proposed care.

8. Preassessment of the surgical patient allows the patient to be assessed in terms of their physical functional capacity to cope with the physiological stress of surgery and to identify the risks of surgery. Comorbidities should be identified and optimised. Anaemia, which affects up to 30% of the surgical population, should be corrected; ideally this should be done preoperatively if the planned surgery is not urgent. The risk of venous thromboembolism should also be assessed.

9. Prehabilitation refers to preparing the patient so that they are in an optimum state for surgery. This includes advice and guidance on exercise, nutrition, psychological preparation, and lifestyle modifications (smoking/alcohol/recreational drugs). This will aid the patient's postoperative recovery. The waiting time for surgery should be viewed as an opportunity to optimise the patient's health and prepare them for surgery.

10. Preassessment allows for the safe perioperative management of medications and reconciliation of current use of medications. An increasing number of chronic conditions (diabetes, cancer, cardiovascular, respiratory and renal disease) often involve the use of multiple medications. These medications, which may include anti-coagulants, must be managed appropriately in the perioperative situation according to the latest guidelines which are updated regularly. The patient should receive clear written instructions regarding the perioperative management of their medications.

11. Preassessment of patients should be carried out within 6 weeks of surgery. In the event that surgery is not carried out within 3 months post preassessment, each case should be reviewed on an individual basis, as per local guidelines, to decide whether the patient requires a complete reassessment.

12. The anaesthesiologist responsible for the care of a patient, on the day of surgery, should review the patient prior to their operation in an area that affords privacy and respects the patient's dignity, and must ensure that the patient has been adequately assessed and is fit for their elective operation.

13. The preassessment service should consider the use of information technology e.g. apps etc. which are GDPR compliant and have been approved for use in this particular context. Information technology can facilitate a flexible assessment process with a rapid turnaround of information on patient requirements and planned next steps. Suitable Apps for triage of patients should undergo evaluation by the HSE Innovation Team and be compliant with the HSE's Data Specification Management Process (DSMP). Appendix IV provides a template for referral to the Preassessment Service which contains the minimum data set required for development of potential apps for this purpose. Appendix V provides a patient questionnaire template which contains a more detailed data set which may also be suitable for development of potential apps.

14. The preassessment service requires to be in an area that is structurally fit for purpose. It requires the establishment of effective local clinical governance arrangements and should be led by a nominated consultant anaesthesiologist with appropriate staffing from the contributing multidisciplinary team.

15. Assessment of the patient requiring emergency surgery is not suitable for the preassessment service. However, the principles of risk stratification, optimisation of the patient's condition prior to surgery and anticipation of perioperative events, with planning for mitigation of the risk of medical complications perioperatively, remain unaltered in the preoperative assessment of the patient scheduled for emergency surgery.

3. KEY RECOMMENDATIONS

1. All elective surgical cases involving anaesthesiology services should be preassessed.

2. Surgical day-cases not requiring anaesthesiology services may be assessed by surgical/nursing staff prior to their procedure often by virtual means or telephone questionnaire.

3. Patients should be preassessed within 6 weeks of surgery. Their risk factors should be identified, and the patient should be supported to optimise their health.

4. Anaesthesiologists should have specified dedicated time within their job plan for the preassessment service.

5. A consultant anaesthesiologist should be appointed as lead clinician of the preassessment service and should chair the Preassessment Services Operational Group with responsibility for the clinical governance of the service and the development of local policies, procedures, protocols and guidelines (PPPGs) and audit of the service.

6. A service need analysis and scoping exercise should be conducted locally to ascertain the requirement and benefit of various nursing/midwifery and healthcare assistant (HCA) roles within preassessment service. These roles should be clearly outlined locally.

7. The nurse/midwife delivered preassessment service must operate in collaboration and under the supervision of and with immediate access to anaesthesiology support.

8. It is essential that all nursing/midwifery staff working in the preassessment service have access to relevant education and training to ensure and maintain patient safety.

9. The preassessment service must have adequate staffing resources and suitable physical infrastructure.

10. Preassessment should be patient centered. Shared decision-making between the patient and healthcare staff should give the patient the opportunity to consider all the appropriate treatment options, including the option of not proceeding with any specific treatment.

11. Patients should have a thorough history taken, including a record of current medication. Appropriate clinical examination and suitable investigations should be performed if required. All ASA III and IV patients should attend for preassessment in person, as should all patients undergoing intermediate or major surgery.

12. Surgical risk should be assessed by the surgical team, particularly for ASA III and IV patients and any patient undergoing major surgery using an appropriate risk scoring system.

13. The risk of Venous Thromboembolism (VTE) should be assessed as per the 2018 HSE report ‘Preventing Blood Clots in Hospital ‘.

14. Patients should be optimised in relation to co-morbidities, including anaemia, diabetes mellitus, cardiovascular disease, COPD and asthma.

15. Advice regarding prehabilitation should be given with regard to diet, exercise, smoking and consumption of alcohol and recreational drugs.

16. Advice regarding the perioperative management of medications, including anticoagulants, should be given to the patient in writing (See appendix VIII)

17. Appropriate preassessment services should be provided for obstetric and paediatric patients.

18. A pool of patients should be identified who are optimised/fit for surgery and who are willing to accept cancellation/short notice for surgery date. This will help reduce unfilled slots on the theatre list due to late cancellations.

19. Investment and resources are required to develop IT within preassessment services to provide hardware, software, education and training along with support for both staff and patients.

20. All teams should have up to date information about their patients to improve efficiency. Access to the GP referral letter is important as this can be a very useful source of contemporaneous information relating to the patient. It is essential that good communication and close working relationships are established between the preoperative assessment service and the teams responsible for booking, scheduling and validating waiting lists.

4. LITERATURE REVIEW

The number of patient discharges from publicly funded hospitals in Ireland more than doubled to 1.7 million per annum in the years 2000 to 2018, and during this period the number of day-case discharges has quadrupled. In 2000, 25% of the total number of hospital discharges from publicly-funded hospitals were day-cases but this had increased to 60% by 2018 *(HSE / Healthcare Pricing Office: Activity in Acute Public Hospitals in Ireland Annual Report 1992 – 2001; and 2019).*

In 2019, the number of discharged patients in publicly funded hospitals in Ireland having had an anaesthetic was 217,457. Of these 48,350 (22.5%) were emergencies, 41,554 (19.1%) were maternity cases and 127,553 (58.6%) were elective procedures. Of the elective procedures, 74,955 were day-cases, i.e. 58.7% of all elective procedures were patients who attended for day-procedure. *(NCPA/HPO Annual Report 2019 & 2020)*

There is an increasing trend of managing patients for surgery as day-cases and admitting patients on the day of surgery (DOSA, Day of Surgery Admission). The advantages of day-case surgery and DOSA are a decreased length of hospital stay, decreased incidence of hospital-acquired infections, higher patient satisfaction and improved cost efficiency. Therefore, there is a requirement for an efficient and adequately resourced preassessment service.

'Preoperative Assessment and Optimisation for Adult Surgery' was published in the UK in 2021. This document was produced by a collaborative process involving the Association of Anaesthetists, Royal College of Anaesthetists (RCoA), Royal College of Surgeons in England, Centre for Perioperative Care, The Preoperative Association, International Prehabilitation Society, Perioperative Exercise Testing & Training Society, Federation of Surgical Specialty Associations, Intensive Care Society, Royal College of General Practitioners and British Geriatrics Society. This document recommends that a Preassessment Service should review all patients for elective surgery, and that all patients are:

a) Assessed and optimised prior to admission in relation to comorbidities, nutrition and functional status relating to level of physiological and psychological fitness.
b) Have the level of risk and level of functional capacity determined using validated assessments
c) Instructed regarding the perioperative management of their medicines.
d) Encouraged to attend a 'Surgery School' preoperatively to achieve optimisation if they are due to undergo major surgery.
e) Enrolled in an active clinical surveillance programme if the waiting list is longer than 3 months.

The National Institute for Health and Care Excellence (NICE) published a guideline in 2020 on 'Perioperative Care in Adults', which recommended that patients should be assessed pre-operatively and attention paid to risk assessment for surgery, shared decision-making with the patient and that treatment options should be discussed with the patient. The issue of preoperative information, shared decision making and consent for anaesthesia was discussed in an editorial in the journal Anaesthesia of May 2023 which raises the question of specific written consent for anaesthesia.

The journal Anaesthesiology published a clinical focus review on preassessment in July 2023 (Blitz JD, Anaesthesiology 2023; 139:91-103), which listed the key elements of a preoperative evaluation as:

a) Risk assessment and planning for anaesthesia and surgery

b) Patient education and shared decision-making

c) Interdisciplinary communication with the entire perioperative care team

d) Optimization of modifiable conditions that impact perioperative outcome

e) Care coordination: surgical venue discharge planning

f) Contribution to population health initiatives.

According to the above article, the Duke Activity Status Index was found to be superior to subjective assessment, biomarkers and formal cardiopulmonary exercise testing for the prediction of postoperative mortality and myocardial infarction within 30 days. Also, a significant change in the approach to cardiac risk assessment is the addition of cardiac biomarkers such as N-terminal pro-B-type natriuretic peptide (NT-proBNP) or brain natriuretic peptide (BNP) to preoperative risk assessment. Canadian and European guidelines recommend obtaining a BNP level on patients aged more than 65 years old or more than 45 years old with risk factors for cardiovascular disease to enhance risk prediction. A pro-B-type natriuretic peptide level of 300ng/L or more, or a BNP level of 92mg/L or more has been suggested at the threshold at which routine postoperative monitoring for major adverse cardiac events be performed (Duceppe E. et al. 2017) (Halvorsen S et al; 2022).

The RCoA's FitterBetterSooner programme https://rcoa.ac.uk/patients/patient-information-resources/preparing-surgery-fitter-better-sooner provides a useful resource for prehabilitation. Preoperatively, lifestyle modifications (e.g. smoking, alcohol consumption, recreational drugs, advice on nutritional status/weight management etc.) should be discussed with the patient. Nutritional screening should be made for intermediate or major surgery, anaemia should be treated and the risks of venous thromboembolism should be assessed and reduced.

The HSE has published a document 'Preventing Blood Clots in Hospitals' (2018). NICE also has produced specific guidelines on venous thromboembolism (2018).

People living with obesity face substantial bias and stigma. Obesity contributes to increased morbidity and mortality. A non-judgemental, stigma-free environment is necessary when undertaking assessments with a patient living with obesity. Obesity in Adults: 2022 Adapted Clinical Practice Guideline for Ireland. https://asoi.info/guidelines/

The Centre for Perioperative Care (CPOC) published 'Guidelines for Perioperative Care for People Living with Frailty Undergoing Elective and Emergency Surgery' in September 2021. This guideline emphasises that the preoperative assessment of the older patient should include an assessment of frailty and memory. Also, the older patient should be given the opportunity to be involved in shared decision-making in relation to all the options available for their proposed care.

Older patients tend to have a longer stay in hospital due to postoperative complications and a slower recovery (Lin H-S et al 2016). The UK National Health Service (NHS) has a programme for the 'Perioperative Care for Older People undergoing Surgery (POPS)' which aims to optimise the care of older surgical patients. This programme was initially developed in Guys & St Thomas' Hospital, London, in 2003. It has been adopted by multiple centres in the UK (Jasper EV et al 2019).

NICE also published an updated guideline on 'Routine preoperative tests for elective surgery' in 2016 (see Appendix I), which indicated that preoperative investigations should not routinely be carried out unless there is a specific indication or involves high-risk patients for intermediate surgery or all patients undergoing major surgery. The British Medical Journal (BMJ) published a summary of this NICE guidance in 2016, https://www.bmj.com/content/bmj/suppl/2016/07/14/bmj.i3292.DC1/pre-op_tests_v36_web.pdf which includes a helpful infographic. The American Society of Anaesthesiologists (ASA) published similar guidance in 2022. Australia and New Zealand College of Anaesthetists (ANZCA) published the 'Guideline on pre-anaesthesia consultation and patient preparation' in 2017 which concurs.

The AAGBI and the British Association of Day Surgery (BADS) state that 'thorough anaesthetist-led, nurse-delivered pre-anaesthetic assessment and preparation, as well as protocol-driven discharge, are fundamental to safe and effective day surgery'. The AAGBI and BADS also recommend that all day surgery units should have an Anaesthesiology Clinical Lead with responsibility for the development of local policies, guidelines and clinical governance.

McNally et al (2021) advocate that pre-operative assessment and patient optimisation requires excellent multidisciplinary team (MDT) communication, adequate technology and a flexible workforce. Funding, education and leadership are also identified as requirements. They also recommend that waiting lists should be viewed as 'preparation lists' to allow for the assessment and optimisation of patients prior to surgery.

5. DESIGN AND INFRASTRUCTURE OF A PREASSESSMENT SERVICE

Preassessment services should be easily accessible from the main entrance of the hospital, ideally located near surgical specialities, within reach of diagnostics and other support services. Preoperative assessment should take place in a defined area with a central waiting room, appropriate number of examination rooms to facilitate assessment by all healthcare professionals and sufficient area for clerical staff and chart organisation. A dedicated location for clerical support should be found within the area itself. The overall layout of the unit should optimise staff workflow and ensure patient safety and comfort.

A centralised service provides opportunity for education, backfill for annual leave, increased support for staff, more efficient use of clerical services, and secure storage for patient medical records and facilitates governance.

Examination rooms must include hand hygiene facilities to ensure the risk of transmission of infection is reduced to a minimum. Access to a dirty utility and patient and staff toilets are required. The requirement for medical equipment e.g. ECG machine will be decided at local level and will depend on investigations carried out by nursing/support staff. Expanded capacity furniture should be available to accommodate patients who may have a high BMI. Further information is available from 'Obesity in Adults: A 2022 Adapted Clinical Practice Guideline for Ireland' **https://asoi.info/guidelines/**

Face-to-face consultations with either a nurse or anaesthesiologist can be organised using either a walk-in service or a scheduled appointment system. A walk-in service offers the patient a 'one-stop shop' and avoids the patient having to attend the hospital on two different occasions e.g., attending the surgical out-patient department (OPD). However, if the preference is a walk-in service, demand on the preassessment service can be unpredictable and could result in long patient waits. A scheduled appointment system, on the other hand, avoids long delays as demand is predictable and ensures availability of the patient's medical record.

5.1 Purpose of the Preassessment Service

The purpose of the preassessment visit prior to hospitalisation remains the same, regardless of the model of hospital, which is to:

a) Streamline the patient's journey along the care pathway by offering a more accessible, coherent, effective and efficient service. Ultimately, this will improve the patient's experience, increase patient satisfaction levels, and minimise cancellations.
b) Assess the patient's health status, identify anaesthetic risk factors, optimise the patient's medical co-morbidities preoperatively and organize access to health promotion programmes such as smoking cessation or nutritional screening.
c) Perform preoperative investigations and screening as per agreed Policies, Protocols, Procedures and Guidelines (PPPGs) and have a clear process for the management of abnormal results in advance of admission.

d) Provide patient education and information in relation to the preoperative, perioperative, and postoperative care plan, as their care progresses through the hospital system.
e) Give advice to the patient regarding perioperative management of medications and reconciliation of current medication usage.
f) Liaise with the patient's General Practitioner if there are outstanding clinical issues or a need to consider other information. Communication by the preassessment service with the GP for this purpose will require clerical support as detailed in Section 7.15.
g) If history-taking, physical examination or investigations carried out by the preassessment service uncover previously undiagnosed conditions, or a known condition which has significantly deteriorated, the patient should be informed. Relevant stakeholders (GP, referring surgeon etc.) also should be informed accordingly in writing with a copy filed in the patient's notes.
h) The GP should be informed of temporary changes to medication regimes prior to surgery as this may involve a change in dosing regime or cessation of certain medications for a short period, possibly up to a week, prior to surgery. A copy of the written guidance given to the patient prior to surgery should be sent to the GP and filed in the patient's notes. An example of a suitable template is provided in appendix VIII.
i) Enable early assessment and patient education by Health and Social Care professionals (HSCPs e.g., physiotherapy, clinical nutrition, stoma care etc.), and pharmacist.
j) Plan for discharge includes rehabilitation needs, analgesia options, delivery of community services if required and follow-up information.
k) Facilitate day surgery, day of surgery admission (DOSA) and early discharge.
l) Facilitate better capacity planning within the hospital; see Appendix III Preassessment Services Patient Pathway Template.

5.2 Health Information Technology

Access to accurate, up to date information is essential when making decisions pertaining to a patient's health. By facilitating rapid access to accurate, real time patient information at any time of the day or night, health information technology has the potential to enhance the co-ordination of care of complex patients thereby improving the efficiency and effectiveness of a preoperative assessment service and preventing errors. Electronic health records, which are likely to be developed in the near future, can contribute to data collection, audit and research. Investment in electronic resources and networking systems enable the sharing of information between the primary care physician, surgeon, surgical admissions unit/wards, and the preassessment service, thereby facilitating the timely scheduling of appointments, supporting risk identification and enhancing the decision-making process. Installation of electronic information systems is costly and technically challenging; adequate funding is crucial to ensure that a system is fit for purpose.

Patients could be provided with a questionnaire in e-format to facilitate the triage of patients for telephone, video or face to face consultation. This questionnaire could be completed remotely which in turn reduces unnecessary hospital visits and improves the patient experience.

The use of virtual assessment i.e. telephone, video conference etc. accelerated during the COVID-19 pandemic with research showing an increased rate of patient satisfaction, more efficient use of human resources and reduced costs and travel (Mihalj et al 2020) (Zhang et al 2021). HSE Attend Anywhere is a clinical video consultation platform utilising a 'Waiting Area' that patients are invited by appointment to attend. Further information is available on https://healthservice.hse.ie/staff/procedures-guidelines/digital-health/attend-anywhere/

Given the importance of the preassessment service to patient flow, the use of information technology e.g. apps etc., could facilitate a flexible assessment process with a rapid turnaround of information on patient requirements and planned next steps. Suitable apps for triage of patients should undergo evaluation by the HSE Innovation Team, be compliant with the HSE's Data Specification Management Process (DSMP) and contain a minimum data set of information as per the template in Appendix IV. A more detailed data set of information is available in Appendix V which would also be suitable for use in an app.

