Preoperative Evaluation and Care

Comprehensive High Yield Notes

Based on Sabiston Textbook of Surgery
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Learning purpose

Preoperative care connects diagnosis with a safe, proportionate treatment plan. The central task is to establish whether the proposed operation can achieve an outcome the patient values, at a risk the patient understands and accepts.

This chapter covers surgical evaluation, shared decision making, organ specific assessment, optimization, preparation and prevention. Integrated review tables, 100 extended clinical judgment cases and 10 structured oral stations support perioperative decision making.

Contents

1 Principles of surgical evaluation
2 Communication and informed consent
3 Global assessment of operative risk
4 Integrated clinical application
5 Source map and continuation plan
6 Assessment of the older surgical patient
7 Cognition and prevention of delirium
8 Function frailty mood and medications
9 Counseling and planning recovery
10–14 Cardiovascular assessment and clinical application
15–19 Pulmonary assessment and clinical application
20–24 Renal assessment fluid and electrolyte planning
25–29 Hepatic assessment and care in cirrhosis
30–34 Anemia hemostasis and antithrombotic planning
35–39 Endocrine assessment and perioperative diabetes care
40–44 Nutrition obesity and prehabilitation
45–49 Medications fasting and final preparation
50–54 Antibiotic prophylaxis VTE prevention and ERAS
55–59 Comprehensive algorithm and final review tables
100 Advanced clinical judgment cases with explained answers
10 Structured oral stations with model answers and scoring

Editorial approach The teaching text, examples and review prompts are newly written. Source concepts are reorganized for surgical trainees; direct reproduction of textbook tables and figures is avoided.

1 Principles of surgical evaluation

Confirm the clinical problem before selecting an operation

Begin with the presenting symptoms, their time course and their effect on daily life. Review the referral diagnosis against the history, examination, laboratory findings and imaging. A referral for surgery establishes a question to answer; it does not establish the indication for an operation.

Build a differential diagnosis and identify which remaining uncertainty could change management. Investigations are useful when their possible results lead to different actions. A test that will not change treatment, timing or perioperative planning adds little value.

Clinical pearl Before requesting a test, state what you would do if it were normal and what you would do if it were abnormal. If the next step is identical, reconsider the request.

Define the objective of intervention

Objective	Clinical question	Illustrative example
Prevention	Can intervention reduce a future disease risk?	Risk reducing surgery for a hereditary cancer syndrome
Disease control	Can intervention remove, resolve or control an existing process?	Resection of a localized malignancy
Palliation	Can intervention relieve symptoms or improve function despite persistent disease?	Bypass for malignant obstruction

Discuss the achievable result in the patient's own terms. Technical success, disease control and improved quality of life are related outcomes, but they are not interchangeable. A technically feasible procedure may still offer little benefit to a particular patient.

Establish urgency early

Urgency determines how much time is available for investigation, counseling and optimization. Elective surgery permits a planned assessment. Urgent surgery requires treatment within a limited clinical window. Emergency surgery addresses an acute threat in which delay can worsen the outcome.

Exam pearl When time is limited, prioritize information that changes immediate management. Resuscitation, focused assessment and operative preparation may need to proceed together.

Common pitfall Applying administrative or registry definitions of elective, urgent and emergency surgery as if they were universal bedside timing rules. Definitions vary; document the clinical threat and the consequence of delay.

Source Sabiston 22nd edition, Chapter 19, printed pages 2 to 3; PDF pages 289 to 290.

2 Communication and informed consent

Start with the outcome the patient values

Ask what the patient hopes surgery will achieve and which adverse outcomes would be especially difficult to accept. Relief of pain, survival, independence and avoidance of a permanent stoma may carry different priorities. The recommendation should connect the expected benefit with these priorities.

Build a complete discussion

Element	What the discussion should establish
Diagnosis	What is known, what remains uncertain and why treatment is being considered
Proposed procedure	The nature and purpose of the operation in understandable language
Expected benefit	The likely benefit and the possibility that the intended result will not occur
Risks and recovery	Relevant complications and their practical consequences for the patient
Alternatives	Reasonable alternatives and the likely course without the proposed operation
Understanding and capacity	Whether the patient can understand and weigh the decision and express a choice

Use language the patient understands. Explain the expected course in hospital and after discharge, including the possibility of additional treatment. A written aid, illustration or risk estimate can support the conversation; it cannot substitute for a discussion of the patient's questions and preferences.

Explain risk with a consistent frame

When reliable estimates are available, explain the outcome, denominator and time horizon together. For example, an estimate of complications within 30 days answers a different question from long term functional recovery. Distinguish a population estimate from a prediction of what will happen to this individual.

Clinical pearl Ask the patient to explain the proposed treatment and its main trade offs in their own words. An apparent agreement may otherwise conceal a misunderstanding.

Respond to uncertainty and disagreement

When the diagnosis, expected benefit or risk is uncertain, name the uncertainty and explain how it affects the recommendation. If the patient's priorities differ from the surgeon's initial plan, revisit the available options and their likely outcomes.

Common pitfall Treating a signed form as evidence that the patient understood the operation, or discussing complications without explaining what those complications could mean for independence and quality of life.

Exam pearl A strong consent answer links diagnosis, operative purpose, alternatives, risk, recovery and the patient's goals. Merely listing complications is incomplete.

Source Sabiston 22nd edition, Chapter 19, printed pages 5 to 6; PDF pages 292 to 293. Review prompts are editorial teaching additions.

3 Global assessment of operative risk

Combine patient risk with procedure risk

Operative risk arises from the interaction of the patient's baseline condition, the planned procedure and the urgency of treatment. The same patient may tolerate a limited superficial operation differently from a major abdominal resection. Risk assessment should therefore begin with a defined proposed operation.

Record comorbid disease, functional dependence, recent deterioration and factors that may be improved before surgery. A disease label alone is insufficient: its severity, stability and effect on daily function determine its relevance to the plan.

Use ASA physical status for its intended purpose

ASA class	Core distinction
I	Healthy patient
II	Mild systemic disease
III	Severe systemic disease
IV	Severe systemic disease posing a constant threat to life
V	Moribund patient unlikely to survive without the operation
VI	Declared brain dead organ donor

The E modifier identifies an emergency procedure. ASA physical status summarizes baseline illness; it does not by itself describe the technical magnitude of the operation or provide an individualized probability of every complication.

Exam pearl A higher ASA class generally signals greater perioperative risk, but class and emergency status must be interpreted alongside the procedure and the clinical context.

Choose a prediction tool that matches the question

A categorical classification, an organ specific score and a multivariable surgical risk model answer different questions. Select the outcome you need to estimate before selecting the tool. Do not present a cardiac event estimate as a prediction of all surgical complications.

The ACS NSQIP Surgical Risk Calculator combines preoperative patient characteristics with the proposed procedure to estimate postoperative outcomes. Its educational value includes making risk discussions more explicit and identifying likely needs for perioperative support.

Common pitfall Reporting an exact looking percentage without checking the inputs, endpoint or applicability of the model. Population performance does not guarantee accurate prediction for every operation, institution or subgroup.

Source Sabiston 22nd edition, Chapter 19, printed pages 3 to 5; PDF pages 290 to 292. ASA descriptions are condensed for review.

4 Turn assessment into a treatment plan

A useful risk estimate changes an action

Risk assessment should influence the recommendation, choice of operation, preparation, monitoring and postoperative destination. It can identify patients who need optimization, patients who may benefit from a less burdensome approach and patients for whom operative treatment is unlikely to achieve an acceptable outcome.

Assessment finding	Planning question
Potentially reversible impairment	Would targeted optimization improve safety within the available time?
High risk of major morbidity	Does the expected benefit still justify the burden of treatment?
Dependence or poor functional reserve	What support and recovery setting may be needed?
Time sensitive surgical disease	What can be corrected without a harmful delay?
Mismatch between goals and expected outcome	Should the operation or overall treatment strategy change?

Integrated teaching case

A patient with an obstructing gastrointestinal malignancy is referred for major resection. The patient needs assistance with daily activities and says that remaining at home is more important than maximizing survival at any cost. The surgical disease, proposed procedure and patient priorities must be assessed together.

First clarify the severity and urgency of obstruction. Next establish the goal of intervention and the realistic treatment alternatives. Assess illness burden and baseline function, estimate relevant outcomes and discuss whether resection, a symptom relieving procedure or another approach best fits the patient's goals. The final recommendation depends on the complete clinical assessment.

Teaching point High risk does not automatically prohibit surgery, and technical operability does not automatically justify it. The decision requires a proportionate balance of expected benefit, treatment burden, timing and patient preference.

Questions for rapid review

- What is the diagnosis, and which uncertainty could change treatment?
- What is the objective of the proposed operation?
- What harm could result from delaying treatment?
- Which baseline problems influence risk or recovery?
- Which risk tool addresses the outcome being discussed?
- Does the patient understand the options and their consequences?
- What concrete change follows from the assessment?

Source Clinical case and review questions are original educational applications of Chapter 19, printed pages 2 to 6.

5 Source map and continuation plan

Verified source locations for this installment

Moneme C, Tsung A, Adams RB, Zaydfudim VM. Principles of Preoperative and Operative Surgery. Chapter 19 in Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice. 22nd edition. Elsevier; 2026.

Topic	Printed pages	PDF pages
Evaluation, objectives and urgency	2 to 3	289 to 290
ASA physical status and global risk	3 to 5	290 to 292
Informed consent	5 to 6	292 to 293
Introduction to geriatric assessment	6	293

The PDF page number denotes the page position in the supplied 2843 page file. It differs from the printed textbook page label.

Next writing units

Unit	Planned focus
Geriatric assessment	Cognition, delirium risk, function, frailty, medication burden and support
Organ specific assessment	Cardiovascular, pulmonary, renal, hepatobiliary, hematologic and endocrine disease
Preparation	Nutrition, obesity, medication review, fasting and preventive protocols
Review resources	Integrated algorithms, comparative tables and preparation checklist
Assessment material	100 original clinical MCQs and 10 structured oral examination stations

Quality criteria for the completed chapter

Each recommendation will be traced to a defined source location. Numerical thresholds, drug instructions and timing rules will be checked in their full clinical context before inclusion. Any update drawn from a later guideline will be identified separately from the textbook content.

MCQs will require one defensible best answer and explanations consistent with the clinical stem. Oral stations will use progressive prompts, an expected answer framework and explicit assessment points. Final navigation and page references will be generated after the complete text is assembled.

The completed volume will retain the concise teaching structure of the breast volume while giving greater space to decision pathways, optimization and the practical consequences of risk assessment.

6 Assessment of the older surgical patient

Assess reserve across several domains

Chronological age alone is an incomplete description of operative risk. An older patient may remain independent and physiologically resilient, while another patient of the same age may have substantial cognitive, functional and nutritional impairment. The assessment must identify vulnerabilities that change treatment or recovery planning.

Comprehensive geriatric assessment brings together medical disease, mental health, physical function, social support and the living environment. Its value lies in converting findings into specific care recommendations. A completed screening form without a response to identified problems is insufficient.

Domain	Focused assessment	Planning consequence
Cognition	Baseline memory, attention and understanding	Communication, capacity assessment and delirium prevention
Mood	Depressive symptoms and prior treatment	Further evaluation and support
Function	Personal care, household tasks and falls	Rehabilitation needs and discharge planning
Frailty	Mobility, weakness, fatigue and weight loss	Risk discussion and targeted optimization
Nutrition	Weight trajectory and intake	Nutritional assessment and intervention
Medication	Prescriptions and nonprescription products	Reconciliation and a perioperative medication plan
Support	Living arrangement and available caregivers	Feasibility of recovery at home

Establish a reliable baseline

Ask what the patient could do before the current illness and what has changed recently. Separate longstanding dependence from an acute decline caused by infection, pain, dehydration or the surgical disease. With the patient's agreement, obtain collateral information when the history is incomplete.

Clinical pearl Document concrete abilities rather than writing only "independent." A patient may manage personal care but need help with medications, transport or finances.

Exam pearl An abnormal domain should trigger an action: clarification, referral, optimization, modification of the operative plan or preparation for postoperative support.

Source Sabiston 22nd edition, Chapter 19, printed pages 6 to 9; PDF pages 293 to 296. Assessment matrix is an original teaching synthesis.

7 Cognition and prevention of delirium

Recognize cognitive vulnerability before surgery

Preoperative cognitive assessment establishes a baseline and identifies patients who may need a more detailed evaluation. The chapter describes the Mini Cog as a brief screen combining recall with clock drawing. A concerning screen warrants further assessment; it is not, by itself, a diagnosis or a determination that the patient cannot make a treatment decision.

Explore whether the patient understands the proposed operation and can weigh its consequences. Cognitive screening and assessment of decision making capacity are related but distinct tasks. Adapt the conversation to hearing, vision and language needs before interpreting apparent difficulty.

Separate baseline impairment from acute change

Feature	Baseline cognitive impairment	Possible delirium
Time course	Usually established before admission	New or fluctuating change during illness or care
Clinical use of history	Defines prior cognition and support needs	Identifies a departure from the documented baseline
Immediate implication	Adapt communication and assess needs	Prompt clinical assessment for precipitants

Identify factors that can combine to produce delirium

Baseline vulnerability can be compounded by severe illness, infection, sensory impairment, poorly controlled pain, sleep disruption, impaired oxygenation, renal dysfunction, poor nutrition, fluid or electrolyte disturbance, immobility and medication effects. Urinary retention and constipation may add to the burden. Multiple modest problems can become clinically important when they occur together.

Translate risk into a prevention plan

- Ensure access to hearing aids and visual aids and help the patient remain oriented.
- Preserve sleep and the normal day and night pattern where possible.
- Include familiar caregivers in reorientation when appropriate.
- Review medication exposure and avoid unnecessary sedating or anticholinergic burden.
- Plan adequate pain control and attend to mobility, nutrition, hydration and elimination.

Common pitfall Attributing every new mental status change to age or preexisting dementia. A documented baseline makes an acute change easier to recognize.

Clinical pearl Record delirium risk before the operation and communicate the prevention plan to the postoperative team.

Source Sabiston 22nd edition, Chapter 19, printed pages 6 to 7; PDF pages 293 to 294. Comparison and clinical prompts are educational synthesis.

8 Function frailty mood and medications

Distinguish disability from frailty

Functional dependence describes difficulty performing necessary activities. Frailty describes diminished physiological reserve and increased vulnerability to stress. The concepts overlap, but neither age nor a single diagnosis substitutes for assessment of function and reserve.

Assessment	Examples	What it reveals
Basic daily activities	Bathing, dressing, toileting, transfers and feeding	Ability to manage personal care
Instrumental activities	Shopping, cooking, transport, medications and finances	Ability to maintain life in the community
Mobility	Falls, balance, walking and transfers	Practical recovery and safety needs
Frailty features	Weakness, fatigue, low activity, slow walking and weight loss	Reduced reserve requiring broader assessment

Use mobility testing as part of a broader assessment

The Timed Up and Go test observes the patient rising from a chair, walking three metres, turning, returning and sitting. It provides a practical assessment of mobility. Record the conditions of testing and interpret the result alongside usual function, acute illness and other geriatric domains.

Exam pearl A threshold reported in a particular study is not a universal cancellation rule. A poor mobility result should lead to a more complete assessment and an actionable plan.

Screen mood and respond to concerning findings

Depressive symptoms can coexist with illness burden, disability, poor sleep and social isolation. The chapter describes the PHQ 2 as a pragmatic screening approach. A positive screen should lead to further evaluation rather than an automatic diagnosis. Mood is relevant to pain, participation in recovery and the support needed after discharge.

Reconcile the entire medication list

Include prescriptions, nonprescription products, eye drops, supplements and herbal preparations. Review the indication, dose, organ clearance, interactions and perioperative effects of each relevant drug. Assign responsibility for any planned adjustment and for restarting medication after surgery.

The chapter emphasizes medication related cognitive and functional harm in older adults. Use a current prescribing reference when applying drug specific criteria; a textbook citation to an older version of a medication list should not be treated as the latest prescribing standard.

Common pitfall Equating medication review with indiscriminate withdrawal. Unnecessary drugs, necessary chronic treatment and drugs associated with withdrawal require different plans.

Source Sabiston 22nd edition, Chapter 19, printed pages 7 to 8; PDF pages 294 to 295. No drug specific stopping schedule is prescribed in this section.

9 Counseling and planning recovery

Discuss independence as an outcome

For many older patients, loss of independence matters as much as a conventional complication endpoint. Discuss the likely recovery course, possible need for rehabilitation and the possibility that the previous living arrangement may become difficult to maintain. Avoid promising return to baseline when this is uncertain.

Identify who can help after discharge and what that help actually includes. A relative living nearby does not necessarily provide medication supervision, personal care or transport. Include the anticipated support person in planning with the patient’s agreement.

Clarify future decision making

The chapter recommends advance care planning and designation of a healthcare proxy or surrogate before elective surgery. Record the relevant documents and agreed goals prominently. The practical arrangements should follow the applicable local framework and the patient’s preferences.

Integrated teaching case

A 79 year old patient is considering elective colectomy. The patient dresses and feeds independently but relies on a daughter for medication management and shopping. There have been two recent falls, reduced food intake and difficulty following a discussion in a noisy clinic. The patient wants to remain at home after treatment.

First improve communication and clarify the patient’s usual cognition and function. Review the falls, nutritional change and medication list, and assess mobility and frailty. Identify reversible problems and the support available at home. Discuss operative benefit and risk alongside recovery, possible rehabilitation and the patient’s stated priority.

Teaching point Neither chronological age nor a single abnormal screen determines the treatment. The assessment should produce a coordinated plan and a more realistic discussion of options.

Preoperative handover checklist

- Usual cognitive and functional baseline documented.
- Concerning cognitive or mood findings assigned for further assessment.
- Falls, mobility and frailty findings linked to a care plan.
- Nutrition and medication issues identified and assigned.
- Delirium prevention measures communicated.
- Patient goals, recovery expectations and available support recorded.
- Advance care planning and decision maker information accessible.

Source Sabiston 22nd edition, Chapter 19, printed pages 6 to 9; PDF pages 293 to 296. Case and checklist are original educational applications.

10 Cardiovascular assessment before surgery

Define the purpose of assessment

Cardiovascular assessment identifies disease that affects operative risk and establishes a management plan. A request for cardiac “clearance” is too vague: the consultation should specify the proposed operation, its urgency, the suspected problem and the decision the cardiac assessment may change.

Begin with symptoms, known disease and recent change. Ask about chest discomfort, dyspnea, orthopnea, syncope, palpitations, exercise tolerance and previous cardiovascular interventions. Review the clinical course of heart failure, coronary disease, arrhythmia and valve disease, together with current treatment and available prior investigations.

A stepwise clinical approach

Step	Question	Practical consequence
1	How urgent is the surgical disease?	Determine the available time for investigation and optimization
2	Is there a new or unstable cardiac problem?	Arrange focused assessment and coordinated treatment
3	What are the patient and procedure related risks?	Use an appropriate validated estimate
4	What is the patient’s functional capacity?	Establish usual activity and reasons for limitation
5	Would further testing change a decision?	Choose a targeted investigation or proceed with a defined plan
6	What perioperative support is needed?	Document medications, monitoring and postoperative care

Recognize problems that need focused attention

Suspected acute coronary syndrome, deteriorating heart failure, significant symptomatic valve disease and clinically important arrhythmia require attention before an elective operation proceeds. In an emergency, assess and manage relevant cardiovascular problems alongside the time critical surgical treatment. Delay itself can be harmful.

Clinical pearl Replace “fit for surgery” with a specific statement of the cardiovascular problem, its stability, estimated risk and the plan to manage that risk.

Common pitfall Ordering multiple investigations before identifying which possible result would alter timing, treatment, monitoring or the choice of operation.

Source Sabiston 22nd edition, Chapter 19, printed pages 9 to 11; PDF pages 296 to 298. Stepwise table is an original clinical teaching synthesis.

11 Functional capacity and cardiac risk indices

Describe what the patient can actually do

Functional capacity provides a practical view of cardiovascular reserve. Ask about walking, stairs, household work and usual exercise, including associated symptoms. Clarify whether limitation reflects breathlessness, chest pain, joint disease, weakness or another cause. Inability to exercise is not itself a diagnosis of myocardial ischemia.

The textbook uses metabolic equivalents, or METs, to describe activity. Approximately 4 METs is a traditional decision point in perioperative assessment. Self care and slow walking represent lower activity demands, while stair climbing or brisk walking require greater effort. A structured history is more informative than the statement “active for age.”

Understand the role of the RCRI

The Revised Cardiac Risk Index is a simple score for perioperative cardiac risk. It complements clinical assessment rather than replacing it. Its procedure category belongs to the score’s own definition and should not be confused with a general surgical complexity label.

RCRI component	Points
Ischemic heart disease	1
History of heart failure	1
Cerebrovascular disease	1
Diabetes treated with insulin	1
Renal impairment using the creatinine threshold in the specified score version	1
High risk procedure as defined by the RCRI	1

Verified clarification The 2024 AHA ACC risk table lists serum creatinine ≥2.0 mg/dL and includes intraperitoneal, intrathoracic or vascular procedures in the RCRI procedure category. The sixth entry in the supplied textbook table is incomplete; do not reproduce that incomplete label as a usable criterion.

Interpret the result in context

A score is meaningful only when its inputs, endpoint and population are understood. Do not attach a universal event percentage to each RCRI total without naming the supporting validation and outcome. The ACS NSQIP calculator offers a complementary procedure based approach and can help frame a broader perioperative discussion.

Exam pearl Age is relevant to overall assessment, but it is not an individual point in the six component RCRI. Similarly, diabetes without insulin treatment does not meet the insulin component.

Source Sabiston Chapter 19, printed pages 9 and 11; PDF pages 296 and 298. Criterion clarification: 2024 AHA ACC guideline slide set, Table 4, slide 19.

12 Select cardiac investigations by indication

Ask what each investigation will resolve

Preoperative testing should address a clinical question. An abnormal finding is useful when it leads to a management change that can improve the balance of benefit and harm. Testing that only produces another abnormal label can delay needed treatment without improving care.

Investigation	Focused use	Common misuse
Twelve lead ECG	Evaluate rhythm or ischemic concerns and selected patients with established vascular or cardiac disease	Universal testing regardless of symptoms and procedural risk
Echocardiography	Clarify unexplained dyspnea, worsening heart failure or suspected important structural disease	Repeated assessment of stable ventricular function without a clinical question
Stress imaging	Investigate selected patients when ischemia information could alter management	Automatic testing because a patient cannot walk well
Coronary angiography	Investigate disease when a clinical indication exists	Routine invasive screening solely to prepare for surgery

Use echocardiography to answer a structural question

A patient with new dyspnea may need assessment of ventricular or valvular function. By contrast, stable known ventricular dysfunction does not automatically justify repeating an investigation immediately before every operation. Review previous results, the interval clinical course and the proposed intervention.

Avoid prophylactic coronary intervention without an indication

Coronary revascularization should follow the indications applicable to the underlying coronary disease. It is not routinely performed solely to lower the risk of a subsequent noncardiac operation. A newly placed coronary stent also introduces antiplatelet and timing considerations that may complicate the surgical plan.

Guideline update on stress testing

The 2024 AHA ACC guideline restricts stress testing to selected patients with elevated calculated risk and poor or unknown capacity when the result can change care. Routine testing is discouraged in low risk procedures, low risk patients or those with adequate capacity. Structured assessment such as DASI can help describe function.

Clinical pearl Before ordering stress imaging, describe how an important positive result would change the operation, its timing or the treatment plan. If no change is feasible or justified, reassess the value of the test.

Source Textbook core: Sabiston Chapter 19, printed pages 9 to 11; PDF pages 296 to 298. Updated testing selection: 2024 AHA ACC multisociety guideline, Sections 3 and 4. Update is identified separately from the textbook algorithm.

13 High risk disease and medication planning

Heart failure valve disease and pulmonary hypertension

The textbook identifies substantial risk in patients with significant ventricular dysfunction, severe aortic stenosis or important pulmonary hypertension. Clarify symptoms, current treatment and physiological severity. Coordinate the decision with anesthesia and the relevant cardiovascular team, including whether optimization or treatment of the cardiac condition could change the outcome.

The question is not simply whether the patient has a low ejection fraction or a valve lesion. It is whether the condition is stable, how it affects reserve, what can be improved and whether the proposed operation offers sufficient benefit. For patients whose cardiac function cannot be improved, alternative treatment strategies may deserve greater weight.

Prior PCI requires a documented joint plan

Establish the date and indication for PCI, the intervention performed and the antiplatelet regimen. Compare the harm of surgical delay with the risks of stent thrombosis and bleeding. The surgeon, anesthesiologist and cardiologist should agree on the timing and medication plan; an instruction to stop every “blood thinner” is inadequate.

Continue established treatment thoughtfully

The textbook supports continuing established beta blocker and statin therapy through the perioperative period as clinically appropriate. Hemodynamics, adverse effects and the original indication remain relevant. Starting a beta blocker immediately before surgery is a different decision from continuing a stable chronic prescription.

Guideline updates that change practical planning

Topic	2024 guideline clarification
New beta blocker indication	Allow titration and tolerability assessment, optimally more than 7 days before elective surgery; do not initiate on the day of surgery without an immediate need
SGLT2 inhibitors	Withhold 3 to 4 days before planned surgery to reduce perioperative ketoacidosis risk
Recent drug eluting stent	If antiplatelet interruption is required, assess PCI indication and urgency; textbook six month shorthand is insufficient for every case

Common pitfall Treating an older textbook timing rule as a universal protocol. A patient specific plan must incorporate the PCI indication, antiplatelet requirements and urgency of the surgical disease.

Source Sabiston Chapter 19, printed page 11; PDF page 298. Updates: 2024 AHA ACC multisociety guideline, Sections 6 and 7, and official slide set. Detailed interruption schedules belong in the medication management section.

14 Cardiovascular review and application

Case one Low risk procedure

A patient with stable treated hypertension is scheduled for a small superficial excision. There are no concerning cardiac symptoms and no recent deterioration. The assessment should establish relevant history and medication use. Routine stress imaging adds no useful decision information merely because an operation is planned.

Case two Limited mobility before major surgery

A patient scheduled for major abdominal surgery walks poorly because of knee disease and also has known coronary disease. Poor walking performance alone does not establish the need for stress imaging. Clarify cardiac symptoms, estimate risk using the proposed procedure and relevant patient factors, and decide whether additional information would change management.

Case three New symptoms before elective surgery

A patient with known heart failure develops progressive orthopnea and reduced exercise tolerance before an elective operation. This represents a change from baseline. Evaluate and address the deterioration, involve the appropriate team and revisit the timing of surgery rather than relying on a reassuring echocardiogram from an earlier stable period.

Questions for the oral examination

- What is the urgency of the surgical condition?
- Is the cardiovascular disease stable or changing?
- Which risk estimate is appropriate for this patient and operation?
- What limits the patient's activity?
- Which investigation could change management, and how?
- Does prior PCI affect the proposed timing or antiplatelet plan?
- What will be continued, modified and monitored?

References for this cardiovascular unit

1. Moneme C, Tsung A, Adams RB, Zaydfudim VM. Principles of Preoperative and Operative Surgery. In Sabiston Textbook of Surgery. 22nd edition. Elsevier; 2026. Chapter 19, printed pages 9 to 11; supplied PDF pages 296 to 298.

2. Thompson A, Fleischmann KE, Smilowitz NR, et al. 2024 AHA/ACC multisociety guideline for perioperative cardiovascular management for noncardiac surgery. Circulation. 2024. doi:10.1161/CIR.0000000000001285. Official guideline slide set: heart.org, 2024 Guideline for Perioperative Cardiovascular Management.

3. American College of Cardiology. 2024 AHA/ACC Perioperative CV Management Guideline Key Points. September 24, 2024. https://www.acc.org/latest-in-cardiology/ten-points-to-remember/2024/09/23/04/15/2024-aha-acc-perioperative-guideline-gl

Source distinction Clinical cases and review prompts are original teaching applications. Statements marked as guideline updates supplement the textbook and are not attributed to its 2014 based algorithm.

15 Pulmonary assessment before surgery

Identify the complication you are trying to prevent

Postoperative pulmonary complications include pneumonia, respiratory failure, exacerbation of obstructive lung disease and clinically relevant atelectasis. They can increase the need for intensive care and prolong recovery. Assessment must combine the patient's respiratory reserve with the physiological burden of the proposed operation.

Establish baseline and recent change

Ask about usual breathlessness, cough, sputum, wheeze, exercise tolerance, recent respiratory infection, smoking and previous exacerbations. Record previous ventilation or respiratory complications after anesthesia. Establish prescribed inhaled treatment, home oxygen or positive airway pressure use, and whether the patient is currently at their usual baseline.

Examine respiratory effort and chest findings and measure oxygen saturation. An unexpectedly low saturation requires interpretation and assessment rather than simply being entered into a score. Dyspnea may reflect cardiac disease, anemia or another process as well as pulmonary disease.

Risk domain	Relevant findings	Planning implication
Underlying illness	COPD, heart failure, poor function and systemic disease	Assess severity and reversible deterioration
Oxygenation and infection	Low saturation or recent respiratory infection	Clarify cause and recovery before elective intervention
Reserve	Older age, anemia or poor nutritional status	Consider broader optimization and recovery needs
Procedure	Thoracic, upper abdominal or major vascular surgery	Anticipate greater respiratory burden
Exposure	Longer operation, emergency setting and general anesthesia	Coordinate anesthesia and postoperative monitoring

The operation matters as much as the diagnosis

The textbook emphasizes the relationship between pulmonary complications and the proximity of the incision to the diaphragm. Duration, urgency and anesthetic technique also influence risk. A patient's respiratory diagnosis therefore cannot be interpreted independently of the planned operation.

Exam pearl No single spirometric cutoff universally prohibits nonthoracic surgery. A lung resection assessment is a different problem and requires procedure specific assessment of postoperative pulmonary reserve.

Source Sabiston 22nd edition, Chapter 19, printed pages 11 to 13; PDF pages 298 to 300. Risk matrix is an original synthesis.

16 Use ARISCAT with a defined endpoint

Seven factors estimate pulmonary complication risk

ARISCAT uses readily available patient and procedural factors. Record the expected incision, duration and urgency as carefully as the patient measurements. The following score is presented for educational calculation from the table in Chapter 19.

Factor	Category	Points
Age	50 years or younger	0
Age	51 to 80 years	3
Age	Over 80 years	16
Preoperative SpO2	96% or higher	0
Preoperative SpO2	91% to 95%	8
Preoperative SpO2	90% or lower	24
Respiratory infection	Within the preceding month	17
Hemoglobin	10 g/dL or lower	11
Incision	Peripheral	0
Incision	Upper abdominal	15
Incision	Intrathoracic	24
Expected duration	2 hours or less	0
Expected duration	More than 2 through 3 hours	16
Expected duration	More than 3 hours	23
Emergency procedure	Yes	8

Select one category within each of age, oxygen saturation, incision and duration. Add infection, anemia and emergency points when present. Absent infection, hemoglobin above the threshold and a nonemergency procedure contribute zero for those factors.

Risk groups Low: less than 26 points. Intermediate: 26 to 44 points. High: 45 points or more.

Worked calculation

A 70 year old patient has room air SpO2 of 94%, hemoglobin 12 g/dL and no respiratory infection during the preceding month. An elective upper abdominal operation is expected to last 2.5 hours. Total: age 3 + oxygen saturation 8 + incision 15 + duration 16 = 42 points, an intermediate risk category.

Common pitfall Treating a risk category as a universal probability. Outcome definitions and population calibration affect the observed event rate; ARISCAT includes a broad range of pulmonary complications, not only respiratory failure.

Source Sabiston Chapter 19, Table 19.9, printed page 12; PDF page 299. Original study: Canet J et al. Anesthesiology. 2010;113:1338–1350. Worked calculation is original.

17 Choose tests and optimize obstructive disease

Order investigations that answer a clinical question

Investigation	Useful question	Limitation
Pulse oximetry	Is oxygenation reduced at the time of assessment?	Does not measure ventilation or establish the cause
Spirometry	Is obstruction suspected, or is lung function uncertain when results would change care?	Not a universal screening test for nonthoracic operations
Chest radiograph	Is a specific pulmonary or cardiac abnormality suspected?	Routine imaging in low risk patients may not change management
Arterial blood gas	Is clinically significant hypoventilation or gas exchange disturbance suspected?	Not required solely because the patient is obese
Sleep testing	Would defining suspected sleep disordered breathing change preparation?	Screening suspicion alone is not a confirmed diagnosis

COPD and asthma require a baseline assessment

Determine whether symptoms represent stable disease or a deterioration that needs treatment. Review exacerbations, infection, wheeze, treatment adherence and inhaler use. When history and examination cannot establish whether pulmonary function is optimized, targeted spirometry or imaging may help. The purpose is to identify actionable disease rather than obtain a routine certificate of respiratory fitness.

For elective surgery, identify and address reversible deterioration before proceeding when the balance of surgical urgency and respiratory risk permits. A patient with new wheeze, purulent sputum or increasing breathlessness needs a clinical reassessment. Exact medication changes should follow the diagnosed condition and its severity.

Smoking cessation and perioperative planning

The chapter associates smoking with increased complications and reports benefit from cessation for at least four weeks before surgery. Encourage cessation when the opportunity arises and provide appropriate support. The achievable interval depends on the urgency of the surgical disease; planning should not ignore the harm of delaying necessary treatment.

For patients with substantial respiratory vulnerability, discuss the anesthetic approach and the anticipated postoperative needs with anesthesia. Regional techniques may be appropriate for selected operations and patients; the choice must fit the procedure and overall clinical condition.

Exam pearl A test is justified by the decision it informs. A normal chest radiograph cannot establish that asthma is controlled, and oxygen saturation cannot exclude hypoventilation.

Source Sabiston Chapter 19, printed pages 12 to 13; PDF pages 299 to 300. Testing matrix reorganizes source concepts for clinical review.

18 Sleep apnea and obesity hypoventilation

Screen for sleep disordered breathing

Ask about snoring, witnessed pauses in breathing and daytime sleepiness, and review an existing diagnosis and prescribed positive airway pressure treatment. The chapter describes STOP BANG as a screening tool. A high score identifies increased likelihood and perioperative concern; it does not alone establish the diagnosis.

STOP BANG item	Finding used in the chapter
S	Snoring
T	Daytime tiredness
O	Observed breathing interruption
P	High blood pressure
B	BMI above 35 kg/m2
A	Age above 50 years
N	Neck circumference above 40 cm
G	Male sex

The chapter identifies five or more positive items as high risk for moderate to severe OSA. Use the screening result alongside symptoms, comorbidities, procedure and recovery resources. Record usual CPAP use and communicate the respiratory support plan to anesthesia and recovery staff.

Distinguish obstruction during sleep from awake hypoventilation

Obesity hypoventilation syndrome combines obesity, sleep disordered breathing and awake hypercapnia after exclusion of another cause of hypoventilation. The chapter uses BMI above 30 kg/m2 and awake PaCO2 above 45 mm Hg. Primary lung disease, medication effects and neurological causes require consideration.

Anesthetic and opioid exposure can worsen ventilatory impairment. Assess suspected hypoventilation directly when indicated and plan appropriate postoperative respiratory support and monitoring. Supplemental oxygen does not itself assess or correct inadequate ventilation.

Clinical pearl Document whether the patient has uncomplicated suspected OSA, established treated OSA or concern for awake hypoventilation. These are different planning problems.

Common pitfall Calling every obese patient hypoventilating, or interpreting a STOP BANG screen as a definitive sleep study result.

Source Sabiston Chapter 19, printed page 13; PDF page 300. This section follows the chapter’s thresholds and does not replace a dedicated sleep medicine diagnostic pathway.

19 Integrate pulmonary findings into the plan

Create a practical handover

- Record respiratory symptoms, usual exercise tolerance and any recent change.
- Document oxygen saturation and the explanation for an abnormal result.
- Identify recent infection, exacerbation and smoking exposure.
- Record the pulmonary risk estimate with the expected operation and duration.
- Assign treatment or further assessment for reversible problems.
- Communicate inhaled therapy, home oxygen and CPAP requirements.
- Plan analgesia, mobilization, respiratory support and monitoring with the perioperative team.

Timing after COVID 19 requires individual assessment

The textbook describes time dependent risk after infection, including historical observations about recovery of risk by eight weeks. These observations should not be applied as a universal scheduling rule. Symptoms, illness severity, baseline health, surgical risk and the harm of delay must be considered.

Dated guidance supplement The ASA APSF statement updated June 2023 advises no elective surgery within two weeks of infection. Between two and seven weeks, use individualized risk assessment; only low risk patients having low risk procedures are candidates for earlier scheduling through shared decision making. Consider longer delay when symptoms persist or proceeding remains riskier than waiting. Infectiousness requires a separate assessment.

Clinical application

A patient with COPD is scheduled for an upper abdominal resection. Oxygen saturation is lower than usual and sputum has recently increased. First evaluate the change and potential reversible causes. Estimate pulmonary risk using the proposed procedure, but do not let the score substitute for diagnosing the deterioration. Agree on optimization, timing and postoperative support with the perioperative team.

Questions for rapid review

Why does the incision affect risk? Which ARISCAT inputs reflect the operation rather than the patient? What would spirometry change? Does a high STOP BANG score prove OSA? Why can oxygen saturation be reassuring despite hypoventilation? What will be different in the care plan because of the assessment?

Sources

Sabiston Textbook of Surgery, 22nd edition, Chapter 19, printed pages 11 to 13; supplied PDF pages 298 to 300. Canet J et al. Prediction of postoperative pulmonary complications in a population based surgical cohort. Anesthesiology. 2010;113:1338–1350.

ASA and APSF Joint Statement on Elective Surgery Procedures and Anesthesia for Patients after COVID 19 Infection. Updated June 20, 2023. https://www.apsf.org/news-updates/asa-and-apsf-joint-statement-on-elective-surgery-and-anesthesia-for-patients-after-covid-19-infection/

20 Renal assessment before surgery

Establish baseline function and identify deterioration

Kidney disease affects cardiovascular risk, fluid handling, electrolyte balance, hemostasis and drug clearance. Assessment must establish the patient's usual renal function, whether function is changing and what support the proposed operation will require. A single elevated creatinine does not distinguish stable chronic disease from an acute process.

Review previous creatinine measurements, the clinical trajectory, urine output, underlying diagnosis, proteinuria where documented and prior nephrology assessment. Ask about dialysis modality, residual urine output, recent treatment sessions and prescribed dry weight. Identify vomiting, diarrhea, poor intake, infection, bleeding and recent medication or contrast exposure.

Assessment	What to establish	Why it changes planning
Renal trend	Previous function and recent change	Distinguishes baseline disease from deterioration
Clinical volume status	Losses, weight change, edema and congestion	Guides fluid and dialysis planning
Electrolytes and acid base	Potassium, sodium and bicarbonate; further tests as indicated	Identifies disturbances requiring correction or monitoring
Associated disease	Cardiovascular disease, diabetes and anemia	Links renal assessment to overall operative risk
Treatment and access	Dialysis schedule, access and medications	Defines perioperative resources and adjustments

Select investigations for the clinical problem

For patients with significant kidney disease, review blood count, renal chemistry and electrolytes and relevant urine findings. Use cardiac evaluation according to symptoms, risk and the proposed operation rather than assuming that renal impairment automatically requires stress testing. Persistent congestion may prompt assessment for associated cardiac dysfunction.

Clinical pearl Describe the baseline, the most recent result and the direction of change. "Creatinine elevated" is less useful than a clear comparison with prior measurements.

Source Sabiston 22nd edition, Chapter 19, printed pages 13 to 14; PDF pages 300 to 301. Assessment matrix is an original teaching synthesis.

21 Acute kidney injury and volume assessment

Recognize an acute change before elective surgery

New deterioration requires an assessment of cause, severity and urgency. Consider impaired perfusion, intrinsic renal disease and urinary obstruction in the clinical context. CKD and AKI can coexist. Estimated GFR values require particular caution when creatinine is changing rapidly because the usual estimating equations assume a relatively steady state.

Supplementary diagnostic criteria KDIGO 2012 defines AKI by any of the following: creatinine rise ≥0.3 mg/dL within 48 hours; rise to ≥1.5 times baseline known or presumed within the preceding 7 days; or urine output below 0.5 mL/kg/hour for 6 hours. These criteria identify injury; they do not establish its cause.

Evaluate perfusion and congestion together

The goal is adequate circulation without avoidable fluid overload. Review oral intake, fluid losses, recent dialysis or diuretic exposure, weight, blood pressure, examination and respiratory status. Edema and effective circulating volume are not interchangeable concepts. A patient may have peripheral edema while still requiring careful assessment of perfusion.

Clinical pattern	Questions to resolve	Planning response
Possible depletion	Are intake or ongoing losses inadequate?	Correct the cause and reassess circulation
Possible congestion	Is fluid accumulation compromising breathing or cardiac function?	Coordinate decongestion and renal or cardiac support
Low urine output	Is there obstruction, hemodynamic compromise or renal injury?	Investigate before repeated empirical fluid administration
Mixed or uncertain state	Are examination and trends discordant?	Use senior assessment and additional monitoring when indicated

Make a reassessment plan

Document what will be measured after an intervention: blood pressure, breathing, urine output, weight or repeat chemistry as appropriate. Neither a fixed fluid bolus nor a fixed fluid restriction is suitable for every patient with CKD. In an anuric dialysis patient, urine output cannot serve as the endpoint of resuscitation.

Consensus supplement The ADQI POQI consensus advises against routine restrictive or zero balance regimens for major elective surgery and favors balanced crystalloids over saline for reducing postoperative AKI risk. Fluid choice and volume still require individual assessment, particularly with congestion or electrolyte disturbance.

Source Textbook core: Sabiston Chapter 19, printed pages 13 to 14. Supplements: KDIGO AKI guideline 2012, Section 2.1; ADQI POQI postoperative AKI consensus 2021, prevention statements. These supplements extend the textbook summary.

22 Potassium sodium and acid base disturbances

Prioritize potassium assessment

Hyperkalemia can cause life threatening arrhythmia. Interpret the result alongside the trajectory, renal function, medication exposure, acid base status and ECG. Consider a spurious result when the sample or clinical context suggests it, but do not delay assessment or treatment of a credible dangerous abnormality while waiting for confirmation.

Guideline supplement UK Kidney Association 2023 guidance recommends an urgent ECG in hospitalized patients with potassium ≥6.0 mmol/L. Potassium ≥6.5 mmol/L represents severe hyperkalemia requiring emergency management. These are escalation thresholds, not universal thresholds defining fitness for anesthesia.

Clinically important hyperkalemia requires coordinated treatment, monitoring and reassessment. The treatment plan may include myocardial protection when indicated, redistribution and removal of potassium; patients with advanced renal failure may require dialysis. A normal ECG alone does not establish safety. Drug doses and emergency sequences should follow the active local protocol.

Assess other abnormalities in context

Disturbance	Focused evaluation	Preoperative implication
Low potassium	Cause, severity, symptoms and associated magnesium disturbance	Correct and reassess when clinically significant
Abnormal sodium	Symptoms, acuity, volume state and underlying cause	Use a controlled correction plan with repeat measurements
Low bicarbonate or suspected acidosis	Renal dysfunction, perfusion, infection and other causes	Clarify severity and address the cause
Calcium magnesium or phosphate abnormality	Clinical setting, medications, nutrition and renal disease	Request and manage according to the specific indication

Separate laboratory targets from treatment decisions

The textbook stresses correction of potassium abnormalities and near normal electrolytes before surgery in dialysis patients. In practice, a timing decision also depends on the magnitude and trend of the disturbance, symptoms, ECG, available treatment and the harm of delaying the surgical intervention. Discuss unresolved abnormalities explicitly with anesthesia and nephrology.

Clinical pearl A successful initial intervention does not guarantee durable correction. Record when chemistry will be repeated and who will respond to the result before anesthesia begins.

Source Sabiston Chapter 19, printed page 13; PDF page 300. Potassium escalation supplement: UK Kidney Association hyperkalemia guideline 2023, Sections 14 and emergency algorithm. Other rows are a focused clinical assessment framework, not dose or correction rate protocols.

23 Dialysis anemia and medication planning

Coordinate the dialysis session with the operation

The textbook describes dialysis on the preceding day or the day of surgery, aiming for near normal electrolytes and euvolemia near the prescribed dry weight. The plan should specify the recent dialysis result, current chemistry, volume status and availability of postoperative treatment. The interval alone cannot establish that the patient is optimized.

Discuss the intended fluid removal, dialysis related hypotension and anticoagulation with nephrology and anesthesia. Avoid treating the session as a purely administrative appointment. Residual renal function remains valuable even after dialysis starts and should be protected from secondary insults.

Distinguish anemia from platelet dysfunction

Renal disease commonly coexists with anemia, but renal anemia should not be assumed to explain every low hemoglobin. Consider iron status, blood loss and other causes. Erythropoiesis stimulating treatment requires an individualized plan and adequate time; it is not an immediate substitute for management of acute bleeding.

Uremia may impair platelet function despite a normal platelet count. A bleeding history and the clinical context remain important. The chapter discusses desmopressin for clinically encountered uremic platelet related bleeding. Hemostatic treatment should be selected for the actual problem rather than given routinely to every patient with CKD.

Review drug handling and secondary insults

Medication issue	Practical action
Renally cleared drugs	Review dose and interval for current function and dialysis
Potential nephrotoxins	Avoid unnecessary NSAIDs and other nephrotoxic exposure where alternatives exist
ACE inhibitor ARB and diuretic therapy	Plan around indication, hemodynamics, volume and renal trajectory
Contrast investigation	Balance diagnostic benefit with renal risk and alternatives
Temporarily withheld treatment	Record a restart plan and the conditions needed for resumption

KDIGO 2024 supplement Medication stewardship includes reconciliation at transitions of care, consideration of planned perioperative withholding where appropriate and an explicit restart plan. A single stopping interval should not be applied to all drugs or all patients.

Source Sabiston Chapter 19, printed pages 13 to 14; PDF pages 300 to 301. Medication stewardship supplement: KDIGO CKD guideline 2024, Practice Points 4.3.1 to 4.3.3.

24 Renal protection and clinical application

Prevent a second renal insult

The textbook emphasizes adequate intravascular volume, avoidance of hypotension and careful medication adjustment during and after surgery. Translate this into a written perioperative plan for fluid assessment, hemodynamics, laboratory monitoring and review of renal function. High risk patients require a clear pathway for escalation when function deteriorates.

Case one A changing creatinine

A patient awaiting elective bowel resection has a creatinine of 2.0 mg/dL compared with 1.2 mg/dL three days earlier after vomiting and poor intake. This is a significant change, not simply a stable CKD label. Evaluate perfusion, fluid losses, medication exposure and obstruction as appropriate, correct reversible causes and reconsider the operative timing in the context of the surgical disease.

Case two A dialysis patient with abnormal chemistry

A hemodialysis patient arrives for elective surgery after a missed session, with edema and potassium of 6.6 mmol/L. This requires urgent assessment and treatment, with ECG and appropriate monitoring and nephrology involvement. Do not proceed on the assumption that a routine intraoperative fluid prescription will address potassium excess or congestion.

Case three Low urine output after preparation

A patient with CKD develops reduced urine output after bowel preparation. Assess losses, blood pressure, medications and possible obstruction. Low urine output alone does not establish fluid responsiveness. Reassess after a targeted intervention rather than prescribing repeated fluid boluses without an endpoint.

Checklist before anesthesia

- Baseline and recent renal trajectory documented.
- Volume status and ongoing losses assessed.
- Potassium and other relevant chemistry reviewed, with repeat testing assigned when needed.
- Reversible deterioration and unresolved abnormalities communicated.
- Dialysis timing and postoperative access to treatment agreed where applicable.
- Medication doses, temporary holds and restart responsibility recorded.
- Anemia, bleeding risk and anticipated monitoring considered.

References for this renal unit

Sabiston Textbook of Surgery. 22nd edition. Chapter 19, printed pages 13 to 14; supplied PDF pages 300 to 301. KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney Int Suppl. 2012;2:1–138. KDIGO Clinical Practice Guideline for CKD. Kidney Int. 2024;105 Suppl 4S:S117–S314.

ADQI POQI Joint Consensus Report. Postoperative acute kidney injury in adult non cardiac surgery. Nat Rev Nephrol. 2021;17:605–618. doi:10.1038/s41581-021-00418-2. UK Kidney Association. Management of Hyperkalaemia in Adults. 2023, hospital assessment and emergency treatment sections.

25 Hepatic assessment before surgery

Describe disease activity and physiological reserve

Liver disease changes the response to surgical stress through altered synthesis, portal hypertension, impaired drug handling, nutritional depletion and associated renal dysfunction. The assessment should establish the diagnosis, current activity, previous decompensation and the burden of the proposed operation. An isolated liver enzyme result is not a complete assessment of operative risk.

Review the cause and course of liver disease, alcohol and medication exposure, previous jaundice, ascites, encephalopathy and gastrointestinal bleeding. Examine for evidence of portal hypertension, fluid accumulation and loss of muscle mass. Review the trend rather than relying on a remote assessment made during a stable period.

Assessment domain	Relevant findings	Implication
Current activity	Acute hepatitis or recent deterioration	May require treatment and deferral of elective surgery
Synthetic reserve	Albumin and coagulation measures in context	Contributes to severity assessment
Portal hypertension	Ascites, varices and related history	Affects anatomy, bleeding and recovery
Decompensation	Encephalopathy, fluid accumulation or recent bleeding	Signals a more vulnerable patient
Associated illness	Renal dysfunction, infection and malnutrition	May increase risk beyond the liver score
Operation	Urgency, extent and anticipated blood loss	Changes the balance of benefit and harm

Do not confuse hepatocellular injury with operative reserve

Aminotransferases describe injury and may be relatively unimpressive in advanced cirrhosis. Bilirubin, albumin, INR, clinical decompensation and renal function provide different information. Review the findings together and investigate an unexplained abnormality according to its clinical context.

The textbook does not support indiscriminate liver testing before nonhepatobiliary surgery when history and examination provide no evidence of liver dysfunction. Conversely, established disease warrants a defined assessment of severity and complications.

Exam pearl The relevant question is not only “Does this patient have cirrhosis?” Ask whether the disease is compensated, what has recently changed and what this particular operation may precipitate.

Source Sabiston 22nd edition, Chapter 19, printed pages 14 to 15; supplied PDF pages 301 to 302. Assessment matrix is an original teaching synthesis.

26 Child Pugh MELD and surgical risk

Use Child Pugh to organize severity assessment

The Child Turcotte Pugh score combines three laboratory measures with ascites and encephalopathy. Add the five component scores. Class A is 5 to 6 points, class B is 7 to 9 and class C is 10 to 15. Clinical components depend on treatment and assessment and introduce subjectivity.

Component	1 point	2 points	3 points
Encephalopathy	None	Grade I or II	Grade III or IV
Ascites	Absent	Slight or controlled	Moderate or poorly controlled
Albumin g/dL	Above 3.5	2.8 to 3.5	Below 2.8
INR	Below 1.7	1.7 to 2.3	Above 2.3
Bilirubin mg/dL	Below 2	2 to 3	Above 3

Unit clarification Albumin thresholds are in g/dL, equivalent to 35 and 28 g/L at the category boundaries. The supplied textbook table labels the albumin column g/L while displaying g/dL scale numbers. This teaching table uses the corrected unit. Cholestatic disease specific bilirubin modifications are not displayed here.

Worked severity calculation

A patient has no encephalopathy, no ascites, albumin 3.2 g/dL, INR 1.4 and bilirubin 1.8 mg/dL. The total is 1 + 1 + 2 + 1 + 1 = 6, class A. This describes liver disease severity; it does not independently establish that every operation is low risk.

Name the MELD version

Classic MELD uses bilirubin, creatinine and INR; MELD Na adds sodium. State the version, measurement date and relevant dialysis information when reporting a score. Use a validated calculator for that version rather than mixing a formula, laboratory bounds and interpretation from different models.

The textbook presents MELD and MELD Na as severity and prognostic tools. Their general prognostic estimates must not be presented as operation specific mortality. Surgical risk also depends on the procedure, urgency, portal hypertension, comorbidity and functional reserve.

Guideline supplement The 2025 ACG perioperative guideline supports procedure aware assessment, including VOCAL Penn where applicable. Treat the model as an adjunct to multidisciplinary assessment and specify the predicted outcome and time horizon.

Source Sabiston Chapter 19, Tables 19.10 and 19.11, printed pages 14 to 15; PDF pages 301 to 302. Supplement: ACG Clinical Guideline 2025, doi:10.14309/ajg.0000000000003616.

27 Optimize decompensation before elective surgery

Control ascites without sacrificing renal perfusion

Ascites affects respiratory mechanics, wound healing, leakage and the durability of abdominal wall repair. Establish the degree of control, current treatment and any recent deterioration. The textbook emphasizes optimization using appropriate medical treatment or paracentesis when indicated, with attention to renal function and nutritional status.

The perioperative plan should identify who will manage fluid balance and reassess kidney function and electrolytes. Avoid allowing ascites control to become a fixed fluid removal target that ignores circulation. A patient with edema or ascites still requires assessment of effective perfusion.

Address cognition and possible precipitants

Document usual mental status, previous hepatic encephalopathy and prescribed treatment. A new mental status change should prompt an assessment for reversible contributors rather than being attributed automatically to chronic liver disease. Review infection, renal deterioration, fluid or electrolyte disturbance, bleeding and medication exposure in the clinical context.

Assess nutrition and drug handling

The textbook identifies malnutrition as a contributor to adverse outcomes. Review weight trajectory, intake and muscle function rather than treating albumin as a stand alone nutritional test. Provide an individualized nutrition plan and consider appropriate supplementation for documented deficiency.

Hepatic disease may change metabolism, elimination and distribution of anesthetic and other medications. Review the full list with anesthesia and pharmacy where appropriate. Drugs with sedating effects require particular attention when cognition is impaired; renal dysfunction can further alter clearance.

Problem	Preoperative objective	Reassessment
Ascites	Improve control within physiological tolerance	Weight, symptoms, renal chemistry and recurrence
Encephalopathy	Establish baseline and address deterioration	Mental status and contributing illness
Nutrition	Improve intake and address deficits	Intake, function and clinical trajectory
Renal vulnerability	Preserve perfusion and avoid secondary insults	Creatinine trend, electrolytes and volume state
Infection concern	Identify and treat an active process	Clinical response and readiness for surgery

Clinical pearl Optimization is a set of observable changes, not a label. Record which problem improved and which residual risk remains before proceeding.

Source Sabiston Chapter 19, printed pages 14 to 15; PDF pages 301 to 302. Additional practical framework: AGA clinical practice update on surgical risk in cirrhosis, 2019.

28 Hemostasis in cirrhosis

Interpret INR for the right purpose

The textbook emphasizes that prolonged PT or INR does not directly translate into procedural bleeding risk. Cirrhosis affects both procoagulant and anticoagulant pathways, so bleeding and thrombosis can both occur. INR remains useful in severity scores even though it cannot independently describe the net hemostatic state.

Guidance supplement AASLD guidance does not support a universal INR or platelet cutoff that reliably predicts procedural bleeding. Assess modifiable risks, including infection, AKI and antithrombotic exposure. Do not give prophylactic plasma merely to normalize a cirrhosis related INR; transfusion adds risks including volume and portal pressure effects.

Separate the operation from the laboratory abnormality

Consider the procedure's bleeding consequences, whether local control is feasible, previous bleeding and associated systemic illness. Review platelet count and fibrinogen alongside the clinical setting. Management of active hemorrhage differs from prophylaxis before an elective intervention.

Finding or circumstance	Interpretation	Planning consequence
Elevated INR	Does not measure the complete hemostatic balance	Do not use alone as a transfusion trigger
Thrombocytopenia	May accompany portal hypertension and disease severity	Individualize according to procedure and clinical context
Low fibrinogen	May coexist with advanced or acute illness	Assess with the bleeding scenario and specialist team
AKI or infection	May destabilize an already fragile balance	Treat reversible contributors
Antithrombotic treatment	Adds a separate medication related question	Document indication and an individualized plan

Avoid the assumption of natural anticoagulation

A patient with an elevated INR is not automatically protected from venous thrombosis. Consider thrombosis prevention according to the balance of bleeding and thrombotic risk, planned procedure, mobility and clinical condition. Neither routine omission nor routine administration is justified by the INR alone.

Exam pearl If asked to "correct the INR," clarify whether the patient is bleeding, taking a vitamin K antagonist, has a deficiency or has an isolated cirrhosis related abnormality. These require different reasoning.

Source Sabiston Chapter 19, printed page 15; PDF page 302. Supplement: AASLD 2020 Practice Guidance, published Hepatology 2021, doi:10.1002/hep.31646; AASLD educational review on periprocedural bleeding, July 2024.

29 Select the operation timing and setting

Match urgency with achievable optimization

The textbook regards active acute hepatitis and alcohol associated hepatitis as major reasons to defer elective surgery while the liver condition is assessed and treated. In chronic disease, evaluate whether the patient is compensated and whether an operation could precipitate decompensation. Emergency surgery may still be necessary despite substantial risk.

AGA supplement Child Pugh C or MELD above 20 signals particularly high risk. Avoid or defer elective intervention where possible and consider transplant evaluation when relevant. There is no single score threshold that substitutes for the clinical and procedural assessment.

Do not convert the textbook's historical mortality percentages into a personal prediction. Discuss an estimate appropriate to the operation and current clinical state, together with alternatives and the consequences of nonoperative care. Patients with advanced disease may need a center with hepatology, critical care and transplant expertise.

Clinical application

A patient with cirrhosis and recurrent ascites requests elective repair of an enlarging abdominal wall hernia. First assess symptoms, urgency and any obstruction, incarceration or skin compromise. Establish control of ascites, liver and renal function, nutrition and previous decompensation. Plan the timing with the relevant team rather than selecting a technique before determining whether elective repair is appropriate.

A second patient with stable compensated cirrhosis is being considered for gallbladder surgery. The textbook reports better outcomes with laparoscopy than open surgery in selected cirrhotic patients. This does not mean that every patient with cirrhosis should undergo cholecystectomy; disease severity, anatomy, indication and expertise remain central.

Checklist before proceeding

- Liver diagnosis, activity and previous decompensation documented.
- Current severity score named, dated and interpreted with procedural risk.
- Ascites, cognition, renal function, infection and nutrition assessed.
- Bleeding and thrombotic risks evaluated beyond INR alone.
- Medication handling and postoperative monitoring agreed.
- Benefits, alternatives and risk of decompensation discussed.
- Care setting and specialist escalation arranged.

References for this hepatic unit

Sabiston Textbook of Surgery. 22nd edition. Chapter 19, printed pages 14 to 15; PDF pages 301 to 302. ACG Clinical Guideline: Perioperative Risk Assessment and Management in Patients With Cirrhosis. Am J Gastroenterol. 2025;120:1968–1984. doi:10.14309/ajg.0000000000003616.

AGA Clinical Practice Update on Surgical Risk Assessment and Perioperative Management in Cirrhosis. 2019. https://gastro.org/clinical-guidance/surgical-risk-assessment-and-perioperative-management-in-cirrhosis/
AASLD Practice Guidance on procedural bleeding. Hepatology. 2021. doi:10.1002/hep.31646.

30 Hematologic assessment before surgery

Assess anemia bleeding and thrombosis together

Preoperative hematologic evaluation identifies impaired oxygen carrying capacity, a tendency to bleed and thrombotic risk. These problems may coexist. The assessment must connect the patient's history and laboratory findings with the likely blood loss, bleeding consequences and urgency of the operation.

Ask about fatigue, exertional dyspnea, overt gastrointestinal blood loss and previous anemia treatment. For bleeding, ask about dental extraction, childbirth and previous operations, as well as epistaxis, heavy menstrual bleeding, bruising, deep hematomas or joint bleeding. Review family history and all antiplatelet, anticoagulant and nonprescription drug exposure.

Clinical finding	Possible direction of investigation	Important limitation
Mucosal bleeding or petechiae	Platelet number or function and von Willebrand disease	A normal platelet count does not establish normal function
Deep hematoma or hemarthrosis	Coagulation factor deficiency	Confirm the diagnosis with directed testing
Prior procedural bleeding	Inherited or acquired hemostatic disorder	A normal routine screen does not exclude every disorder
Renal or hepatic disease	Acquired hemostatic abnormalities	Interpret results in the underlying clinical context
Previous thrombosis	Recurrence risk and current treatment	Medication interruption requires a separate plan

Use laboratory screening selectively

The textbook discourages routine coagulation screening without a clinical indication. A concerning history or examination may warrant blood count with platelet count, PT with INR, aPTT and assessment of renal and hepatic function. Additional tests should follow the pattern and suspected disorder. Hematology input is appropriate for a suspected inherited condition or unexplained significant bleeding.

Clinical pearl A negative bleeding history is more informative when the patient has previously undergone a meaningful hemostatic challenge. A patient who has never had surgery or dental extraction has had fewer opportunities for a bleeding disorder to become apparent.

Source Sabiston 22nd edition, Chapter 19, printed pages 15 to 17; PDF pages 302 to 304. Matrix and review prompts are original teaching synthesis.

31 Diagnose and treat preoperative anemia

Identify the cause before selecting treatment

Anemia may reflect iron deficiency, blood loss, inflammation, renal disease, nutritional deficiency, malignancy or a combination. Review the blood count and indices, prior results and reticulocyte response when relevant. Select iron studies and additional investigations according to the likely cause. A normal mean cell volume does not exclude iron deficiency or mixed disease.

Pattern or context	Focused evaluation	Management direction
Suspected iron deficiency	Ferritin, transferrin saturation and source of iron loss	Replace iron and investigate the cause
Inflammation or malignancy	Interpret iron measures with the disease context	Address the underlying disease and iron availability
Renal impairment	Renal trajectory, iron status and other causes	Coordinate renal anemia management
Macrocytosis	Nutritional, medication and other causes	Treat the identified disorder
Active blood loss	Bleeding source and physiological impact	Control hemorrhage and support circulation

Consensus supplement on iron deficiency

ICCAMS identifies ferritin below 30 ng/mL and/or transferrin saturation below 20% as important criteria for iron deficiency. In inflammation, ferritin below 100 ng/mL may support the diagnosis. Interpret these measures together because ferritin can rise with inflammation independently of iron stores.

The consensus recommends screening before procedures other than minor interventions and treating the identified cause. Start evaluation early enough for treatment to work. Oral or intravenous iron should be selected according to the diagnosis, available time, tolerance and expected response; iron is not a treatment for every anemia.

Distinguish optimization from rescue

The objective of preoperative treatment is to improve the patient's condition and reduce avoidable transfusion exposure. It is not simply to maintain hemoglobin above an inpatient transfusion trigger. Conversely, urgent surgery or active bleeding may leave insufficient time for hematinic treatment alone.

Common pitfall Correcting the hemoglobin while failing to investigate the source of iron loss. In a surgical patient, the underlying cause may be the most important diagnosis.

Source Sabiston Chapter 19, printed pages 15 to 16; PDF pages 302 to 303. Supplement: ICCAMS recommendations, Ann Surg. 2023;277:581–590. doi:10.1097/SLA.0000000000005721.

32 Red cell transfusion and blood planning

Apply a threshold to the population it describes

The textbook supports restrictive red cell transfusion in many stable patients and distinguishes this from ongoing hemorrhage and shock. A laboratory threshold is a decision aid; symptoms, ischemia, comorbidity and the clinical course remain relevant.

Clinical setting	AABB 2023 guidance	How to interpret
Most hemodynamically stable hospitalized adults	Consider transfusion below 7 g/dL	Assess the full clinical context
Cardiac surgery	A threshold of 7.5 g/dL may be chosen	Specific trial based subgroup approach
Orthopedic surgery or preexisting cardiovascular disease	A threshold of 8 g/dL may be chosen	Not a universal target for every patient
Active major hemorrhage or shock	Do not rely on these stable patient thresholds	Use physiological assessment and hemorrhage protocols

These values summarize the 2023 guidance for the stated populations. They do not establish a preoperative optimization target and should not be extrapolated automatically to acute myocardial infarction or an unstable ischemic presentation, which requires a dedicated evidence based decision.