The minimum data set (MDS) required by HIQA, as detailed in the National Outpatient Waiting List Management Protocol (Dept of Health, HSE, NTPF 2022), includes the following:

- Hospital
- Specialty / Service
- Priority
- Date of referral
- Patient's name - surname, first name
- Address
- Contact Phone number (landline or mobile)
- Date of birth
- Gender
- Referrer name
- Signature of referrer
- Planned Procedure
- International Classification of Diseases (ICD) Code
- Past medical history
- Allergies
- Current medications

6. GOVERNANCE

6.1 Leadership and Management of Local Preassessment Service

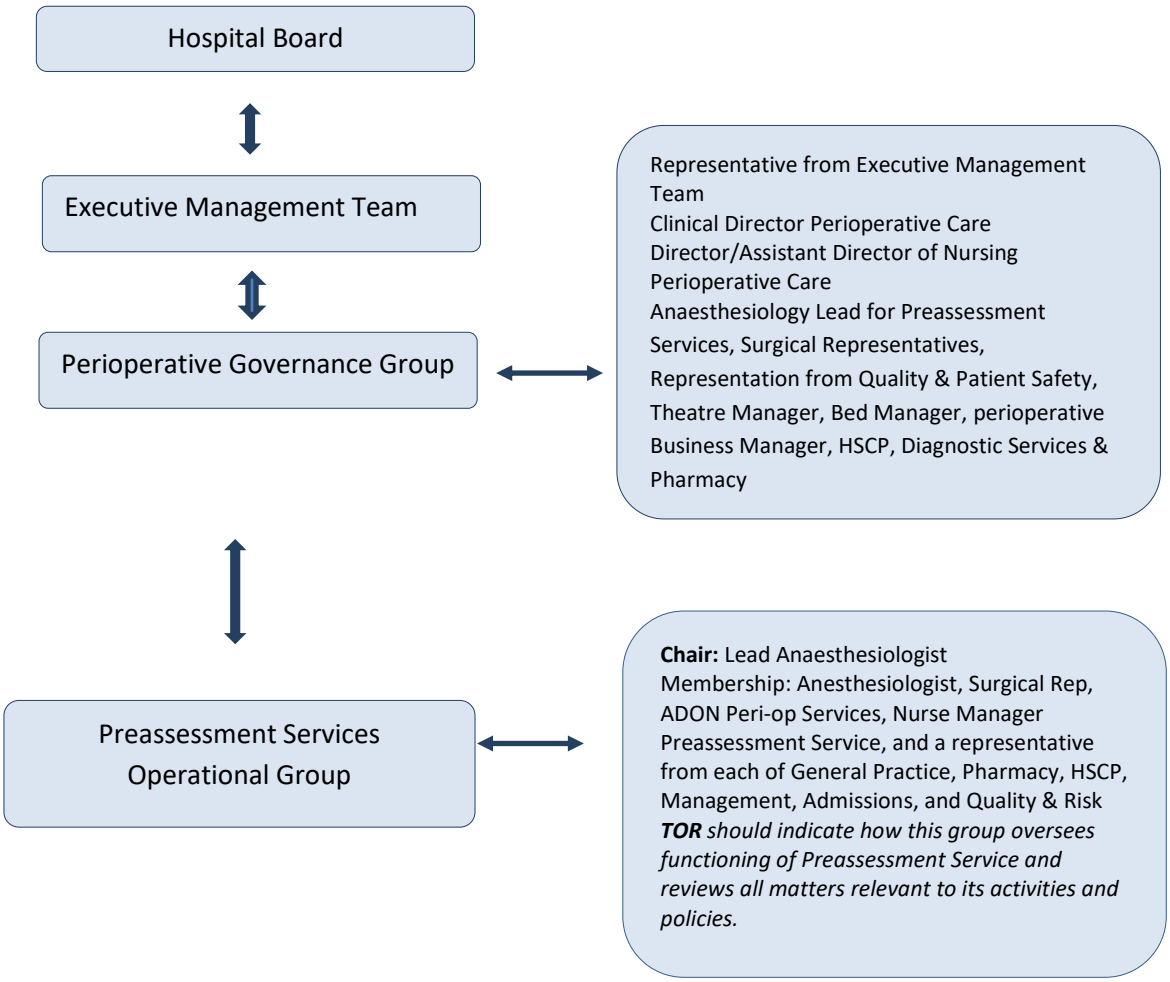
Strong leadership and management of a preassessment service is vital at both clinical and managerial level to ensure successful implementation of operational policy and day-to-day running of the service. Effective management requires input and support from all relevant stakeholders within the hospital/ hospital group/health regions and community services. It is essential that patients are appropriately selected for the hospital in which their procedure is to take place, considering the services and supports available in the hospital e.g. access to critical care etc. along with patient co morbidities (Australian and New Zealand College of Anaesthetists 2017). A preassessment service should include the multidisciplinary team approach to ensure patients are fully prepared for their surgery and discharge.

6.2 Overall Quality and Safety Structure

Effective governance arrangements recognise the inter-dependencies between corporate, financial and clinical governance across the service.

The governance for quality and safety of the preassessment service within a hospital, hospital group/ health region should be clearly set out in the context of the overall perioperative governance group (see below for sample perioperative governance structure) and its interface with the Hospital Executive. If clinical directorates are in place, appropriate connections with relevant clinical leads and subspecialties should be unambiguous.

Figure 1: A Model for Governance of Perioperative Care at Hospital Level



Adapted from the Perioperative governance Model outlined in the Acute Surgery Model of Care document 2013.

Executive accountability for resources, ownership, leadership, perioperative management and monitoring of the preassessment service should be set out in accordance with locally agreed Terms of Reference (TORs).

6.3 Governance for Quality and Safety of the Local Preassessment Service

Every preassessment service should operate under the leadership of a Consultant Anaesthesiologist with a specific interest in pre-operative assessment and day surgery/day-of surgery admission (DOSA).

The lead clinician for the preassessment service, within the context of the hospital quality and safety structure, will oversee the service. Their remit will include directing the development and providing approval for implementation of local PPPGs and clinical governance. The lead clinician will lead on innovations and development in preoperative assessment, day surgery practice and clinical governance with particular emphasis on clinical risk management and clinical audit.

The maximum value of a preassessment service is derived from a multidisciplinary approach to ensure appropriate screening, optimisation, flow of patients for surgery and integration of care.

With the expanding numbers of services nationally, the service should endeavour to develop learning networks to ensure the transfer of skills, expertise, information and evaluations. Practically, the service should share locally developed PPPG algorithms which not only reduce duplication of effort, but also encourages peer review of such algorithms.

Governance for quality and safety incorporates accountability for clinical performance. The aim is to create and support an environment where all staff understand their role within the service, recognise their accountability and are committed to the guiding principles for quality and safety.

Each preassessment service should have a multidisciplinary operational group that oversees the organisation and day-to-day running of the pre-assessment service, agrees PPGs, timetables, plans the service, manages the resources, reviews operational problems and organises audit strategies. The Preassessment Services Operational Group should include an Anesthesiologist, Surgical Representative, ADON Peri-op Services, Nurse Manager Preassessment Service, and a representative from each of General Practice, Pharmacy, HSCP, Management, Admissions, and Quality & Risk. A multidisciplinary operational group which has a broad base will be consistent with the aim of Sláintecare in achieving integrated care.

Preassessment services and processes need to be adapted to suit individual hospital needs, as reflected by surgical case mix and patient complexity (e.g. Model 2 hospital with day surgery for ASA I and ASA II patients versus Model 3 and 4 hospitals covering both day surgery and day-of-surgery admission for high-risk patients). Individual units should formulate a staffing structure that takes into consideration local needs.

7. WORKFORCE PLANNING

7.1 Staffing levels

There are several models of preassessment service available, which involve senior anaesthesiologists and skilled nurse practitioners and MDTs. A lead consultant anaesthesiologist should be identified to direct PPPG development, quality improvement and governance.

Consultant anaesthesiologists must be involved in the preassessment service and are responsible for:

a) Developing PPPGs and templates to standardise patient management. Standardised PPPGs are necessary to minimise unnecessary investigations and eliminate variability in the perioperative management of diabetes, anticoagulants, thromboprophylaxis, complex medicine regimes etc. thereby avoiding discord between the assessor and the procedural anaesthesiologist.
b) Liaising with surgeons, GPs, cardiologists, respiratory physicians and other health professionals to make decisions regarding patient management.
c) Training preassessment service nurses and NCHDs
d) Addressing concerns raised by preassessment nursing staff.
e) Reviewing abnormal investigation results and instigating appropriate actions

Preoperative assessment by skilled nurses in a nurse delivered clinic is safe and cost effective when administered in accordance with locally agreed PPPGs, in collaboration with and under the supervision of consultant anaesthesiologists. Patient risk and functional classification, surgical complexity and previous anaesthesia issues will determine the appropriate staff required to carry out the assessment. As with other aspects of healthcare, ensuring the right patient is assessed by the right person at the right time will be instrumental in ensuring a high quality, safe and efficient service that is patient centred.

While the current 2023 Royal College of Anaesthetists (RCoA) guideline does not provide recommended staffing levels, the following time allocation (per week) from RCoA 2019 guideline is a guide to the minimum physician anaesthetist staffing that should be provided per 1,000 patients per annum passing through a preoperative preparation clinic:

Table 1: Minimum Guidelines on Consultant Anaesthesiologist Staffing Levels

Preassessment Service	Consultant Anaesthesiologist WTE
Reviews and Consultations	1 session per week per 1000 patients per annum
Clinical Leadership	1 session per week per 5000 patients per annum

Royal College of Anaesthetists UK (2019). A session in in the NHS is of 4 hours duration.

For example, a hospital carrying out 5000 elective procedures per annum would require 5 sessions per week for review and consultation plus one session per week for clinical leadership.

The NHS has produced a document titled 'Preoperative Assessment Services Guidance' (2023) which provides a means of calculating staffing requirements for a preassessment service.

7.2 Lead Clinician: Consultant Anaesthesiologist

The following role will only be possible if there are adequate resources, including designated time, allocated to the respective Department of Anaesthesia (AAGBI 2010). The role of lead consultant anaesthesiologist includes the following functions:

a) Chairperson of the Preassessment Service Operational Group.
b) Key point of contact with surgical and anaesthesiology departments.
c) Overseeing the implementation of the operational PPPGs for the preassessment service.
d) Responsibility for establishing evidence based PPPGs for preoperative assessment, investigations, management of perioperative medications and patient selection criteria for day surgery.
https://www.cpoc.org.uk/preoperative-assessment-and-optimisation-adult-surgery
e) Arranging executive and clinical ratification and circulation of protocols.
f) Ensuring that risk assessment, key performance indicators (KPIs) and audits on the preassessment service are conducted as appropriate, and outputs monitored and reviewed.
g) Ensuring that the preassessment service is consultant-led and that clinics are adequately staffed by anaesthesiologists and other clinical staff as appropriate.
h) Link in with other lead clinicians for preassessment nationally to form a network of learning.
i) Collaborate with hospital management to establish common referral pathways to patients' General Practitioners (for stabilisation of blood pressure, asthma or other pre-existing medical conditions) and to other medical or surgical specialties for further review to ensure patient optimisation should be established as part of the preassessment service.

7.3 Consultant Surgeon and Surgical Team

All elective surgical cases should have some form of preassessment. For the those requiring a general anaesthetic, a preassessment is necessary but for less complex surgery requiring local anaesthesia, preassessment can be carried out by the surgeon at the time of decision to treat.

Early referral from surgeons to preoperative assessment services will increase efficiency.

A template referral form for preassessment services requiring anaesthesia is available in Appendix IV. Ideally the preassessment appointment should take place 4-6 weeks before surgery to allow full optimization and completion of required investigations; however, this will be dependent on the patients' health status.

For surgical patients requiring local anaesthesia only, a template health questionnaire is available as Appendix VI.

Information on the HSE National Consent Policy 2022 is available on:
https://assets.hse.ie/media/documents/ncr/hse-national-consent-policy.pdf

Information on Assisted Decision Making (Capacity) Act 2015 is available on:
https://www.hse.ie/eng/about/who/national-office-human-rights-equality-policy/assisted-decision-making-capacity-act/

a) Surgeons will need to complete a referral for the preassessment service which should outline the procedure, side/site/digit/level and past surgical/medical/anaesthetic history, and ASA grading.

b) Comprehensive GP referral letters are an important source of information and should include the patient's medical and surgical history, medication list and allergies. This step will assist with efficient and appropriate triaging by the preassessment team to optimise patient flow.

c) To assist with guiding clinical decision making for preoperative risk prediction, National Confidential Enquiry into Patient Outcome and Death (NCPOD) recommends the use of the Surgical Outcome Risk Tool (SORT), a surgical preoperative risk prediction tool http://www.sortsurgery.com/SORT2home This is further supported by Wong et al (2020) who concluded that the combination of subjective assessment and a risk model such as the Surgical Outcome Risk Tool (SORT), improved perioperative risk estimation. This can be used to plan services such as the requirement for postoperative critical care services for high-risk patients. Many studies also validate the use of the American College of Surgeons National Surgical Quality Improvement Programme (ACS NSQIP) surgical risk calculator https://riskcalculator.facs.org/RiskCalculator/

d) The surgical team should ensure that the responsible consultant surgeon is aware that the patient is being listed for the relevant procedure.

e) Each hospital should have guidelines for preoperative tests which will depend on several factors including age, comorbidities and the planned procedure. To guide decisions around preoperative investigation NICE produced a traffic light table. See Appendix 1.

f) Provide patients with general as well as procedure specific information (both written and verbal) in advance of admission. This information should include details regarding the patient's condition, proposed surgical procedure, risks, post-operative recovery and discharge plans including wound care, analgesia and follow-up.

g) A discharge letter should be sent to the patient's GP after surgery which includes a copy of the patient's medicine discharge prescription. The patient's medicine discharge prescription should be given to the patient on discharge from the hospital.

h) Specific arrangements should be made for the management of more vulnerable patients e.g., children, those with physical or intellectual disability, older people and non-English speakers according to local PPPGs.

i) General information pertaining to the local preassessment service should include practical details such as preassessment visits, referral for investigations and the admission process to the day surgery unit or for DOSA should also be provided, as per local practice.

7.4 Anaesthesiology Non-Consultant Hospital Doctors (NCHDs)

NCHDs are involved in providing the day-to-day medical support to the PAS with many centres rostering one dedicated Anaesthesiology NCHD to the PAS each day. Anaesthesiology NCHDs broadly fall into two categories:

a) Specialist Anaesthesiology Trainees (SATs) who are participants in the College of Anaesthesiology of Ireland's (CAI) structured 6-year training scheme which upon completion will be awarded a Certificate of Satisfactory Completion of Specialist Training (CSCST) will enable them to enrol on the specialist register of the Medical Council of Ireland (MCI). Doctors enrolled on the specialist register of the MCI may apply for Consultant Anaesthesiologist posts.

b) Non-training scheme doctors (NTSDs) who are working in anaesthesiology posts but who are not part of the formal training scheme. NTSDs may have a wide range of experience, and some may be in anaesthesia posts while applying to become a SAT, while others may be in their final stages of working towards specialist registration via the credential process (Category E – where equivalency of training may be recognised even though the doctor was not enrolled in the CAI formal training scheme), and some may be in posts for service provision.

As the proportion of patients attending the preassessment service increases and more patients are admitted on the day of surgery, the opportunity for NCHDs to undertake comprehensive preoperative assessment of in-patients has declined. The preassessment service is a valuable source of clinical experience and education for NCHDs who should be supported to take an active role in the provision of the service. This should be reflected in workforce planning and rostering to ensure NCHDs receive appropriate supervision while participating actively in the provision of the preassessment service.

Based on the seniority of the NCHD, some may work independently with remote consultant support while others may require more direct consultant supervision. The NCHD should have readily available communication channels with a named consultant anaesthesiologist to discuss specific cases and receive feedback. The role of NCHDs to the clinical delivery of anaesthesiology care in the preassessment service is listed below:

a) Conduct in person assessments of patients and if required telephone assessments of patients.
b) Act as a link between nursing/midwifery staff and the consultant anaesthesiologist, escalating cases as necessary to the consultant
c) Advise patients on pre-operative medications.
d) Liaise with the primary surgical team.
e) Liaise with GP
f) Refer patients to specialist teams e.g., cardiology/respiratory.
g) Review abnormal investigations e.g., ECG/blood results.
h) Order specialist tests e.g., PFTS/Echo/CPET
i) Respond to medical emergencies in PAS e.g., chest pain, syncope.
j) NCHDs may deem patients fit for anaesthesia within their competence.
k) Contribute to audit, QIP and guideline development within the PAS.
l) Conduct both telephone and in person assessments of patients.

7.5 Preassessment Service Nursing/Midwifery Staff

Staffing levels in preassessment need to be sufficient to meet patient needs and provide safe quality care. The Royal College of Anaesthetists UK (2019) recommend the following minimum staffing for Nursing and Healthcare Assistants per 1,000 patients per annum:

Table 2: Minimum Guideline on Nursing/HCA Staffing Levels

Number of Patients	Registered Nurses	Healthcare Assistants
1,000	0.6	0.3

RCoA UK 2019

This staffing to patient ratio in the UK is based on 80% of patients as day cases and 20% as inpatients, assuming day case patients have a 30-minute nurse consultation and inpatients have 45 minutes. This is only a guide, as complex patients may be scheduled for minor surgery and fit patients may be scheduled for major surgery. The NHS has produced a document titled 'Preoperative Assessment Services Guidance' (2023) which provides a means of calculating staffing requirements for a preassessment service.

There is a lack of uniformity in nursing grades and roles in preassessment services across acute hospitals in Ireland. The grades vary between Staff Nurses, Clinical Nurse Managers, and Clinical Nurse Specialists. At the time of writing this MOC, there is one candidate advanced nurse practitioner in post in one model 4 hospital.

The role of the nurse/midwife has evolved over the last two decades in Ireland and there is huge potential for the development of a career pathway in preassessment to include the role of the nurse/midwife in advanced practice. With clear unambiguous local PPPGs, nursing/midwifery staff with appropriate education and training would be capable of deciding the outcome of preoperative assessment for ASA I & ASA II patients.

Following completion of a self-assessment questionnaire by the patient, the nurse/midwife should then validate the information and assess nutrition, cognition and in patients over 65 years, frailty as well as screening for specific conditions such as sleep apnoea or reduced functional capacity using locally agreed screening tools *(McNally et al 2021).*

There is evidence to show that Clinical Nurse/Midwife Specialists and Advanced Nurse/Midwife Practitioners have benefits for both the patient and service in improving outcomes, timely access to service and integration of services (DOH 2019).
The role of the preregistered nurse/midwife in the preassessment service needs to be explored as preassessment provides an excellent positive learning environment while also assisting in the development of a sustainable workforce. However, all practice placements must meet the requirements of the Nursing and Midwifery Board of Ireland and the Higher Education Institution (NMBI 2016). Individual hospitals should produce a staffing structure that meets the needs of the patients and service, considering the volume of patients, surgical specialties and staff skill-mix along with the tasks performed by nursing staff e.g. ECGs, phlebotomy etc.

The NCPA in conjunction with the Office of Nursing Midwifery Services Director (ONMSD) developed a foundation programme for nurses/midwives in preassessment service care which is delivered by Southeast Technological University every year.
https://www.wit.ie/courses/certificate-in-pre-admission-nursing

A study carried out by Malley et al 2015 concluded that, not only can nurses in preassessment identify risk factors and patient vulnerability for surgery but for the entire patient pathway and communication of risk factors and vulnerabilities to the multidisciplinary team is critical for positive patient outcomes.

The length of time required for each assessment will vary and depend on the following:

a) The risk profile of the patient
b) The method of pre assessment e.g., virtual or face to face
c) The requirement for investigations and whether the Nurse/Midwife carries out these at time of assessment e.g., ECG, phlebotomy, IPC screening, Irish National Orthopaedic Register etc.
d) The level of experience of the Nurse/Midwife
e) The separation of clinical and non-clinical work e.g., presence of clerical staff in service

Work plans for nursing/midwifery staff must include time for necessary administration duties e.g. addressing clinical issues. NHS (2023) recommend that administration time should be allocated per patient and will depend on the case load mix.

7.5.1 Clinical Nurse/Midwife Manager

The role of Clinical Nurse/Midwife Manager in the preassessment service is essential for the development and success of the unit. The preassessment service should be supported by a nursing framework of governance for quality and safety as delineated by local service decision makers.

The agreed nurse/midwife management structure should support the development of a clinical governance structure through PPPGs, strategic planning of the unit and implementation of the recommendations of the preassessment service leadership team. The Clinical Nurse/Midwife Manager is responsible for the day-to-day management of the unit and will support strategic development. They will provide clinical leadership, coordinate and manage activity, staff and resources within the unit as well as ensuring national and local targets are achieved.

7.5.2. Staff Nurse/Staff Midwife

The objective of the following section is to broadly outline the duties of nursing/midwifery staff involved in the clinical delivery of nursing care in the preassessment service.

It is not intended to be a comprehensive list of all duties involved and consequently**,** the content is subject to change, and development as determined by local service needs and line manager discretion; it is not intended to be prescriptive or restrictive.

a) Nurse/Midwife delivered preassessment is carried out within the structure of agreed PPPG algorithm, under the supervision of and with immediate access to consultant anaesthesiologist support. Where national PPPG algorithms have been developed, these should be utilised. The nurse/midwife should have readily available communication channels in place with a consultant anaesthesiologist to discuss specific cases and receive feedback.

b) The nurse/midwife plays an important role in the preoperative assessment and education of the patient and carer. This encompasses identification of the patient with a high perioperative risk using mutually agreed PPPGs (e.g., screening questionnaire completed by patient or phone interview) with referral to the consultant anaesthesiologist as appropriate, instituting routine preoperative investigations as set out by local PPGs and by assessing patient suitability for day surgery/ DOSA.

c) The nurse/midwife's role also includes implementation of the various preoperative PPPGs (e.g., fasting guideline, administration of regular medication) in addition to patient / family education with reference to general anaesthesia, regional anaesthesia and post anaesthesia recovery & discharge and health promotion. Information should be provided in both verbal and written format.

d) The nurse/midwife should be supported to attain competence in core clinical skills such as phlebotomy and ECG. This remit may be expanded as determined by local service needs to develop competencies such as spirometry, nurse/midwife medicinal product prescribing and nurse/midwife referral for radiological procedures.

e) Preassessment nurses/midwives should cooperate closely with primary care services, particularly when administration of specific medication is required, such as subcutaneous anticoagulation, or in the case of patients referred for medical optimisation.

f) The nurse/midwife in the preassessment service is in a prime position to prepare and agree discharge arrangements that ensure a smooth transition for the patient back to the community, thus reducing hospital length of stay.

g) Mindful of best practice, the nurse/midwife, as part of the multidisciplinary team, should identify, critically analyse, disseminate, and integrate nursing/midwifery and other research evidence into the pre-admission nursing care plan as appropriate.

h) To ensure clinical care reflects best practice standards the service should engage in a continuous cycle of audit, implementation, and evaluation (HIQA 2012).

i) The nurse/midwife should contribute to service review and development by gathering, populating, collating, and reporting on data generated from preassessment activity as requested. This may be completed in conjunction with service colleagues.

j) Nursing/midwifery staff faced many challenges in the recent COVID-19 pandemic including closure of units to facilitate redeployment of staff. The introduction of virtual assessment clinics saw a positive change for both staff and patients, with many units undertaking COVID-19 assessment and testing when scheduled surgery resumed as well as testing for MRSA, CPE etc.