Plan before blood is needed

Review prior transfusions, reactions and known antibodies when relevant. Coordinate blood availability with anticipated loss and local testing procedures. Document patient preferences and any treatment limitations. When major hemorrhage is plausible, confirm how the institutional protocol will be activated and who will lead the response.

Transfusion has risks, including circulatory overload, allergic or febrile reactions and other serious complications. Historical per unit risk estimates from the textbook depend on the blood system, population and era and should not be treated as universal contemporary probabilities.

Recognize the different problem of acute hemorrhage

In an actively bleeding unstable patient, hemoglobin may not immediately reflect the magnitude of blood loss. Prioritize source control, circulation, appropriate blood component support and reassessment. Waiting for a stable patient threshold can delay lifesaving treatment.

Exam pearl If asked whether to transfuse, first state whether the patient is stable, actively bleeding or ischemic. A number without a clinical setting does not define the decision.

Source Sabiston Chapter 19, printed pages 15 to 16; PDF pages 302 to 303. Updated thresholds: AABB International Guidelines, JAMA. 2023. doi:10.1001/jama.2023.12914.

33 Interpret abnormal coagulation tests

Use the laboratory pattern to direct investigation

Pattern	Examples to consider	Next reasoning step
Isolated prolonged aPTT	Factor VIII IX or XI deficiency, inhibitor or drug effect	Review medication and sample context; obtain directed testing
Isolated prolonged PT	Factor VII deficiency or acquired vitamin K related effects	Consider drugs, nutrition and liver disease
Both PT and aPTT prolonged	Common pathway abnormalities, liver disease or DIC	Assess the systemic context and relevant factor or fibrinogen studies
Normal PT and aPTT with bleeding	Platelet dysfunction, von Willebrand disease or factor XIII deficiency	Pursue the history rather than dismissing the symptoms

An abnormal result does not automatically indicate a bleeding tendency. For example, an inhibitor pattern may require a different investigation from a factor deficiency. A mixing study can help direct that distinction, but the final interpretation belongs with the complete laboratory and clinical context.

Plan inherited disorders with hematology

For hemophilia, establish factor deficiency, severity, previous treatment and inhibitor status. The textbook distinguishes hemophilia A from B: desmopressin may be useful in selected mild factor VIII deficiency, while factor IX deficiency does not respond in the same way. Factor replacement and monitoring must be matched to the operation and available resources.

For von Willebrand disease, establish subtype and treatment response. The textbook describes qualitative and quantitative abnormalities and notes that desmopressin is inappropriate in type 2B and ineffective in type 3 disease. A treatment label alone is insufficient without knowledge of subtype, response and procedural risk.

Guideline supplement ASH ISTH NHF WFH 2021 guidance states that desmopressin should not be the sole treatment for major surgery. Confirm response when appropriate and plan factor support and monitoring with hematology. Hyponatremia and fluid retention are relevant safety concerns.

Clinical pearl The written plan should include the preoperative treatment, laboratory targets and measurement schedule, postoperative coverage and an escalation pathway for bleeding. Ensure supplies remain available after the incision is closed.

Source Sabiston Chapter 19, printed pages 16 to 18; PDF pages 303 to 305. Supplement: ASH ISTH NHF WFH guideline on von Willebrand disease, Blood Adv. 2021;5:301–325.

34 Antithrombotic planning and clinical application

Specify indication agent and procedural risk

For each antithrombotic drug, record the indication, last dose, renal function and planned operation. Distinguish antiplatelet therapy after coronary stenting from anticoagulation for atrial fibrillation, venous thromboembolism or a mechanical valve. The hazards of interruption and the acceptable bleeding risk differ.

The textbook describes warfarin interruption, DOAC pharmacokinetics and bridging. Convert these concepts into a dated patient specific plan for stopping, laboratory assessment where indicated and restarting after hemostasis. Neuraxial procedures and substantial renal impairment require additional considerations beyond a general surgical schedule.

CHEST 2022 supplement For atrial fibrillation requiring elective warfarin interruption, routine heparin bridging is not recommended. Bridging is also generally discouraged for interrupted DOAC therapy. Exceptional thrombotic risk requires specialist review; do not substitute a routine bridging order for an assessment of the actual indication.

Keep bridging distinct from thromboprophylaxis

Therapeutic bridging attempts to replace chronic anticoagulation during interruption. Postoperative prophylactic anticoagulation addresses a different indication and dose intensity. A decision against bridging does not by itself answer whether surgical thromboprophylaxis is appropriate.

Clinical application

A patient awaiting elective colorectal surgery has hemoglobin 9.4 g/dL, ferritin 12 ng/mL and no hemodynamic instability. Investigate and treat iron deficiency and plan around the surgical urgency. The absence of an immediate transfusion indication does not mean that the anemia needs no treatment.

A patient reports repeated prolonged bleeding after dental extraction despite normal PT and aPTT. Obtain a directed assessment for disorders not excluded by those tests. Do not dismiss a persuasive history because the routine screen is normal.

Checklist before proceeding

- Anemia assessed by cause and treatment response.
- Bleeding and thrombotic history reviewed.
- Abnormal laboratory findings interpreted in context.
- Antithrombotic stop and restart plan documented.
- Inherited disorder treatment and postoperative coverage agreed.
- Blood availability and hemorrhage response planned when indicated.

Sources for this hematologic unit

Sabiston 22nd edition, Chapter 19, printed pages 15 to 18; PDF pages 302 to 305. ICCAMS 2023, doi:10.1097/SLA.0000000000005721. AABB 2023, doi:10.1001/jama.2023.12914. CHEST perioperative antithrombotic guideline 2022, doi:10.1016/j.chest.2022.07.025. ASH ISTH NHF WFH von Willebrand disease guideline 2021, doi:10.1182/bloodadvances.2020003264.

35 Endocrine assessment before surgery

Identify the disorder and its perioperative consequence

Endocrine assessment establishes whether a known or suspected hormonal disorder will impair the response to fasting, anesthesia or surgical stress. Diabetes is common, but thyroid dysfunction, adrenal insufficiency and hormone secreting tumors require distinct plans. Routine endocrine panels cannot replace a focused history and examination.

For diabetes, establish the type, usual therapy, glucose pattern, recent hypoglycemia and any history of ketoacidosis. Review renal, cardiovascular and neurological complications. Clarify food intake, expected fasting duration, operative magnitude and the anticipated ability to resume eating. These determine how the usual regimen must change.

Clinical domain	Key question	Planning implication
Diabetes type	Is there absolute insulin deficiency?	Maintain basal insulin coverage in type 1 diabetes
Recent control	What do glucose trends and A1C show?	Identify optimization needs and hypoglycemia risk
Complications	Is there renal, cardiac or autonomic disease?	Adjust the wider assessment and treatment plan
Medication	What drug, dose and last administration?	Create dated instructions for fasting and recovery
Other endocrine disease	Is thyroid or adrenal function unstable?	Treat or provide perioperative coverage as indicated

Distinguish chronic control from acute readiness

A1C describes a preceding period of glycemia, while current glucose, hydration, electrolytes and ketones when indicated address immediate metabolic stability. A patient may have an acceptable A1C but still present with hypoglycemia, acute infection or ketoacidosis. Conversely, an elevated A1C is a reason for assessment rather than an isolated description of the day of surgery.

ADA 2026 supplement A1C below 8% within three months is an elective optimization goal with individualized assessment. Delay based on A1C alone is not recommended. The perioperative glucose goal is generally 100–180 mg/dL, adjusted to clinical risk.

Source Sabiston 22nd edition, Chapter 19, printed pages 20 to 22; PDF pages 307 to 309. Supplement: ADA Standards of Care 2026, Section 16, recommendations 16.14 and 16.15.

36 Insulin fasting and glucose monitoring

Separate basal nutritional and correction insulin

Basal insulin covers ongoing insulin requirements between meals. Nutritional insulin covers carbohydrate intake, while correction insulin treats glucose above the agreed range. These functions must be distinguished when a patient stops eating. Withholding meal related insulin does not mean withholding all insulin.

In type 1 diabetes, basal insulin must continue through fasting, with the route and dose adapted to the care plan. If a pump is interrupted, arrange replacement insulin coverage before interruption. A patient without food intake can still develop ketoacidosis when insulin is omitted.

Insulin component	Role during fasting	What must be specified
Basal insulin	Continues with individualized adjustment	Formulation, dose and time
Meal related insulin	Usually omitted when the corresponding meal is omitted	How unexpected intake will be handled
Correction insulin	Used according to measured glucose and protocol	Threshold, interval and review responsibility
Pump therapy	May continue if the procedure and support allow	Device access, supervision and backup coverage
Intravenous insulin	May be appropriate in selected complex or prolonged cases	Monitoring, substrate and transition plan

Updated dose and monitoring framework

ADA 2026 describes long acting analog dosing at about 75–80% of usual dose and morning NPH at half dose as common adjustments, with individualization. Check glucose at least every 2–4 hours while fasting; intraoperative protocols may require more frequent checks. CGM must not be the sole intraoperative measurement method.

Prevent both hypoglycemia and insulin interruption

Record previous severe hypoglycemia, impaired awareness and reduced renal clearance. Agree on how a low glucose result will be treated, rechecked and communicated. If fasting is prolonged, reassess the glucose and insulin plan rather than leaving the original orders unchanged.

Exam pearl For a fasting patient with type 1 diabetes, the first safety question is whether continuous basal insulin coverage is guaranteed. A normal single glucose measurement does not answer that question.

Source Sabiston Chapter 19, printed page 20; PDF page 307. Insulin adjustment and monitoring supplement: ADA Standards 2026, Section 16. The source's blanket continuation of the full basal dose is replaced here by a clearly identified individualized framework.

37 Diabetes medications and acute metabolic risk

Write a drug specific plan

Medication instructions should name the drug, last dose, perioperative substitute if required and conditions for restarting. Resume treatment in the context of oral intake, renal function, hemodynamics and any postoperative complication. “Resume all usual medications” is insufficient when those conditions have changed.

Drug group	Perioperative issue	Planning principle
Metformin	Renal dysfunction and acute illness affect safety	Hold on the day of surgery under the ADA framework; reassess before restart
Sulfonylureas	Hypoglycemia during fasting	Omit while fasting according to the agreed plan
SGLT2 inhibitors	Ketoacidosis may occur with modest glucose elevation	Hold before elective surgery and assess metabolic symptoms
GLP 1 receptor agonists	Delayed gastric emptying and aspiration concern	Use an individualized aspiration risk assessment
Other oral agents	Protocols vary by clinical setting	Use the selected institutional framework consistently

The textbook recommends withholding SGLT2 inhibitors for three to four days before surgery. A patient taking this class who develops nausea, vomiting, abdominal symptoms or unexplained acidosis needs assessment for ketoacidosis even without marked hyperglycemia. Acute metabolic decompensation requires treatment and reassessment before elective surgery.

GLP 1 guidance supplement

The 2024 multisociety guidance allows continuation in many patients. Review dose escalation, gastrointestinal symptoms, dose and other causes of delayed gastric emptying. Higher risk patients may require a liquid diet for 24 hours, adjustment of anesthesia, gastric ultrasound where available or postponement. Balance aspiration precautions with the metabolic consequences of withholding therapy.

Avoid a glucose only view of readiness

Assess the patient and the acid base context when metabolic deterioration is suspected. Neither a normal glucose in an SGLT2 treated patient nor an isolated elevated glucose establishes the complete diagnosis. For elective surgery, establish clinical stability and a workable insulin and monitoring plan.

Source Sabiston Chapter 19, printed page 20; PDF page 307. Oral agent supplement: ADA 2026, Section 16. GLP 1 supplement: ASA AGA ASMBS ISPCOP SAGES multisociety guidance, October 2024. These recommendations are distinguished from the textbook’s blanket one week GLP 1 hold.

38 Thyroid and adrenal disorders

Establish thyroid severity and clinical stability

A known thyroid diagnosis should prompt review of symptoms, treatment and relevant recent testing. The textbook recommends addressing hyperthyroidism before elective nonthyroid surgery. The concern includes cardiovascular and metabolic instability. A surgical emergency requires coordinated management rather than application of a routine elective schedule.

For hypothyroidism, distinguish mild or asymptomatic disease from clinically important symptomatic dysfunction. The textbook advises correction of symptomatic hypothyroidism before elective surgery. Fatigue alone does not define severity; cardiovascular, electrolyte and systemic findings must be considered in the overall assessment.

Identify patients at risk of adrenal insufficiency

Review known adrenal insufficiency and current or recent glucocorticoid treatment, including dose, duration, route and discontinuation. Continue necessary baseline replacement and establish whether additional coverage is needed for the operative stress and the expected ability to take oral treatment. Recent withdrawal may be relevant even when steroids are absent from today's medication list.

Endocrine Society 2024 supplement Patients with current or recent glucocorticoid exposure whose adrenal suppression has not been excluded may need stress coverage. Moderate or major stress, general or regional anesthesia, inability to take oral treatment or hemodynamic instability may require parenteral therapy. Suspected adrenal crisis requires prompt glucocorticoid treatment and fluid resuscitation.

Clinical setting	Planning question	Required action
Known adrenal insufficiency	What stress and fasting are anticipated?	Document replacement route and stress coverage
Current or recent glucocorticoids	Could the HPA axis be suppressed?	Assess risk and obtain an appropriate coverage plan
Unexplained perioperative instability	Could adrenal crisis be contributing?	Assess and treat urgently when suspected
Recovery after surgery	When can oral treatment resume?	Define transition and follow up

Common pitfall Assuming every steroid exposed patient needs the same high dose regimen, or assuming that omission of steroids from the current list proves normal adrenal reserve.

Source Sabiston Chapter 19, printed pages 20 to 21; PDF pages 307 to 308. Supplement: ESE Endocrine Society guideline on glucocorticoid induced adrenal insufficiency, May 2024. Dose schedules should follow the selected specialist protocol.

39 Functional tumors and clinical application

Identify hormone secretion before intervention

A suspected functional tumor requires biochemical and clinical characterization before anesthesia or manipulation. The textbook highlights catecholamine secreting tumors, functional pancreatic neuroendocrine tumors and carcinoid syndrome as distinct perioperative problems. Their preparation belongs with the endocrine, anesthesia and surgical teams.

For pheochromocytoma or functional paraganglioma, plan appropriate adrenergic preparation before elective intervention. Do not treat beta blockade alone as adequate preparation for catecholamine excess. Also recognize that functional adrenocortical tumors may produce cortical hormones; they should not all be described as catecholamine secreting tumors.

For a patient with flushing, diarrhea and a suspected functional neuroendocrine tumor, assess the syndrome and relevant cardiac consequences. The textbook discusses somatostatin analogue management and perioperative octreotide. A dedicated tumor specific protocol is required; a general preoperative checklist is not a substitute.

Clinical application

A patient with type 1 diabetes is scheduled first on the operating list and is instructed to take no insulin because of fasting. Correct the plan before surgery: maintain basal coverage, omit meal related insulin when the meal is omitted and define monitoring, correction and treatment of hypoglycemia. Confirm the backup plan if pump therapy cannot continue.

A patient taking a GLP 1 agent reports vomiting during dose escalation before elective surgery. Assess aspiration risk and discuss modification or deferral with anesthesia and the prescribing team. The drug name alone does not determine readiness.

Checklist before anesthesia

- Diabetes type, recent glucose pattern and complications documented.
- Basal insulin coverage and fasting adjustments specified.
- Drug specific holds and restart conditions recorded.
- Glucose monitoring, hypoglycemia treatment and escalation assigned.
- Metabolic decompensation assessed when suspected.
- Thyroid or adrenal instability addressed.
- Functional tumor preparation completed where relevant.

References for this endocrine unit

Sabiston Textbook of Surgery. 22nd edition. Chapter 19, printed pages 20 to 22; PDF pages 307 to 309. ADA. Diabetes Care in the Hospital Standards of Care 2026. doi:10.2337/dc26-S016. Multisociety GLP 1 perioperative guidance, October 2024: https://gastro.org/press-releases/most-patients-can-continue-glp-1-anti-obesity-drugs-before-surgery-2/

ESE Endocrine Society. Glucocorticoid Induced Adrenal Insufficiency guideline. May 2024. https://www.endocrine.org/clinical-practice-guidelines/glucocorticoid-induced-adrenal-insufficiency

40 Nutritional assessment before surgery

Identify nutritional vulnerability early

Surgical stress increases catabolism and places greater demands on limited nutritional and functional reserves. The textbook links malnutrition with impaired healing, infection, electrolyte disturbance and organ dysfunction. Screening should occur early enough to permit assessment and treatment before major surgery whenever the disease timeline allows.

Review unintentional weight loss, its duration, usual and recent intake, swallowing or gastrointestinal symptoms, chronic illness and supplement use. Examine muscle mass and function as well as body size. Edema can conceal weight loss, and obesity does not exclude depletion of muscle or micronutrient deficiency.

Domain	Assessment	Clinical interpretation
Weight trajectory	Usual weight, current weight and interval change	Loss may be important despite a normal or high BMI
Food intake	Amount, duration and barriers to eating	Identify a practical treatment target
Disease burden	Inflammation, malignancy or gastrointestinal dysfunction	Explains altered needs or absorption
Physical reserve	Muscle loss, weakness and impaired mobility	Links nutrition with recovery potential
Fluid status	Edema, ascites or dehydration	May distort weight and laboratory findings
Expected course	Operation and anticipated postoperative intake	Determines the support plan

Interpret laboratory markers in context

Albumin and prealbumin are negative acute phase proteins. Inflammation, fluid distribution and hepatic or renal disease can alter their concentrations independently of food intake. The textbook describes their prognostic associations, but a low value alone does not diagnose malnutrition and a normal value does not exclude it.

Use laboratory studies to clarify the clinical problem, including anemia, metabolic abnormalities or suspected deficiency. Do not substitute an albumin infusion or repeated albumin measurement for a nutrition assessment and a measurable intake plan.

Exam pearl Nutritional risk, a diagnosis of malnutrition and operative risk are related but different judgments. A positive screen should lead to assessment and action.

Source Sabiston 22nd edition, Chapter 19, printed pages 22 to 23; PDF pages 309 to 310. Clinical matrix and prompts are original teaching synthesis.

41 Interpret NRS 2002 correctly

Combine nutritional impairment with disease stress

NRS 2002 includes a nutritional impairment score from 0 to 3, a disease severity score from 0 to 3 and an additional point for age 70 years or older. Use the complete validated scoring sheet for formal application. The overview below illustrates how the domains contribute; it is not a replacement for the full criteria.

Domain	Score range	What determines the score
Nutritional impairment	0 to 3	Weight loss, BMI with general condition or reduced intake
Disease severity	0 to 3	The increase in nutritional requirements associated with illness
Age adjustment	0 or 1	Add 1 at age 70 years or older

A total of 3 or more indicates nutritional risk and the need for a nutritional care plan. A lower score usually prompts rescreening, with attention to anticipated major surgery and a changing clinical course. Nutritional risk can increase after admission if intake deteriorates or illness becomes more severe.

Worked example

A 72 year old patient has lost 6% of body weight over three months and is preparing for major abdominal surgery. With no other nutritional criterion requiring a higher category, the nutritional impairment score is 1. Major abdominal surgery contributes disease severity 2, and age contributes 1. Total: 1 + 2 + 1 = 4. Initiate a nutritional care plan.

Avoid errors at the decision boundary

The original ESPEN screening guidance uses a threshold of ≥3 and an age boundary of ≥70 years. These are used here to avoid ambiguity in the supplied textbook table. Select the appropriate severity category within each domain; do not add separate nutritional impairment points for weight loss, low BMI and reduced intake.

The screening score identifies a patient who needs action, but the decision to delay surgery requires a fuller assessment. A modestly positive screen does not automatically establish severe malnutrition or a requirement for parenteral nutrition.

Clinical pearl Record the component scores and their clinical basis. A total without the inputs makes later reassessment difficult and may conceal a scoring error.

Source Sabiston Chapter 19, Table 19.15, printed page 22; PDF page 309. Boundary verification: Kondrup J et al. ESPEN Guidelines for Nutrition Screening 2002. Clin Nutr. 2003;22:415–421. doi:10.1016/S0261-5614(03)00098-0. Example is original.

42 Select nutritional support and its timing

Match the route to gastrointestinal function

Begin with feasible oral intake, dietary adjustment and oral supplements when these can meet the patient's needs. Enteral tube feeding may be appropriate when oral intake is inadequate and the gastrointestinal tract can be used. Parenteral nutrition is considered when nutritional therapy is indicated and oral or enteral intake cannot adequately meet requirements.

Approach	Typical role	What to monitor
Food and oral supplements	Improve intake when eating is feasible	Actual intake, tolerance and barriers
Enteral tube feeding	Provide support through usable gastrointestinal access	Tolerance, delivery and metabolic response
Parenteral nutrition	Support selected patients when enteral delivery is inadequate or not feasible	Access, infection risk, glucose, electrolytes and fluid balance

The textbook favors enteral delivery in most suitable situations and discusses infection and metabolic risks associated with parenteral therapy. An operation's location alone does not determine the feeding route. Identify obstruction, ischemia, absorption problems and other relevant limitations before prescribing support.

Distinguish severe malnutrition from mild risk

The textbook supports considering nutritional preparation in severe malnutrition and advises against delaying surgery merely for mild malnutrition. Balance the expected benefit of optimization against obstruction, infection, cancer progression or another consequence of waiting. Record why delay is or is not appropriate.

ESPEN 2025 supplement Severe malnutrition or high metabolic risk warrants preoperative nutrition even when surgery must be postponed; consider 10–14 days. High risk features include substantial weight loss, very low BMI, NRS ≥5 or SGA C. Albumin below 30 g/L is a prognostic feature only after considering hepatic and renal disease; visceral proteins should not be used alone to diagnose malnutrition.

Plan recovery nutrition before the operation

Document the expected postoperative route and review intake after surgery. The textbook supports early enteral intake when appropriate rather than routinely waiting for objective bowel function. Hemodynamic instability or suspected bowel ischemia changes the decision; an early feeding principle is not an instruction to feed every patient regardless of physiology.

Source Sabiston Chapter 19, printed page 23; PDF page 310. Dated supplement: ESPEN guideline on clinical nutrition in surgery Update 2025, Recommendation 20. The older 2021 guideline suggested 7–14 days; the version is specified here.

43 Obesity muscle reserve and refeeding risk

Assess the patient beyond BMI

Obesity may increase technical complexity and coexist with cardiometabolic disease, OSA, obesity hypoventilation, venous thromboembolic risk and infection risk. The textbook links much of the perioperative burden to associated illness. Assess those conditions and practical needs rather than treating the BMI as a complete risk score.

Issue	Preoperative assessment	Planning response
Respiratory reserve	OSA symptoms, ventilation concern and usual support	Airway, CPAP and monitoring plan
Metabolic disease	Diabetes, blood pressure and cardiovascular disease	Targeted optimization
Mobility	Transfers, walking and functional dependence	Equipment and rehabilitation needs
Nutrition	Recent intake, weight loss and deficiencies	Dietetic assessment despite high BMI
Muscle reserve	Weakness or reduced muscle mass	Assess function and appropriate intervention

Recognize sarcopenic obesity

Excess adiposity can coexist with impaired muscle reserve. Weight alone may therefore conceal vulnerability. A person losing weight rapidly before surgery may also lose muscle and function. Assess body composition or muscle function when clinically indicated rather than assuming every reduction on the scale improves operative readiness.

Identify refeeding risk before rapidly increasing intake

NICE guidance supplement Prolonged minimal intake, marked weight loss, very low BMI or low potassium, magnesium or phosphate can indicate refeeding risk. Use a specialist plan for cautious introduction, thiamine and electrolyte provision, with clinical and biochemical monitoring. The risk applies to oral, enteral and parenteral feeding.

Document baseline chemistry, the intended progression of feeding and the response plan for electrolyte or fluid changes. A calorie prescription alone is incomplete in a severely depleted patient. Renal disease or other organ dysfunction may further change electrolyte replacement and monitoring needs.

Common pitfall Prescribing aggressive short term weight loss or immediate full feeding without assessing muscle depletion, intake history and metabolic risk.

Source Obesity core: Sabiston Chapter 19, printed page 23; PDF page 310. Sarcopenia framework: ESPEN surgery guideline 2025. Refeeding supplement: NICE CG32, recommendations on high risk nutrition support; no fixed replacement doses are prescribed here.

44 Prehabilitation and clinical application

Turn the available interval into a coordinated plan

Prehabilitation aims to improve readiness before surgical stress. Combine nutritional intervention with individualized physical activity, management of limiting disease and support for participation. A useful plan has a baseline, an achievable intervention, assigned responsibility and reassessment. It should fit the urgency of treatment and the patient's physiological limits.

Component	Practical focus	Evidence of progress
Nutrition	Address intake barriers and prescribed support	Intake and tolerance
Physical function	Appropriate strength, mobility and aerobic activity	Functional performance and symptoms
Medical optimization	Treat anemia and unstable comorbidity	Clinical and laboratory trajectory
Respiratory preparation	Smoking cessation and indicated respiratory support	Participation and respiratory stability
Education and support	Explain recovery tasks and solve access barriers	Ability to follow the agreed plan

The 2025 ESPEN guideline includes assessment of frailty, sarcopenia and prehabilitation within perioperative care. Select interventions for the patient and operation; the same exercise prescription is not suitable for every frail patient. Do not promise that a brief program eliminates surgical risk.

Clinical application

A patient with BMI 34 kg/m2 has lost 12% of body weight over four months, has poor intake and increasing weakness before gastric cancer surgery. The high BMI does not exclude severe nutritional vulnerability. Assess intake, muscle reserve and metabolic risk, select support and discuss whether an optimization interval can be accommodated safely.

A second patient has only mild nutritional impairment before a time sensitive operation. Start appropriate support and plan postoperative intake, but do not assume that a positive screen automatically justifies a lengthy delay.

Checklist before proceeding

- Weight trajectory and recent intake documented.
- Screening score linked to assessment and a care plan.
- Muscle reserve and function considered alongside BMI.
- Route, goals and monitoring of support specified.
- Refeeding risk assessed when appropriate.
- Decision about timing justified against the harm of delay.
- Postoperative feeding and reassessment arranged.

Sources for this nutritional unit

Sabiston 22nd edition, Chapter 19, printed pages 22–23; PDF pages 309–310. Kondrup J et al. ESPEN screening guidelines 2003. doi:10.1016/S0261-5614(03)00098-0. Weimann A et al. ESPEN guideline on clinical nutrition in surgery Update 2025. Clin Nutr. 2025;53:222–261. doi:10.1016/j.clnu.2025.08.029. NICE CG32: https://www.nice.org.uk/guidance/cg32/chapter/Recommendations

45 Reconcile medications before the operation

Create an actionable medication plan

Medication reconciliation establishes what the patient actually takes, why it is prescribed and when it was last taken. Include prescriptions, nonprescription products, eye drops, inhalers, hormones, supplements and herbal preparations. Compare the patient's account with available records when discrepancies could affect safety.

The textbook frames the objective as preservation of baseline physiology while limiting bleeding, drug interactions and adverse effects. Abrupt withdrawal can create harm, while uncritical continuation can also be unsafe. The plan must identify the drug, action, timing, responsible clinician and conditions for restarting.

Medication group	Default planning principle	Required qualification
Established beta blockers and statins	Generally continue clinically indicated therapy	Review hypotension, bradycardia or other contraindication
Inhaled respiratory treatment	Maintain necessary disease control	Confirm delivery and access during fasting
Insulin and diabetes agents	Use the individual fasting plan	Maintain basal coverage for type 1 diabetes
Glucocorticoids	Maintain necessary replacement	Assess stress coverage and oral access
Neurological or psychiatric treatment	Avoid an unplanned therapeutic lapse	Review interactions and alternative routes
Antithrombotic treatment	Use a written procedure specific plan	Account for indication, renal function and anesthesia technique

Include the period after surgery

For every temporary interruption, identify when the indication, oral intake, hemostasis, circulation or renal function will be reviewed. If oral medication cannot be taken, establish whether a substitute route or alternative is required. The handover should prevent a preoperative hold from becoming an unintended long term discontinuation.

Clinical pearl A documented instruction is incomplete if it says only "hold morning medications." Different agents have different withdrawal, metabolic, bleeding and hemodynamic consequences.

Source Sabiston 22nd edition, Chapter 19, printed pages 24 and 29; PDF pages 311 and 316. Medication matrix integrates the disease specific units already presented in this volume.

46 Resolve medication decisions that need coordination

Consider the indication before withholding cardiovascular drugs

AHA ACC 2024 supplement In selected patients taking a renin angiotensin system inhibitor for controlled hypertension before elevated risk surgery, omission 24 hours beforehand may reduce intraoperative hypotension. Continuation is reasonable in heart failure with reduced ejection fraction. This is an individualized decision, not a universal ACE inhibitor or ARB stopping rule.

Diuretic decisions similarly require attention to the indication, congestion, volume depletion, renal trajectory and electrolytes. State the intended action and who will reassess the patient rather than inferring management solely from the label “blood pressure medication.”

Antithrombotic instructions require a complete timeline

Identify the drug, last administration, planned procedure, thrombotic indication and relevant renal function. Confirm whether spinal, epidural or another regional technique is intended. A general surgical stopping interval may be inadequate for neuraxial safety. Recent PCI, a recent thrombotic event or a mechanical valve warrants coordinated specialist planning.

Use the antithrombotic framework in the preceding hematologic unit. Distinguish continuing aspirin after PCI from initiating aspirin without an independent indication, and distinguish therapeutic bridging from postoperative thromboprophylaxis. Document restart conditions based on hemostasis and the clinical course.

Ask specifically about hormones and supplements

The textbook describes potential thrombotic concerns with estrogen and tamoxifen and bleeding or interaction concerns with herbal products. These findings should trigger an agent and indication specific review. Do not copy one historical stopping interval to every hormonal therapy or interrupt oncologic treatment without coordination.

Decision	Information needed	Documentation
Drug may affect bleeding	Indication, agent and procedure	Last dose and restart plan
Drug may affect circulation	Baseline pressure, volume and heart failure status	Continue or withhold with rationale
Drug may affect glucose	Diabetes type, fasting and renal function	Alternative control and monitoring
Drug may cause withdrawal	Duration, indication and access to oral treatment	Continuation or safe substitute
Supplement or hormone	Exact product, exposure and clinical purpose	Individual assessment and agreed action

Source Sabiston Chapter 19, printed pages 24 and 29; PDF pages 311 and 316. RAAS inhibitor supplement: 2024 AHA ACC multisociety perioperative guideline, Section 7.2.

47 Fasting for elective anesthesia

Use the last intake and the actual procedure time

Fasting aims to reduce aspiration risk while avoiding unnecessary thirst, dehydration and prolonged interruption of nutrition. Record what was consumed, how much and when. Calculate intervals to the planned anesthesia or procedure, rather than to the patient's arrival time. Reassess if the operating schedule changes.

Intake	Minimum interval in the ASA framework	Examples and limits
Clear liquids	2 hours	Water, pulp free juice, black tea or black coffee without milk
Breast milk	4 hours	Pediatric reference within the ASA framework
Infant formula or nonhuman milk	6 hours	Milk is not a clear liquid
Light meal	6 hours	Meal composition and amount matter
Fried or fatty food or meat	8 hours or longer may be needed	Use a longer interval according to intake and risk

These intervals describe the ASA healthy elective patient framework. They are not an assurance of an empty stomach and do not automatically apply to patients with increased aspiration risk. The textbook similarly notes that heavier meals and higher risk patients may need a different plan.

Clarify what counts as clear

A drink containing milk, pulp or particulate material should not be classified as clear simply because it is a liquid. A nutritional supplement may have ingredients that change the fasting category. Review the actual product rather than relying on its name or appearance.

Avoid unnecessary fasting without overriding individual risk

The 2023 ASA modular update reaffirms clear liquids until two hours before anesthesia for the specified healthy elective population. Carbohydrate containing clear drinks are an option in appropriate protocols; they are not a routine instruction for every diabetic patient or patient with impaired gastric emptying.

Exam pearl Fasting is assessed by the content and timing of intake together with the patient's aspiration risk. "Nothing since midnight" is neither a full risk assessment nor a universal requirement.

Source Sabiston Chapter 19, printed page 29; PDF page 316. ASA fasting guideline 2017, fasting table, and 2023 modular update, doi:10.1097/ALN.0000000000004381. Pediatric intervals are included for reference; this volume primarily addresses adult surgical evaluation.

48 Recognize exceptions to routine fasting rules

Identify reasons gastric emptying or aspiration risk may differ

Ask about active vomiting, dysphagia, significant reflux symptoms, obstruction, previous gastric surgery and suspected gastroparesis. Review medications that may affect gastric emptying and the clinical context of an emergency. The fasting clock must be interpreted alongside these findings.

The ASA guidance identifies several conditions outside the healthy elective population, including diabetes, obesity, pregnancy, gastrointestinal disorders and opioid exposure. These conditions require clinical judgment; they do not all mandate the same additional fasting interval.

Clinical issue	Question before proceeding	Team response
Recent unexpected intake	What was consumed and when?	Recalculate and assess with anesthesia
Vomiting or suspected obstruction	Is the stomach likely to remain full despite fasting?	Assess urgency and aspiration precautions
Possible delayed emptying	What symptoms, diseases or medications contribute?	Individualize preparation and anesthesia
Prolonged fasting with diabetes	Is insulin coverage and monitoring adequate?	Review glucose, medication and hydration plans
Emergency procedure	Would delay worsen the surgical outcome?	Coordinate time critical care and airway strategy

Link GLP 1 use to the existing risk assessment

Use the individualized GLP 1 framework in the endocrine unit. Recent dose escalation, gastrointestinal symptoms and additional causes of impaired emptying may change preparation. A longer fasting interval alone does not establish that aspiration risk has been resolved.

Do not use medication as a shortcut around fasting assessment

The textbook does not recommend routine prokinetic, antacid or other medication solely to shorten the fasting interval in otherwise appropriate elective patients. An antiemetic plan for postoperative nausea and vomiting addresses a different purpose from proving an empty stomach.

Clinical pearl If intake instructions were not followed, communicate the exact facts. The decision to proceed, modify anesthesia or defer should account for the procedure's urgency and the individualized risk.

Source Sabiston Chapter 19, printed page 29; PDF page 316. Population limits: ASA 2023 fasting modular update. GLP 1 principles are cross referenced to the endocrine unit rather than replacing them with a new blanket rule.

49 Final readiness assessment on the day of surgery

Confirm that the plan still fits the patient

The day of surgery is a final opportunity to detect changes since the clinic assessment. Ask about new symptoms, infection, admission, medication changes and unexpected intake. Review unresolved abnormalities and confirm that the planned optimization has actually occurred.

Readiness check	What to confirm
Identity procedure and site	Patient, intended operation, site verification and marking where applicable
Consent	Understanding, scope and documented consent for the intended procedure
Clinical change	New symptoms or deterioration that may alter the plan
Medication and allergies	Actual last doses, agreed holds and nature of allergy reactions
Fasting and aspiration	Last intake and individualized risk reviewed
Relevant results	Required results reviewed and unresolved findings assigned
Resources	Blood, equipment, support and postoperative destination available
Prevention	Antibiotic and VTE prevention plans confirmed where indicated

Close the loop with the perioperative team

Communicate anticipated challenges directly to anesthesia and the operating team. Agree on how relevant organ dysfunction, bleeding risk, glucose control and postoperative support will be managed. A completed checklist should represent shared understanding, not merely a set of signatures.

Clinical application

A patient arrives after taking an anticoagulant that the team expected to be withheld. Establish the exact drug, dose, time, renal function and procedure, then reassess bleeding and thrombotic risk with the relevant clinicians. Do not assume that all anticoagulants share the same duration of action.

A second patient reports coffee with milk two hours before anesthesia. Record it as milk containing intake, not clear fluid. Discuss the revised timing and individual aspiration risk with anesthesia. A similar interval after black coffee would belong to a different fasting category.

Sources for this preparation unit

Sabiston Textbook of Surgery. 22nd edition. Chapter 19, printed pages 23–24 and 29; PDF pages 310–311 and 316. ASA fasting guideline 2017 and modular update 2023, doi:10.1097/ALN.0000000000004381. AHA ACC perioperative cardiovascular guideline 2024, Section 7.2, doi:10.1161/CIR.0000000000001285.

The next unit develops procedure appropriate antibiotic prophylaxis, prevention of venous thromboembolism and the integration of these measures into enhanced recovery pathways.

50 Principles of antimicrobial prophylaxis

Distinguish prophylaxis from treatment

Surgical antimicrobial prophylaxis aims to prevent infection from organisms introduced around the time of the operation. Treatment of an established infection addresses a different clinical problem and may require cultures, source control and a therapeutic course. Do not extend a prophylaxis schedule merely because the operation is complex or a drain remains present.

The textbook describes superficial incisional, deep incisional and organ space surgical site infections. Prevention requires an appropriate agent and timing together with broader perioperative care. An antibiotic prescription cannot compensate for inadequate source control or a major break in sterile technique.

Decision	Clinical question	Planning consequence
Indication	Does this procedure require prophylaxis?	Avoid unnecessary exposure when benefit is not established
Spectrum	Which organisms are expected at this operative site?	Choose procedure appropriate coverage
Allergy	What reaction occurred and to which drug?	Select a safe effective regimen
Dose	What weight and organ function considerations apply?	Use the chosen procedure specific protocol
Timing	Will effective exposure be present at incision?	Record administration and infusion timing
Redosing and stop	How long will the operation last and when does prophylaxis end?	Specify redosing and discontinuation

Select the agent for the expected field

Clean procedures mainly encounter skin flora. Procedures entering the gastrointestinal tract may require additional coverage according to site, contamination and the selected protocol. The textbook lists cefazolin for many operations and broader or combined regimens for selected abdominal procedures. “One antibiotic for all surgery” is not an appropriate selection rule.

Clarify the nature of a reported allergy rather than substituting a broad spectrum drug without review. Known colonization and local resistance patterns may alter the plan. The selected regimen should follow the procedure and the relevant institutional stewardship guidance.

Exam pearl State whether the patient needs prophylaxis or treatment before choosing the agent. An infected operative field cannot be managed by relabeling treatment as prolonged prophylaxis.

Source Sabiston 22nd edition, Chapter 19, printed pages 24 to 28; PDF pages 311 to 315. Matrix is an original teaching synthesis.

51 Timing redosing and discontinuation

Coordinate administration with the actual incision

The textbook supports administration of most prophylactic agents within 60 minutes before incision. For agents requiring longer infusion, such as vancomycin, initiation may occur within 120 minutes before incision. Record the actual administration and infusion details; an order written in time does not prove delivery in time.

Situation	Operational action	Reason
Routine prophylaxis	Deliver the selected agent in the appropriate preincision interval	Establish tissue exposure at incision
Long infusion agent	Begin early enough for the infusion plan	Avoid a late or rushed administration
Prolonged procedure	Redose according to the selected drug interval	Maintain adequate exposure
Major blood loss	Assess the need for additional dosing	Drug exposure may fall
Delayed incision	Reassess elapsed time and coverage	The original schedule may no longer fit

Use a defined dosing reference

As an adult teaching example, the textbook table gives cefazolin 2 g, or 3 g at body weight 120 kg or more, with a four hour redosing interval in normal renal function. Other agents have different intervals. Renal dysfunction, unusual duration or major blood loss may change the plan. These examples are not interchangeable dosing instructions for every patient.

Guidance supplement on duration

The SHEA IDSA APIC SSI prevention update recommends stopping prophylactic antibiotics at surgical closure. A drain alone does not justify continuation. Persistent infection or another therapeutic indication requires a separate treatment decision. The update also supports parenteral plus oral prophylaxis before elective colorectal surgery; this is a procedure specific strategy rather than a universal bowel preparation instruction.

Learn from the difference between references

The textbook describes short prophylaxis courses and older procedure specific exceptions. Identify the guideline and operation underlying the chosen local policy rather than treating “less than 24 hours” as a requirement to give antibiotics for a full day. Document any continued therapeutic course and its indication.

Clinical pearl Confirm the agent, dose, administration time, redosing point and stop plan together. Checking only the drug name misses common implementation failures.

Source Sabiston Chapter 19, printed pages 24 to 28; PDF pages 311 to 315. Duration and colorectal supplement: Strategies to prevent surgical site infections in acute care hospitals 2022 Update, published 2023. The cefazolin weight boundary above follows the textbook table.

52 Assess VTE risk and bleeding risk

Choose prevention for the patient and the operation

Venous thromboembolism prevention begins before surgery and must be reassessed when mobility, bleeding or organ function changes. Review previous VTE, malignancy, immobility, relevant thrombophilia, obesity, hormone exposure and the nature and duration of the planned operation. Use a validated risk assessment model suitable for the procedure and local pathway when indicated.

A history of VTE and current therapeutic anticoagulation require a separate interruption plan. Do not assume that a small prophylactic dose replaces the treatment required for an existing clot or a high risk chronic indication.

Clinical balance	Prevention approach to consider	Required reassessment
Meaningful VTE risk and acceptable bleeding risk	Pharmacological prophylaxis with appropriate mechanical measures	Hemostasis, renal function and mobility
High bleeding risk	Mechanical measures while drugs are unsafe	When pharmacological prophylaxis can begin
Very low risk procedure or patient	Procedure appropriate mobilization and prevention pathway	New immobility or other acquired risk
Complex anticoagulation history	Coordinated specialist plan	Treatment and prophylaxis distinguished

ASH guidance supplement

For major general surgery, ASH suggests pharmacological prophylaxis using LMWH or UFH. Mechanical measures are favored when bleeding risk prevents anticoagulant use; intermittent pneumatic compression is preferred over stockings when mechanical prophylaxis is chosen. Combined methods may be particularly useful at high VTE risk. Many recommendations are conditional and require individualized application.

Make the prescription feasible

Choose dose, timing and duration using the procedure specific protocol, renal function, body size and bleeding context. Coordinate neuraxial catheter placement and removal with anesthesia. Confirm that a compression device fits, is applied and is used rather than assuming an order alone provides protection.

Common pitfall Treating all general surgical operations alike. The ASH recommendation for major general surgery does not imply routine anticoagulant prophylaxis for every brief ambulatory procedure.

Source Perioperative prevention framework: Sabiston Chapter 19, printed page 23; PDF page 310. VTE recommendations supplement: ASH surgical hospitalized patient guideline 2019, doi:10.1182/bloodadvances.2019000975.

53 Duration follow up and enhanced recovery

Assess risk beyond discharge

Discharge does not necessarily end postoperative thrombotic risk. Review residual immobility, malignancy, bleeding, renal function and the ability to obtain and administer treatment at home. Document the stop date and instructions for review rather than writing only “continue prophylaxis.”

Cancer surgery guidance supplement Selected patients undergoing major abdominal or pelvic cancer surgery may benefit from extended prophylaxis for approximately four weeks when bleeding risk permits. ASCO 2023 added apixaban and rivaroxaban as options for extended prophylaxis with weak recommendation strength. Selection, initial treatment and timing require the complete protocol; this is not a universal discharge prescription.

ERAS is a coordinated recovery pathway

The textbook describes enhanced recovery as integration of preoperative education, optimization and fasting management with intraoperative and postoperative care. Success depends on multidisciplinary implementation and patient participation. A pathway organizes care; it does not remove the need to respond to complications or physiological instability.

Phase	Core planning themes	What to measure
Before surgery	Education, nutrition, medication planning and preparation	Understanding, readiness and completion
During surgery	Appropriate anesthesia, temperature, fluid and preventive care	Delivery and clinical response
After surgery	Analgesia, mobilization, nutrition and VTE prevention	Function, intake, adverse events and recovery
After discharge	Instructions, support and access to review	Symptoms, medication adherence and follow up

Use procedure specific guidance

The ASCRS SAGES colorectal pathway recommends mechanical bowel preparation with oral antibiotics before elective colorectal resection and supports early diet and mobilization in suitable patients. These recommendations belong to the relevant colorectal pathway; they should not be transferred unchanged to every operation.

The textbook emphasizes measuring both pathway adherence and outcomes. Track reasons for deviations, including clinically justified changes. An earlier discharge date alone does not prove improved recovery if pain, intake, safety or follow up are inadequate.

Source Sabiston Chapter 19, printed page 23; PDF page 310. Supplements: ASCO VTE guideline update 2023, doi:10.1200/JCO.23.00294; ASCRS SAGES enhanced recovery guideline, Dis Colon Rectum. 2023;66:15–40.

54 Prevention checklist and clinical application

Integrate prevention before induction

- Clarify prophylaxis versus treatment for antimicrobial use.
- Confirm the antibiotic indication, allergy assessment, dose and timing.
- Assign redosing and discontinuation decisions.
- Assess VTE and bleeding risk and choose a procedure appropriate strategy.
- Coordinate pharmacological timing with renal function and neuraxial plans.
- Confirm mechanical measures are correctly applied where indicated.
- Plan postoperative nutrition, analgesia, mobilization and reassessment.
- Document any extended prophylaxis and discharge support.

Case one A drain after uncomplicated surgery

After a clean operation, a drain is left in place without evidence of infection. The drain alone is not a reason to continue prophylactic antibiotics. Review the surgical closure stop plan and distinguish any new clinical infection from the original prevention indication.

Case two High VTE risk with active bleeding

A patient after major cancer surgery has restricted mobility and ongoing bleeding. The competing hazards must be addressed together. Use suitable mechanical prevention while pharmacological treatment is unsafe, reassess hemostasis and record when the drug decision will be revisited. A temporary contraindication should not become indefinite omission without review.

Case three A pathway deviation

A patient on an elective colorectal recovery pathway develops vomiting, worsening pain and hemodynamic instability. Investigate and treat the clinical deterioration. Feeding, mobilization and discharge targets must be adapted to the patient; pathway compliance is not a justification for overlooking a possible complication.

Questions for the oral examination

Which organisms does the chosen prophylaxis target? Was the dose delivered before incision? Is redosing due? Why are antibiotics being continued? What is the VTE risk and what limits anticoagulant use? Is extended prophylaxis indicated? Which recovery targets are appropriate today, and which should change because of the clinical findings?

References for this prevention unit

Sabiston Textbook of Surgery. 22nd edition. Chapter 19, printed pages 23–28; PDF pages 310–315. SHEA IDSA APIC. Strategies to prevent surgical site infections in acute care hospitals 2022 Update. Infect Control Hosp Epidemiol. 2023. ASH surgical VTE prevention guideline 2019, doi:10.1182/bloodadvances.2019000975.

ASCO VTE guideline update 2023, doi:10.1200/JCO.23.00294. ASCRS SAGES Enhanced Recovery After Colon and Rectal Surgery. Dis Colon Rectum. 2023;66:15–40. doi:10.1097/DCR.0000000000002650. The clinical scenarios and checklist are original teaching applications.

55 Comprehensive preoperative decision algorithm

Begin with the indication and urgency of surgery. The final decision integrates expected surgical benefit, the harm of delay, physiological stability, modifiable risk and the patient's goals. This teaching algorithm combines the preceding sections; it is not a separately validated risk score.

Step	Decision	Action
1 Define the operation	What benefit is expected and how urgent is it?	Confirm indication, alternatives and consequences of delay
2 Identify immediate threats	Is the patient unstable or is urgent source control required?	Resuscitate and coordinate emergency care in parallel
3 Establish baseline risk	What do history, examination, function and procedure show?	Assess organ disease, frailty, medications and prior anesthetic problems
4 Select investigations	Will a result change management?	Order targeted tests and review previous results
5 Correct relevant problems	Can optimization improve outcome within the available time?	Treat the cause and define reassessment criteria
6 Agree on a strategy	Proceed, defer, modify or choose an alternative?	Discuss benefit, residual risk and patient preferences
7 Confirm readiness	Are preparation and recovery plans complete?	Verify medications, fasting, prevention, monitoring and destination

Urgency changes the pathway

For emergency surgery, obtain the information needed for immediate safe care and correct reversible threats while preparing for the operation. A complete elective workup should not delay life saving treatment. For time sensitive surgery, focus on changes likely to help within the available interval. Elective surgery permits investigation and optimization when their expected benefit justifies delay.

State the decision with conditions

Document the proposed operation, important risks, actions completed, unresolved concerns and the agreed monitoring plan. If surgery is deferred, specify the reason, responsible clinician and criteria for reconsideration. If proceeding with substantial residual risk, document why the expected benefit and urgency support that choice.

Exam pearl Preoperative assessment ends with a management decision and a recovery plan, not simply a list of comorbidities or the word cleared.

Source Original synthesis of Sabiston 22nd edition, Chapter 19, and the explicitly identified guideline supplements in the preceding units. Cardiovascular decisions incorporate the 2024 AHA ACC guideline.

56 Proceed optimize or defer

Recognize instability before estimating routine risk

Finding	Elective surgery response	Urgent surgery response
Acute coronary syndrome, decompensated heart failure or unstable arrhythmia	Pause for assessment and treatment; agree timing with the team	Address instability and coordinate perioperative care according to urgency
New hypoxemia or significant respiratory exacerbation	Investigate and treat before reconsidering timing	Support oxygenation and ventilation while addressing the surgical problem
Acute kidney injury, major volume disturbance or dangerous electrolyte abnormality	Identify cause and correct clinically important abnormalities	Treat immediately with appropriate monitoring; balance delay against benefit
Decompensated cirrhosis or acute hepatic illness	Assess severity, reversibility and alternatives with specialist input	Plan for bleeding, infection, renal and encephalopathy risks
Active bleeding or clinically important unexplained anemia	Find the cause and prepare a blood management plan	Control bleeding and resuscitate according to physiology
Ketoacidosis or hyperosmolar crisis	Treat the metabolic emergency before elective surgery	Coordinate emergency metabolic treatment with essential surgery
Severe nutritional risk or major functional limitation	Consider supported optimization when delay is acceptable	Adapt nutrition, rehabilitation and postoperative support to urgency

A diagnosis alone does not settle timing

Stable chronic disease may be compatible with surgery after appropriate planning. A mildly abnormal laboratory value does not automatically require cancellation. Conversely, apparently reassuring results do not override symptoms of acute deterioration. Decisions depend on severity, trajectory, the proposed operation and available monitoring.

Make consultation answer a question

Ask whether a suspected condition needs treatment, whether additional testing will alter care, what optimization is achievable and which perioperative support is required. Specify the operative urgency. Consultation is most useful when it resolves an actionable uncertainty.

Common pitfall Applying a single score or laboratory cutoff as a universal permission or cancellation rule. Risk estimates support discussion; they do not replace clinical assessment.

Source Integration of the organ assessment units above. These examples describe decision principles, not absolute contraindications applicable to every operation.

57 Final review of organ assessment

Domain	High yield assessment	Action that changes care
Cardiovascular	Symptoms, stability, functional capacity, procedure risk and relevant modifiers	Use a validated risk tool when appropriate; investigate selectively
Pulmonary	Dyspnea, oxygenation, recent infection, exacerbation, OSA and smoking	Optimize respiratory disease and plan airway and postoperative support
Renal and fluid	Creatinine trend, urine output, volume, potassium and nephrotoxic exposure	Correct important abnormalities and adjust fluids and drugs
Hepatic	Prior decompensation, ascites, encephalopathy, portal hypertension and renal function	Use appropriate severity tools and plan multidisciplinary care
Hematology	Anemia cause, bleeding history, platelets and antithrombotic indication	Treat causes; document interruption, hemostasis and restart plans
Endocrine	Diabetes regimen, hypoglycemia, metabolic stability and steroid exposure	Plan glucose checks, insulin, medication holds and adrenal coverage
Nutrition and function	Weight loss, intake, validated screening, frailty and support	Provide nutrition and functional preparation appropriate to available time

Use each tool for its intended question

Tool or measure	What it contributes	Limit
ASA physical status	Describes systemic disease burden	Not a complete procedure specific outcome estimate
RCRI or NSQIP based estimate	Supports perioperative risk discussion	Use the correct population and outcome
ARISCAT and OSA screening	Identify pulmonary or sleep related risk	Do not establish every respiratory diagnosis
Child Pugh, MELD and VOCAL Penn	Describe hepatic severity or surgical risk in appropriate settings	Specify model and version; do not interchange estimates
Nutrition and frailty instruments	Identify patients needing assessment and support	A positive screen requires a management response

Clinical pearl A useful risk assessment connects the finding to an intervention, a monitoring decision or an informed discussion of alternatives.

Source Review of the preceding chapter units and their cited references. Definitions and calculation details remain in the relevant organ sections.

58 Final review of preparation and prevention

Item	Core rule	Final confirmation
Medication reconciliation	Verify indication, actual use and last dose	Written continuation, hold and restart instructions
Beta blockers	Continue established therapy when appropriate; avoid routine initiation on the day of surgery	Heart rate, blood pressure and agreed regimen
Antithrombotics	Balance indication, procedural bleeding and interruption risk	Drug specific timing, neuraxial coordination and restart ownership
Diabetes	Preserve basal insulin in type 1 diabetes and use an individualized plan	Glucose checks and response to hypoglycemia or hyperglycemia
SGLT2 inhibitors	For planned surgery use the specified 3 to 4 day interruption	Last dose and ketoacidosis assessment when clinically indicated
GLP 1 therapies	Use individualized aspiration risk assessment	Symptoms, escalation phase and anesthesia plan
Fasting	Apply the appropriate elective fasting pathway and aspiration assessment	Actual last intake, type of intake and exceptions
Antimicrobials	Match prophylaxis to procedure and patient	Agent, dose, delivery before incision, redosing and stop plan
VTE prevention	Assess thrombosis and bleeding together	Mechanical measures, drug timing and duration
ERAS and disposition	Coordinate recovery around the operation and patient	Analgesia, nutrition, mobility, monitoring and discharge support

Numbers that require context

The earlier units distinguish fasting intervals for healthy elective patients from individualized aspiration precautions; transfusion thresholds from preoperative hemoglobin targets; glucose goals from cancellation criteria; and prophylactic anticoagulation from therapeutic anticoagulation. Retain those distinctions when using a rapid review table.

Check delivery as well as orders

A medication may be prescribed but not administered. A fasting instruction may have been misunderstood. A compression device may not be fitted. Verify actual completion and communicate any deviation before induction.

Source Condensed review of the medication, fasting and prevention units. Their named guideline supplements and procedure specific qualifications apply to this table.

59 Integrated handoff and examination framework

A concise preoperative presentation

Present the proposed operation and urgency first, followed by the patient's goals and baseline function. Identify the major active problems, give the relevant risk estimate when useful, explain completed optimization and state unresolved issues. Finish with the recommendation and the required perioperative support.

Handoff element	What the receiving team needs
Decision and consent	Agreed procedure, alternatives discussed and material residual risks
Active conditions	Current stability, relevant trends and escalation triggers
Medications	Last doses, holds, essential therapy and restart responsibility
Preparation	Fasting status, allergies, relevant tests and blood availability if needed
Prevention	Antimicrobial timing and redosing; VTE and bleeding plan
Recovery	Monitoring destination, respiratory support, analgesia, nutrition and mobility
Follow up	Outstanding results, responsible clinician and review timing

Case one Stable disease before low risk surgery

A patient with stable chronic disease and satisfactory functional capacity is scheduled for a low risk procedure. Review symptoms and the medication plan. Routine additional cardiac stress testing is not indicated solely because surgery is planned. Complete the preparation and postoperative plan.

Case two Several correctable problems before major surgery

A patient scheduled for elective major abdominal surgery has recent weight loss, anemia and poorly understood medication instructions. Identify causes, assess nutritional and functional risk, and reconcile treatment. Decide whether a defined optimization interval is likely to improve outcome without unacceptable harm from delay. Reassess against explicit goals.

Case three Deterioration on the day of surgery

New dyspnea, hypotension or altered mental status changes the assessment even when earlier testing was reassuring. Reevaluate immediately, communicate with surgery and anesthesia, and determine whether stabilization or urgent operative treatment is needed. The previous readiness decision must be reconsidered.

Oral examination sequence Indication and urgency; immediate threats; baseline and procedure risk; targeted tests; optimization; shared decision; final preparation; recovery and handoff.

References Sabiston Textbook of Surgery, 22nd edition, Chapter 19. Guideline supplements are identified in the preceding units. AHA ACC multisociety perioperative cardiovascular guideline 2024, doi:10.1016/j.jacc.2024.06.013. This final algorithm and the teaching cases are original educational syntheses.

Advanced clinical judgment questions

One hundred extended case scenarios

Each question asks for the single best management strategy given the information, timing and resources described. Read the complete case before choosing. Several findings may be reassuring while a separate active problem changes the appropriate decision.

The reasoning tasks include competing bleeding and thrombotic hazards, the cost of delaying disease treatment, uncertainty in risk estimation, treatment limits, physiological deterioration and whether a planned intervention is actually deliverable. Explanations identify the decisive issue and address each competing option.

Questions are grouped by their principal domain, although cases integrate multiple systems. Named guideline years define the framework when relevant. Answers follow each case for study; a separate answer key is provided after Question 100.

001 to 010 Principles consent and geriatric judgment

011 to 020 Cardiovascular assessment and timing

021 to 030 Respiratory risk and recovery resources

031 to 040 Renal perfusion and electrolyte decisions

041 to 050 Cirrhosis and hepatic risk decisions

051 to 060 Anemia bleeding and antithrombotic strategy

061 to 070 Diabetes medicines and endocrine emergencies

071 to 080 Nutrition prehabilitation and time tradeoffs

081 to 090 Fasting medications and final readiness

091 to 100 Prevention implementation and ERAS judgment

These original educational cases are intended for advanced discussion and self assessment. Their difficulty has not been psychometrically calibrated.

Question 001

Principles consent and geriatric judgment

An 83 year old woman has a nonobstructing ascending colon cancer without distant disease. She lives alone and manages her medicines, but her daughter does the shopping. During the last six months she has fallen twice, lost 7 kg and stopped attending her walking group. Cardiac symptoms are absent, hemoglobin is 10.1 g/dL and creatinine is unchanged. The anesthetist describes her as ASA III. Her daughter requests immediate surgery because the cancer is potentially curable. The patient says she would accept a shorter life rather than permanent institutional care, but has not been told what postoperative dependence might involve. A two week assessment interval is oncologically acceptable.

The colorectal team estimates that resection offers meaningful disease control, but cannot predict return to independent living with certainty. No structured assessment of nutrition or activities has been performed. She can explain the diagnosis and alternatives clearly. Her daughter assumes that a technically successful operation necessarily means discharge home, whereas the patient specifically wants the possibility of rehabilitation or permanent care discussed.

Which approach best supports the operative decision?

A. Ask the daughter to choose after receiving the operative mortality estimate

B. Offer resection after ASA based counseling and assess function during recovery

C. Assess frailty and recovery prospects, then discuss options against her priorities

D. Require a fixed rehabilitation course before discussing treatment alternatives

Correct answer C. Functional vulnerability and the patient's goals change the value of surgery; a defined assessment interval can inform consent.

Why A is less appropriate. The capable patient must participate in her own decision.

Why B is less appropriate. Postoperative assessment misses risks material to the current choice.

Why D is less appropriate. A mandatory course may delay a decision without addressing her priorities.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 002

Principles consent and geriatric judgment

A 76 year old man with a large symptomatic incisional hernia is booked for elective reconstruction. His referral says he wants repair, and he signed a generic form in clinic. On admission he says that he expects a one day operation and no chance of a stoma. The planned procedure may require extensive adhesiolysis and bowel resection, with prolonged recovery. He is alert, explains his other treatments coherently and asks sensible questions. His wife says further discussion will frighten him and that the surgeon should proceed because the form is signed. There is no incarceration, skin compromise or other reason for immediate intervention. The operating list has an unexpected vacancy today.

The patient is willing to accept additional treatment if it is genuinely necessary, but says he would choose differently if prolonged dependence were likely. The booking note was written before cross sectional imaging clarified the adhesions. He has received no sedative premedication. The nursing team can make time for a discussion, and a later operating date is available without compromising the condition.

What is the best next action?

A. Offer the limited repair today and defer all contingency discussions

B. Use the wife's agreement to resolve the uncertainty about additional treatment

C. Pause scheduling to discuss material possibilities and verify understanding

D. Add foreseeable bowel procedures to the form and retain today's slot

Correct answer C. The mismatch concerns material treatment and recovery expectations; elective consent requires renewed discussion, not an administrative amendment.

Why A is less appropriate. Foreseeable relevant contingencies deserve discussion before elective treatment.

Why B is less appropriate. A spouse's agreement does not replace the capable patient's consent.

Why D is less appropriate. A form amendment does not establish understanding of material consequences.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 003

Principles consent and geriatric judgment

A 79 year old man with CKD, heart failure and suspected frailty presents with a strangulated hernia. CT shows compromised bowel and free fluid. Blood pressure is 88/54 mmHg after an initial fluid challenge, lactate is rising and he has new confusion. His daughter reports that he previously declined prolonged ventilation but would accept a short operation if independence remained realistic. No formal advance decision is available. A colleague suggests waiting until cardiology supplies an echocardiogram, the creatinine improves and a full frailty score is completed. Anesthesia and critical care can attend immediately. The surgeon believes source control is required within hours.

The patient remains able to express brief preferences between episodes of confusion, and the daughter can describe his previous reasoning. The team can include her during immediate preparation. Neither the operative prognosis nor ventilation duration can be guaranteed. Critical care staff can help establish a proportionate initial treatment plan and review limits if recovery differs from the agreed expectations.

Which plan best balances assessment and urgency?

A. Proceed immediately and discuss treatment limits only after recovery

B. Resuscitate, clarify achievable treatment limits and arrange urgent source control in parallel

C. Obtain formal cardiac and frailty estimates before committing to source control

D. Use overnight resuscitation to establish a clearer baseline before operating

Correct answer B. Emergency assessment must address immediate physiology and relevant goals without deferring necessary source control for elective investigations.

Why A is less appropriate. Known preferences remain relevant during emergency preparation.

Why C is less appropriate. The proposed investigations introduce harmful delay without changing the indication.

Why D is less appropriate. The untreated source can prevent physiological recovery.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 004

Principles consent and geriatric judgment

A 70 year old woman with metastatic malignancy has recurrent gastric outlet obstruction. A surgical bypass is technically possible, but she has progressive weight loss, limited mobility and several recent admissions. Endoscopic and nonoperative symptom management are available. The oncologist expects limited survival but cannot give an exact estimate. The patient says that eating a little at home matters more than extending survival in hospital. Her son interprets the availability of surgery as evidence that it is the best option. A previous operation relieved symptoms but required six weeks of rehabilitation, which the patient found unacceptable. There is no perforation, uncontrolled bleeding or immediate physiological threat.

She has no cognitive impairment and asks to hear the alternatives herself. The endoscopy team can offer a lower burden intervention, although repeat treatment may be required. The surgeon believes bypass might last longer if she recovers. The family focuses on durability, while the patient repeatedly returns to how many days she may spend away from home.

Which recommendation is most defensible?

A. Compare time to symptom benefit and recovery burden across options with her

B. Recommend medication alone without discussing the available lower burden intervention

C. Choose bypass for durability and discuss discharge support after recovery

D. Use operative mortality as the principal measure of treatment burden

Correct answer A. Palliation must consider the chance of benefit within the patient's remaining time and the burdens she regards as unacceptable.

Why B is less appropriate. Metastatic disease does not remove every useful symptom intervention.

Why C is less appropriate. Durability alone may not match her time horizon or priorities.

Why D is less appropriate. Recovery time and function are central to this patient's decision.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 005

Principles consent and geriatric judgment

A 74 year old patient awaiting elective surgery is labeled confused because he gives short answers and repeatedly asks the same question. His daughter ordinarily handles appointments and asks to provide consent. During a quiet conversation with an amplifier he accurately describes the diagnosis, explains the alternatives and states consistent reasons for choosing surgery. He is unsure of the exact date and has mild baseline memory difficulty. There is no acute illness or fluctuating consciousness. The team is concerned about postoperative delirium and has only thirty minutes before the scheduled list begins. A clerk suggests accepting the daughter's signature because this would be quicker.