7.5.3 Clinical Nurse/Midwife Specialist (CNSp/CMSp)

The role of the CNSp/CMSp in preassessment involves a major clinical focus including assessment, planning, delivery and evaluation of care to patients and carers.

The CNSp/CMSp works closely with all members of the multidisciplinary team. A CNSp/CMSp has completed recognised post registration education programme relevant to preassessment service at level 8 or above on the NQAI framework. This education is underpinned by extensive clinical experience in the preassessment service.

The level of practice of a CNSp/CMSp is higher than that expected of a staff nurse/midwife. The CNSp/CMSp working in preassessment should be competent in nurse/midwife medicinal product prescribing and nurse/midwife referral for radiological procedures. The requirement of a CNSp/CMSp post must be based on service need and will allow for the specialist to make clinical decisions based on PPGs and in consultation as required.

7.5.4 Advanced Nurse/Midwife Practitioner (ANP AMP)

The appointment of candidate ANP/ AMP in the preassessment service needs to be driven by patient and service needs. Since the introduction of the role of ANP in Ireland, much progress has been made with the development of a national framework to guide the provision of this service. The advanced nurse practitioner practices at a higher level of capability as independent, autonomous and expert advanced practitioners.

This involves undertaking complete episodes of patient care, which includes comprehensively assessing, diagnosing, planning, treating, and discharging patients including medicinal product prescribing and referral for radiological procedures, in accordance with collaboratively agreed local PPPGs. The ONMSD published a national guideline for the development of advanced nursing or midwifery practitioner services in 2020 which is available from https://healthservice.hse.ie/filelibrary/onmsd/national-guideline-for-development-of-advanced-nursing-or-midwifery-practitioner-services-2020.pdf. To ensure the successful integration and implementation of an ANP service in preoperative assessment, multidisciplinary team support is essential.

The key differences in the domains of competence and levels of education associated with the different levels of practice are outlined in table 3 below.

Table 3 – Levels of education and competency per role

Levels of education and competency per role		
Graduate Nurse/Midwife	Clinical Nurse/Midwife Specialist	Advanced Nurse/Midwife Practitioner
Honours degree level 8 NQAI	Graduate Diploma Level 9 NQAI	Masters degree Level 9 NQAI
The graduate nurse demonstrates competencies in the following domains: • professional and ethical practice •a holistic approach to care and integration of knowledge • communication and interpersonal skills • organisation and management of care Personal and professional development	The CNS/CMS demonstrates competencies in the following domains: • clinical focus • patient/client advocacy • education and training • audit, research • consultancy/clinical leadership	The ANP/AMP demonstrates competencies in the following domains: • professional values and conduct competencies •clinical decision-making competency • knowledge / cogitative competencies • management / team • clinical Leadership / professional scholarship

Department of Health- A Policy on the Development of Graduate to Advanced Nursing and Midwifery Practice

7.6 Healthcare Assistant/Support Staff

The role of the Healthcare Assistant/Support Staff in the preassessment service requires further scoping within the Republic of Ireland. In the UK HCAs form part of the staffing within most preassessment services with the registered nurse being responsible for ensuring capability and competence.

A HSE review of the role of HCAs completed in 2018 states that the development of this role in settings must be structured and funded to ensure delivery of quality safe care.

Such roles will be guided by the current service delivery system, regional and local demographics and epidemiology including case-mix, service gaps, waiting lists and waiting times.

7.7. Pharmacist

The role of the pharmacist as outlined below is not intended to be restrictive; it is acknowledged that it will be influenced and developed by local service needs, line manager discretion and available information technology and is therefore subject to change.

Table 4: Guideline for Pharmacist staffing level

Number of Patients per week	Registered Pharmacist
15	1

Standard of practice in surgery and perioperative medicine for pharmacy services.

The role of a pharmacist in the preoperative assessment service is to support quality and safety in relation to medication use in perioperative services including preassessment services, through:

a) Providing perioperative clinical pharmacy services, including admission and discharge medication reconciliation and in-patient clinical pharmacy services
b) Providing preassessment service medication reconciliation and contributing to perioperative medicines plans, liaising with MDT as appropriate and with patient counselling
c) Contributing to the development of guidance, training and information in relation to perioperative medication use, including antimicrobial prophylaxis, thromboprophylaxis, analgesia, management of nausea and vomiting
d) Participating in quality improvement, audit and measurement.

The role of the preassessment service pharmacist includes carrying out medication reconciliation and building a Best Possible Medication History (BPMH) by interviewing the patient and verifying with at least one reliable source e.g. the community pharmacy / GP / PCRS portal (where access available) (WHO 2019) This then enables optimisation of medicines in the perioperative period. Medication reconciliation (here on referred to as medrec) is recognised nationally and internationally as being a proven method to improve patient safety through the reduction of harm secondary to medication error (Institute of Healthcare Improvement 2011), (Watt et al 2009), (Department of Health and Children 2008), (National Institute for Health and Clinical Excellence 2007).

The Institute of Healthcare Improvement (IHI) defines medication reconciliation (medrec) as 'the process of creating the most accurate list possible of all medications a patient is taking — including drug name, dosage, frequency, and route — and comparing that list against the physician's admission, transfer, and/or discharge orders, with the goal of providing correct medication to the patient at all transition points within the hospital'. A systematic review of medrec practices reported that medrec consistently reduced medication discrepancies, potential adverse drug events (ADEs) and actual ADEs (Mueller et al 2012).

Both the IHI and the WHO advise healthcare professionals to ensure that patients are active participants in the medrec process; the patient is the only constant participant across the system (The Institute of Safe Medication 2011).

Patient involvement can be achieved through active partnership with the patient (Watt et al 2009) and patient empowerment for example, ensuring patients are active participants and have an up-to-date list of their medications with them (IHI 2011), (Barber et al 2014).

Involvement of pharmacists played a major role in the most successful interventions (Mueller et al 2012), (Kwan et al 2013). An Irish study reported the results from a multifaceted approach to medrec (Grimes et al 2014); medrec and review was delivered by clinical pharmacists and physicians at admission, during in-patient care and at discharge. The study reported a reduction in the prevalence of all medication error and was found to be protective against potentially severe medication errors (Grimes et al 2014).

In America, the implementation of a comprehensive medrec program aimed at reducing errors in admission and discharge medication orders at an academic medical centre reduced medication errors from 90% to 47% in surgical patients (Murphy et al 2009).

Medrec is acknowledged as being difficult to successfully implement, time-consuming and labour intensive. (Vira et al 2006), (Etchells E 2010), (Greenwald et al 2010), but is also acknowledged as being one of the five economically attractive strategies for improving patient safety (British Medical Journal 2012), (Campbell et al 2007).

7.8 Health and Social Care Professions

There is substantial evidence that health and social care professionals (HSCPs) have a significant role within the multidisciplinary team involved in pre assessment of patients prior to surgery. Inclusion of these professionals supports the appropriate pre assessment, e.g., maximising respiratory function, conducting patient education, working to prevent postoperative complications, agreeing post-operative goals and facilitating patient compliance with treatment *(Walker, 2007; Bandis, Murtagh and Solia, 1998*). The impact of these services from an early stage can also affect a speedier discharge post-operatively through establishment of, for example, mobility status, equipment needs, dietary/ nutritional support and the resolution of social needs that may be identified.

The success of a coordinated team approach is dependent upon respect and communication among all team members directed toward the individual patient's care. Physiotherapy, Dietetic/Clinical Nutrition, Occupational Therapy, Speech and Language Therapy, Podiatry, Orthoptics and Medical Social Work each have a role in the preoperative stage of a patient pathway, depending on the nature of the surgery, the clinical findings of the preoperative assessment of the patient and the impact of that surgery on the physical and social circumstances of that patient.

7.9 Physiotherapy

Physiotherapy is indicated in preoperative assessment to improve exercise capacity, functional status and reduce the risk of post-operative complications, thus minimising length of hospital stay (*Cavalheri, V et al 2014).*

The role of the physiotherapist is to:

a) Assess, treat, and prevent injuries and provide physical rehabilitation and wellness services.
b) Address modifiable risk factors that may impact their post-operative recovery.
c) Optimise physical status before surgery through aerobic and strength training (both supervised and unsupervised) – a concept referred to as 'prehabilitation'.
d) The Macmillan 'Prehabilitation for People with Cancer' 2019 guidelines advise that screening of people with cancer requiring prehabilitation should occur as early as possible from diagnosis.
e) Screening should use validated tools to identify the need for more detailed assessment to inform the prescription of targeted or specialist interventions and should include physical fitness assessments.

Examples of these tools include the Duke Activity Status Index (DASI) the 6 Minute Walk Test, the International Physical Activity Questionnaire (IPAQ), Timed Up and Go Test (TUG) and the 30 second Sit to Stand Test.

In the following circumstances, preoperative physiotherapy intervention will have a beneficial impact if:

a) The patient is considered a 'high risk' patient for surgery. The "high risk" surgical patient is typically older, demonstrates multiple comorbidities and may be frail (Boyd & Jackson 2003). Lifestyle and behavioural factors can also increase surgical risk including low physical activity levels and poor fitness.
b) The patient is undergoing neo-adjuvant treatment such as chemotherapy or radiotherapy. Preoperative exercise can maintain cardiorespiratory fitness during neo-adjuvant treatment and improve patient fitness prior to surgery (Cannioto et al 2021)
c) The patient has acute or chronic respiratory issues and is likely to be further affected by surgery.
d) The surgery will result in moderate to major mobility issues e.g., orthopaedic surgery – adult and paediatric. A recent systematic review demonstrated that preoperative exercise interventions for patients undergoing total joint replacement can reduce the patient's hospital length of stay (Almeida et al 2020)
e) The surgery will have consequential impact on lymphatic drainage e.g., axillary node clearance, inguinal node clearance, post-breast or pelvic surgery, or removal of melanoma.
f) The surgery may potentially result in continence issues for the patient e.g., gynaecological, or prostate surgery (Chang, J. I. et al 2016)
g) The surgery has an impact on the neurological status of the patient e.g., spinal, nerve repair.

7.10 Occupational Therapy

The role of Occupational Therapy in the preassessment service has been shown to be effective in facilitating better outcomes and shorter lengths of stay for patients who require the following:

a) Assessment for the need for assistive technology such as seating, environmental systems and housing adaptations, where indicated, to support discharge planning. Discharge planning should occur across the hospital-to-home divide by means of close liaison between hospital and community-based services (Wales K et al 2012) (Kamal T et al 2011)
b) Discussion on customised fabrication of splints/orthoses for upper and or lower extremities to prevent contractures, achieve optimal joint positioning, facilitate or enable occupational performance and function, improve range of motion, reduce oedema, relieve pain (e.g. for Dupuytrens's release and carpel tunnel decompression)
c) Assessment of cognitive, perceptual, physical and emotional ability to cope with planned surgery and subsequent rehabilitation, and assessment and management of delirium which can impact on recovery and length of stay.
d) Determination of the most suitable discharge location for the patient post-surgery, and assessment of the need for scheduled care. Early screening enables the Occupational Therapist to liaise with the patient /family /care giver to address potential difficulties which could lengthen hospital length of stay (Wales K et al 2012) (Kamal T et al 2011)
e) Identifying patients at risk of developing pressure ulcers and the subsequent provision of pressure care management education and/or strategies, where indicated
f) Supporting the implementation of self-management strategies to address potential secondary effects of the pre- or post-operative phases (e.g., fatigue, breathlessness, anxiety, pain, mood, appetite, sleeplessness), all of which can have a significant impact on functional outcomes (Kamal T et al 2011)
g) Delivering effective patient education relating to maximising independence and return to valued life roles and occupations within the parameters of specific postoperative precautions. (Kamal T et al 2011) (Sutcliffe A et al 2002) (O'Brien L et al 2013).

7.11 Clinical Nutrition & Dietetics

Surgery, both elective and emergency, causes a state of metabolic activation also referred to as the surgical stress response. The extent of this stress response is directly linked to the scale of the surgery and is characterised by hormonal, haematological, metabolic and immunological changes. To meet these requirements, the body must mobilise its energy reserves to support metabolic activation, tissue repair and patient recovery. Surgical patients with low nutritional reserves, including malnourished, frail and sarcopenic patients, are vulnerable, with reduced capacity to meet the increased demands of surgery.

Malnutrition for the undernourished surgical patient can be defined as *"a nutritional state in which nutrient intake does not match nutrient needs–due to underlying disease(s), the surgical stress response, chronic or acute inflammation, intestinal malabsorption (e.g. diarrhoea) and/or patient-related factors (e.g. socio-economic status)–leading to losses in lean tissue and diminished function". (*Gillis and Wischmeyer 2019) Global Leadership Initiative on Malnutrition (GLIM): has developed a framework for diagnosing malnutrition in adult patients in clinical settings. Malnutrition diagnosis requires the fulfilment of at least one phenotypical (non-volitional weight loss, low body mass index, reduced muscle mass) and aetiological criteria (reduced food intake or assimilation, inflammation or disease burden) (Cederholm T et al 2019).

Careful assessment should be carried out in patients living with obesity, obesity may obscure reduced muscle mass (sarcopenia) and malnutrition therefore may be underestimated and missed in surgical patients.

Approximately one third of adult patients admitted to an acute hospital are at risk of malnutrition in Ireland (Rice & Normand 2012). This prevalence can be as high as 65% in patients undergoing surgery for cancer or gastro-intestinal disease (Wischmeyer PE et al 2018).

Nutrition risk screening to identify those malnourished or at risk of malnutrition should be conducted as early as possible as part of the surgery assessment, in particular those patients scheduled for intermediate or major surgery and repeated throughout the surgical pathway. This should be conducted using a validated tool examples include Malnutrition Universal Screening Tool (MUST) and Malnutrition Screening Tool (MST).

Those identified as malnourished or at risk of malnutrition should be referred to a dietitian for a comprehensive nutrition assessment Dietetic counselling involves the assessment of a patient's nutritional status and the delivery of individualised dietetic advice according to the patient needs such as malnutrition, addressing diet related anaemia, alcohol intake.

Patients identified as malnourished, or at risk, require individualised treatment plans that may include therapeutic diets (e.g. high protein), fortified foods, high protein oral nutritional supplements, enteral nutrition and/or parenteral nutrition. These interventions have been shown beneficial, by reducing rates of postoperative complications, lower incidence of surgical site infections and reduce length of stay (Weimann A et al 2021; NICE 2020). Recently there has been development of oral nutritional supplements enriched with immunonutrients however there is currently no clear evidence of benefit of use of these over standard oral nutritional supplements in the preoperative period (Weimann A et al 2021).

It is essential to have a robust process to refer malnourished patients or those at risk of malnutrition to a dietitian. There should be adequate resourcing to allow timely dietetic intervention prior to surgery to improve outcomes.

7.12 Speech and Language therapist

The aim of pre-surgical input from the Speech and Language Therapy (SLT) is to assess current communication and swallow function, manage any existing impairment secondary to disease burden, explain potential impact of surgery on communication and swallow function as well as prepare the patient for post-operative prognosis of function, ensure understanding and cooperation of the patient for rehabilitation, explain likely changes in psychosocial wellbeing and quality of life and changes in sociocultural dynamics, thereby assisting the patient in the decision making process. The Speech and Language Therapist's role in the preassessment service includes the following:

a) Patients whose treatment is likely to affect their ability to communicate should meet the SLT before treatment begins.
b) The dietitian and SLT should work closely together, sharing responsibility for explaining nutritional and swallowing issues to the patient and ensuring that he or she is prepared for any short- or long-term interventions that may be required before treatment begins (NICE, 2004).

c) Prophylactic exercises and the teaching of swallowing manoeuvres can reduce impairments, maintain function and enable a speedier recovery (Clarke et al 2016).
d) Preoperative assessment for awake craniotomy by SLT helps to identify preoperative language deficits, identify intra operative changes and ascertain postoperative function. (Bilotta et al 2014)

SLT also has a role in assisting in mental capacity assessments, to enable consent to treatment. The Mental Capacity Act Code of Practice UK (2013) states 'it is important to make all practical and appropriate efforts to help patients communicate'. This might call for the involvement of speech and language therapists, specialists in non-verbal communication or other professionals.

7.13 Psychology, Counselling and Psychotherapy

There is a growing recognition of the importance of psychological morbidity and how it can have an impact on surgical outcomes in both the short and long term.

a) Psychological preparation has been found to be beneficial for a range of outcome variables including pain, behavioural recovery, length of stay and negative affect, (Johnston et al 1993).
b) Preoperative anxiety, depression and low self-efficacy are consistently associated with worse physiological surgical outcomes and post-operative quality of life *(Levett et al 2019).*
c) Psychological prehabilitation should be a component of pre-operative preparation as well as the correction of anaemia and the optimisation of co-morbidities, exercise, nutrition and lifestyle modifications (smoking/alcohol/ recreational drugs) alongside the safe management of perioperative medications. The RCoAs FitterBetterSooner programme https://rcoa.ac.uk/patients/patient-information-resources/preparing-surgery-fitter-better-sooner provides a useful resource for psychological prehabilitation.
d) Psychological preparation such as breathing exercises, relaxation techniques, cognitive intervention and hypnosis may be beneficial for patients who have pre-operative anxiety *(Powell et al 2016*).
e) Patients who appear to be suffering from severe anxiety, which is not relieved by general reassurance and the measures mentioned above, may be assessed using a validated tool such as the Hospital Anxiety and Depression Scale (HADS). A history may identify health-related traumatic experiences, phobias (e.g. needles) or fears. Assessment should include a mental health history including past illnesses and recent negative life events, e.g. bereavement, divorce. Patients identified at risk should be referred to an appropriate healthcare specialist if required, e.g. psychiatrist, psychologist, psychotherapist or counsellor for professional care. It may be necessary to refer the patient to their general practitioner.

7.14. Medical Social Worker

A preoperative assessment carried out by a medical social worker (MSW) will identify any issues that may inhibit the patient from discharge home following a surgical procedure.

a) Community services and resources required to support the patient's transition from hospital to home can be mobilised in a timely manner to avoid delay in discharge.

b) MSW can also support patients preoperatively where there are financial concerns and advice needed in relation to social welfare entitlements.

7.15 Hospital Administration/ Clerical officer/ Secretarial staff

Administrative staff play a pivotal role and are essential in the preassessment service to assist with organisation, transmitting correspondence to GPs and supporting the MDT. There should be dedicated administrative support to provide patient reception and registration, organisation and scheduling of appointments, transmitting correspondence to GPs, referrals, sourcing and storage of information and records. The importance of clerical staff dedicated to and invested in the administration of a preoperative assessment service cannot be over emphasized, and sufficient WTE (approximately 0.5 WTE per 1000 patients) must be provided.

Dedicated administration staff are responsible for:

a) Booking date for PAS attendance
b) Ensuring that Medical Health Records and diagnostic results are available in advance of planned admission date for both anaesthesia and surgery teams at a defined location.
c) Obtaining and collating information and notes for medical review (including old notes, letters of correspondence and test results from other institutions) prior to the preoperative assessment and before the day of surgery.
d) Arranging timely outpatient hospital appointments for preoperative assessment, allied health professional assessment and investigations (radiology, echocardiography etc.).
e) Performing the administrative admissions procedure at the time of attendance for preassesssment.
f) Written communication with relevant stakeholders (e.g. General Practitioner) regarding preoperative changes to the patient's medication, significant results of preoperative investigations or notification of newly diagnosed conditions or known diagnoses which have deteriorated.
g) Admission and discharge of patients on the hospital information system.
h) Collecting and collating of data for audit
i) Completing COVID-19 assessment questionnaires as dictated by national/local policy.
j) Liaising with patient, family and carers as directed.