He uses hearing aids at home but they were removed during admission. His daughter confirms that the current answers resemble his usual behavior when he cannot hear properly. There is no evidence that she has formal authority to override his decisions. The surgeon can revisit the discussion in a quiet room with the patient's preferred communication support in place.

Which approach is best?

A. Use delirium risk to favor family consent over supported patient participation

B. Assess decision specific capacity with communication support and involve him directly

C. Request normalization of cognitive screening before revisiting consent

D. Use the orientation error to activate the surrogate pathway immediately

Correct answer B. Communication and decision specific capacity require assessment; sensory impairment and mild memory deficits do not themselves remove autonomy.

Why A is less appropriate. Future delirium risk does not determine current capacity.

Why C is less appropriate. Screening normalization is not the appropriate consent endpoint.

Why D is less appropriate. An orientation error alone does not establish decision specific incapacity.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 006

Principles consent and geriatric judgment

A 68 year old man is referred for preoperative testing before a small skin lesion excision under local anesthesia. He has stable hypertension and walks several kilometers without symptoms. An external panel shows a mildly abnormal liver enzyme result present unchanged for years, normal bilirubin and no signs of hepatic decompensation. The scheduling office requests a chest radiograph, exercise test and repeat full laboratory panel because the existing results are six weeks old. His primary clinician has already arranged nonurgent follow up for the enzyme abnormality. The lesion is growing and the patient has traveled a long distance.

There has been no interval change in symptoms, exposure history or medicines, and the intended procedure has minimal expected blood loss. The primary clinician is not concerned about an acute hepatic process. The patient understands that separate investigation of the chronic enzyme finding may still be appropriate. The scheduling staff need a specific testing rationale rather than a general authorization stamp.

Which action best reflects proportional assessment?

A. Repeat the broad panel and postpone until the enzyme result normalizes

B. Obtain a stress test before accepting the local anesthesia plan

C. Order the office panel because its administrative validity interval expired

D. Proceed after focused review while preserving the separate liver follow up plan

Correct answer D. The procedure and current clinical findings do not justify a blanket workup or normalization requirement; the chronic abnormality still deserves follow up.

Why A is less appropriate. The chronic isolated finding does not justify a normalization requirement.

Why B is less appropriate. The supplied symptoms and procedure do not justify ischemia testing.

Why C is less appropriate. Administrative age alone does not establish clinical usefulness.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 007

Principles consent and geriatric judgment

A 78 year old woman is scheduled for major abdominal surgery. She has mild cognitive impairment, uses hearing aids and previously developed delirium during a pneumonia admission. Her daughter plans to stay at the bedside. The patient takes a nightly sedative, reports poor sleep and becomes anxious in unfamiliar surroundings. She currently has normal attention and no evidence of infection. The proposed ward plan includes bed rest, removal of hearing aids for safekeeping and extra sedatives if she becomes restless. The surgeon considers delirium an unavoidable consequence of age and asks whether further preparation has value.

Pain, dehydration and sleep disruption were documented during her previous delirium episode. She can identify her usual medicines and is willing to review their risks. The ward can support early appropriate mobility and familiar orientation cues. Her daughter asks for a prevention plan and a clear response if attention changes, rather than reassurance based solely on a normal preoperative conversation.

Which strategy is most appropriate?

A. Establish baseline cognition and modify sensory, medication, mobility and sleep risks

B. Keep her immobile initially to avoid falls and overstimulation

C. Use prophylactic sedation to prevent anxiety driven delirium

D. Order daily cognitive tests without altering the care environment

Correct answer A. Several modifiable risks coexist; prevention requires coordinated care rather than assuming delirium is inevitable.

Why B is less appropriate. Unnecessary immobility can worsen recovery and delirium risk.

Why C is less appropriate. Sedative exposure may worsen vulnerability.

Why D is less appropriate. Detection alone does not address preventable contributors.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 008

Principles consent and geriatric judgment

A 72 year old man is offered a major cancer resection. Two models produce different estimated complication risks because one includes procedure type and functional status while the other mainly summarizes comorbidity. Both are applicable within their intended settings. The patient asks which number is his true risk. He has no unstable disease, but has reduced mobility and limited help at home. The tumor team considers both surgery and nonsurgical treatment reasonable, with different chances of disease control. A trainee proposes averaging the predictions and using that number to obtain consent.

The patient is most concerned about a major complication requiring long term dependence, rather than a brief minor event. One model reports any complication and the other a narrower serious outcome. Neither includes every aspect of his support situation. The team can explain these differences directly, but no additional model can remove all uncertainty about his personal recovery.

Which response best demonstrates judgment?

A. Average both estimates and use that value as the consent probability

B. Use the lower estimate because there is no active organ deterioration

C. Use the higher estimate to recommend nonsurgical treatment without further discussion

D. Explain model differences and integrate uncertainty, function and treatment alternatives

Correct answer D. Different models answer different questions; the decision needs outcome context and patient priorities rather than an invented composite probability.

Why A is less appropriate. The models predict different outcomes and the average is unvalidated.

Why B is less appropriate. Selecting the lower result introduces unsupported reassurance.

Why C is less appropriate. A probability does not decide benefit or patient preference.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 009

Principles consent and geriatric judgment

A 69 year old man has an asymptomatic but enlarging cancer requiring major resection. He has slow walking speed, recent unintentional weight loss and low mood after his spouse's death. A rehabilitation program offers a standard six week course, but the cancer team considers more than two weeks of delay undesirable. He is willing to participate and has no contraindication to moderate activity. A trainee proposes either completing the full program before surgery or abandoning prehabilitation because there is insufficient time. The dietitian can see him tomorrow, and home exercises can begin this week.

He has already begun missing meals because exercise sessions are scheduled at inconvenient times. His daughter can help with food and brief home activity. The rehabilitation clinician agrees that some gains may be feasible before surgery but cannot promise a lower complication rate in this individual. The patient wants to know which goals should be pursued now and which can continue during recovery.

Which plan is most appropriate?

A. Require completion of the full course before reconsidering resection

B. Delay until walking speed and mood return to premorbid levels

C. Proceed without addressing nutrition because full preparation is impossible

D. Start feasible individualized support now and agree on an oncologically acceptable reassessment interval

Correct answer D. Optimization can be useful within a short interval; benefit must be balanced against harm from delaying cancer treatment.

Why A is less appropriate. A fixed course ignores disease urgency.

Why B is less appropriate. These are uncertain endpoints that could impose excessive delay.

Why C is less appropriate. Partial feasible improvement still matters.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 010

Principles consent and geriatric judgment

A 75 year old woman is assessed for elective resection at a hospital with limited postoperative support. Her heart failure and COPD are stable, but she needs help transferring and previously required noninvasive ventilation after anesthesia. The operation is expected to be prolonged. Tests are satisfactory and a specialist letter says no further investigation is required. No monitored bed is available for the planned date. The next equipped center can accept her within one week, which the treating team considers safe for the disease. Her family strongly prefers the current hospital because it is nearer.

Anesthesia expects that routine ward observation may be insufficient during the first postoperative night. The patient's family can visit either center but cannot provide respiratory support. There is no clinical sign requiring emergency surgery today. The receiving hospital can review the existing investigations, so transfer would address a resource gap rather than restart an otherwise completed diagnostic workup.

What is the best recommendation?

A. Proceed locally because specialist investigation requirements have been completed

B. Withdraw the surgical recommendation because the local monitored bed is unavailable

C. Arrange an adequately supported operative setting and discuss the short delay

D. Operate locally with a rescue transfer plan if ventilation is required

Correct answer C. Readiness includes the resources needed to manage foreseeable recovery risk; a brief safe transfer interval is preferable to an unsupported plan.

Why A is less appropriate. Diagnostic completion does not supply necessary recovery resources.

Why B is less appropriate. An equipped alternative is available within an acceptable interval.

Why D is less appropriate. Foreseeable support should not depend entirely on rescue transfer.

Source framework: Sabiston Chapter 19, evaluation, consent and older patient assessment.

Question 011

Cardiovascular assessment and timing

A 66 year old man is awaiting elective colectomy for a nonobstructing tumor. He has chronic ischemic cardiomyopathy, previously stable on treatment. During the last week he has needed three pillows to sleep and developed ankle edema. He now stops after walking across the ward. Blood pressure is 112/68 mmHg, oxygen saturation is 93 percent and ECG shows old changes without new ischemic findings. An echocardiogram six months ago showed reduced ejection fraction. A stress imaging appointment is available tomorrow, and the surgical team wants to use it to avoid losing the booked slot. There is no acute abdominal indication.

He admits missing diuretic doses because access to a bathroom has become difficult. Weight has increased, and the family says this is a clear change from the previous clinic visit. The oncology team considers a short delay acceptable. A normal ischemia study would not determine whether congestion, medication adherence or another precipitant has been adequately treated.

Which is the best immediate plan?

A. Give an extra beta blocker dose and reassess only after induction

B. Proceed using the previous echocardiogram with invasive monitoring

C. Pause elective surgery and assess and treat the new heart failure deterioration

D. Obtain stress imaging first and proceed if ischemia is absent

Correct answer C. New congestion and major functional decline indicate possible decompensation; a negative ischemia test would not establish compensated physiology.

Why A is less appropriate. Unplanned dose escalation may worsen hemodynamics.

Why B is less appropriate. Earlier imaging cannot establish current stability.

Why D is less appropriate. It does not resolve the active heart failure problem.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 012

Cardiovascular assessment and timing

A 71 year old woman needs time sensitive cancer surgery. She has remote myocardial infarction, diabetes and stable CKD. Severe knee arthritis prevents stair climbing, so functional capacity cannot be established from exercise history. She reports no chest discomfort, orthopnea or recent decline. A validated estimate indicates elevated cardiac risk. The team has agreed that a high risk ischemic finding would prompt reconsideration of timing and treatment; a low risk result would support proceeding with planned monitoring. There is enough time for a noninvasive study without a clinically important cancer delay.

The patient is willing to reconsider surgery if a study reveals a finding that changes long term cardiac treatment. Her limited exercise history has not been interpreted as proof of ischemia. The cancer team has agreed on the available investigation interval. Any proposed test must therefore be linked to a specific subsequent decision, rather than performed simply because a risk category is elevated.

Which approach best fits the 2024 framework?

A. Consider selective ischemia testing because its result could change management

B. Delay cancer surgery until she can demonstrate normal exercise capacity

C. Proceed without considering testing because arthritis explains the limitation

D. Request routine coronary angiography before making any further decision

Correct answer A. Unknown capacity and elevated risk can justify selected testing when an actionable management consequence is defined.

Why B is less appropriate. Restoring exercise ability is neither feasible nor a required endpoint.

Why C is less appropriate. A noncardiac cause of limited capacity does not establish low cardiac risk.

Why D is less appropriate. Angiography is not the routine first investigation here.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 013

Cardiovascular assessment and timing

A 73 year old man with stable coronary disease is scheduled for major resection. He walks slowly because of neuropathy and has an elevated calculated cardiac risk. After multidisciplinary discussion he declines coronary intervention under any circumstances, and the team concludes that a stress result would not change medication, operative strategy, monitoring or his decision to proceed. He understands residual risk. There are no unstable cardiac symptoms or other independent indications for ischemia testing. A resident requests stress imaging to document clearance and protect the surgical team. The test would delay surgery by three weeks.

The patient has received a balanced explanation and can describe the possible cardiac consequences. Anesthesia has already specified the surveillance and postoperative destination. The surgical team is not planning a different operation based on inducible ischemia. No clinician has identified an unanswered symptom based question, making the proposed investigation's practical consequence the central issue rather than its mere availability.

What is the best next step?

A. Defer surgery until a consultant supplies an unconditional clearance statement

B. Request stress imaging for prognostic documentation despite no management consequence

C. Proceed with the agreed plan without nonactionable stress testing

D. Request angiography to provide a more definitive anatomical risk description

Correct answer C. Elevated risk does not mandate testing when the result cannot alter care and no independent indication exists.

Why A is less appropriate. Unconditional clearance is not a realistic clinical endpoint.

Why B is less appropriate. Testing must have a relevant purpose beyond documenting elevated risk.

Why D is less appropriate. Invasive certainty is not useful without an actionable indication.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 014

Cardiovascular assessment and timing

A 65 year old man has a drug eluting coronary stent placed recently for an acute coronary syndrome. He is taking aspirin and a P2Y12 inhibitor. He is now referred for a large but reducible incisional hernia causing intermittent discomfort. There is no obstruction, skin threat or loss of oral intake. The operating surgeon proposes stopping both drugs for a week and using prophylactic heparin to protect the stent. The patient is worried because the cardiologist previously emphasized avoiding interruptions. The exact PCI date and details are available in another hospital's record but have not been reviewed.

His hernia has been reducible on repeated examinations, and he has maintained normal intake and bowel function. The cardiologist who performed PCI can be contacted today. The patient is not refusing surgery; he asks why a nonurgent procedure should require interruption of treatment that was recently described as essential. The surgeon can safely discuss a revised date after the records are reviewed.

Which plan is most appropriate?

A. Use the absence of current angina to authorize interruption

B. Defer the elective booking while clarifying PCI details and coordinating antiplatelet management

C. Proceed on both agents without discussing procedural bleeding consequences

D. Stop both agents and substitute prophylactic heparin for the interruption

Correct answer B. Recent ACS and PCI create competing thrombotic and bleeding hazards; a nonurgent hernia allows coordinated planning rather than improvisation.

Why A is less appropriate. Absence of symptoms does not establish interruption safety.

Why C is less appropriate. Continuation also needs a procedure specific risk discussion.

Why D is less appropriate. Heparin prophylaxis does not replace antiplatelet stent protection.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 015

Cardiovascular assessment and timing

A 70 year old woman has taken metoprolol for years for coronary disease and rate control. She is admitted for elective abdominal surgery after bowel preparation. Her usual morning dose is due, but she is dizzy, pulse is 42/min and blood pressure is 82/48 mmHg. She has no chest pain. A junior doctor says chronic beta blockers must always be continued because withdrawal is harmful. Another suggests permanently discontinuing all cardiac medicines. The operation can safely be postponed for assessment.

Nursing staff confirm that the low pulse and pressure are new rather than her baseline. She has received other medicines during preparation, and volume loss is possible. There is no imperative to induce anesthesia before the cause is evaluated. The long term indication for beta blockade remains valid, so the immediate decision and the eventual resumption plan need to be distinguished.

Which action best applies medication guidance to the current physiology?

A. Give a reduced dose and proceed once the pulse improves slightly

B. Hold or adjust the immediate dose while evaluating and treating symptomatic instability

C. Stop all cardiovascular treatment until after discharge without reassessment

D. Give the usual dose and treat hypotension after induction if necessary

Correct answer B. Continuation recommendations require clinical interpretation; symptomatic bradycardia and hypotension need immediate evaluation and individualized adjustment.

Why A is less appropriate. A rate change alone does not explain or resolve the cause.

Why C is less appropriate. Each drug needs an indication based review and resumption plan.

Why D is less appropriate. Acute symptomatic instability overrides automatic continuation.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 016

Cardiovascular assessment and timing

A 68 year old patient is scheduled for elective surgery in ten days. A newly recognized cardiac condition provides an independent indication for beta blocker treatment. Blood pressure and heart rate are currently stable, and no acute coronary syndrome is suspected. The anesthesia clinic can review tolerance twice before surgery. The resident proposes withholding treatment until the morning of surgery to avoid complicating the preoperative assessment. The surgeon is also concerned that canceling the operation solely to start a medicine may cause unnecessary delay.

The prescribing clinician has explained the indication, and the patient can attend the planned reviews. A small adjustment of the operative date would be possible if treatment is not tolerated, but cancellation is not automatically required now. The team wants a plan that recognizes both the risk of unassessed initiation and the potential benefit of appropriately established therapy.

Which strategy best balances these concerns under the 2024 framework?

A. Postpone treatment until several weeks after surgery despite its indication

B. Use a single preoperative dose as equivalent to established treatment

C. Give the first full dose immediately before induction

D. Start indicated therapy now with tolerance review and titration before surgery

Correct answer D. There is time to initiate therapy and assess tolerance; last minute initiation sacrifices that opportunity and can cause hemodynamic harm.

Why A is less appropriate. The independent indication should not be ignored without reason.

Why B is less appropriate. A one time dose is not an equivalent treatment strategy.

Why C is less appropriate. Immediate initiation does not permit safe titration.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 017

Cardiovascular assessment and timing

A 72 year old man takes an ACE inhibitor for HFrEF and hypertension. He is scheduled for major surgery and is currently euvolemic, normotensive and free of orthostatic symptoms. Another patient on the same list takes the identical drug solely for controlled hypertension. A standard ward order omits the drug for both patients for a week and provides no restart instructions. Anesthesia asks the surgeon to review whether the two indications should be treated identically. Renal function and potassium are stable in both patients.

The HFrEF patient has previously deteriorated after long interruptions in treatment, whereas the hypertension only patient has experienced postural symptoms with bowel preparation. Both will receive anesthesia assessment. The team can issue individualized instructions and name a clinician to review postoperative resumption. A shared drug name is therefore the main similarity, rather than an identical physiological and therapeutic context.

Which response demonstrates the best judgment?

A. Continue both automatically regardless of expected hypotension

B. Replace both drugs with newly started beta blockers on surgery day

C. Differentiate the indications and individualize perioperative continuation or short omission with restart plans

D. Apply the same prolonged hold because the molecules are identical

Correct answer C. HFrEF therapy and hypertension only treatment have different perioperative considerations; neither supports an unreviewed week long blanket hold.

Why A is less appropriate. Continuation still depends on clinical and procedural context.

Why B is less appropriate. Last minute substitution introduces different risks and lacks justification.

Why D is less appropriate. Drug indication changes the balance of risks.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 018

Cardiovascular assessment and timing

A 77 year old woman reports reduced walking distance before elective surgery. She attributes this to age, but further questioning reveals exertional presyncope and new breathlessness. Examination identifies a harsh systolic murmur. An old note describes aortic sclerosis, but no recent echocardiogram exists. A routine risk calculator gives a modest estimate because several traditional risk factors are absent. Her planned operation is nonurgent. A colleague proposes proceeding because the score is below the hospital's referral threshold. Another requests an exercise test before characterizing the murmur.

The patient now avoids exertion to prevent presyncope, so her current report of little activity related discomfort is difficult to interpret. The family remembers that the murmur was described as harmless years earlier. The planned procedure is sufficiently stressful that an important valve lesion would affect timing, anesthesia and monitoring. No current test has characterized the suspected change.

Which next step is best?

A. Accept the calculator result as sufficient evidence of readiness

B. Order ischemia stress testing as the first response to the murmur

C. Proceed with extra fluids to reduce the likelihood of hypotension

D. Evaluate suspected important valve disease and coordinate timing before proceeding

Correct answer D. Symptoms and a murmur suggest a structural risk modifier requiring targeted assessment that a generic score may miss.

Why A is less appropriate. The score does not exclude severe symptomatic valve disease.

Why B is less appropriate. The valve lesion needs characterization before exercise testing decisions.

Why C is less appropriate. Empiric volume loading does not resolve the underlying risk.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 019

Cardiovascular assessment and timing

A 69 year old man with stable coronary disease is being prepared for major cancer surgery. He has no angina and reasonable functional capacity. An outside angiogram performed for another reason shows coronary narrowing, but the cardiac team finds no independent indication for revascularization. A trainee suggests prophylactic PCI to reduce operative risk. That would introduce an antiplatelet management issue and could delay cancer treatment. The patient believes an additional procedure would guarantee a safer operation. Both teams can participate in a discussion today.

The patient is also concerned about a prolonged delay in cancer care and additional hospital visits. The cardiac team is prepared to explain why an anatomical finding does not automatically create a treatment indication. The proposed PCI is being considered only because another operation is planned. No symptom change or other independent reason for revascularization has emerged since the angiogram.

Which recommendation is most appropriate?

A. Use indicated medical care and operative planning rather than PCI solely for surgical risk reduction

B. Proceed with routine consent without discussing residual cardiac risk

C. Perform PCI before resection because coronary anatomy is abnormal

D. Defer cancer surgery until anatomical coronary disease has been corrected

Correct answer A. Revascularization should follow appropriate clinical indications; unindicated intervention can add delay and new perioperative hazards.

Why B is less appropriate. No PCI indication does not mean no cardiac risk.

Why C is less appropriate. No independent revascularization indication has been identified.

Why D is less appropriate. Complete anatomical correction is not an operative readiness requirement.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 020

Cardiovascular assessment and timing

A 74 year old man with atrial fibrillation is admitted for elective surgery. His pulse is 132/min, hemoglobin has fallen from 11.0 to 8.6 g/dL, temperature is 38.2 C and he reports new weakness. He missed two doses of his usual rate control medicine during bowel preparation. Blood pressure is maintained and he has no acute ischemic symptoms. A preoperative note calls this chronic AF and recommends proceeding after an extra dose of rate control therapy. The planned operation is not urgent, and a source of fever has not been assessed.

His daughter reports that he was walking normally before the recent preparation and weakness. The source of blood loss has not been assessed, and fever may represent an additional acute problem. Rate control may be part of treatment, but neither the patient nor the team has yet established why the rhythm is faster. Restoring one number would not answer that question.

Which approach is best?

A. Assume a known rhythm diagnosis makes the current change clinically unimportant

B. Perform routine coronary angiography before assessing fever and anemia

C. Treat the rate alone and proceed once it is below the ward threshold

D. Investigate and treat triggers of rapid AF before finalizing elective readiness

Correct answer D. Rapid AF may reflect medication interruption, infection or anemia; controlling the rate alone may conceal unresolved active disease.

Why A is less appropriate. A chronic diagnosis does not imply current stability.

Why B is less appropriate. Immediate priorities are not answered by routine angiography.

Why C is less appropriate. A numerical rate target does not resolve the precipitating illness.

Source framework: Sabiston Chapter 19; AHA ACC perioperative guideline 2024.

Question 021

Respiratory risk and recovery resources

A 67 year old man with COPD is scheduled for elective upper abdominal surgery. At assessment three weeks ago he was at baseline. Since then he has developed increasing wheeze, purulent sputum and reduced exercise tolerance. Oxygen saturation is 90 percent, compared with a documented baseline of 95 percent. Chest radiography shows no focal infiltrate, and spirometry is similar to an older measurement. He has no abdominal emergency. The surgeon is reluctant to postpone because operating time is scarce, and a trainee argues that unchanged spirometry and a clear radiograph exclude a clinically meaningful exacerbation. His inhaler technique has not been checked.

He has been using his rescue inhaler more frequently and is unsure how to operate the maintenance device. A prior postoperative respiratory admission makes him anxious about another delay. The team can explain which findings would support improvement and reconsideration. The negative imaging finding narrows one possibility but does not explain the change in sputum, breathing or saturation.

What is the best next step?

A. Give a prophylactic antibiotic dose and consider the problem resolved

B. Increase postoperative oxygen planning without reassessing the preoperative illness

C. Proceed because objective imaging and spirometry have not deteriorated

D. Pause elective timing and assess and optimize the active respiratory change

Correct answer D. New symptoms and reduced oxygenation require clinical evaluation; unchanged tests do not establish respiratory stability.

Why A is less appropriate. A single prophylactic dose is not diagnosis directed treatment.

Why B is less appropriate. Postoperative planning cannot replace assessment of an active problem.

Why C is less appropriate. Those tests do not exclude an active exacerbation.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 022

Respiratory risk and recovery resources

A 58 year old woman with obesity is awaiting elective hernia repair. She snores loudly, has witnessed apneas and falls asleep while sitting, but has never undergone sleep testing. Daytime oxygen saturation is 96 percent and there are no symptoms of acute respiratory illness. The operation is brief, expected opioid requirements are low and monitored recovery with respiratory support is available. The anesthesia team is willing to use a risk adjusted plan. The next sleep study appointment is four months away. A resident recommends canceling every operation until a formal OSA diagnosis is established; another recommends treating the normal daytime saturation as sufficient reassurance.

She has not had previous anesthetic respiratory events, and the procedure does not require prolonged immobilization or high dose opioids. The service can give clear instructions and observe her after anesthesia. The patient understands that screening is imperfect and is willing to pursue sleep assessment separately. The relevant question is whether current risk can be managed in the available setting.

Which strategy is best?

A. Wait for formal sleep testing before considering any anesthetic plan

B. Use the positive screen to coordinate precautions and individualized timing without automatic months of delay

C. Use additional sedative premedication and extend routine recovery observation

D. Proceed under the unmodified routine pathway using normal saturation as reassurance

Correct answer B. Suspected OSA changes airway, analgesia and surveillance planning; a screen does not itself require an indefinite diagnostic delay.

Why A is less appropriate. The available low burden procedure and resources support individualized planning.

Why C is less appropriate. Extra sedation may increase rather than reduce respiratory risk.

Why D is less appropriate. Daytime saturation does not exclude perioperative obstruction.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 023

Respiratory risk and recovery resources

A 63 year old man with BMI 47 kg/m2 is scheduled for major abdominal surgery. He reports morning headaches, daytime somnolence and limited exercise tolerance. Resting saturation is 91 percent, and a blood gas obtained for these findings shows daytime hypercapnia. He has no known COPD and has never used positive airway pressure. The ward labels him as routine OSA and proposes oxygen through a nasal cannula after surgery without further evaluation. An elective delay of several days is acceptable. A monitored bed can be arranged if needed.

His partner reports that sleep symptoms have been present for months, but daytime breathlessness is increasingly limiting activity. The team has not excluded other causes of hypercapnia. The planned operation is not needed today, allowing targeted assessment and support planning. Treating him as an ordinary snorer would leave a documented abnormality of daytime ventilation unexplained before a major physiological stress.

Which plan most appropriately addresses the additional physiological concern?

A. Proceed and investigate hypercapnia only if postoperative weaning is difficult

B. Complete an OSA screen and treat it as adequate evaluation of ventilation

C. Evaluate hypoventilation and plan ventilatory support before finalizing timing and destination

D. Use oxygen to normalize saturation and retain routine ward recovery

Correct answer C. Daytime hypercapnia suggests a ventilatory disorder beyond simple screening; oxygenation alone does not describe adequate ventilation.

Why A is less appropriate. The problem is already evident and can change preoperative planning.

Why B is less appropriate. The screen does not explain documented daytime hypercapnia.

Why D is less appropriate. Corrected saturation does not establish adequate ventilation.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 024

Respiratory risk and recovery resources

A 71 year old woman uses CPAP effectively at home for established OSA. She is scheduled for a long operation and will need substantial analgesia. Her own device is available, but the ward tells her to leave it at home because supplemental oxygen is standard. She previously became excessively sedated after opioids. The operation is otherwise ready to proceed, and the anesthesia service can arrange multimodal analgesia and monitored care. Her current saturation is normal and there is no active pulmonary exacerbation. The family believes successful home treatment means there is no residual anesthetic risk.

Her usual CPAP settings and adherence can be confirmed, and she is comfortable using the device. She wants effective analgesia rather than avoidance of every opioid dose. The anesthesia team can tailor treatment and observation, but the routine ward plan has not been revised. The decision is therefore about coordination of known risks rather than establishing a new diagnosis.

Which adjustment is most useful?

A. Use supplemental oxygen instead of coordinating the home CPAP regimen

B. Use the usual high opioid regimen because CPAP will be available

C. Avoid opioid analgesia even if this leaves substantial postoperative pain

D. Coordinate CPAP use, opioid sparing analgesia and appropriate respiratory monitoring

Correct answer D. Baseline therapy should inform a coordinated plan, but treated OSA and normal saturation do not eliminate sedative related risk.

Why A is less appropriate. Oxygen does not reliably prevent obstruction or hypoventilation.

Why B is less appropriate. CPAP does not eliminate opioid related respiratory risk.

Why C is less appropriate. Poor analgesia can impair ventilation and recovery.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 025

Respiratory risk and recovery resources

A 65 year old smoker has recently diagnosed cancer requiring resection in twelve days. He has stable COPD and no acute infection. A cessation service can start support immediately, but he has heard that stopping shortly before surgery is dangerous. One clinician recommends postponing cancer treatment until a fixed abstinence period is reached. Another suggests that a short interval makes counseling pointless. He wants to reduce risk but is concerned about delay. The oncology team considers the current timing appropriate and sees no indication for a prolonged postponement.

He has previously tried to stop without support and relapsed during stress. The cessation service can provide practical help rather than advice alone. There is no respiratory deterioration that independently requires postponement. He is willing to begin immediately if the team explains that benefits are not all or nothing and that continued support can extend beyond the operation.

Which recommendation best balances modifiable risk and disease treatment?

A. Continue smoking until discharge to avoid changing habits immediately before surgery

B. Require a fixed abstinence period before booking cancer resection

C. Start cessation support now while preserving clinically justified surgical timing

D. Provide cessation advice after surgery when the full program is available

Correct answer C. Available time should be used for supported cessation without imposing an unjustified delay in time sensitive treatment.

Why A is less appropriate. Continued exposure offers no protective advantage.

Why B is less appropriate. A rigid delay ignores the cancer treatment tradeoff.

Why D is less appropriate. Useful support can start now and continue later.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 026

Respiratory risk and recovery resources

A 76 year old man with limited mobility is scheduled for elective surgery tomorrow. A pulmonary clinic review one month ago found stable disease and no need for additional testing. Today he is newly breathless at rest, mildly tachycardic and hypoxemic. His lungs have no prominent wheeze. Hemoglobin and creatinine are unchanged, and he has no fever. The ward attributes the symptoms to anxiety because the earlier assessment was reassuring. The surgeon has not examined him since the change. The planned surgery can safely wait, and both respiratory and cardiac causes remain possible.

He has not received sedatives that clearly explain the desaturation. The old clinic note explicitly applied to his condition at that time. A new examination could change the need for imaging, cardiac assessment or acute treatment. The ward is seeking a binary clearance decision, but the surgeon has not yet established whether the patient is currently physiologically stable.

Which response is most appropriate?

A. Treat anxiety and proceed if he reports feeling calmer

B. Proceed using the specialist's previous clearance letter

C. Order spirometry as the sole investigation before deciding

D. Reassess the new cardiopulmonary deterioration and pause the elective decision

Correct answer D. Current physiology overrides an earlier readiness assessment; the cause of new resting symptoms must be considered broadly.

Why A is less appropriate. Symptom relief does not exclude serious pathology.

Why B is less appropriate. A prior assessment does not establish present stability.

Why C is less appropriate. Spirometry alone does not address the differential diagnosis.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 027

Respiratory risk and recovery resources

A 69 year old woman has a high estimated pulmonary complication risk before elective major surgery. Contributors include age, reduced oxygen saturation and a recent respiratory infection that is now clinically improving. Her functional status is reasonable, and surgery has meaningful potential benefit. The risk calculator was completed accurately. A trainee proposes canceling because the result exceeds an internal category boundary, while another assumes the score identifies pneumonia requiring antibiotics. The surgeon needs to decide whether further delay would improve outcomes and what postoperative support is appropriate. No acute distress is present.

The patient asks whether the score means she will certainly have a complication. The respiratory clinician notes that treatment response and oxygenation should be reviewed again before surgery. The operation itself contributes to the estimate and cannot be changed without affecting disease treatment. The team can instead alter monitoring, analgesia and support while discussing whether further optimization time is worthwhile.

Which use of the estimate best demonstrates judgment?

A. Apply the category boundary as an automatic contraindication

B. Use the numerical estimate to diagnose residual infection

C. Disregard the result because the patient currently feels better

D. Combine it with recovery trajectory and actionable respiratory mitigation

Correct answer D. A risk estimate supports planning and counseling; it neither diagnoses the cause nor determines timing independently.

Why A is less appropriate. The boundary is not a universal cancellation threshold.

Why B is less appropriate. Prediction tools do not establish a respiratory diagnosis.

Why C is less appropriate. Residual risk can remain despite subjective improvement.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 028

Respiratory risk and recovery resources

A 60 year old woman with COPD and chronic opioid treatment is scheduled for abdominal surgery. She has OSA treated with CPAP and previously experienced poor pain control during an admission where opioids were withheld. She is currently stable, but the proposed postoperative order combines a high opioid infusion with additional sedatives on a routine ward. The operation cannot be made painless with a single regional technique, although regional and nonopioid measures are available. She fears both breathlessness and uncontrolled pain.

Her chronic pain regimen has produced tolerance to some effects, but she becomes markedly sleepy when sedatives are added. She is willing to use regional and nonopioid treatments as part of a combined approach. The ward can arrange higher level monitoring if requested before surgery. The choice is not between untreated pain and unrestricted opioid treatment; several coordinated strategies are available.

Which plan best balances these risks?

A. Rely on CPAP without changing sedative exposure or destination

B. Avoid opioids and accept substantial pain to preserve ventilation

C. Use individualized multimodal analgesia with appropriate respiratory surveillance

D. Use the proposed infusion because chronic tolerance removes respiratory risk

Correct answer C. Analgesia and respiratory protection require integrated management, especially when several vulnerabilities coexist.

Why A is less appropriate. CPAP does not substitute for medication and surveillance decisions.

Why B is less appropriate. Severe untreated pain can impair ventilation and mobilization.

Why D is less appropriate. Tolerance does not eliminate combined drug respiratory effects.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 029

Respiratory risk and recovery resources

A 73 year old man with severe chronic lung disease is offered elective resection. He is at his usual baseline, but walks only short distances and uses oxygen at home. Tests cannot predict with certainty whether prolonged ventilatory support will be required. He says he would accept temporary ventilation but would not want long term dependence. The procedure may offer substantial benefit, and a less invasive alternative offers less durable disease control. His relatives ask the surgeon to avoid discussing ventilation because it might deter him.

He can explain the possible benefits and is able to participate in a detailed discussion. The alternative may require repeat treatment, but could reduce immediate recovery burden. His family has not yet heard his preference about prolonged support. The team can document a plan for reassessment if postoperative recovery does not follow the anticipated trajectory rather than make an unrealistic guarantee.

Which approach is most appropriate?

A. Recommend resection primarily because respiratory disease is at its stable baseline

B. Discuss likely support, uncertainty and treatment limits alongside procedural alternatives

C. Recommend against surgery based principally on home oxygen use

D. Ask relatives to agree support limits while avoiding the discussion with him

Correct answer B. Stable chronic disease can still carry major recovery burdens that are material to this capable patient's choice.

Why A is less appropriate. Stability does not establish that the recovery burden is acceptable.

Why C is less appropriate. Home oxygen alone does not determine the preferred treatment.

Why D is less appropriate. He is capable and has expressed relevant preferences.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 030

Respiratory risk and recovery resources

A 62 year old man is ready for elective surgery except for uncertainty about postoperative destination. He has probable OSA, high opioid requirements from chronic pain and no home support. A brief operation is planned, but a previous anesthetic resulted in recurrent recovery room desaturation. The ambulatory unit can provide routine observation but has no overnight respiratory monitoring. A hospital based list with suitable monitoring is available within several days without harming disease treatment. The patient prefers same day discharge to avoid missing work.

His partner cannot stay overnight, and he would otherwise travel home alone. The hospital based alternative can use the same surgical team and existing assessment. There is no reason to assume that an exact OSA label would change the immediate requirement for resources. The surgeon must weigh convenience against a prior demonstrated tendency to respiratory events after anesthesia.

What is the best recommendation?

A. Move the procedure to a setting that can meet anticipated respiratory and discharge needs

B. Proceed in the ambulatory unit because the surgical exposure is brief

C. Wait for exact sleep severity grading before discussing a different setting

D. Proceed if the patient accepts reduced analgesia and agrees to seek help

Correct answer A. Procedure duration alone does not remove foreseeable respiratory and discharge hazards; resources can be matched without an excessive delay.

Why B is less appropriate. Short procedure duration does not remove the demonstrated patient risk.

Why C is less appropriate. The immediate resource requirement can be recognized without exact grading.

Why D is less appropriate. An agreement does not supply respiratory monitoring or adequate analgesia.

Source framework: Sabiston Chapter 19, pulmonary assessment and sleep disordered breathing.

Question 031

Renal perfusion and electrolyte decisions

A 70 year old man is admitted for elective colectomy after bowel preparation. His creatinine has risen from 0.9 to 1.4 mg/dL in 48 hours, although the result remains close to the laboratory's upper reference limit. He reports poor intake and dizziness, but examination also finds ankle edema from chronic heart failure. Blood pressure is lower than usual, and urine output has declined. Potassium is 5.2 mmol/L without ECG changes. The ward proposes proceeding because creatinine is below 2 mg/dL and the RCRI renal component is absent. The operation can wait while the problem is assessed.

He has not been assessed for urinary obstruction, recent drug exposure or ongoing losses. The edema predates preparation and does not establish that circulating volume is adequate. The anesthetist asks for a plan based on the current trajectory rather than an isolated threshold. The patient has no symptoms requiring immediate cancer surgery, so a focused review can occur without a prolonged delay.

Which interpretation should guide the immediate plan?

A. Recognize AKI and assess perfusion, volume and causes before elective surgery

B. Proceed and measure the creatinine trend after the operation

C. Give a standard large fluid load before the list without response assessment

D. Use the absence of the RCRI renal point to support proceeding

Correct answer A. The change meets AKI criteria; a cardiac score threshold is not a renal stability test, and volume findings require interpretation.

Why B is less appropriate. The active deterioration is already established before elective anesthesia.

Why C is less appropriate. Mixed volume findings make unassessed loading potentially harmful.

Why D is less appropriate. RCRI is not an acute kidney injury diagnostic tool.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 032

Renal perfusion and electrolyte decisions

A 74 year old woman with CKD and heart failure is oliguric before elective surgery. She received repeated overnight fluid boluses to reach a urine target. She is now breathless, has elevated neck veins and new oxygen requirements, while urine output remains low. Blood pressure is maintained. Creatinine has increased, and bladder scanning does not suggest retention. A nurse requests another liter because the urine target remains unmet. The surgeon has not yet defined whether congestion or inadequate perfusion predominates. The planned operation is nonurgent.

She reports increasing orthopnea after the last bolus, and the bedside team is concerned about evolving pulmonary edema. Her low urine output may reflect several mechanisms rather than a simple replacement deficit. A renal consultation is available immediately. No one has established whether further volume would improve perfusion, and the operation does not provide a reason to ignore the respiratory change.

Which action is best?

A. Give a diuretic solely to normalize the recorded urine output and declare readiness

B. Continue fluid until the urine target is reached

C. Proceed because preserved blood pressure excludes important AKI

D. Stop automatic boluses and reassess congestion, perfusion and renal causes with escalation

Correct answer D. Oliguria is not proof of depletion; worsening congestion requires physiological reassessment rather than pursuit of an isolated target.

Why A is less appropriate. Changing urine output alone does not resolve cause or readiness.

Why B is less appropriate. Further fluid may worsen pulmonary edema.

Why C is less appropriate. AKI can occur with preserved measured blood pressure.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 033

Renal perfusion and electrolyte decisions

A 61 year old man with advanced CKD presents for elective hernia repair. Potassium is 6.8 mmol/L, and repeat ECG shows new conduction abnormalities. He is comfortable and denies palpitations. The first sample was mildly hemolyzed, but a second carefully obtained sample remains 6.7 mmol/L. His usual dialysis was missed because of transport problems. A colleague suggests waiting for a third measurement before treatment, while the operating room asks whether asymptomatic status permits proceeding with close monitoring. Nephrology and acute care support are immediately available.

The patient understands that dialysis may be needed and agrees to immediate treatment. Transport arrangements can now be corrected. The original concern about hemolysis has already been addressed by the repeat sample. The unresolved question is how to stabilize the electrical risk and remove excess potassium, not whether absence of palpitations permits an elective anesthetic.

What is the best next step?

A. Give temporary intracellular shifting therapy without arranging removal assessment

B. Repeat potassium again before treatment because the original sample was hemolyzed

C. Begin emergency hyperkalemia management and arrange definitive potassium removal assessment

D. Proceed with ECG monitoring because the patient has no symptoms

Correct answer C. Repeated severe elevation with ECG changes requires immediate stabilization and potassium lowering, including a definitive removal plan when indicated.

Why A is less appropriate. Temporary shifting may not address total excess or rebound.

Why B is less appropriate. The repeat severe result and ECG changes already establish urgency.

Why D is less appropriate. Absence of symptoms does not protect against arrhythmia.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 034

Renal perfusion and electrolyte decisions

A 67 year old woman with CKD is preparing for major surgery. She has a low muscle mass despite a normal BMI. Creatinine is within the laboratory reference interval, but her estimated filtration is reduced and she has a history of drug accumulation during previous illness. An older discharge list contains standard doses of several renally cleared medicines. A trainee proposes using those doses because the current creatinine is normal. The anesthetist requests a drug review and a plan for changes if postoperative renal function worsens.

Her previous toxicity occurred during a smaller creatinine rise than the current team expected to matter. The pharmacy record can clarify which drugs need adjustment and which have essential indications. She wants written instructions for both the preoperative period and discharge. A blanket stop or dose reduction would fail to reflect differences in clearance, effect and clinical necessity.

Which response is most appropriate?

A. Stop every renally cleared medicine indefinitely

B. Base drug specific decisions on renal assessment, indication and current exposure

C. Apply the same percentage dose reduction to all medicines

D. Use the reference interval creatinine as proof that standard dosing is safe

Correct answer B. Low creatinine generation can conceal impaired filtration; drug characteristics and indications determine safe adjustment.

Why A is less appropriate. Some therapies remain necessary and need individualized plans.

Why C is less appropriate. Clearance and therapeutic ranges differ between drugs.

Why D is less appropriate. A normal creatinine does not establish preserved renal clearance.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 035

Renal perfusion and electrolyte decisions

A 55 year old man receiving maintenance hemodialysis is scheduled for major abdominal surgery. He attended dialysis yesterday but gained substantial fluid since then and reports new breathlessness. Potassium and volume status have not been reassessed. The ward plans routine venous access and blood pressure measurements in the arm containing his functioning fistula because the other arm is difficult to cannulate. A note says dialysis completed and assumes preparation is finished. The surgery is elective, and the renal team is available.

His fistula is his only functioning long term access and has required intervention previously. Alternative venous access can be arranged with experienced staff. The renal team can determine whether the new symptoms reflect volume accumulation or another cause. The surgeon is not being asked to impose an arbitrary dialysis schedule, but to avoid mistaking a completed session for current physiological readiness.

Which approach best establishes readiness?

A. Proceed using the completed dialysis session as evidence of current readiness

B. Apply a fixed postponement interval without reviewing current physiology

C. Avoid every fluid intervention regardless of operative losses

D. Reassess current physiology, coordinate dialysis needs and protect the access arm

Correct answer D. Dialysis completion does not establish today's electrolyte or volume status; access protection and coordinated support remain essential.

Why A is less appropriate. New symptoms require reassessment and access protection.

Why B is less appropriate. An arbitrary delay is not a substitute for targeted care.

Why C is less appropriate. Dialysis patients still need individualized volume management.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 036

Renal perfusion and electrolyte decisions

A 78 year old woman awaiting elective surgery has sodium 121 mmol/L, compared with 128 a month earlier. She is mildly nauseated but alert. She takes a thiazide and has eaten poorly; examination does not clearly establish her volume state. The ward proposes a rapid infusion to bring sodium into the normal range before tomorrow's list. The operation is not urgent, and no assessment of the cause or correction trajectory has been made. Her family believes postponement is unnecessary because she is speaking normally.

There is no seizure or rapidly progressive neurological syndrome requiring the same approach as severe acute symptomatic hyponatremia. However, the available history does not precisely establish duration or mechanism. Medicines and intake could both contribute. The team has enough time to investigate and monitor the correction trajectory, rather than choose a rate solely to meet tomorrow's list.

Which plan is most appropriate?

A. Correct sodium rapidly overnight to restore the planned list date

B. Proceed because she has no major neurological symptoms

C. Prescribe a fixed fluid regimen without clarifying mechanism or chronicity

D. Assess cause and chronicity and use monitored controlled correction before reconsidering timing

Correct answer D. Symptoms, duration and mechanism guide treatment; avoiding harmful overcorrection matters more than meeting a scheduling target.

Why A is less appropriate. An administrative target does not justify dangerous overcorrection.

Why B is less appropriate. Mild symptoms do not establish safety.

Why C is less appropriate. Different causes require different fluid and correction strategies.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 037

Renal perfusion and electrolyte decisions

A 64 year old man needs urgent source control for a perforated abdominal process. He has CKD, creatinine above baseline and clinical evidence of hypoperfusion. After initial resuscitation his pressure improves, but lactate remains elevated. Bedside assessment does not suggest pulmonary congestion. The surgeon proposes waiting for creatinine to return to baseline; the anesthetist notes that ongoing infection may be driving the renal injury. The operating room and critical care team are ready. No test is expected to change the need for source control.

The patient and family accept active treatment after discussion of the emergency. The kidney injury is clinically important, but there is no evidence that several hours of waiting would correct the underlying process. Anesthesia can manage perfusion during source control, and critical care can provide serial assessment afterward. Renal protection therefore remains an active task throughout treatment rather than a prerequisite for beginning it.

Which plan best balances renal protection and urgency?

A. Continue targeted resuscitation while arranging necessary surgery and postoperative renal support

B. Wait for creatinine to return to baseline before source control

C. Use a zero balance fluid target during ongoing resuscitation

D. Proceed but stop further perfusion assessment because AKI is established

Correct answer A. Treating the cause and maintaining perfusion may need to occur in parallel; full renal normalization may be impossible before source control.

Why B is less appropriate. The untreated source may prevent renal recovery.

Why C is less appropriate. Fixed restriction can worsen hypoperfusion.

Why D is less appropriate. Existing injury does not remove opportunities to prevent worsening.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 038

Renal perfusion and electrolyte decisions

A 73 year old man recovering from surgery had an ACE inhibitor and diuretic held during AKI and hypotension. Before discharge he is eating, pressure has improved and creatinine is approaching baseline, but he still has mild edema. The medicines have important long term indications. The discharge template lists both as stopped without a review date. A resident suggests restarting every previous dose immediately so the list is complete. The patient lives far from the hospital but can obtain local blood tests.

The family can help organize monitoring if the instructions specify which tests and whom to contact. The cardiac indication has not disappeared, but residual congestion and recovering kidney function may change the immediate dose. The discharge summary should distinguish a temporary hold from a permanent contraindication. Without ownership, either unreviewed resumption or prolonged unintended withdrawal is likely.

Which discharge strategy is best?

A. Ask him to restart treatment when symptoms feel normal

B. Restore all previous doses immediately to complete reconciliation

C. Keep both medicines stopped after discharge without a review date

D. Document indication based resumption decisions with clinical and laboratory review ownership

Correct answer D. Temporary perioperative holds require a deliberate resumption pathway using current physiology and a named reviewer.

Why A is less appropriate. Symptoms alone do not establish medication safety.

Why B is less appropriate. Current volume, potassium and renal status may require adjustment.

Why C is less appropriate. Unintended withdrawal can remove important long term therapy.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 039

Renal perfusion and electrolyte decisions

A 66 year old woman is scheduled for elective surgery. After six hours with little urine, a trainee diagnoses dehydration and requests rapid fluid loading. She has suprapubic discomfort, a recent history of difficult catheter placement and no reliable fluid balance chart. Blood pressure and pulse are unchanged, mucous membranes are not dry and there is no clear evidence of hypoperfusion. Creatinine was normal earlier in the day. The surgeon must choose the next action before changing the operative plan.

The catheter drainage tubing has not been inspected, and no bladder assessment has yet been documented. She has received little analgesia and can describe the discomfort clearly. If a mechanical problem is found, it may be rapidly reversible; if not, renal and perfusion assessment must continue. Neither an old creatinine nor an isolated hourly output determines the appropriate fluid prescription.

Which approach is most appropriate?

A. Cancel permanently because oliguria always indicates intrinsic renal failure

B. Give repeated fluid boluses because urine output directly measures volume depletion

C. Assess catheter patency and retention while reviewing perfusion and renal causes

D. Exclude any renal concern because the earlier creatinine was normal

Correct answer C. An obstructive or measurement problem must be considered alongside physiological causes before prescribing treatment for presumed depletion.

Why A is less appropriate. The cause and reversibility have not been established.

Why B is less appropriate. Oliguria has multiple mechanisms.

Why D is less appropriate. Creatinine can lag behind a new problem.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 040

Renal perfusion and electrolyte decisions

A 69 year old patient with CKD is scheduled for major elective surgery. A previous operation was complicated by AKI after prolonged hypotension. The new pathway calls for highly restrictive fluids to reduce edema, while the patient has completed bowel preparation and reports poor intake. There is no current congestion. The anesthetist proposes balanced crystalloid guided by clinical response and avoidance of sustained hypotension. The surgeon worries that any positive balance necessarily violates enhanced recovery principles.

The patient is worried about repeating the previous complication and can describe symptoms of depletion during preparation. The team can monitor hemodynamic response and losses during surgery. Enhanced recovery goals include good physiological management rather than adherence to a single fluid balance number. Both excessive volume and inadequate perfusion could impair the intended recovery, so reassessment is central to the plan.

Which plan is best supported?

A. Use individualized perfusion and fluid management rather than a mandatory zero balance target

B. Give a large prophylactic load without titration to response

C. Use preoperative diuresis to achieve a negative balance target

D. Enforce the restrictive pathway despite current depletion risk

Correct answer A. Renal protection requires adequate perfusion while avoiding excess; pathway targets should not override the patient's current physiological needs.

Why B is less appropriate. Excess loading also has potential harm.

Why C is less appropriate. A negative number is not itself an outcome benefit.

Why D is less appropriate. Uniform restriction can increase renal risk.

Source framework: Sabiston Chapter 19; KDIGO 2012 and 2024; UKKA 2023; ADQI POQI 2021 as relevant.

Question 041

Cirrhosis and hepatic risk decisions

A 58 year old man with cirrhosis requests elective repair of a reducible umbilical hernia. Ascites has required repeated treatment, and he was admitted with encephalopathy last month. He is currently conversational, afebrile and eating, with stable creatinine. Albumin is 2.8 g/dL and INR is 1.7. The hernia causes discomfort but no vomiting, incarceration or skin compromise. A trainee recommends proceeding because there is no current confusion and suggests using INR as the principal risk measure. Hepatology and anesthesia can assess him jointly within a week. The patient is worried both about surgery and future hernia complications.

The patient asks whether a normal conversation today means the previous liver related admission no longer matters. The team has not yet established how ascites is controlled or what happened during the renal course. Repair and continued observation both carry potential consequences. The consultation can therefore address a real timing question rather than merely supply a generic permission statement.

Which plan best addresses the competing risks?

A. Normalize INR with plasma and use that as the readiness endpoint

B. Assess decompensation and procedure specific risk before a shared timing decision

C. Reject repair because the INR exceeds its reference interval

D. Proceed because encephalopathy is absent on today's brief examination

Correct answer B. Recent decompensation remains relevant even when symptoms improve; operative and nonoperative hazards require contextual assessment.

Why A is less appropriate. Number correction does not correct hepatic or systemic vulnerability.

Why C is less appropriate. INR alone is not an absolute surgical decision rule.

Why D is less appropriate. A single observation does not exclude significant decompensation risk.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 042

Cirrhosis and hepatic risk decisions

A 64 year old woman with cirrhosis is scheduled for elective surgery. She has INR 1.8, platelets below the reference interval and no bleeding history during previous procedures. Ascites is controlled and renal function is stable. The planned operation has meaningful bleeding consequences, and the team has access to specialist hemostatic advice. A resident requests plasma solely to normalize INR, believing this will eliminate bleeding risk. Another assumes the elevated INR means she cannot develop thrombosis and omits VTE assessment. No active hemorrhage is present.

The patient is not taking warfarin, so the INR does not represent monitored therapeutic anticoagulation. There is time to review fibrinogen, platelet context and the procedural plan where indicated. The surgeon should consider both drug related harm and bleeding consequences without assuming that a normal looking laboratory result is a necessary or sufficient endpoint for the whole hemostatic assessment.

Which approach best reflects the hemostatic problem?

A. Use the previous absence of bleeding to omit current risk assessment

B. Correct INR routinely before considering any other hemostatic factors

C. Treat INR elevation as adequate prophylaxis against postoperative VTE

D. Plan bleeding and thrombosis management contextually without treating INR as a complete assay

Correct answer D. Cirrhosis alters both sides of hemostasis; INR incompletely represents either bleeding risk or protection from thrombosis.

Why A is less appropriate. Current procedure and physiological factors still matter.

Why B is less appropriate. Plasma correction alone does not establish safety.

Why C is less appropriate. Cirrhosis related INR elevation is not reliable VTE protection.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 043

Cirrhosis and hepatic risk decisions

A 60 year old man with cirrhosis is offered major abdominal surgery. One note reports classic MELD, another MELD Na from different laboratory dates and a third gives a VOCAL Penn estimate for a different proposed procedure. The numbers appear inconsistent. He has recently developed ascites, but the calculator entries were copied from an older clinic record. A colleague suggests using the lowest reported mortality estimate in counseling to avoid discouraging treatment. The operation can be planned after clarification, and nonsurgical alternatives exist.

The planned operation has changed since the first estimate was generated, and the patient wants to understand the likely need for intensive care as well as mortality. His current ascites status can be established from examination and records. The team can correct the inputs before presenting probabilities, while retaining an honest discussion that even a carefully applied model cannot guarantee an outcome.

Which next step is most appropriate?

A. Recalculate applicable models with current inputs and explain their outcome and procedure context

B. Use the lowest estimate because it avoids denying useful treatment

C. Average the reported estimates to simplify counseling

D. Use the highest estimate to recommend against surgery automatically

Correct answer A. Model validity depends on version, inputs, procedure and predicted outcome; copied data and unlike estimates cannot be combined casually.

Why B is less appropriate. Selective reassurance does not establish applicability.

Why C is less appropriate. The models and inputs are not interchangeable.

Why D is less appropriate. A risk number alone cannot determine treatment value.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 044

Cirrhosis and hepatic risk decisions

A 56 year old patient with cirrhosis develops tense ascites, reduced intake and worsening exercise tolerance before elective surgery. Serum transaminases are only mildly elevated, bilirubin is unchanged and blood pressure is normal. The surgeon is reassured by the modest enzyme abnormality and proposes proceeding after a single large drainage procedure. Renal function has drifted above baseline, and the patient has had recent diuretic adjustments. There is time for coordinated assessment before the planned date.

The patient says breathing and appetite have become worse as abdominal distension increased. The team can reassess fluid treatment and renal trends before choosing the surgical date. There is no incarceration or another urgent indication that forces today's operation. A satisfactory drainage result may improve some symptoms, but would not by itself establish that all relevant hepatic and systemic risks have been addressed.

Which recommendation best addresses readiness?

A. Optimize ascites and assess renal, nutritional and portal hypertension related risks together

B. Drain ascites and regard the hepatic assessment as complete

C. Increase diuretics until body weight falls regardless of renal response

D. Proceed because transaminases do not suggest severe active injury

Correct answer A. Decompensation and renal vulnerability matter more than a reassuring enzyme pattern; a single intervention does not resolve the whole risk profile.

Why B is less appropriate. Ascites treatment does not eliminate systemic complications.

Why C is less appropriate. Unmonitored volume reduction may worsen renal perfusion and electrolytes.

Why D is less appropriate. Transaminases do not measure all aspects of hepatic reserve.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 045

Cirrhosis and hepatic risk decisions

A 63 year old man with known cirrhosis is admitted for planned surgery. He is newly inattentive and sleepy. His family reports constipation and a recent sedative prescription, but he also has abdominal discomfort and a low grade fever. A nurse calls this usual hepatic encephalopathy because he has had similar episodes. Ammonia is elevated. The surgeon must decide whether to continue preparation. Renal function and medication exposure have not been reviewed, and there has been no evaluation for infection or bleeding. The operation is not urgent.

His family confirms that the current behavior is a change from the previous day. The new sedative and constipation are plausible contributors, but infection and other causes remain possible. A diagnostic label can guide initial treatment without closing the differential. The elective setting permits stabilization, whereas continued preparation could expose her to anesthesia before the acute problem is understood.

What is the best approach?

A. Treat the ammonia result and resume preparation when it falls

B. Continue preparation because the symptoms resemble a prior episode

C. Pause preparation and evaluate encephalopathy precipitants and other causes of acute confusion

D. Sedate first to permit completion of the routine assessment

Correct answer C. The diagnosis requires clinical assessment and identification of triggers or competing causes, particularly before elective anesthesia.

Why A is less appropriate. The cause and clinical trajectory still require assessment.

Why B is less appropriate. A recurrent pattern does not exclude a new precipitant.

Why D is less appropriate. Sedation may worsen or obscure acute deterioration.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 046

Cirrhosis and hepatic risk decisions

A 59 year old woman with advanced cirrhosis has a symptomatic but nonurgent surgical condition. She has recurrent ascites, marked muscle loss and recent renal deterioration. The proposed operation has substantial physiological stress. A historic article quotes a fixed mortality percentage for her Child Pugh class, and the patient asks whether that is her personal prognosis. A less invasive alternative could relieve symptoms but may be less durable. The treating teams agree that a brief interval for assessment is safe.

The patient values durable symptom relief but is particularly concerned about dialysis and prolonged dependence. These outcomes are not captured by a single historic mortality quote. Specialists can review current decompensation and the burden of each treatment option. The purpose of risk assessment is to inform a choice among plausible strategies, not to use one class label as a substitute for that discussion.

Which counseling strategy is best?

A. Use current procedure relevant assessment to discuss uncertainty, alternatives and optimization

B. Recommend symptom care alone without evaluating lower burden interventions

C. Proceed once one hepatic laboratory value reaches its reference range

D. Use the historic class mortality as the patient's exact prognosis

Correct answer A. Historical class estimates do not replace contemporary individualized counseling about benefit, burden and feasible alternatives.

Why B is less appropriate. High risk resection does not exclude every useful intervention.

Why C is less appropriate. One result cannot represent the full operative risk.

Why D is less appropriate. A historic population estimate is not a personal certainty.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 047

Cirrhosis and hepatic risk decisions

A 65 year old man with cirrhosis has Child Pugh laboratory components recorded, but ascites control and current encephalopathy grade are unclear. One clinician assigns a low total by assuming both are absent; another assigns the highest grades because there were previous episodes. He is considering elective resection and asks which score should guide his decision. He is currently stable, and records and examination can resolve the missing information. Albumin is reported in g/L in one system and g/dL in another.

The records use different units, and neither clinician has converted the albumin measurement explicitly. The patient is not deteriorating rapidly, so there is no reason to choose between unsupported assumptions. Current assessment can establish the clinical grades, while the team labels the date and version of any additional estimate. The resulting number should still be interpreted alongside the proposed operation.

Which action is best?

A. Use albumin alone because the clinical components are uncertain

B. Verify current clinical components and units before using the score in discussion

C. Assign absent clinical findings when documentation is incomplete

D. Assign the worst historical grades as the current grades

Correct answer B. Accurate scoring requires current definitions and consistent units; neither optimistic nor pessimistic assumptions are a substitute for assessment.

Why A is less appropriate. Albumin does not capture the entire risk profile.

Why C is less appropriate. Missing documentation is not evidence of normality.

Why D is less appropriate. Current grading cannot be replaced by historical assumptions.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 048

Cirrhosis and hepatic risk decisions

A 62 year old woman with cirrhosis requires urgent surgery for bowel ischemia. She has ascites, impaired renal function and elevated INR, but no active bleeding. The anesthetist requests rapid assessment and a hemostatic plan. A colleague recommends delaying source control until every coagulation value is normalized and ascites is fully resolved. The surgical team believes ongoing ischemia will worsen organ failure if untreated. Blood products and critical care are available, and the patient wants active treatment.

The family understands that liver disease increases the chance of complications and asks whether a delay would make treatment safer. The surgeon explains that ongoing bowel injury may itself worsen renal and hepatic function. Relevant blood components can be available without a blanket normalization target. The decision must therefore acknowledge both substantial operative risk and the increasing hazard of withholding necessary source control.

What is the most appropriate strategy?

A. Use plasma correction of INR as the principal optimization endpoint

B. Coordinate urgent surgery with targeted resuscitation and hepatic risk mitigation

C. Exclude VTE review for the entire admission because initial bleeding risk is high

D. Complete elective ascites and coagulation targets before allowing intervention

Correct answer B. Urgency can require parallel treatment and preparation; individualized hemostatic, renal and postoperative plans remain necessary.

Why A is less appropriate. INR correction is not a complete hemostatic or systemic strategy.

Why C is less appropriate. The balance must be reassessed as recovery evolves.

Why D is less appropriate. Waiting may allow irreversible bowel and organ injury.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 049

Cirrhosis and hepatic risk decisions

A 57 year old man has new jaundice and anorexia before nonurgent surgery. He previously had fatty liver but no known decompensation. Bilirubin has doubled over a week, INR has changed and he has started a new medicine. Creatinine remains stable, and ultrasound excludes a simple obstructing stone. A normal platelet count and lack of ascites lead the referral clinic to call him low risk. The surgeon is asked to approve the existing date. Further hepatic assessment is available promptly without meaningful harm from delay.

There is no evidence that the old fatty liver label explains the current rapid change. The new medicine and evolving laboratory pattern raise questions that may alter treatment. The patient can return promptly for reassessment, and the elective condition is stable. A focused pause would address an active diagnostic uncertainty, rather than postpone surgery merely because a result falls outside a reference interval.

Which approach is best?

A. Investigate the acute hepatic process and trajectory before deciding on elective timing

B. Proceed because there is no established cirrhosis diagnosis

C. Use the normal platelet count as the primary readiness criterion

D. Treat the bilirubin value as equivalent to a complete surgical risk estimate

Correct answer A. A new evolving hepatic illness needs cause and severity assessment even without a prior cirrhosis label.

Why B is less appropriate. Acute liver disease can be important independently of cirrhosis.

Why C is less appropriate. Platelet count does not characterize the acute hepatic process.

Why D is less appropriate. A single marker does not integrate trajectory and procedure.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 050

Cirrhosis and hepatic risk decisions

A 68 year old man with cirrhosis and cancer is immobilized while awaiting surgery. He has no active bleeding, but INR is elevated and platelets are moderately reduced. The team expects meaningful postoperative VTE risk. One clinician proposes no prevention because the patient is naturally anticoagulated; another recommends therapeutic anticoagulation because cancer and cirrhosis both increase clotting risk. Renal function is impaired, and neuraxial analgesia is being considered. The operation is elective and the plan can be coordinated.

The anesthetist needs a coordinated schedule for any catheter related procedure, not separate verbal instructions. The patient also asks whether compression devices can help while drug safety is reviewed. There is no documented acute clot requiring treatment intensity. The team can revisit the balance after surgery as hemostasis and mobility change, rather than make one irreversible assumption based on the liver diagnosis.

Which strategy is most appropriate?

A. Use therapeutic anticoagulation solely because thrombotic risk is high

B. Prescribe a standard heparin regimen without reviewing renal or neuraxial issues

C. Assess procedural bleeding and VTE risk and select appropriately timed prevention

D. Omit every prevention method on the basis of INR

Correct answer C. Cirrhosis requires individualized prevention rather than assuming either protection from thrombosis or an automatic treatment indication.

Why A is less appropriate. Risk alone does not establish a clot requiring therapeutic dosing.

Why B is less appropriate. Drug selection and timing depend on clearance and bleeding consequences.

Why D is less appropriate. INR is not reliable endogenous VTE prophylaxis.

Source framework: Sabiston Chapter 19; AASLD procedural bleeding guidance; AGA 2019; ACG 2025 as relevant.

Question 051

Anemia bleeding and antithrombotic strategy

A 67 year old woman is scheduled for colon cancer resection in three weeks. Hemoglobin is 9.1 g/dL, ferritin 16 ng/mL and transferrin saturation 10 percent. She has fatigue but no resting dyspnea, chest pain, hemodynamic instability or current overt bleeding. The tumor is not obstructing. A resident requests two units of red cells to reach 10 g/dL, while another recommends ignoring anemia because she is above a restrictive transfusion threshold. She previously could not tolerate oral iron. The team has time for cause directed treatment and reassessment without an important oncological delay.

She wants to avoid unnecessary donor blood but also wants adequate preparation for a potentially bloody operation. The anemia has been present on several measurements rather than representing a sudden major hemorrhage. A suitable nonoral replacement approach can be discussed. The surgical date can remain provisional while the team checks treatment tolerance and response, with transfusion reserved for an actual clinical indication.