8. CLINICAL ASSESSMENT AND MANAGEMENT

Patients who are ASA grade III or IV, or any patient for whom intermediate (e.g. inguinal hernia, varicose veins, tonsillectomy, knee arthroscopy) or major surgery (e.g. total abdominal hysterectomy, TURP, total joint replacement, radical neck dissection, colonic resection, lung, cardiac or brain surgery) is planned should attend in person for preassessment.

Every patient should have an accurate history taken and medications documented. If the patient is attending in person, examination should be performed as appropriate and suitable investigations carried out as necessary (see appendix I). Vital signs and ASA grade should be recorded. All patients for scheduled major surgery, and all patients ASA III or IV, should be risk assessed for planned surgery (see appendix VII). Comorbidities should be optimised. Patients should be given appropriate advice relating to prehabilitation, i.e. exercise, nutrition, weight management as well as advice regarding smoking and consumption of alcohol and recreational drugs. If regular medication is being taken, written advice should be given to the patient regarding the management of their medication preoperatively (see appendix VIII) and a copy forwarded to their GP. The relevant stakeholders (GP, referring surgeon, etc.) and the patient should be informed of any previously undiagnosed conditions, or a known condition which has significantly deteriorated, which has been diagnosed at preassessment. Advice should be given regarding fasting prior to surgery. The patient should be given the opportunity to discuss any concerns or queries relating to their admission, anaesthesia and surgery that they may have.

The preassessment service provides an ideal opportunity for healthcare professionals to make every contact count by recognising the opportunity they have through this interaction to talk to patients about chronic disease prevention and management. It also gives an opportunity to empower and support people to make healthier lifestyle choices, as outlined in HSE 2016 document, Making Every Contact Count for which a training programme is available on HSELand for all healthcare professionals. Further information is available at https://www.hse.ie/eng/about/who/healthwellbeing/making-every-contact-count/making-every-contact-count-framework.pd

8.1. Shared Decision Making

Shared decision making, which begins at the earliest opportunity i.e., referral to surgeon, should be embedded throughout the patient pathway and involve the patient, surgeon and multidisciplinary team. To ensure delivery of quality patient care and safety, referrals to preassessment services should include a detailed history outlining comorbidities to enable optimisation (*NHS 2021).*

8.2. Advance Healthcare Directive

The Assisted Decision Making (Capacity) Act 2015, which came into effect in April 2023, makes provision for Advance Healthcare Directives (AHD's). For an Advance Healthcare Directive to be effective the directive-maker (the patient) is required to be 18 years of age or older and of sound mind, and the directive must be in writing and witnessed by two individuals of 18 years of age or older who are of sound mind, only one of whom may be a family relative.

The directive-maker may name a Designated Healthcare Representative on the directive, with contact details, to represent their wishes regarding healthcare preferences in the event of the directive-maker's incapacity. The AHD should be quite specific regarding healthcare preferences for it to be considered legally valid, e.g. preferences regarding blood transfusion or cardiopulmonary resuscitation (CPR). The template referral form in Appendix IV includes a question on Advance Healthcare Directive. Further information is available from: https://www.hse.ie/eng/about/who/national-office-human-rights-equality-policy/assisted-decision-making-capacity-act/advance-healthcare-directive/

8 .3. Screening

There are multiple scoring systems available to aid preoperative assessment. Some of the more commonly used assessment tools are listed below. This list is not exhaustive or prescriptive. Scoring systems can be used to assess surgical risk, functional status and a variety of other variables including nutrition status, obesity, sleep apnoea, frailty, cognition and anxiety/depression.

Cardiac biomarkers such as N-terminal pro-B-type natriuretic peptide (NT-proBNP) or brain natriuretic peptide (BNP) can be used to assess preoperative risk. Canadian and European guidelines recommend obtaining a BNP level on patients aged more than 65 years old or more than 45 years old with risk factors for cardiovascular disease to enhance risk prediction. A pro-B-type natriuretic peptide level of 300ng/L or more, or a BNP level of 92mg/L or more has been suggested at the threshold at which routine postoperative monitoring for major adverse cardiac events be performed (Duceppe E. et al. 2017) (Halvorsen S et al; 2022).

Regarding risk assessment, the ASA Classification is commonly used and is easily applied, but there is an element of subjectivity in the classification. Lee's Revised Cardiac Index is more objective and easily applied in the clinical situation, whilst giving an indication of the risk of serious perioperative cardiac outcomes in non-cardiac surgery. Other assessments are more detailed in that they include more parameters in their calculations, using both physiological and laboratory-based data, are web-based, and are suitable for patients undergoing non-cardiac surgery.

The P-Possum and Risk Scale were demonstrated to be the most consistently accurate tools for risk stratification in non-cardiac surgery that have been validated in multiple studies. (Moonesinghe et al 2013). This MOC does not recommend the use of any one particular screening tool. The use of screening tools should be agreed at local level.

There are also other assessment calculators which are more surgery specific e.g., Glasgow Aneurysm Score (prediction of survival in patients undergoing elective open surgery for AAA), Nottingham Hip Fracture Score, and the EuroSCORE (European System for Cardiac Operative Risk Evaluation) for predicting mortality after cardiac surgery. A more comprehensive list of scoring systems is provided online by the Centre for Perioperative Care at cpoc.org.uk.

Examples of some of the more commonly used assessment tools are listed on the following pages (See Appendix VII for more details).

8.3.1. American Society of Anesthesiologists Classification

The original grading was developed in 1941 and had 6 grades. The ASA adopted a revised version in 1963 which had 5 grades, to which the 6th grade was later added. Emergencies involving any grade are denoted by 'E' (Saklad et al 1941). ASA class has been shown to be a reliable independent predictor of medical complications and mortality following surgery (Hackett et al, Int J Surg, 2015).

Table 5 American Society of Anesthesiologists Classification

ASA Classification	Definition	Examples
ASA I	A normal healthy patient.	Healthy, non-smoking, no or minimal alcohol use.
ASA II	A patient with mild systemic disease.	Mild disease only without substantive functional limitations. Current smoker, social alcohol drinker, pregnancy, obesity (BMI 30-40), well-controlled DM/HTN, mild lung disease.
ASA III	A patient with severe systemic disease which is not life-threatening.	Substantive functional limitations; one or more moderate diseases. Poorly controlled DM, or HTN, COPD, morbid obesity (BMI>/=40), active hepatitis, alcohol dependence or abuse, implanted pacemaker, moderate reduction of ejection fraction, ESRD undergoing regular scheduled dialysis, history (>3months) of MI, CVA, TIA or CAD/stents.
ASA IV	A patient with severe systemic disease that is a constant threat to life.	Recent (<3 months) MI, CVA, TIA or CAD/stents, ongoing cardiac ischaemia or severe valve dysfunction, severe reduction of ejection fraction, shock, sepsis, 0DIC, severe renal disease not undergoing regular scheduled dialysis.
ASA V	A moribund patient who is not expected to survive without an operation	Ruptured abdominal/thoracic aneurysm, massive trauma, intracranial haemorrhage with mass effect, ischaemic bowel in the face of significant cardiac pathology or multiple organ/system disease
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes	

8.3.2. Specific Examples of Assessment Tools

Table 6 – Examples of Assessment Tools

Risk Assessment/Scoring Tools 1. SORT – Surgical Outcome Risk Tool 2. ACS-NSQIP – American College of Surgeons National Surgical Quality Improvement **3.** P-POSSUM – Physiological and Operative Severity Score. 4. Lee's Revised Cardiac Risk Index – perioperative cardiac risk for non-cardiac surgery 5. ARISCAT - Assess Respiratory Risk in Surgical Patients in Catalonia. 6. SRS – Surgical Risk Scale. 7. OS-MRS - Obesity Surgery Mortality Risk Score.
Functional Assessment 8. DASI – Duke Activity Status Index. 9. 6MWT – Six Minute Walk Test. 10. TUAGT – Timed Up and Go Test. 11. 5XSST – Five Times Sit to Stand Test. 12. CPET – Cardiopulmonary Exercise Test.
Nutrition Status 13. MUST – Malnutrition Universal Screening Tool. 14. SGA – Subjective Global Assessment. 15. MNA – Mini Nutrition Assessment for >65yrs old.
Obstructive Sleep Apnoea 16. STOP-Bang
Frailty 17. EFS – Edmonton Frail Scale 18. RCFS – Rockwood Clinical Frailty Scale
Cognition 19.MMSE Mini-Mental State Examination 20. 4AT – Cognition Testing 21. MoCA – Montreal Cognitive Assessment Test
Anxiety / Depression 22. HADS – Hospital Anxiety and Depression Scale

See Appendix VII for further details.

8.4 Perioperative management of medications

The UK Clinical Pharmacy Association (UKCPA) produced the 3rd edition of The Handbook of Perioperative Medicines. This handbook provides guidance in the management of medications in the perioperative period, including advice regarding medication reconciliation and perioperative management of anticoagulants. This is available at https://www.ukcpa-periophandbook.co.uk/ This link provides useful updated information regarding the perioperative management of anti-coagulant medication. There should be local agreement between the multidisciplinary team, including the anaesthesiologist, surgeon and pharmacist regarding the management of perioperative anti-coagulants, which may be procedure dependent. The patient should be given clear written instructions regarding the perioperative management of their medications (see Appendix VIII). Consideration should be given to the use of alternative means of administration of medications (e.g., parenteral) if the patient's postoperative condition precludes the use of the oral route of administration of routine medications.

8.5. Minimising the risk of Venous Thromboembolism (VTE)

Use should be made of the VTE risk assessment protocol provided by the hospital where available. Where none is available, a protocol should be developed locally. The HSE published a document in 2018, 'Preventing Blood Clots in Hospital', which includes a VTE protocol template for risk assessment and prophylaxis. This is available from https://www.hse.ie/eng/about/who/nqpsd/patient-safety-programme/medication-safety/hse-s5-vte-protocol-guideline.pdf. Senior decision-making is crucial for governance in terms of the local selection of the appropriate prophylaxis, depending on the type of anaesthesia and the nature of the surgery to be carried out. NICE has produced a guideline (NG89), 'Venous thromboembolism in over 16's: reducing the risk of hospital-acquired deep venous thrombosis or pulmonary embolism' (2018).

8.6 Perioperative management of Diabetes

The Centre for Perioperative Care UK (2022) provides guidance for the perioperative care of patients with diabetes. This guidance is available from: https://www.cpoc.org.uk/guidelines-resources-guidelines-resources/guideline-diabetes

8.7 Perioperative management of Anaemia

Patients with anaemia requiring surgery are at risk of adverse outcomes. The Centre for Perioperative Care UK (2022) provides guidance for patients with anaemia who require surgery. This guidance is available from https://cpoc.org.uk/guidelines-resources-guidelines/anaemia-perioperative-pathway

8.8 Fasting

Preoperative fasting was implemented to reduce the risk of aspiration during the administration of anaesthesia; however, The Royal College of Anaesthesia 4th National Audit Project (NAP4) suggests that this occurs in less than 1 in 100,00 cases.

National and international guidelines promote fasting for two hours for clear fluids, four hours for breast milk and six hours for solids (AAGBI 2010) (European Society of Anaesthesiology 2011). In a study carried out by Witt et al (2021), it was concluded that despite recommendations, extended fasting times preoperatively remain common across hospitals which leads to patient discomfort and physiological dysfunctions. The study shows that fasting times for clear fluids can be significantly reduced and often were longer than the recommended guidelines. The current policy in CHI is to allow fasting of one hour for clear fluids.

Prolonged fasting has also been shown to be associated with an increased incidence of postoperative nausea and vomiting (McCracken & Montgomery 2018). The European Society for Clinical Nutrition and Metabolism strongly recommend preoperative fasting from midnight is unnecessary in most patients (Weimann et al 2021)

Ruggeberg A. & Nickel E.A. (2022) conducted a quality improvement project which decreased fasting times by introducing unrestricted drinking of clear fluids up to the time the patient is called to the operating department Ruggeberg A. & Nickel E.A. (2022).

A protocol called “Sip till Send” was developed by Dr Checketts, a Consultant Anaesthetist in Scotland which has been implemented in hospitals in the UK, and some hospitals in Ireland, purports to show positive results. This protocol is still being developed and data collection is ongoing. This concept is supported by The Scottish Hip Fracture Audit steering group with further information available on https://www.shfa.scot.nhs.uk/Resources/_docs/SHFA-SipTilSend-v1.1-November-2021.pdf?1 .

Fasting guidelines are likely to be amended and updated in the future. Every hospital should have an agreed policy on fasting prior to procedures.

9. PREHABILITATION

The physiological challenge of major surgery has been likened to running a marathon. In both cases, preparation is critical. Prehabilitation aims to prepare patients physically, psychologically and nutritionally to enhance general health and wellbeing prior to major surgery. By intervening in the preoperative period to modify behavioural and lifestyle risk factors, the 'physiological reserve' of the patient is increased with the aim of avoiding or overcoming complications post-operatively (Mina D. *et al.* 2015). This pre-operative period is seen as a "teachable moment", where patients may be more receptive to positive behavioural changes and make improvements on a longer-term (Aglio, L.S. *et al.* 2022). The RCoAs FitterBetterSooner programme https://rcoa.ac.uk/patients/patient-information-resources/preparing-surgery-fitter-better-sooner provides a useful resource for prehabilitation.

In the past two decades, the evidence for prehabilitation has grown. There has been a shift towards a multimodal approach.

a) In a 2022 umbrella review of 55 systematic reviews, improvements in functional recovery were noted in patients undergoing cancer surgery (moderate certainty evidence) Some of these systematic reviews reported that various types of prehabilitation programs improved incidence of postoperative complications and/or hospital length of stay (LOS) after cardiothoracic, cancer, or other major non-cardiac surgical procedures, but evidence of certainty was low to very low (McIsaac et al 2022).

b) A systematic review and meta-analysis found that nutritional prehabilitation alone or combined with an exercise program significantly decreased length of hospital stay by 2 days in patients undergoing colorectal surgery. There is some evidence that multimodal prehabilitation accelerated the return to pre-surgical functional capacity (Gillis et al 2018).

c) European Society for Parenteral and Enteral Nutrition (ESPEN) 2021 recommends (Arved et al 2017): "Patients with severe nutritional risk shall receive nutritional therapy prior to major surgery even if operations including those for cancer have to be delayed. A period of seven to 14 days may be appropriate."

Research of prehabilitation does not allow double blinding of the participants and the personnel collecting the data. The non-blinding in particular of the participants may potentially affect the results. Therefore, by definition, risk of bias is high.

9.1 Enhanced Recovery

Enhanced recovery after surgery (ERAS) guidelines are multidisciplinary perioperative care pathways designed to achieve early recovery after surgical procedures by maintaining preoperative organ function and by reducing the profound stress response after surgery. Professor Henrik Kehlet described the first multi-modal approach to recovery in the 1990s for colonic resections and this formed the basis of what we now know as ERAS protocols today (Bardram et al 1995).

ERAS protocols represent a paradigm shift in perioperative care by re-examining traditional practices, replacing them with evidence-based practices when necessary.

The ERAS® society is a non-profit, multidisciplinary and multi-professional medical society set up in 2010 with the mission of developing perioperative care and to improve recovery through research, education, audit and implementation of evidence-based practice (ERAS® society2023). Since its inception, the society has published multiple consensus guidelines for enhanced recovery after surgery such as bariatric, cardiac and gastrointestinal surgery. The adoption of ERAS protocols has been associated with decreased lengths of stay, decreased perioperative complication rates and associated financial savings (Ljungqvist et al 2017). ERAS protocols offer recommendations for the pre, intra and postoperative management of surgical patients. Preassessment services play a key role in the preoperative element of ERAS protocols.

Taking the ERAS 'Guideline for Gastrointestinal Surgery, Part 2: Consensus Statement for Anaesthesia Practice' as an example, existing Irish preassessment services already carry out many of the essential preoperative recommendations such as preassessment risk stratification, optimisation of pre-existing health conditions and education on preoperative fasting and carbohydrate loading (Feldheiser et al 2016). An example of carbohydrate loading is a carbohydrate drink of 800ml the night before (e.g. 400ml at 6pm, and 400ml at 10pm) and 400ml before surgery (at 6am for morning surgery, or 11am for afternoon surgery) can be considered in patients undergoing major surgery to impact postoperative insulin resistance and length of stay, Weimann A et al (2021).

Several ERAS pathways have been established in Irish healthcare settings such as the ERAS pathway for elective caesarean sections at The Rotunda Hospital, Dublin. The successful implementation of this pathway showed a reduction in pre- and postoperative fasting times, a reduction in time to post-operative mobilisation as well as a reduction in average length of stay (Silney A 2022) Given the increasing adoption and success of ERAS guidelines it is anticipated that preassessment services will continue to play a key and more formalised role in the preoperative management element of ERAS pathways in the future.

10. INFECTION PREVENTION AND CONTROL

To minimise infectious complications along the perioperative pathway, it is essential to identify and control risk factors.

All healthcare settings, regardless of the level of care provided, must make infection prevention a priority and must be equipped to observe standard precautions. Standard precautions are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where healthcare is delivered (Department of Health 2023).

https://www.gov.ie/en/publication/a057e-infection-prevention-and-control-ipc/#national-clinical-guideline-no-30-infection-prevention-and-control-ipc-summary-report

The preassessment service must be supported to prevent and control HealthCare Associated Infections (HCAIs). The Health Information Quality Authority (HIQA) published National Standards for the prevention and control of healthcare-associated infections in acute healthcare services in 2017 which can be accessed at:
https://www.hiqa.ie/sites/default/files/2017-05/2017-HIQA-National-Standards-Healthcare-Association-Infections.pdf

General information on infection prevention and control for surgery is available on the Health Protection Surveillance Centre (HPSC) website:
https://www.hpsc.ie/

Screening for Methicillin Resistant Staphylococcus Aureus (MRSA), Vancomycin-Resistant Enterococci (VRE) and Carbapenemase-Producing Enterobacterales (CPE) is required in certain circumstances prior to surgery and may be carried out at the time of preassessment.

The following specific guidelines are available:

a) Guideline on Prevention and Control Methicillin-Resistant Staphylococcus aureus (MRSA) is available at:
https://www.hpsc.ie/az/microbiologyantimicrobialresistance/infectioncontrolandhai/guidelines/File,14478,en.pdf

b) Guidelines for the Prevention and Control of Multi-drug resistant organisms (MDRO) excluding MRSA in the healthcare setting is available at:
https://www.hpsc.ie/az/microbiologyantimicrobialresistance/strategyforthecontrolofantimicrobialresistanceinirelandsari/carbapenemresistantenterobacteriaceaecre/guidanceandpublications/Management%20and%20Control%20of%20Carbapenemase%20Producing%20Enterobacterales%20(CPE)%20in%20all%20Healthcare%20Settings.pdf

c) Updated Guidelines on Screening for Carriage of Resistant Enterobacteriaceae in Ireland is available at: https://www.hpsc.ie/az/microbiologyantimicrobialresistance/strategyforthecontrolofantimicrobialresistanceinirelandsari/carbapenemresistantenterobacteriaceaecre/guidanceandpublications/Management%20and%20Control%20of%20Carbapenemase%20Producing%20Enterobacterales%20(CPE)%20in%20all%20Healthcare%20Settings.pdf

A consensus statement was published in the UK in June 2023, 'The timing of elective surgery and risk assessment after SARS-CoV-2 Infection'. This states that after 2 weeks and up to 7 weeks after SARS-CoV-2 infection, surgery can proceed if the patient and surgery are low risk. Where either the patient or surgery is not low risk, an individual risk assessment must be performed. There is no benefit to delaying surgery beyond 7 weeks for patients who have fully recovered or have had mild SARS-CoV-2 infection. (El Boghdadly et al 2023).

11. PREASSESSMENT FOR OBSTETRICS

Labour and birth are defined as individual life events, incorporating interrelated subjective psychological and physiological processes, influenced by social, environmental, organisational and policy contexts (Afaya *et al.* 2020; Larkin *et al.* 2009). The obstetric anaesthesiologist plays a central role in the peripartum assessment and care of pregnant women. The role encompasses that of a peripartum physician (Bamber *et al.* 2023) and is required for caesarean deliveries, operative vaginal deliveries, analgesia during labour and other procedures during pregnancy or puerperium. Although it is difficult to quantify all the areas of anaesthetic input, it is suggested that approximately 60% of women require anaesthetic intervention around the time of delivery of their baby (Bamber *et al.* 2023). In addition, the anaesthesiologist is centrally involved in assessment and management of acutely deteriorating pregnant or recently pregnant patients.