Which plan is best?

A. Investigate contributors and provide appropriate iron treatment with reassessment, without automatic transfusion

B. Transfuse to 10 g/dL before accepting the booked date

C. Proceed without treating anemia because transfusion is not indicated

D. Require reference interval hemoglobin before allowing any cancer resection

Correct answer A. Iron deficiency warrants active optimization; transfusion thresholds and preoperative treatment goals answer different questions.

Why B is less appropriate. A fixed transfusion target is not supported here.

Why C is less appropriate. A treatable deficit matters above a transfusion threshold.

Why D is less appropriate. A rigid normalization rule can impose unnecessary cancer delay.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 052

Anemia bleeding and antithrombotic strategy

A 72 year old man with inflammatory disease is preparing for major surgery. Hemoglobin is 10.0 g/dL, ferritin 82 ng/mL, transferrin saturation 14 percent and CRP is elevated. Creatinine is mildly reduced in clearance terms but stable. The laboratory marks ferritin as normal. He has lost weight and reports reduced intake, but no single cause of anemia has been established. A trainee concludes that iron deficiency is excluded and proposes either no treatment or empiric transfusion before surgery. There is time to investigate.

The clinician can obtain additional studies for other contributors and review the likelihood of blood loss. The patient has not been told whether the laboratory reference range applies unchanged during inflammation. He is willing to receive treatment but prefers a cause directed approach. The immediate task is to interpret the pattern correctly, rather than force the anemia into a single unexamined category.

Which interpretation best guides management under the ICCAMS framework?

A. Consider iron deficiency during inflammation and assess mixed contributors before treatment selection

B. Exclude iron deficiency because ferritin exceeds the noninflammatory threshold

C. Classify the ferritin as evidence against further iron assessment

D. Transfuse because inflammation prevents a definitive diagnosis today

Correct answer A. Inflammation can elevate ferritin; low saturation and ferritin below the inflammatory threshold warrant contextual assessment for iron deficiency.

Why B is less appropriate. Inflammation can mask deficiency at that threshold.

Why C is less appropriate. Low saturation and context warrant further evaluation.

Why D is less appropriate. Uncertainty alone is not a transfusion indication.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 053

Anemia bleeding and antithrombotic strategy

A 75 year old man awaiting surgery has hemoglobin 7.7 g/dL and stable vital signs. He reports new exertional chest discomfort that has progressed over a week. ECG is nondiagnostic, and the cause of the anemia is under investigation. A ward protocol cites 7 g/dL for stable adults, and a resident uses it to rule out transfusion and approve elective surgery. Another recommends transfusing to a fixed high target without assessing the chest symptoms. The planned operation can wait.

The patient previously had no chest symptoms during ordinary walking. He now stops at a shorter distance, making this more than an incidental low hemoglobin result. Both bleeding and cardiovascular assessment may influence treatment. The surgical team can postpone a nonurgent operation to clarify the active problem. A transfusion decision should not be used either to dismiss the symptoms or to bypass their evaluation.

Which next step best reflects the limits of threshold based care?

A. Use the stable adult 7 g/dL rule to approve surgery without symptom assessment

B. Transfuse to a high target and proceed without evaluating the chest discomfort

C. Use preserved blood pressure to classify the cardiac condition as stable

D. Assess possible ischemia and symptomatic anemia before individualizing treatment and timing

Correct answer D. Possible active ischemia changes the clinical context; a general restrictive threshold cannot replace assessment of symptoms and operative readiness.

Why A is less appropriate. Possible ischemia requires individual assessment beyond a general threshold.

Why B is less appropriate. Transfusion does not diagnose or necessarily resolve ischemia.

Why C is less appropriate. Normal pressure does not exclude clinically important ischemia.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 054

Anemia bleeding and antithrombotic strategy

A 69 year old woman takes warfarin for atrial fibrillation. She has hypertension but no mechanical valve, recent stroke or systemic embolism. Elective bowel surgery requires interruption. The ward routinely prescribes therapeutic LMWH bridging to everyone whose INR will become subtherapeutic. She also has CKD and a previous postoperative hematoma. The surgeon wants both stroke prevention and a clear postoperative VTE plan. No individualized discussion has occurred, and the family believes bridging is always the safer option.

The patient is particularly concerned about another hematoma and asks whether an injection is safer simply because it is shorter acting. The team has time to explain the difference between prevention during admission and treatment of her long term indication. Clear last dose and restart instructions can be documented. The absence of very high risk features in the supplied history matters to the choice.

Which strategy is most appropriate under CHEST 2022?

A. Continue warfarin through resection without reviewing bleeding consequences

B. Use therapeutic bridging whenever warfarin becomes subtherapeutic

C. Use prophylactic heparin as equivalent treatment for the AF indication

D. Plan interruption without routine therapeutic bridging and separately assess surgical prophylaxis

Correct answer D. Routine bridging in this AF profile adds bleeding risk without an established compensating benefit; prophylaxis is a separate decision.

Why A is less appropriate. The procedure may require interruption for bleeding safety.

Why B is less appropriate. Routine bridging adds bleeding risk in the described AF profile.

Why C is less appropriate. Prophylactic and therapeutic indications are distinct.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 055

Anemia bleeding and antithrombotic strategy

A 71 year old man has a mechanical mitral valve and a recent embolic event. Major surgery is being considered, with substantial bleeding consequences. One clinician quotes a general CHEST suggestion against bridging for mechanical valves; another cites the AHA ACC framework identifying selected very high thrombotic risk situations where bridging may be reasonable. Renal function is reduced, and neuraxial analgesia has been proposed. The operation is not immediately necessary, and the patient wants a clear plan rather than conflicting verbal instructions.

The patient had received contradictory instructions during a previous procedure and wants all teams to agree before changing treatment. The recent embolic event is confirmed in the records rather than a vague historical possibility. The surgeon can consider the consequences of delay as part of the same discussion. The question is not whether any one sentence applies universally, but how the complete clinical context changes the plan.

What is the best next step?

A. Ask the patient to select between the guidelines himself

B. Apply the general no bridging statement without discussing the recent event

C. Obtain a documented multidisciplinary plan addressing his specific thrombotic risk and bleeding constraints

D. Give a standard therapeutic LMWH schedule without renal or neuraxial review

Correct answer C. Guideline populations and recommendation strength matter; exceptional risk and interacting safety constraints require an explicit coordinated decision.

Why A is less appropriate. Explaining uncertainty does not transfer clinical responsibility to the patient.

Why B is less appropriate. A broad recommendation should not erase unusually high individual risk.

Why D is less appropriate. Clearance and neuraxial timing can materially alter safety.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 056

Anemia bleeding and antithrombotic strategy

A 65 year old woman takes apixaban for atrial fibrillation. She is booked for elective surgery with a neuraxial technique. Her renal function has worsened since the clinic visit, and the timing of her last dose is uncertain because she misunderstood the instructions. Standard coagulation tests are within the reference interval. A resident proposes proceeding because the INR is normal; another suggests therapeutic heparin bridging while waiting. The procedure can be delayed safely to resolve the uncertainty.

The patient has her pill organizer and a relative may be able to verify administration. Pharmacy and anesthesia can review the drug specific guidance. There is no surgical emergency requiring acceptance of unresolved exposure today. If a different anesthetic approach is considered, it also needs an explicit benefit and bleeding assessment. Normal routine tests should not close that discussion prematurely.

Which plan best addresses readiness?

A. Clarify exposure and current clearance and coordinate drug specific neuraxial timing

B. Start routine therapeutic heparin bridging during the interruption

C. Authorize the neuraxial technique on the basis of a normal INR

D. Apply the old hold schedule despite the change in renal function

Correct answer A. Routine INR does not reliably exclude residual apixaban effect; current exposure and the neuraxial context require specific planning.

Why B is less appropriate. Routine DOAC bridging is not recommended.

Why C is less appropriate. Routine INR does not establish absence of apixaban effect.

Why D is less appropriate. Changed physiology can invalidate an earlier timing plan.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 057

Anemia bleeding and antithrombotic strategy

A 42 year old woman with von Willebrand disease is scheduled for major surgery. She previously had a good response to desmopressin for dental work, but her exact subtype and recent response testing are not documented. The operation may have prolonged bleeding risk. Baseline sodium is low normal, and she has been encouraged to drink large quantities of water after each medicine dose. The surgeon proposes desmopressin as the sole perioperative therapy because it worked previously. Hematology can review her before surgery.

The patient recalls being told to restrict fluids after previous doses but has not received current instructions. There is no assurance that response to a short dental procedure predicts sustained coverage for major surgery. The exact subtype may alter whether desmopressin is appropriate at all. A coordinated plan can specify treatment, monitoring and what to do if bleeding exceeds expectations.

Which plan is most appropriate?

A. Repeat desmopressin without reviewing fluids or sodium

B. Use the dental response to justify sole desmopressin coverage

C. Use routine coagulation results to omit subtype specific planning

D. Arrange subtype and response informed hemostatic coverage with monitoring rather than desmopressin alone

Correct answer D. Major surgery needs a complete hemostatic plan; subtype, duration of coverage and hyponatremia risk cannot be inferred from dental success.

Why A is less appropriate. Water retention can cause clinically important hyponatremia.

Why B is less appropriate. Minor procedure success does not establish major operative coverage.

Why C is less appropriate. Routine tests do not adequately characterize every VWD issue.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 058

Anemia bleeding and antithrombotic strategy

A 58 year old man has normal platelet count, PT and aPTT before elective surgery. During detailed questioning he reports prolonged bleeding after several dental extractions and a family member with similar episodes. He takes an over the counter supplement but cannot recall its name. There is no current bleeding, and the planned procedure has important hemostatic consequences. The screening clinic has already marked him normal and cleared. The operation can safely wait for targeted review.

His previous episodes required additional treatment rather than merely bruising. The family member has never had a formal diagnosis, so the history is suggestive without being definitive. The supplement packaging can be brought in, and hematology advice is accessible. The cost of a focused review is a short delay, while proceeding on insensitive screening alone could miss a relevant hemostatic problem.

Which action is best?

A. Accept the normal screening panel as sufficient to proceed

B. Investigate the bleeding history and exposures before finalizing a tailored plan

C. Give empiric plasma without a targeted bleeding evaluation

D. Repeat the same panel and proceed if it is unchanged

Correct answer B. A convincing bleeding history can reveal platelet or VWD related problems missed by routine screening, and exposures may matter.

Why A is less appropriate. A strong bleeding history can reveal disorders missed by screening.

Why C is less appropriate. Empiric plasma does not supply a diagnosis directed plan.

Why D is less appropriate. Repeated insensitive testing does not resolve the question.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 059

Anemia bleeding and antithrombotic strategy

A 63 year old woman is scheduled for major abdominal cancer surgery. She is on therapeutic anticoagulation for a DVT diagnosed recently and still has substantial symptoms. The operation is time sensitive but not emergent. A resident proposes stopping treatment and giving the hospital's standard prophylactic dose for the next month, believing any heparin prevents recurrence. Another recommends proceeding without interruption despite major bleeding consequences. The oncological and thrombosis teams are available to consider the safest timeline.

The patient has not refused either strategy and wants the reason for any delay explained. The teams can distinguish temporary interruption risk from the longer term need for anticoagulation. The planned operation and postoperative mobility create an additional prevention question, but that does not erase treatment of the existing thrombus. A single generic ward order cannot adequately address all of these issues.

Which strategy is most appropriate?

A. Apply a low risk AF interruption schedule to the recent DVT

B. Proceed on full treatment without assessing procedural bleeding consequences

C. Replace the treatment regimen with standard surgical prophylactic dosing

D. Coordinate timing and treatment interruption around the recent VTE, distinguishing prophylaxis from therapy

Correct answer D. Recent active thrombosis changes interruption risk; the treatment indication cannot be replaced by generic surgical prophylaxis.

Why A is less appropriate. The indication and event timing differ materially.

Why B is less appropriate. Thrombotic risk does not erase major bleeding hazards.

Why C is less appropriate. Prophylaxis is not equivalent to treatment of acute VTE.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 060

Anemia bleeding and antithrombotic strategy

A 70 year old man had antithrombotic treatment interrupted for surgery. On postoperative review he is eating, but there is ongoing drain bleeding and hemoglobin is falling. The prewritten discharge plan instructs full dose resumption at a fixed hour. He also needs VTE prevention and has impaired renal function. The patient asks whether the written schedule should be followed regardless of the bleeding. No clinician has accepted responsibility for reviewing resumption.

The drain was expected to remain, but the new bleeding is greater than anticipated and is not simply a scheduling inconvenience. The clinician can assess the wound and current drug clearance today. Mechanical measures and later pharmacological decisions can be revisited. The patient needs a revised actionable plan rather than instructions that conflict with what is happening physiologically at discharge. The surgeon can review the patient before departure and coordinate a new plan with the clinician responsible for the anticoagulation indication.

Which response is best?

A. Follow the fixed restart hour despite the current drain bleeding

B. Reassess hemostasis and competing risks and document an individualized restart review

C. Use an arbitrary reduced dose to cover both therapeutic and preventive needs

D. Leave every prevention and treatment decision until outpatient review

Correct answer B. Resumption must respond to current bleeding, clearance and thrombotic indication, with explicit ownership and repeated review.

Why A is less appropriate. Prewritten timing cannot override new active bleeding.

Why C is less appropriate. An invented dose may be unsafe and inadequate.

Why D is less appropriate. Unstructured delay can create avoidable thrombotic harm.

Source framework: Sabiston Chapter 19; ICCAMS 2023; AABB 2023; CHEST 2022; AHA ACC 2024; VWD management guideline 2021 as relevant.

Question 061

Diabetes medicines and endocrine emergencies

A 45 year old woman with type 1 diabetes is admitted before a long operation. She uses basal insulin and mealtime insulin and has CKD with previous fasting hypoglycemia. She is scheduled last on the list and may remain without oral intake for many hours. The ward proposes withholding every insulin dose once fasting begins, then using correction doses only if glucose rises. Her current glucose is 118 mg/dL and she feels well. The anesthetist can provide a monitored insulin and glucose plan if required. The patient is worried both about another hypoglycemic episode and about ketoacidosis.

The patient has sufficient supplies and knows how to recognize hypoglycemia, but previous episodes occurred without warning during fasting. A longer delay on the list would further change exposure and intake. The team can adjust basal delivery and provide glucose support when indicated. The problem requires continuity of insulin with safeguards, rather than choosing one hazard and ignoring the other.

Which strategy best balances the two hazards?

A. Continue the full meal and basal regimen despite delayed intake

B. Maintain individualized basal coverage with frequent measured glucose checks and appropriate perioperative support

C. Stop insulin while measured glucose remains normal during fasting

D. Use correction doses alone until oral intake resumes

Correct answer B. Type 1 diabetes requires basal insulin despite fasting; renal impairment and prior hypoglycemia require adjustment and monitoring rather than omission.

Why A is less appropriate. Unadjusted meal dosing during fasting can cause hypoglycemia.

Why C is less appropriate. Euglycemia does not remove basal requirements.

Why D is less appropriate. Correction alone leaves a basal insulin deficit.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 062

Diabetes medicines and endocrine emergencies

A 63 year old man needs time sensitive cancer surgery. A1C is 8.6 percent, but recent home records show improvement and no severe hypoglycemia. He is eating, has no ketones or acute metabolic symptoms and has stable renal function. The hospital proposes postponing until A1C is below 7 percent, which could take months. The cancer team considers that delay undesirable. Diabetes support can review the regimen immediately and arrange perioperative monitoring. The patient asks whether the A1C number proves surgery is currently unsafe.

He has no acute hyperglycemic emergency, and the recent improvement is corroborated rather than based solely on his recollection. The team can review medicines and glucose checks before the operation. The decision about delay concerns the expected balance of cancer benefit and metabolic risk. A longer term marker cannot by itself establish whether immediate monitored care is feasible or which postponement would improve outcomes.

Under the ADA 2026 framework, which plan is best?

A. Wait for a lower A1C without assessing whether current control has improved

B. Require the fixed A1C target before cancer surgery despite the anticipated delay

C. Optimize current control and proceed on an individualized timeline without delay based on A1C alone

D. Proceed without a revised diabetes plan because cancer treatment is urgent

Correct answer C. A1C informs optimization but is not by itself a cancellation rule; current physiology, treatment and delay consequences must be integrated.

Why A is less appropriate. The current trajectory and delay consequences must be assessed.

Why B is less appropriate. A1C alone is not a postponement rule.

Why D is less appropriate. Time sensitivity does not remove metabolic safety needs.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 063

Diabetes medicines and endocrine emergencies

A 68 year old man with type 2 diabetes and heart failure takes empagliflozin and basal insulin. He is scheduled for elective surgery in four days. He has begun reducing food intake because of anxiety, but glucose remains 110 to 160 mg/dL. A resident recommends continuing empagliflozin to maintain heart failure benefit and withholding it only on the operation day if glucose becomes high. The patient has no current decompensated heart failure and can be reviewed after surgery before resumption.

The prescribing team can confirm the exact agent and explain the interruption to the patient. His usual basal insulin has a separate role and will need its own perioperative instructions. Postoperative intake may be delayed, so resumption should not be assumed to occur immediately after skin closure. His current normal glucose does not resolve the risk introduced by fasting and the drug's mechanism.

Which plan best addresses the relevant perioperative risk?

A. Withhold basal insulin instead because glucose is currently satisfactory

B. Resume empagliflozin immediately after induction for heart failure benefit

C. Continue empagliflozin unless glucose becomes markedly elevated

D. Hold empagliflozin three days before surgery and plan glucose and recovery based resumption review

Correct answer D. Surgical fasting increases ketoacidosis concern independent of marked hyperglycemia; the cited drug specific hold and resumption review are appropriate.

Why A is less appropriate. Basal insulin and SGLT2 decisions address different mechanisms.

Why B is less appropriate. Resumption requires recovery and risk review.

Why C is less appropriate. Glucose alone does not detect all SGLT2 metabolic risk.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 064

Diabetes medicines and endocrine emergencies

A 61 year old patient undergoes urgent abdominal surgery after taking an SGLT2 inhibitor that morning. Twelve hours later he has nausea, tachypnea and increasing fatigue. Glucose is 168 mg/dL, blood pressure is maintained and the surgical wound is unremarkable. The ward attributes symptoms to opioids because glucose is not markedly elevated. No ketone or acid base measurement has been obtained. He has had little intake since admission, and insulin was reduced. The surgeon is asked whether discharge can proceed under the recovery pathway.

There has been no confirmed alternative explanation for the rapid breathing. The anesthesia record shows that the operation was stressful and intake remains minimal. Assessment can proceed alongside evaluation for other postoperative complications. The surgeon must recognize a pattern that is easy to overlook if a single glucose threshold is used as a screening rule for all forms of ketoacidosis.

Which next step is best?

A. Use glucose below 200 mg/dL to exclude a diabetic emergency

B. Assess urgently for ketoacidosis and other causes of deterioration before discharge

C. Restart the SGLT2 agent and treat symptoms without metabolic testing

D. Treat nausea and discharge if vomiting stops

Correct answer B. Euglycemic ketoacidosis is possible after SGLT2 exposure and fasting; modest glucose does not establish metabolic stability.

Why A is less appropriate. Marked hyperglycemia is not required here.

Why C is less appropriate. Suspected acute metabolic illness requires assessment before resumption.

Why D is less appropriate. Symptom suppression may conceal a serious metabolic cause.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 065

Diabetes medicines and endocrine emergencies

A 57 year old woman on a weekly GLP 1 medicine is booked for elective surgery. Her dose increased this week, and she has persistent nausea, early satiety and occasional vomiting. She has fasted overnight, and glucose is normal. A resident recommends proceeding because standard fasting hours have elapsed. Another proposes a universal one week hold for every patient taking any GLP 1 formulation, regardless of symptoms or indication. Gastric ultrasound expertise is not available today, and the condition is nonurgent.

The patient has not received an individualized dietary or medication plan before today. She is willing to postpone if the reason is explained, and the surgical condition is stable. The team can choose a revised date after symptoms and exposure are reviewed. Her normal glucose is reassuring about one metabolic issue, but does not determine the presence or absence of retained gastric contents.

Which plan best fits the cited 2024 multisociety approach?

A. Defer the elective decision while symptoms and delayed emptying risk are assessed and mitigated

B. Remove surgery as an option while any GLP 1 treatment continues

C. Proceed solely on overnight fasting and normal glucose

D. Use the same seven day interruption for every GLP 1 formulation

Correct answer A. Escalation and significant symptoms create a higher risk context; individualized timing and mitigation are more appropriate than either blanket reassurance or prohibition.

Why B is less appropriate. Drug use is not a permanent surgical contraindication.

Why C is less appropriate. Fasting does not guarantee emptying in this presentation.

Why D is less appropriate. The specified guidance does not impose this universal rule.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 066

Diabetes medicines and endocrine emergencies

A 60 year old man has used a stable GLP 1 regimen for months without gastrointestinal symptoms. He has no other evidence of delayed gastric emptying and is scheduled for elective surgery under a coordinated anesthesia pathway. A previous prolonged interruption caused significant hyperglycemia and required difficult insulin adjustment. The clinic's older instruction sheet mandates stopping every weekly agent for seven days. The prescribing clinician and anesthetist are available to discuss an updated plan, and the patient has followed the agreed dietary preparation.

The patient can reliably report new symptoms on the day of surgery and understands that the plan may change if they occur. The team has agreed to reassess rather than treat continuation as unconditional permission. The prescribing clinician is concerned about the burden of another interruption. Both aspiration and metabolic consequences should therefore be considered in a documented shared plan under the specified guidance.

Under the specified 2024 guidance, which strategy is most defensible?

A. Apply the older blanket hold solely because the dose is weekly

B. Continue without a repeat symptom review on the day

C. Require long term drug discontinuation before considering the operation

D. Consider continuation after documenting individual aspiration and metabolic risk

Correct answer D. Low risk patients may continue under shared assessment; stopping therapy also has potential metabolic burdens that need consideration.

Why A is less appropriate. Individual metabolic and aspiration considerations still matter.

Why B is less appropriate. Risk can change after the original assessment.

Why C is less appropriate. Permanent withdrawal is not required by this guidance.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 067

Diabetes medicines and endocrine emergencies

A 65 year old woman has taken glucocorticoids for months and recently tapered to a lower dose. Recovery of her adrenal axis has not been established. She is scheduled for major surgery and will be unable to take oral medicines initially. The ward proposes stopping steroids to reduce infection risk, then replacing them only if hypotension develops. She has diabetes, so unnecessary steroid exposure also has potential harm. An endocrine review can provide a perioperative plan before surgery.

The anesthetist can give parenteral treatment during the period without oral intake, while the diabetes team can monitor the glycemic consequences. There is no rationale to ignore infection risk, but neither does that risk remove a possible physiological requirement for coverage. A plan can limit unnecessary exposure while preventing an avoidable crisis and specifying when ordinary treatment should resume.

Which strategy best balances the competing concerns?

A. Stop steroids until postoperative testing proves adrenal insufficiency

B. Prescribe prolonged high doses without a plan to reduce exposure

C. Use only the small oral dose despite major stress and inability to swallow

D. Provide indicated stress coverage with a route and duration suited to surgery and monitor glycemia

Correct answer D. Unexcluded suppression with major stress requires a deliberate coverage plan; dose, route and metabolic effects should be managed rather than ignored.

Why A is less appropriate. Prevention should not wait for an avoidable crisis.

Why B is less appropriate. Coverage should be tailored and reviewed.

Why C is less appropriate. Route and stress requirements may make this inadequate.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 068

Diabetes medicines and endocrine emergencies

A 72 year old man with recent prolonged steroid exposure develops hypotension, vomiting and weakness around urgent surgery. Fluids have not fully restored perfusion. Infection and hemorrhage are being assessed, and adrenal crisis is also considered. A cortisol sample can be collected, but the laboratory result will take several hours. He cannot retain oral medication. A trainee recommends waiting for confirmation because empiric treatment could make later testing harder, while another wants to stop looking for sepsis once steroids are given.

A blood sample can be obtained immediately if doing so does not delay treatment. The surgical team is simultaneously checking for bleeding and the need for source control. The patient has a credible exposure history rather than an incidental single dose of steroid months earlier. The uncertainty concerns the contribution of adrenal insufficiency to shock, not whether persistent instability deserves urgent attention.

Which action is best?

A. Wait for confirmatory cortisol before treating instability

B. Treat the adrenal possibility and stop assessing other shock causes

C. Treat suspected adrenal crisis promptly while continuing resuscitation and evaluation of other causes

D. Use oral replacement despite ongoing vomiting

Correct answer C. Potential adrenal crisis warrants immediate treatment without delaying concurrent evaluation of other shock mechanisms.

Why A is less appropriate. Treatment should not be delayed for the laboratory result.

Why B is less appropriate. Adrenal insufficiency can coexist with hemorrhage or infection.

Why D is less appropriate. Oral delivery is unreliable in this context.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 069

Diabetes medicines and endocrine emergencies

A 64 year old patient with diabetes and CKD is fasting before surgery. Glucose readings fall from 150 to 102 mg/dL after a long acting insulin dose. His usual regimen was copied without adjustment, and the operation is delayed by several hours. A resident proposes aggressive correction to keep glucose below 100 mg/dL because infection prevention is the main goal. Another proposes stopping all future monitoring because the current value is normal. He has previously had unrecognized hypoglycemia.

The monitoring plan was written before the list delay, and no clinician has reconsidered whether the same insulin exposure is appropriate now. The patient cannot reliably warn staff before glucose falls further. A measured value in range is useful information, but must be interpreted with direction of change, fasting duration and clearance. Prevention of hypoglycemia is part of good control, not a competing failure.

Which plan best fits safe perioperative management?

A. Use symptoms to trigger checks rather than schedule monitoring

B. Reassess insulin exposure and fasting duration with individualized targets and repeated measured checks

C. Increase insulin to drive glucose below 100 mg/dL

D. Stop measured checks while the current value remains acceptable

Correct answer B. Renal clearance, ongoing insulin effect and delayed intake increase hypoglycemia risk; moderate targets and active monitoring address both hazards.

Why A is less appropriate. Previous impaired awareness makes symptoms unreliable.

Why C is less appropriate. Tighter lowering can increase hypoglycemia risk.

Why D is less appropriate. The trend and ongoing exposure remain important.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 070

Diabetes medicines and endocrine emergencies

A 58 year old woman uses an insulin pump and CGM and is scheduled for prolonged surgery. She understands her devices well, but will be unconscious and unable to respond to alarms. The operating team has limited experience with the pump. A resident proposes leaving both devices entirely unmanaged because the sensor currently reads 130 mg/dL. An anesthesia clinician can arrange an alternative insulin delivery strategy with measured glucose checks if needed. The patient wants to avoid unnecessary loss of control but also accepts a safe perioperative protocol.

The device locations may also be affected by the operative field and equipment, which the anesthesia team can review. The patient can contribute settings and usual requirements before induction. Her preference for independence can be respected without leaving an unconscious patient responsible for alarms. Any alternative must preserve essential insulin delivery and include clear handover back to self management after recovery.

Which plan is most appropriate?

A. Agree on supervised insulin delivery and reliable glucose monitoring with clear responsibility

B. Retain patient responsibility for alarms during general anesthesia

C. Stop basal delivery while self management is impossible

D. Use the sensor alone for intraoperative treatment decisions

Correct answer A. Technology requires a supported plan when self management is impossible; continuous insulin needs and reliable monitoring must be maintained.

Why B is less appropriate. An unconscious patient cannot retain operational control.

Why C is less appropriate. Basal omission can be dangerous in insulin deficiency.

Why D is less appropriate. CGM should not be the sole intraoperative measurement.

Source framework: Sabiston Chapter 19; ADA 2026; GLP 1 multisociety guidance 2024; ESE Endocrine Society 2024 as relevant.

Question 071

Nutrition prehabilitation and time tradeoffs

A 64 year old woman with BMI 35 kg/m2 has upper gastrointestinal cancer and has lost 14 percent of body weight unintentionally over three months. She eats less than half her usual intake and has difficulty rising from a chair. Albumin is low during an inflammatory episode. The clinic calls her nutritionally protected by obesity and recommends further calorie restriction before surgery. The operation is elective, and a short support interval is acceptable to the cancer team. A dietitian can assess gastrointestinal function and requirements immediately.

The patient has been losing strength despite being heavier than average. She wants to reduce surgical difficulty but does not want to arrive weaker. The team can measure actual intake and explore symptoms that limit eating. Nutritional and technical goals need to be discussed together, because reducing body weight rapidly is not necessarily equivalent to improving physiological reserve in this situation.

Which approach is best?

A. Use BMI to prioritize further calorie restriction

B. Use albumin infusion as the principal nutritional treatment

C. Assess severe nutritional and functional risk despite obesity and initiate appropriate support

D. Wait for normal BMI before initiating structured support

Correct answer C. Unintentional loss, inadequate intake and impaired function indicate risk that adiposity does not exclude; albumin alone is not the diagnosis or treatment target.

Why A is less appropriate. Obesity does not exclude malnutrition or muscle loss.

Why B is less appropriate. The infusion does not provide complete nutrition.

Why D is less appropriate. A BMI endpoint can worsen depletion and delay care.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 072

Nutrition prehabilitation and time tradeoffs

A 70 year old man has severe nutritional depletion before major elective surgery. The cancer team considers a two week interval acceptable. A pathway based on older guidance mentions seven days of support, while the dietitian cites the ESPEN 2025 recommendation to consider approximately ten to fourteen days in severe malnutrition or high metabolic risk. The patient is tolerating initial support but remains unable to meet requirements without assistance. A resident wants to operate tomorrow because seven days have elapsed, although no physiological endpoint or disease urgency has changed.

The patient tolerates treatment and is not asking to delay indefinitely. The available interval was agreed specifically because substantial nutritional vulnerability was identified. The surgeon can review achieved intake, function and treatment tolerance rather than use the calendar alone. Continued need for support after surgery does not imply that preoperative treatment failed, just as seven days on an order chart does not prove completion.

Which decision is most defensible?

A. Agree on a defined individualized support interval and reassessment within the acceptable cancer timeline

B. Delay until every nutritional marker is normal regardless of disease progression

C. Operate automatically once the older minimum interval has elapsed

D. Ignore the support response and follow whichever guideline gives the earliest date

Correct answer A. Guidance supplies a framework, not a countdown; severity, response and the harm of delay determine the actual plan.

Why B is less appropriate. Complete normalization may be unrealistic and harmful to await.

Why C is less appropriate. A minimum interval is not proof that relevant deficits are addressed.

Why D is less appropriate. Choosing by convenience discards the clinical tradeoff.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 073

Nutrition prehabilitation and time tradeoffs

A 61 year old woman is malnourished before major surgery. She can swallow, her gastrointestinal tract is functioning and there is no obstruction, but spontaneous intake remains inadequate. A resident requests central venous access for parenteral nutrition because it delivers a predictable amount of calories. She has a history of catheter complications and is willing to use oral supplements or tube feeding if required. Surgery is several weeks away, and the dietitian can monitor tolerance and achieved intake.

The patient can participate in route selection, and the team can measure whether the selected strategy achieves meaningful delivery. There is no evidence that the intestinal route is contraindicated. If oral support remains inadequate, escalation within a functioning gastrointestinal route is possible. The choice should respond to tolerance and requirements rather than the apparent administrative simplicity of a fixed parenteral prescription.

Which initial strategy best matches route selection to this patient?

A. Give supplements without measuring whether intake improves

B. Use supported oral or enteral nutrition when feasible and reassess whether needs are met

C. Choose parenteral nutrition solely for numerical precision of delivery

D. Withhold support until postoperative bowel function is documented

Correct answer B. A functioning tract and feasible enteral delivery favor using it, while actual adequacy and tolerance require review.

Why A is less appropriate. A prescription does not establish delivered nutritional support.

Why C is less appropriate. Predictability alone does not justify central access and its burdens.

Why D is less appropriate. The preoperative deficit is present now and merits treatment.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 074

Nutrition prehabilitation and time tradeoffs

A 73 year old man has eaten almost nothing for twelve days because of dysphagia and fear of vomiting. He has lost considerable weight, but BMI remains 28 kg/m2. Before planned nutritional support, phosphate and magnesium are near the lower limit of normal. A ward protocol starts full calculated calories immediately, and the team plans to check only sodium the next morning. The patient has mild edema and stable hemodynamics. There is time for supervised preparation before surgery.