Pregnancy and childbirth pose risk to mothers and babies. Following years of decline and plateau, the overall maternal mortality rates demonstrate a non-significant increase in the 2022 MBRRACE – UK report, even when deaths due to COVID-19 were excluded (CMACE 2011; Knight M *et al.* 2017; Knight *et al.* 2022). Despite the relatively low maternal mortality rates, maternity care in Ireland has become more complex due to a variety of reasons, including demographic and lifestyle factors in addition to greater complexity and medical comorbidities. It is not, however, cost effective or necessary for all pregnant women to be seen by an anaesthesiologist in the antenatal period. The National Maternity Strategy (DoH 2016) and the National Clinical Guideline No. 23 (DoH 2020) aim to stratify women into normal, medium, and high risk categories with specific care streams applicable to each category.

The preassessment service has the potential to significantly improve obstetric outcomes and patient experience by providing antenatal assessment for patients who are at risk of deterioration. The OAA/AAGBI Guideline for Obstetric Anaesthetic Services *(OAA/ AAGBI et al. 2013)* outlines the following preassessment service roles antenatally:

11.1 Information for mothers

Up-to-date, locally relevant information about the services offered should be provided to mothers in a range of formats appropriate to their needs (e.g., written, electronic, audio with translations), including as a minimum:

a) Analgesia for labour: benefits (including efficacy); risks; and availability of all options available.
b) Anaesthesia for caesarean section: benefits; risks; relative merits of all options offered.
c) All women should be asked if they would be prepared to receive blood in the case of haemorrhage and this should be documented in the notes.

Information should be given to mothers in a timely manner, usually antenatally, that is relevant to them. Anaesthesiologists must have a central role in the development of all information about pain relief and anaesthesia.

All mothers should be given and encouraged to read information about analgesia for labour and anaesthesia for caesarean section, as the need for these choices is unpredictable and may arise in an emergency.

11.2 Antenatal assessment and multidisciplinary planning

Timely antenatal anaesthetic assessment services should be provided for women who:

a) Might present difficulties having anaesthesia or regional analgesia.
b) Are at high risk of obstetric complications.
c) Have a body mass index (BMI) greater than 40 kg.m² at booking (HSE and Institute of Obstetricians and Gynaecologists 2011).
d) Have had previous difficulties with, or complications of, regional or general anaesthesia.
e) Have significant medical or surgical co-morbidities.

Women scheduled for elective caesarean section should also be assessed in advance.

In addition, women of African and Asian ethnicity, age >40 and those from socially deprived areas or suffering from abuse continue to have a higher risk of dying in pregnancy (Knight *et al.* 2022; Uwubamwen *et al.* 2022; Bamber *et al.* 2023). Obstetric anaesthesiologists contribute significantly to the multidisciplinary team planning and provision of care for these vulnerable cohorts.

The antenatal anaesthetic assessment should be formalised via implementation of a regular clinic with locally agreed referral criteria and tools, appropriate onward referral pathways, and regular multidisciplinary meetings (Butwick and Carvalho 2007; Rai *et al.* 2005; Roe and Nabeih 2019). The timing of the referrals needs to allow sufficient time for necessary investigations and planning. The antenatal assessment should recommend an appropriate and individualised anaesthetic management plan for labour and delivery. Good communication between obstetricians, anaesthesiologists and other specialists is paramount to the provision of safe and high-quality obstetric care.

12. PREASSESSMENT FOR PAEDIATRICS

Children's Health Ireland (CHI) currently encompasses CHI at Crumlin, CHI at Temple St., CHI at Tallaght and the paediatric urgent care centre CHI at Connolly Hospital. There is elective paediatric surgery performed in CHI at Crumlin, CHI at Temple St., CHI at Tallaght and emergency paediatric surgery performed at CHI at Crumlin and CHI at Temple St. A large volume of paediatric surgery is also performed at regional centres around the country.

With the opening of the New Children's Hospital (NCH), all tertiary and quaternary paediatric surgery will be performed in this facility, with some additional routine paediatric surgery performed in regional centres. The anaesthetic preassessment unit (APAU) in CHI at Crumlin was established in 2021 and development is still ongoing. An APAU in CHI at Temple St. is in the planning stages. Formal anaesthetic preassessment units specifically aimed at children is a new development in anaesthesia and lags behind adult practice. However, the structure of adult units serves as an excellent template for establishing paediatric preassessment units in both CHI and regional hospitals.

Children have significantly different physical and emotional needs to adults. However, the ultimate goal of a preassessment service for children is similar to that of an adult service. The aim is to optimise the health of children prior to admission, reduce patient and parental anxiety, reduce on-the-day cancellations, reduce unplanned admissions and ensure an appropriate post-operative bed has been arranged (e.g. high dependency or PICU) (Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI) 2022). Therefore, the purpose on any anaesthetic pre-assessment is to perform a health screen, provide adequate information relating to anaesthesia and the risks involved, identify any infection control risks, identify any issues related to guardianship, schedule necessary pre-operative investigations and provide the parents with relevant contact details should issues arise pre- or post-operatively.

A consultant anaesthesiologist with an interest in anaesthetic preassessment for children should lead the preassessment service for children. They should have specified dedicated time within their job plan*. (Association of Anaesthetists 2010).* The lead consultant anaesthesiologist should participate in a regular paediatric surgery operating list. There should be close support from the Assistant Director of Nursing for the perioperative directorate. The majority of the service should be delivered by a team of clinical nurse managers (CNMs) and staff nurses with specific training in anaesthetic pre-assessment and access to out-patient facilities (Wittkugel E et al 2015). Based on current nurse staffing levels and the number of anaesthetics that will be provided in NCH at full capacity (approximately 15,000 per annum), a minimum of 7 nursing staff will be required to staff the APAU. Clerical staff should also be available to support the pre-assessment service.

An anaesthetic pre-assessment unit specifically for paediatrics should be independent from an adult unit. If this is not possible, the minimum standard would be to have staff (medical and nursing) with specific training in paediatrics and clinical sessions dedicated specifically to the preassessment of children.

Anaesthetic pre-assessment should take place at least 2 weeks prior to scheduled surgery. The goal of any paediatric preassessment unit should be to pre-assess all children presenting for general anaesthesia.

This can be performed in a number of ways. Ideally, all children should have an electronic preassessment health questionnaire completed by their parents following listing for surgery. A fully operational electronic health record may be capable of configuration to assist with this remote delivery. Trained preassessment nursing staff can triage reports from completed health screening questionnaires and determine what follow up, if any is required. In some cases (e.g. ASA I or II children for day case surgery), no further preassessment will be required. For more complex children (e.g. ASA III or IV), or more complex surgery in ASA I or II children, a follow up phone call from a pre-assessment nurse and/or a chart review by a consultant anaesthesiologist should be performed (APAGBI 2022).

A small minority of children will require face-to-face consultation with a preassessment nurse and consultant anaesthesiologist. To facilitate this, there should be a dedicated outpatient clinic for preassessment of complex children staffed by a consultant anaesthetist with an interest in paediatrics with support from a nurse specialised in paediatric preassessment. The frequency for such a clinic may be determined by local needs. In the NCH we anticipate require a daily pre-assessment clinic with the ability to have face-to-face consultations. Where possible, face-to-face consultations should coincide with other hospital appointments to minimise the travel time burden on children and families.

Specific guidance documentation for preoperative management of common medical conditions should be made available to preassessment nursing staff to empower the team to make low and moderate risk clinical decisions independently (APAGBI 2022).

The majority of paediatric surgery can be performed on a day case basis. (*APAGBI 2022)* The decision to perform surgery as a day case or as an inpatient rest with both the consultant surgeon and the consultant anaesthetist who has reviewed the child's details in a preassessment setting.

Timely access to other services deemed necessary by the anaesthetic preassessment team is crucial to an efficient service. This includes referral to other specialist medical teams, preoperative investigations (e.g. echocardiography, sleep studies), radiological imaging and psychological services if required. However, the majority of paediatric patients will not require any additional preoperative investigations (Ungern-Sternberg et al 2007).

Up to 80% of children experience anxiety related to their anaesthetic and surgery. Staff should all be trained in the recognition of significant anxiety and in anxiety management strategies in children. Poorly managed anxiety will lead to immediate and long-term issues for the child. Hospitals should have appropriate resources and therapies for managing anxious children such as play specialists and a premedication protocol. *(APAGBI 2022)*

Patients and parents should be given information relating to their attendance on the day of surgery, information regarding the risks of general and regional anaesthesia and information on how to manage medications in the days prior to surgery. Parents should be given contact details for the pre-assessment service and information about who to contact should their child be unwell in the days leading up to surgery.

Anaesthetic preassessment in children also provides an opportunity for health screening and delivery of information regarding immunisations, childhood obesity and oral health *(APAGBI 2022).*

13. AUDIT AND QUALITY IMPROVEMENT

Information and measurement are essential for improving quality of care. Analysing data collected can be used to drive improvement and provides assurance on the quality of care provided to patients. Preassessment services should have the capability to measure and analyse data in a timely manner with access to technology to facilitate this (HSE 2023).

The healthcare environment is driven by cost rationalisation and evidence-based funding. Appropriate measures of outcome to justify and focus spending are vital. Preassessment services need easily measurable, consistent and definable clinical and non-clinical outcomes.

By examining, reviewing and interpreting these outcomes we can ensure ongoing quality improvement measures. Meaningful reporting of outcomes allows the consumers and providers of the preassessment service to make informed decisions. Consistent reporting of outcomes informs clinicians and managers in their efforts to drive quality improvement in terms of identifying opportunities for improvement, monitoring and sustaining results of new initiatives.

Systems should be in place to ensure the routine collection of consistent and agreed data regarding patient throughput and outcomes. The most robust data collection would involve electronic collection at all stages of the perioperative journey.

13.1 Which outcomes should we measure?

There are infinite choices of outcome measures. A vital focus is on the continuous re-appraisal of current outcomes being measured, on quality initiatives implemented based on these measurements and on novel outcomes to measure.

13.2 Existing National Targets

a) Surgical average length of stay (AvLOS) target
b) Day of Surgery admission cases
c) Surgical Day cases
d) Readmission rate

13.3 Average Length of Stay (AvLOS)

AvLOS is a process measure often reported in the literature as a clinical and economic outcome measure. Average length of stay is an obvious and tangible outcome measurement for a Pre-Assessment Service.

AvLOS is easy to define and capture with even the most basic data collection systems.

However by using AvLOS as a clinical outcome measure, we presume incorrectly, that all patients are discharged at the same level of ‘wellness’ and that once this ‘wellness’ is achieved there are no other barriers to discharge. These issues have been consistently debated in the critical care literature where ICU Length of Stay (LOS) is commonly used as a secondary clinical end point.

13.4 Local Audit

The following are recommended local audits which should be performed and will require IT support and administrative support. This list is not intended to be exhaustive.

a) Number of elective cases per annum
b) Number of day cases per annum
c) Number of patients preassessed (the target should be 100% of patients preassessed).
d) Proportion of patients requiring face to face assessment
e) Day of surgery cancellation
f) Referral to Treatment Time- (RTT)
g) Deviation from Level of Care Planning, e.g., unexpected admission, HDU or ICU care
h) Patient and Caregiver Experience and Outcome

13.5 Day of surgery cancellation

This is a vital local outcome metric, which also could be proposed as a national audit. Day of surgery cancellation poses enormous opportunity cost to the hospital and significant upset and inconvenience to patients and families. Ideally, with rigorous preassessment processes anaesthesia related day of surgery cancellations can be virtually eliminated. Cancellation measures need to be broken down into cancellations by the patient vs. hospital cancellations for clinical or capacity reasons.

There will be a small inevitable contribution from unanticipated occurrences on the day of surgery (inter current respiratory tract infection, new atrial fibrillation etc.), from patient DNA and from lack of availability of beds or theatre capacity. Day of surgery cancellation is a vital parameter to assess both the quality of preoperative patient care and the overall perioperative processes. It is imperative to record the exact issue that led to the cancellation.

Occasionally, the situation can arise where the covering anaesthesiologist on the day cancels a patient who has been pre-assessed as fit at the pre-admission clinic. Differences of opinion should be discussed within a department with the aim of avoiding future cancellations and protocols then modified to reflect agreed changes.

13.6 Referral to Treatment Time- (RTT)

We need to ensure that the design of the preassessment service delivers on the pre-delineated referral to treatment time (RTT) as locally agreed. It may be that as the pre-admission service, infrastructure and expertise expands that the RTT will naturally decrease.

There may need to be agreed shorter waiting timeframe initiatives for surgical oncology patients. Any delays beyond pre-agreed limits should be documented, audited and discussed in the appropriate forum.

It is imperative that the anaesthesia pre-admission process does not become a bottleneck in the overall referral to treatment journey.

13.7 Deviation from Level of Care Planning

It is vital to identify patients with a high risk of complications in the perioperative period and to define the most appropriate post- operative level of care (day stay, inpatient, ward, HDU, intensive care). Any deviations from this planned care pathway may be audited as a quality initiative.

13.7.1 Unanticipated day case admission

Commonly due to protracted surgery/anaesthesia, nausea, pain and other miscellaneous causes. Preassessment service can play a critical role in assessing the risks for postoperative nausea, vomiting and pain which are the most common causes of unanticipated day case admission (NCPA/HPO 2023). PPGs should exist for the management of patients who require unscheduled admission, especially in a stand-alone unit.

13.7.2 Unanticipated critical care admission

Most commonly seems to reflect either a need for increased post-operative monitoring or an adverse respiratory event (failed extubation, slow ventilatory wean). Unplanned admissions to critical care units and high dependency units may be more reflective of perioperative clinical factors, rather than an anaesthetic outcome.

13.7.3 Re-admission rates

There are pre-existing national targets that readmission rates should remain under 3% for both day case and in-patient post-operative discharges.

13.8 Patient and Caregiver Experience and Outcome

This is usually measured by a detailed questionnaire. It can be administered in person, via phone interview or via e-mail. This has the potential to provide a balanced perspective of the structure, process and outcome of a pre assessment service-.

Key factors in patient satisfaction include structured information delivery in the preassessment service/setting and establishing a good rapport at initial visit. Patient related outcome measures (PROMs) are perceived health outcomes from the perspective of the patient. Perceived return to physical and psychological baseline after surgery should be monitored. Patient related experience measures (PREMs) gather information on patients views while they are receiving care.

14. NCPA MODEL OF CARE FOR PREASSESSMENT SERVICES (Review and Update of Model of Care for Pre-Admission Units 2014) WORKING GROUP

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16. LIST OF FIGURES AND TABLES

17. APPENDICES

Appendix I – NICE Routine Pre-Operative Tests

NICE National Institute for Health and Care Excellence

Routine preoperative tests for elective surgery

1. Recommendations relevant for all types of surgery

The recommendations in this NICE guideline were developed in relation to the following comorbidities: cardiovascular, diabetes, obesity, renal, and respiratory.

Communication

- When offering tests before surgery, give people information in line with recommendations (including those on consent and capacity) made in the NICE guideline on patient experience in adult NHS services
- Ensure that the results of any preoperative tests undertaken in primary care are included when referring people for surgical consultation.

Considering existing medicines

- Take into account any medicines people are taking when considering whether to offer any preoperative test.

Pregnancy tests

- On the day of surgery, sensitively ask all women of childbearing potential whether there is any possibility they could be pregnant.
- Make sure women who could possibly be pregnant are aware of the risks of the anaesthetic and the procedure to the fetus.
- Document all discussions with women about whether or not to carry out a pregnancy test.
- Carry out a pregnancy test with the woman's consent if there is any doubt about whether she could be pregnant.
- Develop locally agreed protocols for checking pregnancy status before surgery.
- Make sure protocols are documented and audited and in line with statutory and professional guidance.

Sickle cell disease or sickle cell trait tests

- Do not routinely offer testing for sickle cell disease or sickle cell trait before surgery.
- Ask the person having surgery if they or any member of their family have sickle cell disease.
- If the person is known to have sickle cell disease and has their disease managed by a specialist sickle cell service, liaise with this team before surgery.

HbA1c testing

- Do not routinely offer HbA1c testing before surgery to people without diagnosed diabetes.
- People with diabetes who are being referred for surgical consultation from primary care should have their most recent HbA1c test results included in their referral information.
- Offer HbA1c testing to people with diabetes having surgery if they have not been tested in the last 3 months.

Urine tests

- Do not routinely offer urine dipstick tests before surgery.
- Consider microscopy and culture of midstream urine sample before surgery if the presence of a urinary tract infection would influence the decision to operate.

Chest X-ray

- Do not routinely offer chest X-rays before surgery.

Echocardiography

- Do not routinely offer resting echocardiography before surgery.
- Consider resting echocardiography if the person has:
  - a heart murmur **and** any cardiac symptom (including breathlessness, pre-syncope, syncope or chest pain) **or**
  - signs or symptoms of heart failure.

Before ordering the resting echocardiogram, carry out a resting electrocardiogram (ECG) and discuss the findings with an anaesthetist.

'Routine preoperative tests for elective surgery', NICE guideline NG45 (April 2016)

NICE National Institute for Health and Care Excellence

2. Recommendations for specific surgery and ASA grades: colour traffic light tables

ASA Grades (American Society of Anesthesiologists Physical Status Classification System)	
ASA 1	A normal healthy patient
ASA 2	A patient with mild systemic disease
ASA 3	A patient with severe systemic disease
ASA 4	A patient with severe systemic disease that is a constant threat to life

Test	ASA 1	ASA 2	ASA 3 or ASA 4
Minor surgery (**examples**: excising skin lesion; draining breast abscess)			
Full blood count	Not routinely	Not routinely	Not routinely
Haemostasis	Not routinely	Not routinely	Not routinely
Kidney function	Not routinely	Not routinely	Consider in people at risk of AKI[1]
ECG	Not routinely	Not routinely	Consider if no ECG results available from past 12 months
Lung function/arterial blood gas	Not routinely	Not routinely	Not routinely
Intermediate surgery (**examples**: primary repair of inguinal hernia; excising varicose veins in the leg; tonsillectomy or adenotonsillectomy; knee arthroscopy)			
Full blood count	Not routinely	Not routinely	Consider for people with cardiovascular or renal disease if any symptoms not recently investigated
Haemostasis	Not routinely	Not routinely	Consider in people with chronic liver disease • If people taking anticoagulants need modification of their treatment regimen, make an individualised plan in line with local guidance • If clotting status needs to be tested before surgery (depending on local guidance) use point-of-care testing[2]
Kidney function	Not routinely	Consider in people at risk of AKI[1]	Yes
ECG	Not routinely	Consider for people with cardiovascular, renal or diabetes comorbidities	Yes
Lung function/arterial blood gas	Not routinely	Not routinely	Consider seeking advice from a senior anaesthetist as soon as possible after assessment for people who are ASA grade 3 or 4 due to known or suspected respiratory disease
Major or complex surgery (**examples**: total abdominal hysterectomy; endoscopic resection of prostate; lumbar discectomy; thyroidectomy; total joint replacement; lung operations; colonic resection; radical neck dissection)			
Full blood count	Yes	Yes	Yes
Haemostasis	Not routinely	Not routinely	Consider in people with chronic liver disease • If people taking anticoagulants need modification of their treatment regimen, make an individualised plan in line with local guidance • If clotting status needs to be tested before surgery (depending on local guidance) use point of care testing[2]
Kidney function	Consider in people at risk of AKI[1]	Yes	Yes
ECG	Consider for people aged over 65 if no ECG results available from past 12 months	Yes	Yes
Lung function/ arterial blood gas	Not routinely	Not routinely	Consider seeking advice from a senior anaesthetist as soon as possible after assessment for people who are ASA grade 3 or 4 due to known or suspected respiratory disease

AKI, acute kidney injury
[1]See recommendation 1.1.8 of the NICE guideline on acute kidney injury
[2]Note that currently the effects of direct oral anticoagulants (DOACs) cannot be measured by routine testing.

'Routine preoperative tests for elective surgery', NICE guideline NG45 (April 2016)

Appendix II Survey Report

NCPA l Survey of Pre-admission/Pre-assessment Units in Ireland 2022

Amy Donnelly & Andrea Haren
NCPA – Una Quill, Aileen O'Brien, Michael Dockery

In 2014, the NCPA produced a Model of Care to support the development of pre-admission units (PAUs). This document was designed as a 'how to' toolkit for hospitals without PAUs but also outlined opportunities to maximise perioperative service delivery and improve patient experience for those hospitals with established units. The NCPA recently surveyed the preassessment services in Ireland, to delineate scope of practice nationally. The results of this are presented in this report, along with a focused review in which we present an update of the evidence underpinning both the rationale and key components of a preassessment service.

Rationale for a Preassessment Service

There is a growing volume of surgery performed in Ireland annually. The number of treatments in publicly funded hospitals in Ireland has more than doubled to 1.7 million per annum in the years 2000 to 2018, within which timeframe the number of day-case treatments has quadrupled.

Meanwhile, the surgical population is increasingly older and multi-morbid. The preassessment unit is a vital instrument in balancing the tension between an increasingly complex patient cohort and the drive towards streamlined perioperative process with day of surgery admissions and increasing uptake of day surgeries. A fully realised preassessment service has both patient-related and process-related benefits.

The role of the preassessment service is not to "clear" the patient for surgery but rather to prepare them physically and psychologically with a thorough assessment of co-morbidities and multi-modal optimisation. These goals are summarised within the recent Centre for Perioperative Care guideline on Preoperative Assessment and Optimisation for Adult Surgery which stipulates that all patients for elective surgery are **assessed and optimised** prior to admission in relation to **comorbidities**, **nutrition** and **functional status**, and have their **level of risk** and **level of functional capacity** determined using validated assessments.(3)

The expressed ambition is that all elective patients should be preassessed.(3) The original 2014 Model of Care suggested a target in excess of 80%. This undoubtedly has resource implications. It is well established within the perioperative literature that there is a "high-risk" cohort of surgical patients who comprise a minority (12.5%) of surgical candidates but represent the majority (80%) of postoperative deaths.(4) An undifferentiated pre-assessment process will not serve the needs of the population at large. Rather, there is a need to stratify or triage referrals into streams identifying those suitable for telephone only, nurse-led or anaesthesiologist-led assessments. ASA grade may inform this process but key aspects to successful implementation of this include patient self-screening questionnaires, detailed information at referral for surgery(3) and formal risk stratification which will be further explored here.

Process related benefits of a preassessment service include a reduction in day of surgery cancellations and minimising waste and duplication of preoperative investigations.
DOSA cancellations:

The primary contribution of the preassessment service to decreasing the rate of DOSA cancellations lies in appropriate patient preparation. It should be acknowledged that in some cases, cancellations arise from acute medical problems or systemic capacity issues outside the control of preassessment processes. A recent observational cohort study conducted over a week within the UK and sites in Australia and New Zealand illustrated that 13.9% of procedures were cancelled on the day of surgery, with less than a third of those cancellations being due to clinical reasons.(5)

Perioperative investigations

Optimisation of medical co-morbidities may entail new investigations or specialty consultations. However, it is well recognised that the unjustified ordering of investigations is both costly and potentially harmful. NICE have produced guidelines to support the targeted and selective ordering of tests, which will be guided by patient and surgical factors.(6)

The anaesthetic preassessment service can lead to a reduction in speciality consultations by appropriate and expert use of guidelines. However, robust protocols and clinical governance are required in order to ensure that we move away from pro-forma testing towards patient-focused selective investigations.

Perioperative pathways

The preassessment service also represents an opportunity to initiate and co-ordinate integrated care pathways that allow patients to safely navigate the perioperative journey, guiding them from contemplation of surgery to complete recovery at home. There are opportunities for patient optimisation at each point of the surgical journey and the best outcomes are associated with coordinated pathways. A recent review of the impact of perioperative care on health economics concluded that coordinated perioperative care pathways can reduce hospital stay by an average of two days(7).

Optimisation

There are many resources available to guide the perioperative optimisation of medical co-morbidities. In particular, we refer readers to the many AAGBI guidelines, the CPOC guidelines for diabetes and anaemia, and the AHA/ACC guidelines on perioperative cardiac work up(8). It is also important to recognise the specific implications of multi-morbidity (commonly understood to be the co-incidence of two or more chronic conditions).

Health Promotion Strategies

The perioperative period is accepted to be a “teachable moment” to motivate lifestyle changes, promoting physical activity, smoking cessation, reducing alcohol consumption and optimising nutritional status. All of these are encompassed within the “**Making every contact count training”** endorsed by the HSE.

Nutrition

The stress response induced by surgery leads to increased metabolic demand. Impaired nutritional reserves can diminish a patient’s ability to respond to this challenge and may impede recovery from surgery. Malnutrition is a modifiable perioperative risk factor which should be addressed prior to surgery(9). The key steps in achieving this are screening, assessment and treatment of identified deficiencies.

Assessment of physiological fitness

Quantifying physiological fitness before surgery is fundamental to preoperative assessment. There are many ways to assess a patient's functional status, with advantages and limitations to each. Whichever tool is used, the importance of using an objective assessment has been confirmed by the METS trial(10) which demonstrated that the anaesthesiologist's subjective assessment of patient fitness identified only 1 in 5 patients with low functional capacity (defined as a metabolic equivalent of task (MET), score of <4).

A practical approach might employ a validated screening tool, with patients identified as having reduced fitness undergoing objective functional capacity assessment. Functional assessments not only yield information about the individual patient's risk of postoperative complications, but may also allow successful planning of healthcare resources postoperatively (11). Additionally, where a deficit in functional reserve is identified preoperatively, evidence suggests that personalised training preoperatively can improve performance and reduce the rates of complications, even in the high-risk patient cohort(12). Such strategies are encompassed within "prehabilitation", a term which describes multimodal strategies to improve physical fitness, nutritional status and psychological wellbeing before surgery. The underpinning principle of prehabilitation is an attempt to increase functional reserve, allowing the individual to meet the physiological and psychological demands of surgery.

Risk stratification

Once all the information has been gathered from history and functional assessment, it is necessary to summarise and communicate the risk that comorbidities in combination with the proposed procedure confer. Several risk prediction and risk stratification tools are available in current practice which help inform consent and decisions to proceed with surgery, along with planning patient pathways for appropriate allocation of resources (e.g. intensive care or high dependency bed). A useful summary is referenced here.(13) Standardised estimates of risk perioperatively also facilitate accurate comparison of outcomes between patients at different institutions.

The older patient undergoing surgery

As outlined in the introduction, the number of older people undergoing surgery is increasing. It is estimated that by 2030 one fifth of surgical candidates will be over the age of 75.(15) In Ireland, we know that about 25% of this age cohort is frail.(16) It is generally recognised that postoperative outcomes are worse in the presence of frailty, conferring an increased risk of both morbidity and mortality.(17)

Guidelines for preoperative assessment of the older person advocate specific evaluation of frailty using a validated tool.(18) A recent systematic review has shown the Rockwood Clinical Frailty Scale to be a feasible and reliable predictor of adverse outcomes including mortality and non-favourable hospital discharge(19).

Embedding routine frailty screening into the perioperative pathway provides an opportunity to articulate risk and inform decision making, and allows us to age attune our services, designing collaborative care pathways with early input by allied health professionals and medicine for the older person specialists in order to prevent postoperative functional decline.

Furthermore, frailty is potentially modifiable perioperatively. There is a growing body of evidence to support the role of comprehensive geriatric assessment (CGA: the organised approach to assessing an older patient's physical, functional, psychological and social needs, with the goal of devising a personalised treatment and intervention plan to address any identified deficits) as a cost effective way to modify perioperative outcomes for the person living with frailty(20).

Traditionally, CGA has been solely within the domain of geriatricians, however, work is ongoing to establish how cross-skilling between specialties might facilitate adoption of and expertise in this practice by other professionals.

Consent and shared decision making

With the recent publication of the new consent policy(14), there is renewed focus on the process of consenting patients for their procedures. There are no legal provisions related to the duration of consent set out within this document but we would suggest that it is good practice to seek consent well in advance and to revisit it directly before the intervention. The seeking and giving of consent involves a continuous process, of which the PAU constitutes an important part. Informed consent links inextricably with clear counselling of risk perioperatively, along with shared decision making, a process in which clinicians and patients work together to select investigations and interventions based on clinical evidence and the patient's informed and individualised preferences.

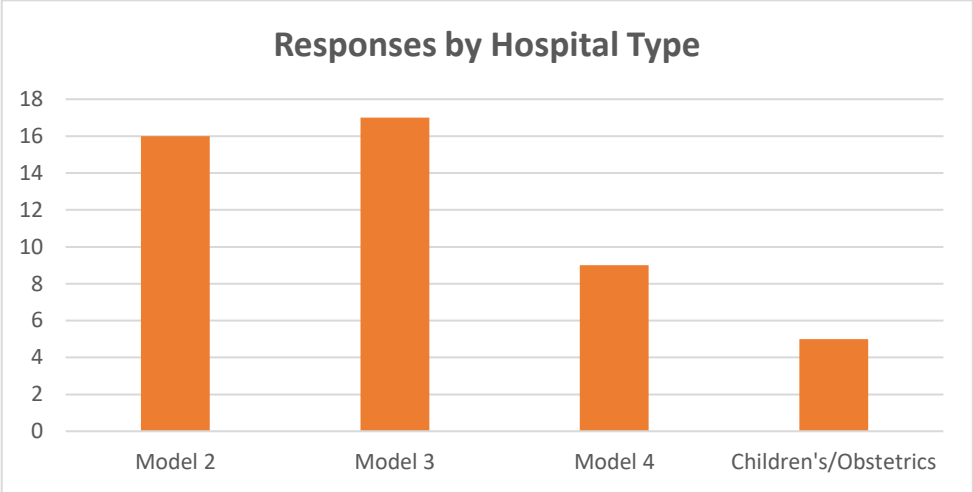
Results of the Organisational Survey

Responses

Hospitals responding (46 in total listed)

SAOLTA HG	**RCSI HG**	**SSW HG**	**IEHG**
Sligo University Hospital University Hospital Galway Mayo University Hospital Roscommon University Hospital Letterkenny University Hospital Portiuncula University Hospital	Beaumont Hospital Our Lady of Lourdes Hospital, Drogheda Louth County Hospital Connolly Hospital, Blanchardstown Cavan General Hospital Monaghan Hospital The Rotunda Hospital	Cork University Hospital Cork University Maternity Hospital University Hospital Waterford University Hospital Kerry Sth Infirmary/Victoria University Hospital Mercy Hospital Tipperary University Hospital Bantry Hospital Mallow General Hospital Kilcreene Orthopaedic Hospital	Mater Misercordiae University Hospital St Vincents University Hospital Midland Regional Hospital Mullingar St Lukes Hospital Kilkenny Wexford General Hospital National Maternity Hospital, Holles st Our Lady's Hospital, Navan St Colmcille's Hospital, Loughlinstown St Michael's Hospital, Dun Laoghaire Royal Victoria Eye& Ear Hospital Cappagh National Orthopaedic Hospital
DMHG	**ULHG**	**CHI HG**	
St James's Hospital Tallaght University Hospital Midland Regional Hospital, Portlaoise Midland Regional Hospital, Tullamore The Coombe Women's and Infants University Hospital Naas General Hospital	University Hospital, Limerick Ennis General Hospital St John's Hospital Croom Orthopaedic Hospital Nenagh General Hospital	Our Lady's Hospital Crumlin University Hospital Temple St.	

Responses by Model of hospital type (as per HSE allocation)



In summary, this organisational survey can be taken as representative of practice nationally as it includes all models of hospital, with a high response rate.

Staffing

The minimum guidelines for anaesthesiology staffing of preassessment clinics, along with the recommendations made in the 2014 MOC PAU document are included below.

Minimum Guidelines on Consultant Anaesthesiologist Staffing Levels

PAU Clinic	Consultant Anaesthesiologist WTE
Reviews and Consultations	1 session per 1000 inpatients
High Risk Clinics	1 session per 1000 patients
Clinical Leadership	1 session per 5000 patients

Royal College of Anaesthetists UK

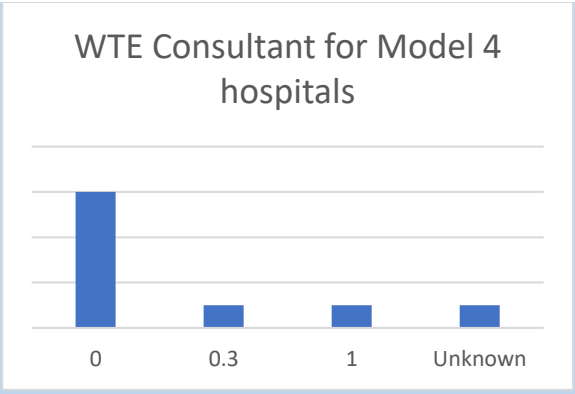
Table 2 Minimum Guidelines on Staffing Levels

	Consultant anaesthetist WTE	Nurse WTE
Inpatient surgery	15 hours/week per 1,000 adult inpatients/year requiring services of an anaesthetist*	0.9 WTE per 1,000 adult inpatients/year requiring services of an anaesthetist
Day case surgery	5 hours/week per 1,000 adult day cases/year requiring services of an anaesthetist **	0.6 WTE per 1,000 adult inpatients/year requiring services of an anaesthetist ***

* Includes time for non-clinical duties (service development etc.) as per RCOA but does not include backfill for leave
** Does not include time for non-clinical duties, as day case pre-assessment clinics are usually affiliated with inpatient pre-assessment units. However, institutions with only day case pre-assessment clinics should be allowed one hour/week extra for non-clinical duties.
*** Institutions that do not have facilities/clinical services to support inpatient admissions should factor a local attrition rate into their calculations to account for those patients who are initially pre-assessed as day cases, but deemed unsuitable for day case surgery at that institution.

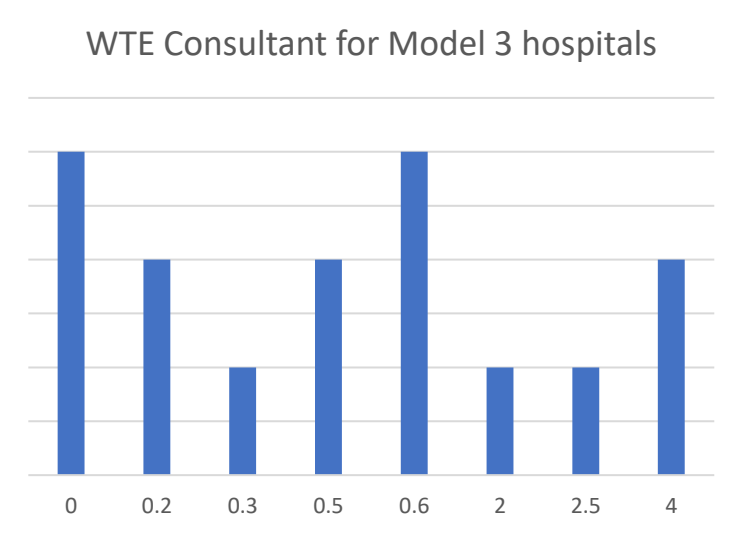
"**Secretarial** staff are responsible for scheduling appointments, retrieving medical charts and collating information for medical review and admission/discharge of patients on the hospital information system. The importance of clerical staff dedicated to, and invested in, the administration of a pre- operative assessment service cannot be over emphasised, and sufficient WTE (approximately 0.5 WTE per 1,000 patients) must be provided. "

Staffing Levels reported by Organisational Survey

Model 4 hospitals (n=9)		
Consultant WTE	1 hospital has 1 WTE where the Consultant is dedicated to the clinic and present in the clinic and not cross-covering theatre. 1 hospital has 0.3WTE dedicated to clinic. 1 hospital reports 0.5WTE to clinic for each Consultant but no in-person reviews by Consultant or Telephone assessments.	
Clerical Support	1 has no dedicated clerical support. For others see Figure 1.	
Nursing Staff	See Table (WTE)	

Staff Nurse	CNM	CNS	Total	Acute Beds (June 2022-includes Day unit)	Beds/WTE (Crude comparison)
1.5	0	0	1.5	811	541
0	3	0	3	914	304
2.8	1	0	3.8	681	179
2.4	1.7	1	5.1	1000	196
2	0	1.6	3.6	751	209
0.5	1	0	1.5	545	363
0	0	2.5	2.5	799	319
5.6	1	0	6.6	588	89
4	1	0	5	648	129

(Medical & Surgical Beds)

Model 3 hospitals (n=17)		
Consultant WTE	Ranges between 0.2 and 4 WTE (calculated based on 37-hour week and sessional hours covered). See graph. 3 sites no dedicated sessions – cross-covered.	
Clerical Support	1 hospital has no clerical support. 'Several requests and risk assessments sent'. See Figure 1 for summary.	
Nursing Staff	See Table below (WTE)	

Staff Nurse	CNM	CNS	Total	Acute Beds (June 2022-includes Day unit)	Beds/WTE (Crude comparison)
5	1	0	6	355	59
1	1		2	318	159
0	1	0	1	175	175
2	1	0	3	436	145
0	1	0	1	218	218
0	1	0	1	251	251
1	1	0	2	280	140
2	1	0	3	104	35
1.5	0.8	0	2.3	474	206
2	1	0	3	340	113
0	1	0	1	304	304
1.5	1	0	2.5	304	122
3	1	0	4	272	68
1.5	0.8	0	2.3	239	104
2.26	0.5	1ortho	3.76	290	77
0	1	0	1	207	207
0	1	0	1	151	151

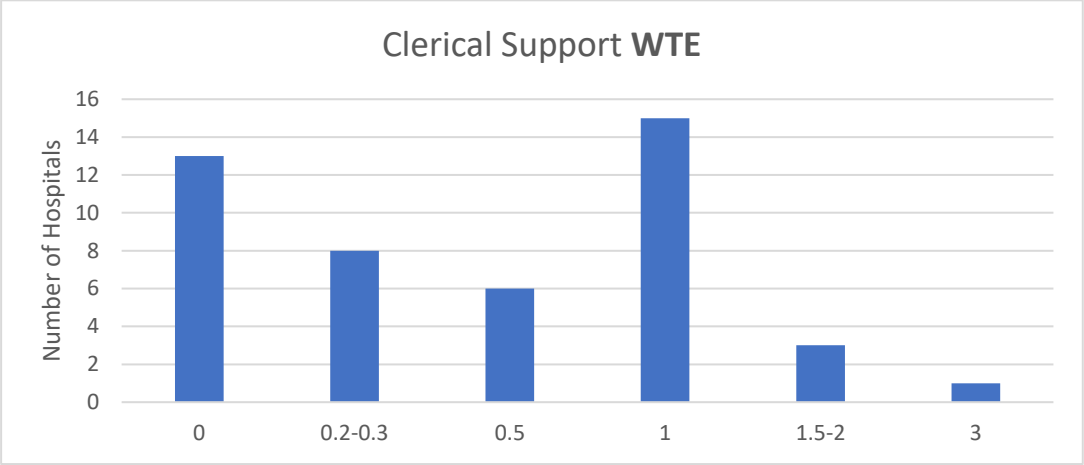
Model 2 hospitals (n=15, 1 hospital no PAC service, 1 hospital staffing levels unknown)		
Consultant WTE	1 hospital has 0.5 WTE dedicated to PAC. No others have any dedicated time, reviews while cross-covering. 1 hospital reports patient waiting issues for reviews.	
Clerical Support	7 hospitals have no dedicated clerical support. See Figure 1 for summary.	
Nursing Staff	See Table below (WTE)	3 hospitals no dedicated staff. In 2 of these pre-admission checks are part of the day ward staff role. No pre-assessment as such.

Staff Nurse	CNM	CNS	Total	Acute Beds (June 2022-includes Day unit)	Beds/WTE (Crude comparison)
0	2	0	2	113	66
8	1	1	10	124	12.4*
1	0	0	1	50	50
1	0	0	1	30	30
1	0	0	1	23	23
2	0	1	3	193	64
1	1	0	2	47	24
2	1	0	3	31	10*
0	1	0	1	69	69
1	1	0	2	72	36
1.75	0	0	1.75	86	49
4	1	0	5	73	15*

(*Elective Orthopaedic)

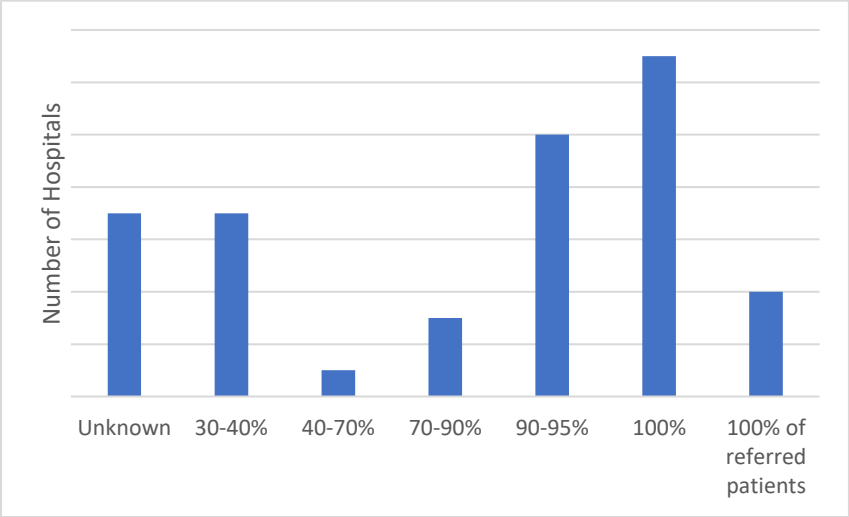
Obstetric Hospitals	**1 hospital has 0.25WTE dedicated in POAC, 1 hospital covers POAC and labour ward.** **1 hospital: 2 CNM** **1 hospital: 1 staff nurse (business case for CNM submitted)** **1 hospital: 1 CNM and 0.9 staff nurse** **All have some clerical support. 2 have 1 WTE and 1 hospital has 0.5 WTE**
Children's Hospitals	**Neither** have clerical support. 0.25 and 1WTE for Consultant in PAC. 1 hospital has 2 staff nurses and 1 CNM and the other hospital relies on individual surgical CNMs for assessment and referral.

Figure 1. Clerical Support



Staffing levels for Reference – Awaiting information on inpatients/year for individual hospitals to allow for accurate assessment of current practice.

%pre-assessed

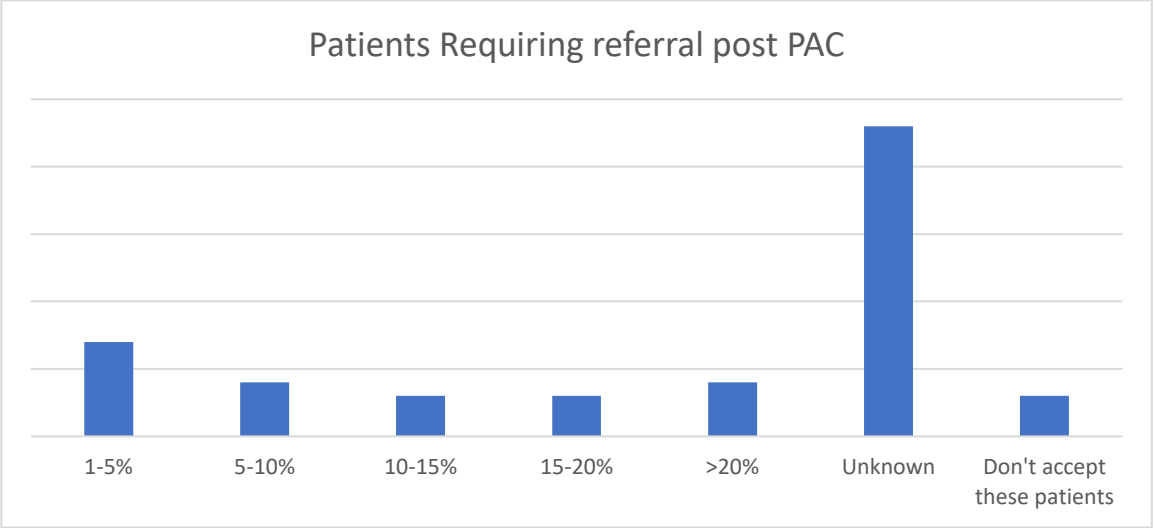


As expected, Model 2 hospitals in the majority make up the 100% pre-assessment rate for patients.

DOSA rate

>99% in the majority of cases. This is recognised as a KPI hospitals are trying to meet. The cited exception to this is the poorly controlled diabetic patient who requires admission.
1 hospital has changed from 100% to 0% DOSA admission post-COVID-19 in part to keep the pre-elective surgery as also accepts trauma patients.

%Requiring intervention after PAC



6 retrospective/prospective audits were carried out as part of the survey.
Model 2 hospitals – 2 of these reported 1-5% referral
Others reports referrals in 10-15% range
This likely demonstrates the co-morbidity and acuity of patients presenting for surgery. However, from the comments included in the survey, it is also clear that there is a lack standardisation over which investigations are organised perioperatively.

Policies for ECG and Bloods

There is significant variation between centres regarding which patients have ECG and bloods.
The majority of respondents cited the NICE 2016 guidance as reference but suggest this is only covering the bare minimum of patients.
Many centres routinely do ECGs for all admissions or have differing criteria (e.g. age >40/50/60 depending on gender).
As such, it can be concluded that there is currently no agreed standard which is followed nationally.
Interestingly, when units who perform Eye surgery were asked, the majority responded that all eye patients regardless of local/general anaesthetic get an ECG preoperatively.

Access to Allied Health Professionals Pre-operatively

This is certainly the extreme exception for a very specific cohort of patients. Some GI cancer patients will have pre-operative review by dietician. 1 elective orthopaedic hospital has routine access to physio/OT and selective access to dietician.
Access to Social work pre-operatively has been highlighted by some as an ideal but not a reality.

Follow-up

One day surgery unit reports follow-up of general anaesthetic day case procedures and all of those patients receiving regional anaesthetic block by telephone assessment. Form available on request.
This is a goal that could be aspired to and warrants mentioning in this report.

General Comments from Responders (Narrative)

“Clerical support lacking”
“Worked for years to get the clerical support – Majority of workload is non-nursing role”
“Communication between sites challenging and takes up a lot of time”
“We are a pre-admission service, not preassessment”

"HSE has embraced the idea of DOSA but forgotten about the needs of the patient and where this is supposed to happen"
"Lost our dedicated purpose-built unit during COVID-19 and now have no home"
"Time in advance of surgery lacking"
"The aim is not to optimise patients but to tick the boxes to meet KPIs"
"Varying opinion on what is needed between Consultants/teams is a challenge"
"NICE 2016 good in theory but possible outdated with complexity of current patients"
"We are a Model 2 hospital, but it is not reasonable to say just ASA ½ patients, we now bring in patients for review with BMI>35"
"Nurse-led sign off would be welcomed"
"Finding information from investigations in other hospitals take up the majority of our time"
"Major issue seeing patients 1 day before surgery"
"ECGs for all as don't' want a patient to be cancelled even if it outside the criteria"
"Clerical support would ease the workload"
"Follow up on CPI e.g. CPE/MRSA swabs continuity in the community would be extremely helpful rather than starting again every time for elective surgery"
"We are a check-list service only"
"Post COVID-19 challenges with workload and staffing shortages provide issues e.g. non-patient facing staff"
"Space for day unit and pre-admission service. HSE have embraced DOSA but not given resources or space for such a model"
"What is the purpose?"

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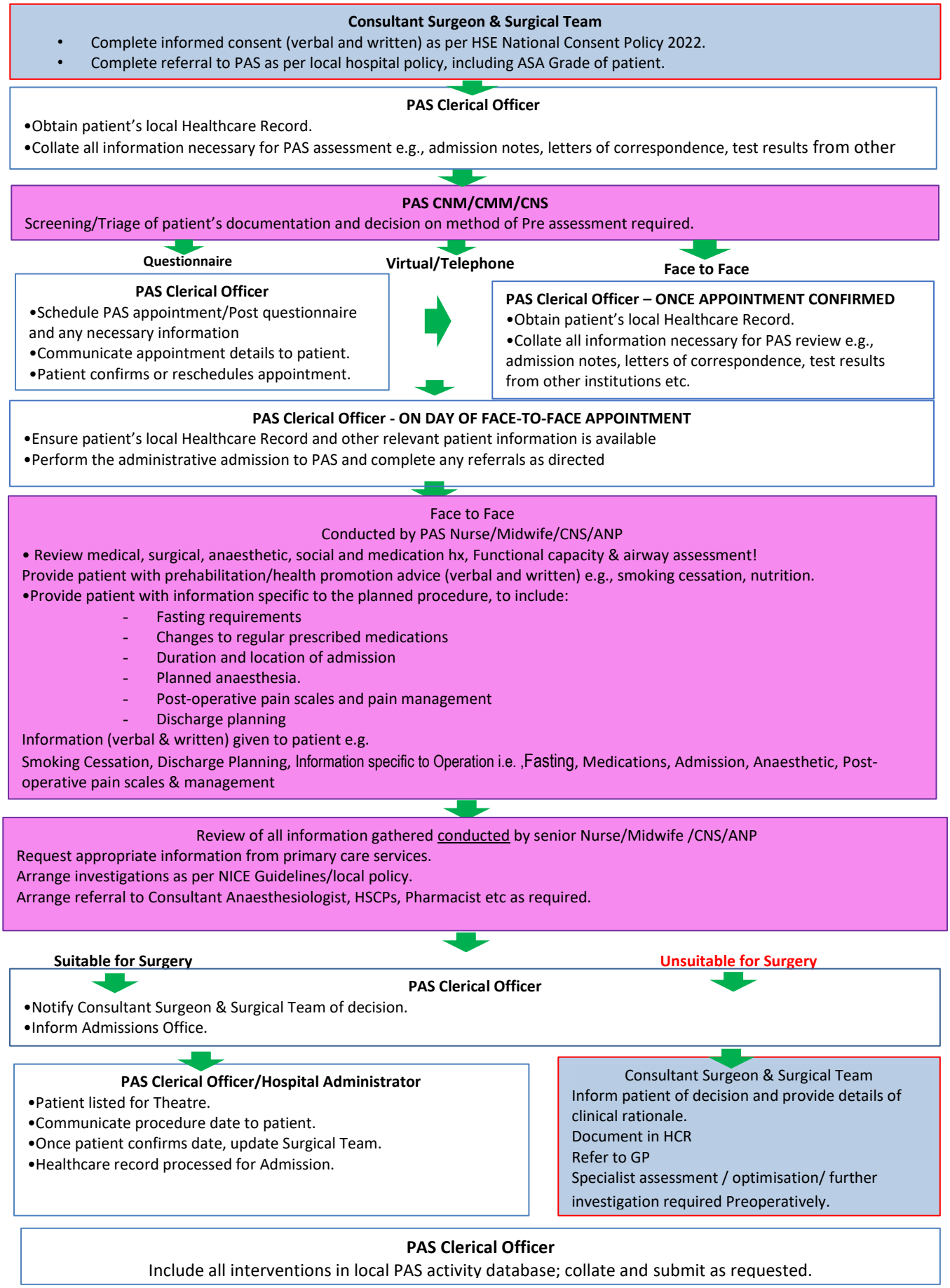
Appendix III – Preassessment Services Patient Pathway Template



Appendix IV: Referral Form Template for Preassessment Services

Preoperative Assessment Services Referral Form **Name of Hospital**	
Please complete form for all scheduled surgical patients and forward to Preassessment Services **Date of Referral:**	
Patient Details: Use addressograph label where possible **HCRN:** **Surname:** **Forename:** **Date of Birth:** **Gender:** **Address:** **Contact Mobile:** **Contact Landline:**	**Consultant Surgeon:** **Specialty:** **Diagnosis: ----------** **Consultant surgeon aware of addition to surgical list** **Yes** ☐ **No** ☐ **Proposed Procedure: ----------** **Proposed Date of Procedure: ----------** **International Classification of Diseases (ICD) Code:** **Priority:** **Day Case:** ☐ **DOSA:** ☐ **Admit on** ...../...../..... **Consent Completed YES** ☐ **NO** ☐

ASA Grade (Please tick appropriate grade)		**Examples**
A normal healthy patient	**I** ☐	Healthy, non-smoking, minimal C_2H_5OH
A patient with mild systemic disease	**2** ☐	Smoker, obesity, well controlled HTN/DM, mild lung disease
A patient with severe systemic disease	**3** ☐	BMI>٤٠, COPD, pacemaker, ESRD, IHD-stents/CABG, CVA
A patient with severe systemic disease that is a constant threat to life	**4** ☐	Recent MI/CVA (<٣ months), shock, severe reduction of ejection fraction

Communication	**YES**	**NO**	**DETAILS**
Is Patient able to communicate in English			
Does Patient require an interpreter?			
Has patient completed Advance Health Directive?			
Medications	**YES**	**NO**	
Is patient on Anti-coagulation therapy?			**Drug Name: ----------** **Stop for ---------- days before surgery** **Drug Name: ----------** **Stop for ---------- days before surgery**
Is Patient on OCP/HRT			**Drug Name: ----------** **Stop for ---------- days before surgery**
Other Medications **Allergy**			

Investigations Requested	**YES**	**NO**	**Date ordered**
CXR			
OTHER XRAY (Please specify)			

FBC			
U&E			
Coag Screen			
Group & Hold			
Blood Glucose			
LFTs			

Obs in Surgical Clinic	**Form Completed By**	
Weight **Height:** **BMI:**	**Name:** **Signature:** **Date:**	**MCRN:** **Contact No:**

Appendix V Preoperative Assessment Patient Questionnaire Template (*approved by National Adult Literacy Agency NALA in the following format. This template can be adapted to suit local requirements)*

Preoperative Assessment Patient Questionnaire Template

Please complete this questionnaire to the best of your ability. This will help the team decide if any tests are needed before your operation. It will help to have a list of all your medication when filling it out.

Section 1: General information

Your details

Q1. **Your name (please print)**
Q2. Your address
Q3. Your date of birth

Your contact information

Q4. **Phone number**
Q5. Email
Q6. Best time to reach you
In the morning ☐ **In the afternoon** ☐
Q7. Best way to reach you
By phone ☐ **By email** ☐

Your next of kin (designated person)

Q8. Please fill in the name of your next of kin
What is their relationship to you?

Section 1: General information (continued)

Your GP (family doctor)

Q9. Your GP's name
Your GP's address

Your local pharmacy (chemist)

Q10. Local pharmacy name
Local pharmacy phone number

Your surgeon

Q11. The name of your surgeon

Your operation

Q12. What operation are you having?

The language you speak

Q13. What is your primary language?

Q14. Do you need an interpreter?
Yes ☐ **No** ☐

Section 1: General information (continued)

Details about any sight or hearing impairments

Q15. Do you have any vision loss?
Yes ☐ No ☐
Q16. Do you have any hearing loss?
Yes ☐ No ☐

Your medication

Please list all medication you have taken in the last 3 months including:

- over-the-counter drugs
- herbal supplements
- vitamins
- dietary supplements.

Please include the oral contraceptive pill (OCP) or hormone replacement therapy (HRT).

Q17. Name of Medicine	Strength	How much I take each time	I take it	I take it every day (Yes/No)	Why I take it	My Notes
Example: ABC Tablets	**25mgs**	**2 Tablets**	**Once in the morning**	**Yes**	**For my heart**	**Take with food**

Section 2: Allergies

Q18. **Do you have any allergies or sensitivities to any:** • **medications** • **products** • **foods** • **latex?**
Yes ☐ **No** ☐

If 'Yes', please say what you are allergic to and the reaction it causes.

Name of allergen
Reaction it causes

Name of allergen
Reaction it causes

Name of allergen
Reaction it causes

Section 3: Anaesthesia and surgery

Anaesthetics

(An anaesthetic is used during tests and operations to numb sensation or to make you sleep.)

Q19. Have you had any previous anaesthetics?
Yes ☐ No ☐
Q20. Have you had any problems or concerns with anaesthetics in the past?
Yes ☐ No ☐

Your mouth and jaw

Q21. Have you any problems opening your mouth or with your jaw?
Yes ☐ No ☐

Your neck

Q22. Do you have a neck injury or restricted neck movement?
Yes ☐ No ☐

Your back

Q23. Have you had any back surgeries or scoliosis?
Yes ☐ No ☐

Please list any previous surgeries you have had (starting with the most recent)

Q24. Name of procedure	Year	Hospital

Section 4: Breathing

Smoking

Q25. Are you currently a smoker?
Yes ☐ **No** ☐
If 'Yes' please say how many a day you smoke.
Q26. If you answered 'No' above, have you smoked tobacco of any kind in the past, for example, cigarettes, vape, pipe, marijuana?
Yes ☐ **No** ☐
Q27. If you were previously a smoker, how many years is it since you quit, or the date that you quit?
Q28. Do you vape now?
Yes ☐ **No** ☐

Asthma

Q29. Do you have asthma?
Yes ☐ **No** ☐
If you answered 'Yes', do you use inhalers?
Yes ☐ **No** ☐
If you answered 'Yes', how often do you use an inhaler?

Section 4: Breathing (continued)

Breathlessness

Q30. Do you have any problems lying flat for more than 30 minutes due to breathlessness?
Yes ☐ **No** ☐
Q31. Are you able to climb a flight of stairs without getting breathless?
Yes ☐ **No** ☐
Q32. Do you have sleep apnoea?
Yes ☐ **No** ☐
If 'Yes', do you use a machine to help you breathe while sleeping?

Section 5: Your heart

Heart problems

Q33. Do you have any heart problems, for example, have you had or do you have any of the following? **A heart attack**
Yes ☐ **No** ☐
If 'Yes' please give details

Heart murmur
Yes ☐ **No** ☐
If 'Yes' please give details

Section 5: Your heart (continued)

Angina
Yes ☐ No ☐
If 'Yes' please give details

Blockages
Yes ☐ No ☐
If 'Yes' please give details

Angioplasty
Yes ☐ No ☐
If 'Yes' please give details

Stent
Yes ☐ No ☐
If 'Yes' please give details

Valve problems
Yes ☐ No ☐
If 'Yes' please give details

Section 5: Your heart (continued)

Irregular heartbeat
Yes ☐ **No** ☐
If 'Yes' please give details

Heart surgery
Yes ☐ **No** ☐
If 'Yes' please give details

Heart failure
Yes ☐ **No** ☐
If 'Yes' please give details.

Blood pressure

Q34. Do you have high blood pressure or take medication for high blood pressure?
Yes ☐ **No** ☐
If 'Yes, please give details

Chest pain

Q35. Do you get chest pain after climbing a flight of stairs?
Yes ☐

No ☐
If 'Yes, please give details

Ankles

Q36. Do you have swelling in your ankles?
Yes ☐ **No** ☐
If 'Yes, please give details

Heart valve

Q37. Do you have an artificial heart valve?
Yes ☐ **No** ☐
If 'Yes, please give details

Pacemaker or defibrillator

Q38. Do you have a pacemaker?
Yes ☐ **No** ☐
Q39. Do you have an implantable defibrillator?
Yes ☐ **No** ☐

Aspirin

Q40. Do you take aspirin regularly?
Yes ☐ **No** ☐
If 'Yes', please say why

Section 5: Your heart (continued)

Blood thinners

Q41. **Do you have a prescription for blood thinners?**
Yes ☐ **No** ☐
If 'Yes', please tick it and say why you are taking it. **If you are taking a blood thinner that is not on this list, please fill in the details in the box at the end.**

Aspirin	☐
Warfarin	☐
Clopidogrel (Plavix)	☐
Ticagrelor (Brilique)	☐
Dipyridamole (Persantin)	☐
Dabigatran (Pradaxa)	☐
Rivaroxaban (Xarelto)	☐
Apixaban (Eliquis)	☐
Edoxaban (Lixiana)	☐

Heparin type medications e.g. Enoxaparin (Clexane) ☐
Other blood thinner ☐ **If 'you are taking a blood thinner that is not on this list, please write its name and why you are taking it.**

Section 5: Your heart (continued)

Special heart tests

Q42. Have you ever had any of these special heart tests?
Stress test
Yes ☐ **No** ☐
Echocardiogram (ECG)
Yes ☐ **No** ☐
Cardiac catheterisation
Yes ☐ **No** ☐
Have you had any other heart test?
Yes ☐ **No** ☐
If 'Yes', what was this other heart test?

Other heart issues

Q43. Have you had any other heart issues?
Yes ☐ **No** ☐
If 'Yes', please say what they were

Section 6: Neurological

Do you have or have you had any of the following?
Q44. **Dementia or significant memory problems?**
Yes ☐ No ☐
Q45. **Any confusion after a previous operation?**
Yes ☐ No ☐
Q46. **A stroke or mini stroke or a transient ischemic attack (TIA)?**
Yes ☐ No ☐
Q47. **Epilepsy or convulsions?**
Yes ☐ No ☐

Section 7: Other information

Diabetes

Q48. **Do you have diabetes?**
Yes ☐ No ☐
If 'Yes', is it controlled with diet, medication or insulin?

Anaemia

Q49. **Do you have anaemia (low blood count)?**
Yes ☐ No ☐

Bleeding problems

Q50. **Do you have or have you had any bleeding problems or disorders?**
Yes ☐ No ☐

Section 7: Other information (continued)

Q51. Have you ever had a blood clot in your leg or lung?
Yes ☐ No ☐

Kidney problems

Q52. Do you have any kidney problems?
Yes ☐ No ☐
If 'Yes', please explain what they are.

Thyroid problems

Q53. Do you have any thyroid problems?
Yes ☐ No ☐
If 'Yes', please explain what they are.

Autoimmune diseases

Q54. Do you have an autoimmune disease like: • Crohn's • multiple sclerosis • rheumatoid arthritis?
Yes ☐ No ☐
If 'Yes', please give details.

Musculoskeletal problems or dystrophies

Q55. Do you suffer from any musculoskeletal problems like muscular dystrophies?
Yes ☐ No ☐

Section 7: Other information (continued)

Chronic pain

Q56. Do you have chronic pain?
Yes ☐ No ☐

Alcohol

Q57. Do you drink alcohol
Yes ☐ No ☐
If 'Yes', please specify how many alcohol drinks you have in an average week

Digestive conditions

Q58. Do you suffer from: • heartburn • acid reflux • gastric ulcers • ulcerative colitis?
Yes ☐ No ☐
If so, please give details.

Any other illnesses

Q59. Do you have any other illness, limitations or concerns we should be aware of?
Yes ☐ No ☐
If 'Yes', please give details.

Section 7: Other information (continued)

Weight

Q60. What is your weight?
Q61. Has your weight changed in the last six months?
Yes ☐ **No** ☐
If 'Yes', if so, by how much?

Height

Q62. What is your height?

Section 8: Details of who completed this questionnaire.

This questionnaire was completed by:
This person is:
The patient ☐ **A family member** ☐ **Someone else** ☐
If it was completed by someone else, please say who you are.
Signature
Please sign in this box:
If the person signing is not the patient, please say what your relationship to the patient is.

Section 9: Your questions about the anaesthetic

Do you have any questions about the anaesthesia for your operation?

Appendix VI Abbreviated Health Questionnaire template for patients undergoing a surgical procedure under Local Anaesthesia

To be completed by Healthcare Professional

Section 1: General information

Personal Details: (Use addressograph label where possible)

Name (please print)
Address
HCRN

Age:
Weight:
Height:
BMI
HR
B/P

Section 2: History

Previous Surgery & Anaesthesia

Name of Procedure	Year	Hospital

Previous Medical History

Blood Thinners

Does the patient have a prescription for blood thinners?	
Yes ☐ No ☐	
If 'Yes', please tick and give rationale for prescription	
Aspirin	☐
Warfarin	☐
Clopidogrel (Plavix)	☐
Ticagrelor (Brilique)	☐
Dipyridamole (Persantin)	☐
Dabigatran (Pradaxa)	☐
Rivaroxaban (Xarelto)	☐
Apixaban (Eliquis)	☐
Edoxaban (Lixiana)	☐
Heparin type medications e.g. Enoxaparin (Clexane) ☐	

Other blood thinner	☐

Section 3: Medications

Please list all other medications:

- over-the-counter drugs
- herbal supplements
- vitamins
- Dietary supplements.

Please include the oral contraceptive pill (OCP) or hormone replacement therapy (HRT).

Medication name	Dosage	How often

Section 4: Allergies

Allergies or sensitivities to any: • medications • products • foods e.g. eggs • Latex?
Yes ☐ No ☐

If 'Yes', please say what allergic to and the reaction it causes.

Name of allergen:
Reaction it causes

Name of allergen
Reaction it causes

Name of allergen
Reaction it causes

Section 5: ASA Grade

ASA Grade (Please tick appropriate grade)		Examples
A normal healthy patient	I ☐	Healthy, non-smoking, minimal C_2H_5OH
A patient with mild systemic disease	2 ☐	Smoker, obesity, well controlled HTN/DM, mild lung disease
patient with severe systemic disease	3 ☐	BMI>40, COPD, pacemaker, ESRD, IHD-stents/CABG, CVA
A patient with severe systemic disease that is a constant threat to life	4 ☐	Recent MI/CVA (<3 months), shock, severe reduction of ejection fraction

Section 6: Who has listed this patient for Surgery?

Please tick appropriate box	
Consultant	SHO
Registrar	Other (please specify)

Section 7: Details of who completed this questionnaire.

This questionnaire was completed by:	
Signature	MCN:

Appendix VII – Specific Examples of Assessment Tools

1. SORT – Surgical Outcome Risk Tool

SORT was developed in 2014 by NCEPOD (National Confidential Enquiry into Perioperative Deaths, UK) researchers Karen Protopapa and Neil Smith in collaboration with clinicians working within the UCL/UCLH Surgical Outcomes Research Centre (London). It was updated in 2020 to the combined-SORT clinical judgement model. SORT is a web-based preoperative risk prediction tool which estimates the risk of death within 30 days of inpatient surgery. It is based on the type of surgery, complexity of surgery, ASA grade of patient, urgency of surgery, age of patient and presence or absence of cancer (Protopapa K and Smith N 2014).

http://www.sortsurgery.com/SORT2home

2. ACS NSQIP - Universal Risk Calculator

The American College of Surgeons National Surgical Quality Improvement Programme (ACS NSQIP) Universal Risk Calculator was originally developed by the American Veterans Health Administration (VHA) hospitals in response to poor surgical outcomes in the 1980's. The calculator is web-based and uses 20 patient characteristics and shows the patient's risk of having up to 18 different complications within the first 30 days following surgery (Khuri et a 2002).

https://riskcalculator.facs.org/RiskCalculator/

3. P-POSSUM

The Physiological and Operative Severity Score for the enUmeration of Mortality and Morbidity (POSSUM) was developed by Mr Graham Copeland, a consultant general surgeon in Liverpool. It was updated by researchers in Portsmouth in 1998 who derived a more accurate prediction of mortality and is known as P-POSSUM. It can be used for both emergency and elective surgery but excludes trauma patients. P-POSSUM is a web-based risk calculator using 12 physiological parameters and 6 operative parameters (Prytech et al 1998).

http://www.riskprediction.org.uk/index-pp.php

4. Lee's Revised Cardiac Risk Index

The original risk index (Goldman) was published in 1977 and revised in 1999 by T.H. Lee et al (Harvard Medical School & San Francisco School of Medicine). This index estimates the risk of perioperative cardiac complications for patients undergoing non-cardiac elective surgery. It doesn't include age or respiratory risk factors. It was intended for elective non-cardiac surgery in patients aged >/= 50 years old. The predicted risks were revised upwards in 2019 as a result of updated validated data.

Revised Cardiac Risk Index
Predictor 1. History of ischaemic heart disease.
Predictor 2. History of congestive heart failure.
Predictor 3. History of cerebrovascular disease (stroke or transient ischaemic attack).
Predictor 4. History of diabetes requiring preoperative insulin use.
Predictor 5. Chronic kidney disease (creatinine > 2 mg/dL (177mmol/L).
Predictor 6. Undergoing suprainguinal vascular, intraperitoneal or intrathoracic surgery
Risk for cardiac death, nonfatal myocardial infarction, and nonfatal cardiac arrest: 0 predictors = 3.9%, 1 predictor = 6.0%, 2 predictors = 10.1%, >/= 3 predictors = 15% (Duceppe 2017)

5. ARISCAT – Assess Respiratory Risk in Surgical Patients in Catalonia

The ARISCAT risk index was developed in 2010, from a prospective multicentre trial, to predict the risk of postoperative pulmonary complications. It is derived using variables such as age, oxygen saturation, previous respiratory infection, anaemia, abdominal or thoracic surgery, duration of operation, and emergency surgery (Canet J et al 2010).

https://www.japt.in/temp/JAssocPulmonologistTamilnadu4394-5151163_141831.pdf

6. SRS – Surgical Risk Scale

SRS was developed by a group of surgeons in Watford General Hospital, England, and first published in 2002. It was based on a score derived from adding together the scores for three variables - the Confidential Enquiry into Perioperative Deaths grade (i.e. elective, scheduled, urgent or emergency), ASA grade and the British United Provident (BUPA) operative grade of surgery (i.e. minor, intermediate, major, major plus and complex major).

The scale ranges from 3 (good) to 14 (bad) and is predictive of in-patient postoperative mortality which increases with a score of 7 or above. (Sutton et al 2002).

https://www.evidencio.com/models/show/1013#:~:text=to%20enable%20calculations-,The%20Surgical%20Risk%20Scale%20(SRS)%3A%20Mortality%20in%20general%20surgical,across%20the%20entire%20risk%20spectrum.&text=Elective%3A%20Routine%20booked%20non%2Durgent,e.g.%20varicose%20veins%20or%20hernia

7. OS-MRS – Obesity Surgery Mortality Risk Score

This is a scoring system for clinical assessment of mortality risk in obese patients based on arterial hypertension, age >45yrs, male gender, BMI >/= 50 Kg/m^2 and risk factors for pulmonary hypertension (Demaria EJ et al 2007).

https://journals.lww.com/annalsofsurgery/abstract/2007/10000/validation_of_the_obesity_surgery_mortality_risk.9.aspx

8. DASI – Duke Activity Status Index

The Duke Activity Status Index was developed at Duke University, Durham, North Carolina in the 1980's to identify patients at risk of cardiovascular disease. The DASI is a web-based or paper-based assessment of functional activity giving a score from 0 (poor) to 58.2 (good). A DASI score of 34 represents a threshold for identifying patients at risk of myocardial injury, myocardial infarction, moderate to severe complications and new disability. The index is based on 12 patient physical activities. It is said to be possible to estimate METs by dividing the DASI score by 3.5 (Hlatky et al 1989).

https://www.mdcalc.com/calc/3910/duke-activity-status-index-dasi

MET's = Metabolic Equivalent of Oxygen Consumption 1 MET = oxygen consumption of a resting adult (3.5ml/kg/min)	
1-4 MET's	Standard light home activities Walk around the house Walk 1-2 blocks on level ground at 3-5 km/hr
5-9 MET's	Climb a flight of stairs Walk up hill Walk on level ground at >6km/hr Run a short distance Moderate activities 9golf, dancing, hill-walking)
>/= 10 MET's	Strenuous sports (swimming, tennis, cycling) Heavy manual labour

Ref: (Duminda et al 2020)

9. 6MWT – Six Minute Walk Test

The Six Minute Walk Test was developed by the American Thoracic Society in 2002. It is a submaximal exercise test used to assess aerobic capacity and endurance over an unimpeded walkway measuring 30 metres which is marked by two cones. The distance the patient can walk over 6 minutes, if fitness allows, is measured as is heart rate and SPO2 (American Thoracic Society 2002).

https://www.thoracic.org/statements/resources/pfet/sixminute.pdf

10. TUAGT - Timed Up and Go Test

This is a simple test used to assess a person's mobility and balance. It is the time taken for a person to rise from a chair, walk three metres, turn around 180 degrees, walk back to the chair and sit down. Scores of ten seconds or less indicate normal mobility, 11-20 seconds are within normal limits for frail older people and disabled patients, and greater than 20 seconds means the person needs assistance. A score of 30 seconds or more suggests the patient may be prone to falls (Podsiadlo D, Richardson S 1991).

https://www.physio-pedia.com/Timed_Up_and_Go_Test_(TUG)

11. 5XSST – Five Times Sit to Stand Test

This measures dynamic balance and functional lower limb muscle strength in adults. This measures the duration of time that a patient is able to transfer from a seated to a standing position and back to sitting five times. The time required to complete the test is adjusted for older age categories (Bohannon, RW 2006).

https://www.physio-pedia.com/Five_Times_Sit_to_Stand_Test#:~:text=The%205XSST%20scoring%20is%20based,back%20to%20sitting%20five%20times

12. CPET/CPEX - Cardiopulmonary Exercise Testing

Cardiopulmonary Exercise Testing is referred to as CPET, CPEX or VO2 (oxygen consumption) testing which objectively measures exercise ability. It integrates assessment of cardiac, respiratory and metabolic variables in a situation mimicking that of surgery (NICE, 2016). Typically using a stationary exercise bicycle pre-operatively, CPET incorporates measurement of gas exchange variables, 12-lead ECG, pulse oximetry, heart rate and intermittent non-invasive blood pressure monitoring. CPET is used to predict if a patient will tolerate the physiological stress provoked by surgery (NICE 2016).

Deficiencies in the anaerobic threshold, peak oxygen consumption and ventilator efficiency for carbon dioxide are associated with poor postoperative outcomes. For example, patients with pulmonary disease may have limited ability to increase their oxygen consumption or be unable to increase minute ventilation sufficiently to keep pace with exercise-induced increases in CO_2 production. CPET aids risk assessment, identification of comorbidities that may be optimised, and perioperative planning (BJA Education: CPET, Vol 19, mar 19, 2019).

CPET requires investment in equipment, staff and training. It is used in 68% of hospitals in the UK performing elective surgery to assess patients undergoing major procedures such as gastrointestinal, major vascular, major urology and thoracic surgeries.

A survey of CPET use in preoperative assessment in Ireland in 2023 has identified two of eighteen model Three hospitals (MRH Mullingar and OLOLH Drogheda) have access to CPET, and two of nine model Four hospitals (Mater MUH and Beaumont) have access to CPET. Therefore, four of twenty-seven acute hospitals have access to CPET for preoperative assessment, i.e. 15% of the total number of acute hospitals in Ireland (NCPA Survey 2023).

CPET provides physiological data which can be used for assessment of functional capacity and risk, and identification of comorbidities that may be optimised. If CPET is not available, there are alternative objective tests of functional capacity such as the Duke Activity Status Index (DASI) and the 6-minute walk test (6MWT) (Reeves et al 2018).

https://www.physio-pedia.com/Cardiopulmonary_Exercise_Testing_(CPET)_In_Adults

13. MUST – Malnutrition Universal Screening Tool

MUST was developed by Dr Marinos Elia of the University of Southampton. It is a validated web-based or manual screening tool for adults who are malnourished or at risk of malnutrition based on BMI, estimated weight loss over the previous 3-6 months and concurrent acute illness where there has been, or likely to have been, no nutritional intake for > 5 days. Based on the score, patients are divided into one of three categories – low risk, medium risk or high risk (Elia M 2000).

https://www.hse.ie/eng/staff/pcrs/online-services/musttool.pdf

14. SGA – Subjective Global Assessment

Subjective Global Assessment classifies the nutritional status of patients on the basis of their history and physical examination. 'A' is considered well nourished, 'B' is considered mildly malnourished and 'C' is considered severely malnourished. The survival of patients classified as malnourished by SGA was significantly lower than patients classified as nourished (Detsky et al 1987).

https://nutritioncareincanada.ca/sites/default/uploads/files/SGA%20Tool%20EN%20BKWT_2017.pdf

15. MNA – Mini Nutritional Assessment

The Mini nutritional Assessment is a screening tool to help identify older patients who are malnourished or at risk of malnutrition. It is based on questions related to food intake, weight loss, mobility, acute event or illness as well as neuropsychological problems. The maximum score is 30; >/=24 is considered 'normal nutritional status', 17-23.5 @at risk of malnutrition', and <17 'malnourished' (Vellas B et al 1999).

https://www.mna-elderly.com/sites/default/files/2021-10/mna-mini-english.pdf

16. STOP-Bang (Obstructive Sleep Apnoea)

The STOP-Bang was first developed in 2008 by Dr Frances Chung of Toronto as a screening tool for obstructive sleep apnoea (OSA). It includes four subjective items (STOP: Snoring, Tiredness, Observed apnoea and high blood Pressure) and four objective measurements (Bang: BMI, age, neck circumference, gender). Yes to >/= 3 questions suggest high risk of OSA. OSA is associated with increased risk of perioperative cardiopulmonary complications, including critical care admission (Chung F et al 2008).

https://www.mdcalc.com/calc/3992/stop-bang-score-obstructive-sleep-apnea

17. EFS - Edmonton Frail Scale

The Edmonton Frail Scale (EFS) is a screening tool developed by Dr Darryl Rolfson at the University of Alberta in 1999. The EFS captures the multidimensional aspect of frailty. It is based on 11 aspects of a patient's health including cognition, general health status and functional independence. The score ranges from 0 (not frail) to 17 (severe frailty) (Rolfson et al 2000).

https://www.bgs.org.uk/sites/default/files/content/attachment/2018-07-05/efs.pdf

18. RCFS - Rockwood Clinical Frailty Scale

The Rockwood Clinical Frailty Scale was developed by Dr Kenneth Rockwood and Dr Arnold Mitnitski at Dalhousie University, Halifax, Nova Scotia, Canada, in 2005. It is a tool used to estimate an individual's degree of frailty on a scale of 1 (very fit) to 9 (terminally ill). Patients who score a 5 or higher are considered frail (Rockwood K et al 2005).

https://www.bgs.org.uk/sites/default/files/content/attachment/2018-07-05/rockwood_cfs.pdf

19. MMSE - Mini-Mental State Examination

The Mini-Mental State Examination (MMSE) is a 30-point screening tool designed to assess the severity of cognitive impairment. A score of 24-30 = no cognitive impairment, 18-23 = mild cognitive impairment, 0-17 = severe cognitive impairment. It assesses the patient's cognitive ability based on six characteristics – 1. orientation in time, place and person, 2. understanding, 3. attention, 4. recall, 5. language and 6. spatial recognition.

https://cgatoolkit.ca/Uploads/ContentDocuments/MMSE.pdf

20. 4AT – Cognition Testing

4AT was originally designed in 2011 by Prof Alasdair MacLullich (Edinburgh Delirium Research Group, University of Edinburgh, Scotland, and Dr Tracy Ryan and Dr Helen Cook (NHS Lothian). The 4AT has 4 items, each of which begins with an 'A': Alertnesss, Abbreviated Mental Test, Attention (months of the year backwards), and Acute change or fluctuating course. The 4AT is scored from 0-12; a score of 4 or more suggest delirium, a score of 1-3 suggests cognitive impairment but a score of 0 does not definitively exclude delirium or cognitive impairment (MacLullich et al 2019).

https://www.the4at.com/

21. MoCA – Montreal Cognitive Assessment Test

The MoCA was developed by Dr Ziad Nasreddine in Montreal, Quebec, in 1996. It is similar to the Mini-Mental State Exam (MMSE). Both tests use a 30-point scale. The MoCA is considered more sensitive at detecting mild cognitive impairment as it tests for executive function (performance of a task after comprehension of instructions) and visuospatial ability. It can identify those at risk of developing Alzheimer's disease and other forms of dementia.

It can also be used in conditions like substance abuse, head trauma, brain tumours and Parkinson's disease. The MoCA. unlike the MMSE, is free for non-profit use (Nasreddine et al 2005).

https://www.parkinsons.va.gov/resources/MOCA-Test-English.pdf

22. HADS – Hospital Anxiety and Depression Scale

The HADS was developed by Dr Philip Snaith and Dr A S Zigmund of the University of Leeds in 1983. It is based on fourteen items – seven relating to anxiety and seven relating to depression. A score of 0-3 can be given for each item, resulting in a score of 0-21 for anxiety and a score of 0-21 for depression. A score of 0-7 is considered 'normal', 8-10 'borderline normal' and 11-21 'abnormal' (Zigmond AS, Snaith RP 1983).

https://dreamstorealities.co.uk/hads-self-test-questionnaire/#:~:text=The%20HADS%20scale%20is%20a,both%20hospital%20and%20community%20settings

Appendix VIII – Written Medication Instructions for Patient

To: GP Details

Hospital Name:

Patient Details (Addressograph) / Address / Contact Phone Numbers:

Instructions To Patient Regarding Your Medications BEFORE Your Surgery

Take the following medication on the morning of surgery:-
1.
2.
3.
4.
5.
Omit the following medication on the morning of surgery:-
1.
2.
3.
4.
5.
Reduce the dose of the following medication the evening before surgery:-
1.
2.
Reduce the dose of the following medication the morning of surgery:-
1.
2.
The following medication may require to be stopped several days before surgery:
1.
2.
Follow the instructions below regarding your anticoagulation (blood-thinner) medication, which may involve the use of new temporary bridging medication while your routine medication is stopped before surgery:-
1.
2.

Advice to the patient on resumption of medications will be given after surgery and prior to discharge from the hospital.

A discharge letter from the surgical team to the GP will include a copy of the discharge prescription of up-to-date medications and dosage instructions. The medicine discharge prescription will be given to the patient.

Up-to-date advice for medical and nursing staff on the management of perioperative medications is available at:-

https://www.ukcpa-periophandbook.co.uk/