The patient has no reassuring history of adequate recent intake simply because he is not underweight. The initial values may change after feeding starts, and edema makes body weight an especially incomplete guide. Nursing and nutrition staff can use a monitored protocol. The key question is how to deliver needed support safely rather than whether the calculated calories can be reached on the first day.

Which change is most important?

A. Use weight and edema alone to guide the feeding rate

B. Withhold all support until every electrolyte exceeds its normal range

C. Assess refeeding risk and use thiamine, relevant electrolyte monitoring and cautious advancement

D. Start full feeding because initial serum values are near normal

Correct answer C. Prolonged low intake can produce depletion despite initially normal values; refeeding shifts require prevention and active surveillance.

Why A is less appropriate. Those measures do not detect key refeeding shifts.

Why B is less appropriate. Controlled support is needed rather than indefinite starvation.

Why D is less appropriate. Serum values do not exclude depleted stores.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 075

Nutrition prehabilitation and time tradeoffs

A 68 year old patient awaiting elective surgery has albumin 2.5 g/dL during active inflammation. He has stable weight, reports adequate intake and has no clear loss of strength. Another patient has normal albumin but major recent weight loss and very poor intake. The resident proposes giving albumin to the first patient and no nutritional assessment to the second, using the laboratory value as the sole classification. The surgeon must decide whom to assess and how to interpret the marker.

The first patient may have other nutritional risks that still deserve assessment, and the second may have clinically important depletion despite the laboratory result. Neither classification should be made by reversing the same single marker rule. The surgeon needs a practical plan based on clinical information, not simply a biochemical label that can be changed by an infusion without addressing actual intake or function.

Which response is best?

A. Exclude malnutrition in the second because albumin is normal

B. Assess both clinically and use albumin as contextual prognostic information rather than a stand alone diagnosis

C. Classify both patients using albumin as the deciding marker

D. Use albumin infusion to establish readiness in the first patient

Correct answer B. Inflammation influences albumin, while weight and intake reveal risks the marker can miss; nutritional assessment requires multiple domains.

Why A is less appropriate. Normal albumin does not exclude depletion.

Why C is less appropriate. One nonspecific marker can misclassify both patients.

Why D is less appropriate. Changing albumin does not establish nutrient adequacy.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 076

Nutrition prehabilitation and time tradeoffs

A 66 year old man with cancer is offered a prehabilitation program before surgery. He has poor intake, low walking endurance and anxiety, but also unstable symptoms requiring medical review before exercise escalation. The exercise service offers a uniform high intensity schedule. The dietitian and psychologist can provide support, and the cancer team has defined a short acceptable interval. The patient wants the fastest possible improvement and asks whether pushing through symptoms would reduce complications.

The patient reports symptoms during activities that were previously easy, and the treating clinician wants to clarify their cause before prescribing exertion. Support with food, coping and safe activity can still begin where appropriate. The cancer team can define a time limit for preparation. The plan should therefore be both adaptive and bounded, with measurable goals rather than a promise that exertion alone removes risk.

Which plan best balances preparation and safety?

A. Use the uniform high intensity course despite unstable symptoms

B. Stabilize relevant illness and prescribe individualized multimodal preparation within the available interval

C. Provide exercise alone while deferring nutrition and psychological support

D. Require age matched exercise performance before cancer treatment

Correct answer B. Preparation must match physiological reserve and address interacting barriers rather than impose intensity or an unrealistic endpoint.

Why A is less appropriate. Unstable symptoms require assessment before escalation.

Why C is less appropriate. Other barriers can prevent effective rehabilitation.

Why D is less appropriate. An arbitrary target can cause excessive delay.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 077

Nutrition prehabilitation and time tradeoffs

A 74 year old woman has severe weight loss and poor intake before an operation that cannot safely be delayed because of progressive obstruction. She has no current shock, but cannot meet needs orally. A nutritional guideline recommends preoperative therapy for severe risk even if it postpones elective surgery. A trainee interprets this as requiring fourteen days of feeding before any intervention. The surgeon expects that the obstruction itself prevents effective intake and will worsen without treatment. Nutrition and anesthesia teams can provide perioperative support.

The patient is willing to receive support by an alternative route if it is useful and feasible. The surgical team is not dismissing malnutrition; it is questioning whether the proposed delay would worsen the condition that prevents nutrition. The dietitian can continue care before and after intervention. Guideline recommendations need interpretation in light of this trajectory rather than isolated application of an elective timetable.

Which strategy is best?

A. Deliver full feeding through the obstructed route to meet targets

B. Address the time sensitive surgical problem while providing feasible nutrition and metabolic support

C. Proceed without a nutrition plan because surgery is time sensitive

D. Complete a fixed fourteen day feeding interval before any intervention

Correct answer B. Nutritional recommendations must be integrated with urgency and route feasibility; preventing harm from delay can require parallel support and intervention.

Why A is less appropriate. The route may be unsafe or ineffective.

Why C is less appropriate. Severe risk remains relevant during urgent treatment.

Why D is less appropriate. Urgency and route feasibility alter the elective framework.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 078

Nutrition prehabilitation and time tradeoffs

A 70 year old man has cancer related weight loss, reduced strength and limited home support. An oral supplement is prescribed, but he drinks only a small fraction because of nausea and early satiety. The chart records nutrition started, and the surgeon assumes optimization is complete. Surgery is ten days away, and the cancer team permits a short reassessment interval. The patient wants to avoid a feeding tube but is willing to discuss alternatives if oral treatment is not working.

He has lost more weight since the prescription was written, and the family confirms that most of the product remains unopened. Nausea treatment and a different formulation might improve delivery, but an alternative route may be needed. The patient wants a clear explanation of why a change is proposed. This is a treatment failure to assess, rather than proof that every oral strategy is impossible.

Which next step best demonstrates treatment judgment?

A. Wait indefinitely for acceptance of the initially proposed feeding tube

B. Continue unchanged because supplements have already been ordered

C. Measure actual intake and tolerance and revise the support route or regimen with him

D. Accept the prescription date as proof of adequate support

Correct answer C. Delivered support, not the presence of an order, determines whether the deficit is being addressed; barriers and alternatives require review.

Why A is less appropriate. Feasible alternatives and the cancer timeline need discussion.

Why B is less appropriate. An order does not address ongoing intake failure.

Why D is less appropriate. Actual delivery has remained inadequate.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 079

Nutrition prehabilitation and time tradeoffs

A 76 year old woman with obesity is preparing for surgery. She has a positive frailty screen, recent falls and unintentional weight loss. A cardiopulmonary review finds no unstable disease. The clinic proposes a rapid weight loss diet to reduce technical difficulty, while she already struggles to maintain protein intake. Her operation is beneficial but not emergent, and she fears losing further strength. A dietitian and rehabilitation clinician can work with the surgeon on the short preparation period.

The planned preparation period is short, and the rehabilitation clinician is concerned about further loss of transfer ability. There is no acute cardiopulmonary reason to prohibit activity, but it should match her capacity. The patient can agree on goals that are directly relevant to postoperative function. The surgical technical objective should be balanced against what happens to the person during preparation.

Which objective is most appropriate?

A. Use stable cardiopulmonary findings to omit functional preparation

B. Delay activity until BMI enters the normal range

C. Preserve or improve nutrition and function while individualizing weight related preparation

D. Make rapid weight reduction the main readiness endpoint

Correct answer C. Technical concerns must be balanced against muscle and nutritional vulnerability; rapid weight loss is not automatically beneficial.

Why A is less appropriate. Frailty risk persists despite stable organ disease.

Why B is less appropriate. That is neither necessary nor a realistic functional endpoint.

Why D is less appropriate. Further loss may worsen nutritional and muscle vulnerability.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 080

Nutrition prehabilitation and time tradeoffs

A 65 year old man has completed two weeks of supported nutrition and activity before elective surgery. Intake and walking tolerance have improved, but albumin remains low during persistent inflammation. There is no acute deterioration, and the cancer team is concerned about further delay. He is now able to explain the recovery plan and has arranged help at home. The resident recommends postponing until albumin enters the reference interval, while the dietitian reports meaningful clinical progress.

The patient still needs ongoing nutritional planning during recovery, and his improved home arrangements affect feasibility rather than biological risk alone. The team can explain residual uncertainties without dismissing the gains already achieved. A nonspecific laboratory target may not respond on the same timescale as intake and function. The final decision should integrate these distinct observations rather than treat one as a universal veto.

Which decision best uses the reassessment information?

A. Integrate clinical gains and residual risk with cancer urgency rather than require albumin normalization

B. Declare the operative risk resolved because intake has improved

C. Postpone solely until albumin reaches its reference interval

D. Stop nutritional support because the planned interval has elapsed

Correct answer A. Readiness reflects the whole trajectory and benefit risk balance; a nonspecific marker should not dictate an indefinite delay.

Why B is less appropriate. Improvement does not eliminate residual risk.

Why C is less appropriate. Inflammation can keep albumin low despite useful progress.

Why D is less appropriate. Support may remain necessary during recovery.

Source framework: Sabiston Chapter 19; ESPEN surgery update 2025; NICE CG32 as relevant.

Question 081

Fasting medications and final readiness

A 59 year old woman arrives for elective surgery with instructions stating fasted since midnight. During interview she reports drinking clear water three hours ago and eating a large fried meal six hours ago. She has no acute illness but describes intermittent early satiety and takes medicines that may affect gastrointestinal motility. The surgeon wants to proceed because the water interval is acceptable. The anesthetist has not yet heard the revised history. The condition is nonurgent, and a delay would be inconvenient but not harmful.

The patient can give a reliable account and has not yet received premedication. The ward is willing to correct the chart. The operation does not treat the nausea or motility concern, so there is no urgency based reason to ignore it. The team can explain why meeting one fasting interval does not settle the assessment when other relevant exposures remain.

Which plan best integrates actual intake and aspiration risk?

A. Proceed based on the acceptable clear water interval alone

B. Correct the record and reassess meal content, symptoms and timing with anesthesia

C. Apply the light meal interval to the fried meal without further review

D. Treat the midnight label as more reliable than the patient's account

Correct answer B. Clear liquid timing cannot establish safety after a fatty meal or possible impaired emptying; the actual history must guide individualized assessment.

Why A is less appropriate. It addresses only one component of intake.

Why C is less appropriate. Meal composition and symptoms may require longer precautions.

Why D is less appropriate. Documentation should be corrected when it conflicts with verified exposure.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 082

Fasting medications and final readiness

A 38 year old healthy man is booked for a short elective operation. He drank plain water three hours before the planned anesthetic and has eaten no solids since the previous evening. He has no reflux symptoms, diabetes, gastrointestinal disorder or relevant medicines. The local policy follows ASA healthy elective fasting guidance. A clerk cancels the operation because any intake after midnight is said to violate the rules. The patient traveled several hours, and the anesthesia team can verify the history directly.

He understands that water differs from milk or a solid meal and can describe exactly what he drank. No other risk factor emerges on review. The anesthesia team is not being asked to waive an individualized concern, but to apply the stated policy accurately. An administrative midnight rule would create a cancellation that is not supported by the supplied healthy elective scenario.

Which response is most appropriate?

A. Cancel because clear water was taken after midnight

B. Reassess under the actual clear liquid guidance rather than automatically canceling

C. Use an additional fasting day to avoid assessing the reported intake

D. Apply the fatty meal interval to plain water

Correct answer B. The usual two hour clear liquid interval is met in the described healthy elective setting, subject to routine anesthesia assessment.

Why A is less appropriate. Midnight is not the physiological clear liquid rule.

Why C is less appropriate. Unnecessary fasting is not a substitute for assessment.

Why D is less appropriate. Water and fatty solids have different requirements.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 083

Fasting medications and final readiness

A 67 year old man has bowel obstruction with repeated vomiting and worsening pain. Urgent surgery is being arranged. He has taken no food for eighteen hours, and the chart labels him adequately fasted. Gastric drainage has removed a large volume, but retained contents remain a concern. The surgical team believes delay would risk bowel compromise. A resident recommends a carbohydrate drink because the patient has exceeded standard fasting hours, while another recommends waiting until aspiration risk becomes zero before allowing surgery.

The patient is willing to proceed after the emergency risks are explained. Anesthesia can choose an airway strategy suited to retained contents, and gastric decompression can be part of preparation where appropriate. Neither intervention guarantees an empty stomach. The surgeon must distinguish inability to eliminate aspiration risk from the separate and increasing hazard of postponing treatment of a compromised bowel.

Which strategy best balances the competing hazards?

A. Proceed with urgent preparation and individualized aspiration precautions while treating the obstruction

B. Complete carbohydrate loading because the elective pathway includes it

C. Use elapsed fasting to apply routine low risk induction

D. Wait for a fixed interval that guarantees gastric emptying

Correct answer A. Obstruction can retain contents despite prolonged fasting; urgency and airway protection must be managed together rather than assuming zero risk.

Why B is less appropriate. Loading may be inappropriate with obstruction and vomiting.

Why C is less appropriate. Obstruction can retain contents despite prolonged fasting.

Why D is less appropriate. No fixed interval guarantees emptying in this context.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 084

Fasting medications and final readiness

A 71 year old woman brings two medication lists before surgery. One shows anticoagulation and an ACE inhibitor, while another omits both after a recent admission. She cannot recall the last doses. Her daughter fills a pill organizer and can be contacted, and pharmacy records are available. The patient has mild renal impairment, and neuraxial anesthesia is being considered. The theatre team proposes using the most recent electronic list as proof that no anticoagulant was taken. The operation is elective, and there is time to resolve the discrepancy.

The daughter normally records when each tablet is given, so there is a practical route to resolving uncertainty. The chart does not establish whether discontinued prescriptions were actually removed from the organizer. The patient is not deteriorating and no emergency requires immediate induction. A reconciled list should state what is known, what remains uncertain and how that uncertainty changes the anesthesia plan.

Which action best establishes medication readiness?

A. Proceed and resolve exposure only if bleeding develops

B. Assume fasting implies interruption of all medicines

C. Use the newest list as proof that no anticoagulant was taken

D. Verify actual exposure through available sources and communicate a reconciled plan

Correct answer D. Medication records indicate prescriptions, not necessarily actual last doses; uncertainty matters particularly for anticoagulation and neuraxial safety.

Why A is less appropriate. The information is needed before avoidable harm occurs.

Why B is less appropriate. Fasting does not establish actual drug interruption.

Why C is less appropriate. Prescription records do not establish ingestion.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 085

Fasting medications and final readiness

A 62 year old man uses an unlabelled herbal product, a prescribed sedative and several chronic medicines. He did not report the herbal product because he considers it food. Before major surgery he describes easy bruising and increased sleepiness, but standard laboratory results are not markedly abnormal. The operation is elective, and the product packaging can be obtained. A trainee proposes ignoring the supplement because there is no prescribed drug name, while another recommends stopping every medicine for two weeks.

The packaging may reveal several ingredients rather than a single active compound. His increased sleepiness could also reflect prescribed medicines or illness, so the assessment should remain open. The team can involve pharmacy and anesthesia rather than invent a universal supplement schedule. Both bruising and sedation are clinically relevant observations even when standard tests fail to identify a single mechanism immediately.

Which plan is most appropriate?

A. Exclude the product because it is not prescribed

B. Use normal screening tests to rule out all supplement effects

C. Identify ingredients and exposure and assess interactions with a targeted interruption plan

D. Stop every chronic medicine for a fixed interval

Correct answer C. Actual preparation and exposure can affect bleeding or sedation; assessment should be specific rather than dismissive or indiscriminate.

Why A is less appropriate. Nonprescription status does not establish safety.

Why B is less appropriate. Routine tests do not capture every interaction.

Why D is less appropriate. Necessary therapies need indication specific review.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 086

Fasting medications and final readiness

A 74 year old woman has completed investigations for surgery and is clinically stable. The planned procedure, side and patient identity were checked in clinic, but today's operating list names the opposite side. She is certain about the intended side, and imaging agrees with her. A consent form has a handwritten amendment that is not explained. The anesthetist is ready to induce, and the surgeon is delayed in another room. A nurse suggests choosing the side that appears on two of the three documents to avoid losing time.

The patient is available to participate in verification and has not received anesthesia. The responsible surgeon can be contacted before the procedure starts. The time pressure is operational rather than a threat from the underlying disease. The team should establish a consistent intended procedure and corrected documentation, rather than interpret disagreement as permission to choose whichever record is convenient.

What is the best action?

A. Accept the unexplained consent amendment as definitive

B. Choose the site supported by the majority of documents

C. Stop progression and reconcile the procedure and site with the responsible team before induction

D. Induce anesthesia while waiting for final reconciliation

Correct answer C. An unresolved site discrepancy requires explicit resolution, not voting among inconsistent records or postponing verification until the patient is anesthetized.

Why A is less appropriate. An unexplained change does not resolve the conflict.

Why B is less appropriate. Document counts do not establish the correct site.

Why D is less appropriate. Verification should occur before induction when possible.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 087

Fasting medications and final readiness

A 66 year old man is scheduled for surgery after several medicines were held for bowel preparation and fasting. The list is delayed until late afternoon. He has taken no fluids since the previous evening because the instructions said nothing after midnight. Blood pressure is lower than usual, glucose is trending down and he feels weak. A trainee regards strict compliance as evidence that preparation is optimal and proposes proceeding without reassessment. The operation remains necessary, but no immediate emergency exists. Anesthesia can revise the fasting and fluid plan according to risk.

He has received medicines whose effects may persist as fasting continues, and the previous plan assumed an early morning operation. The anesthesia team can provide individualized fluid and glucose support as indicated. There is no reason to equate longer fasting with better preparation. A safe plan should reflect the current time, symptoms and anticipated interval before oral intake resumes.

Which action is best?

A. Reassess prolonged fasting consequences and update fluids, medications and monitoring before proceeding

B. Retain the original instructions despite the extended delay

C. Give carbohydrate drink without reviewing aspiration and insulin issues

D. Proceed and correct weakness only after surgery

Correct answer A. Preparation is dynamic; delay can change volume and glucose safety and requires an individualized response.

Why B is less appropriate. The timing change can alter volume and glucose safety.

Why C is less appropriate. Intake needs an individualized risk assessment.

Why D is less appropriate. The new findings merit assessment before induction.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 088

Fasting medications and final readiness

A 58 year old woman reports an antibiotic allergy before surgery. Her old chart says rash, but she recalls skin blistering and hospitalization after a related drug. The planned operation requires effective prophylaxis, and an alternative regimen must cover the expected organisms. A resident assumes that all rash labels are low risk and orders the usual agent without further discussion. Another suggests omitting prophylaxis entirely. The procedure is elective, and clarification can occur before the operative date.

The patient cannot identify the original drug with certainty, but her account is credible and records may be obtainable. A severe delayed reaction would differ materially from a minor remote rash. The team has access to effective alternative protocols if needed. The aim is neither to dismiss the label nor to broaden treatment reflexively, but to establish a safe and sufficiently targeted prevention strategy.

Which approach is most appropriate?

A. Clarify the severe reaction history and select a safe effective procedure appropriate regimen

B. Omit prophylaxis rather than resolve the complex history

C. Use the broadest agent without assessing likely reaction or spectrum

D. Apply the minor rash pathway without clarifying severe features

Correct answer A. Possible severe delayed hypersensitivity changes selection; both safety and appropriate spectrum require a deliberate plan.

Why B is less appropriate. An allergy does not remove an indicated prevention need.

Why C is less appropriate. Breadth alone does not establish safe effective prophylaxis.

Why D is less appropriate. The recalled severe features change the safety assessment.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 089

Fasting medications and final readiness

A 79 year old man is ready for elective surgery after cardiac and nutritional review. He has limited mobility and previously required rehabilitation after an operation. The family initially promised home care but now says nobody can stay with him. The anticipated postoperative pathway assumes independent transfers and reliable medication administration. The surgeon has a technically appropriate operative plan and all test results are available. The patient still wants treatment and is willing to discuss a rehabilitation placement. The condition allows a short planning interval.

The patient has no new contraindication to treatment and remains able to express his priorities. The team can explore rehabilitation availability and revise the anticipated discharge destination. Family inconvenience should not automatically remove a beneficial option, but neither should a nonexistent home plan be treated as real. The decision concerns making recovery feasible with resources that can actually be provided.

Which action best completes readiness assessment?

A. Withdraw surgery because family support is no longer available

B. Proceed without revising the discharge plan because tests are complete

C. Order more laboratory tests before considering rehabilitation arrangements

D. Resolve the realistic recovery and support plan with him and the team

Correct answer D. Recovery resources affect whether the treatment plan is feasible; a changed support situation merits active planning rather than denial or neglect.

Why A is less appropriate. Alternative resources may preserve a beneficial treatment option.

Why B is less appropriate. Investigations do not provide recovery support.

Why C is less appropriate. The identified problem is not answered by more testing.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 090

Fasting medications and final readiness

A 68 year old woman had several chronic medicines held around surgery. She is now clinically improving but has reduced oral intake, a new creatinine rise and uncertain wound hemostasis. The discharge template says restart all usual medicines today. Different clinicians believe someone else will decide about anticoagulation, renally cleared drugs and diabetes treatment. The patient is anxious to leave and asks for a single written schedule.

The patient has brought her medicines and asks who will answer questions after discharge. The competing issues may resolve on different timescales, so a single instruction cannot safely cover them all. A named reviewer can document temporary holds, criteria for resumption and necessary tests. The process should reduce uncertainty rather than make the patient arbitrate between inconsistent instructions from different services. The patient can obtain follow up laboratory testing if the team specifies when it is needed and who will interpret it.

Which approach is best?

A. Restore the whole preoperative regimen as the definition of reconciliation

B. Assign explicit medication specific decisions and review ownership using current physiology

C. Assign a single restart date for every drug

D. Leave all treatment stopped until the patient contacts each specialist

Correct answer B. Reconciliation must produce an actionable safe plan; competing bleeding, renal and intake issues prevent a single indiscriminate restart rule.

Why A is less appropriate. Current physiology can change immediate drug safety.

Why C is less appropriate. Different indications and clearance require different conditions.

Why D is less appropriate. Unowned holds risk loss of essential treatment.

Source framework: Sabiston Chapter 19; ASA fasting guidelines 2017 and 2023; medication guidance identified in the chapter.

Question 091

Prevention implementation and ERAS judgment

A 125 kg man is scheduled for elective colorectal resection. Renal function is normal, and the institutional regimen includes cefazolin plus appropriate additional coverage. The cefazolin order was copied as 1 g from an old template. The dose has not yet been administered, and the list is running late. A resident proposes giving the copied dose now and continuing postoperative antibiotics for several days to compensate. The procedure may last more than four hours, and significant blood loss is possible. The team has time to revise the order before incision.

The patient has no reason to need treatment antibiotics for an established infection. The selected regimen must still cover the colorectal field, not merely skin flora. The team can verify actual administration before incision and assign responsibility for redosing. Extending postoperative exposure would add risk without solving a preventable error in the initial dose and timing plan.

Which plan best addresses the actual prevention problem?

A. Increase cefazolin but omit the other colorectal coverage

B. Retain the low initial dose and extend postoperative treatment

C. Correct the weight appropriate regimen and coordinate delivery, redosing and discontinuation

D. Mark prophylaxis delivered when the corrected order is entered

Correct answer C. Effective prevention requires the right regimen and exposure at the right time; later prolonged dosing cannot replace correct initial and intraoperative coverage.

Why A is less appropriate. More cefazolin does not supply missing organism coverage.

Why B is less appropriate. Later dosing does not repair inadequate incision exposure.

Why D is less appropriate. An order is not proof of delivery.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 092

Prevention implementation and ERAS judgment

A patient has received cefazolin before an anticipated incision, but an equipment problem delays surgery substantially. By the time the surgeon is ready, the original timing window has passed. The operation is expected to be prolonged, and renal function is normal. The record shows the drug name but not the exact administration time. A trainee wants to proceed because prophylaxis was ordered, while another proposes adding a postoperative day of treatment instead of resolving the timing. The clinical condition allows a brief coordinated review.

The circulating nurse can recover the administration record before incision, and the local protocol can guide whether repeat dosing is needed. The patient has not acquired an infection simply because equipment was delayed. The decision is about maintaining relevant exposure at incision and during the operation, not using a longer postoperative course as a substitute for correct execution of prophylaxis.

Which action best protects the prophylactic aim?

A. Verify actual administration and reassess preincision coverage and redosing under the protocol

B. Add postoperative antibiotics without reviewing incision exposure

C. Use prescription time as equivalent to administration time

D. Broaden the agent solely because equipment delayed incision

Correct answer A. The delay changes the exposure question; actual delivery and drug specific timing determine whether additional dosing is needed.

Why B is less appropriate. Later dosing does not ensure coverage at incision.

Why C is less appropriate. The actual delivery time determines relevant exposure.

Why D is less appropriate. A timing problem does not automatically require broader spectrum.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 093

Prevention implementation and ERAS judgment

A woman has uncomplicated clean surgery with indicated prophylaxis delivered correctly. A drain remains because of anticipated fluid accumulation. She is afebrile, hemodynamically stable and has no evidence of infection. Her creatinine has risen mildly, and she previously had antibiotic associated diarrhea. A colleague recommends continuing the prophylactic drug until drain removal to avoid an organ space infection. The drain may remain for a week.

The operative note records no contamination or treatment indication. The patient and family ask why other surgeons have continued antibiotics with drains. The team can explain the distinction between prevention at the time of surgery and treatment of a subsequent infection. Renal vulnerability and prior adverse exposure make the absence of a justified continued indication especially relevant to the present decision. There is no separate clinical indication for therapeutic treatment, and the original prophylactic purpose has already been fulfilled.

Under the cited SHEA update, which plan best balances benefit and harm?

A. Broaden therapy to reduce the chance of later drain infection

B. Stop prophylaxis at closure and assess any later infection as a separate treatment question

C. Continue until the drain is removed

D. Use a fixed postoperative week because a drain is present

Correct answer B. A drain alone does not justify continued prophylaxis; unnecessary exposure adds adverse effects without established preventive benefit.

Why A is less appropriate. Spectrum escalation does not create a justified indication.

Why C is less appropriate. Drain duration is not the stopping rule.

Why D is less appropriate. No treatment indication supports that duration.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 094

Prevention implementation and ERAS judgment

A 69 year old patient undergoes major abdominal cancer surgery. Previous VTE and limited mobility create substantial thrombosis risk. On the first postoperative day there is ongoing bleeding, falling hemoglobin and concern that reoperation may be needed. Renal function is impaired. A resident insists on therapeutic heparin because the VTE risk score is high; another removes every prevention order and plans no reassessment until discharge. Suitable mechanical devices can be applied.

The bleeding team can reassess hemostasis frequently, and the patient remains at risk from immobility even while drugs are unsafe. Mechanical devices must be fitted and used rather than simply ordered. A future pharmacological review should be assigned to a specific clinician. The question is how to navigate a changing contraindication, not choose a permanent label of either clotting risk or bleeding risk.

Which approach best handles the changing balance?

A. Prescribe the standard drug regimen without reviewing renal function or bleeding

B. Control bleeding, use appropriate mechanical prevention and document repeated pharmacological reassessment

C. Give therapeutic heparin solely because the prevention score is high

D. Remove every prevention order until discharge

Correct answer B. High VTE risk remains important, but active bleeding can temporarily preclude drugs; suitable mechanical prevention and explicit review address both hazards.

Why A is less appropriate. Clearance and hemostasis affect drug safety.

Why C is less appropriate. A prevention score does not diagnose a treatment indication.

Why D is less appropriate. Suitable mechanical measures and review remain possible.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 095

Prevention implementation and ERAS judgment

A 72 year old woman is recovering from major pelvic cancer surgery. Hemostasis is satisfactory, but mobility remains poor and she has a prior VTE. Discharge is planned tomorrow. She lives alone, has difficulty giving injections and has reduced renal function. A colleague proposes stopping prophylaxis at discharge because hospital risk has ended. Another prescribes a standard four week regimen without checking affordability, administration or drug suitability. Extended prevention is being considered under an appropriate cancer surgery protocol.

The patient is willing to learn a regimen if support is provided, and a family member may help temporarily. Medication access and clearance can influence which option is appropriate. The team can explain the intended stop date and symptoms requiring review. An extended prescription should therefore be a practical care plan rather than a number of weeks written without considering whether treatment can be delivered.

Which plan is best?

A. Use lifelong therapeutic anticoagulation because cancer surgery occurred

B. Assess extended prophylaxis suitability and choose a feasible safe regimen with follow up

C. Use the standard extended prescription without checking feasibility or clearance

D. Stop prophylaxis automatically on the discharge date

Correct answer B. Selected high risk patients may benefit beyond discharge, but agent, duration, feasibility and bleeding safety require a complete plan.

Why A is less appropriate. Surgical risk alone does not establish lifelong treatment.

Why C is less appropriate. An inaccessible or unsafe regimen is not effective prevention.

Why D is less appropriate. VTE risk can persist outside hospital.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 096

Prevention implementation and ERAS judgment

A 66 year old man is scheduled for major surgery with planned epidural analgesia. He has elevated VTE risk, impaired renal clearance and a previous bleeding complication. The surgical prophylaxis order and anesthesia catheter schedule were written independently. The first anticoagulant dose would overlap a catheter related procedure under the current plan. Neither team has reviewed the combined schedule. There is time to coordinate before surgery, and suitable mechanical prevention is available.

The patient values epidural analgesia but is willing to consider alternatives if the combined risks cannot be managed safely. The surgical team also wants prevention to start when appropriate rather than be forgotten. Drug specific timing and postoperative reassessment can be documented jointly. A coordinated decision may alter either the analgesic strategy or the medication schedule without treating those choices as unrelated tasks.

Which action is most appropriate?

A. Give the ward dose and revise catheter plans afterward

B. Omit all prevention throughout the admission because an epidural is planned

C. Reconcile drug specific timing, renal considerations and catheter management before administration

D. Use therapeutic dosing to simplify the number of administrations

Correct answer C. Neuraxial safety and thrombosis prevention require one coordinated schedule, not separate orders with unexamined interactions.

Why A is less appropriate. Administration can create avoidable catheter related bleeding risk.

Why B is less appropriate. Appropriate mechanical and timed drug options may remain available.

Why D is less appropriate. Greater intensity is not a scheduling solution.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 097

Prevention implementation and ERAS judgment

A 55 year old man is scheduled for a brief ambulatory procedure. He walks normally, has no malignancy or prior VTE and has no major additional risk factors. A hospital order set applies the major general surgery anticoagulant regimen to every operation. He also has a recent clinically relevant bleeding episode under investigation. The anesthetist asks whether the ASH recommendation for major general surgery automatically supports the copied order. The procedure is expected to permit immediate mobility and same day discharge.

He can resume walking promptly and has no plan for prolonged immobilization. His recent bleeding episode is clinically meaningful rather than a remote minor bruise. The question is not whether VTE can ever follow a short procedure, but whether the copied regimen's expected benefit exceeds its harms in this particular context. The major surgery recommendation does not by itself answer that question.

Which decision best applies evidence to the patient?

A. Apply the major surgery order to every anesthetic

B. Assess only the procedure name and disregard mobility and bleeding history

C. Use therapeutic dosing while the individual risk is uncertain

D. Use a procedure appropriate VTE and bleeding assessment rather than import the major surgery regimen

Correct answer D. Recommendation populations matter; a brief low risk procedure and a bleeding concern require individualized assessment rather than automatic extrapolation.

Why A is less appropriate. Risk and benefit differ between clinical settings.

Why B is less appropriate. Patient factors remain part of prevention assessment.

Why C is less appropriate. Uncertainty does not justify treatment intensity.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 098

Prevention implementation and ERAS judgment

A 63 year old woman is on an elective colorectal ERAS pathway. Mechanical bowel preparation and oral antibiotics are planned with appropriate IV prophylaxis. She develops worsening vomiting and abdominal distension before surgery, and obstruction is now suspected. The ward continues to encourage the remaining preparation and carbohydrate drink because the pathway checklist is incomplete. She is becoming dehydrated but is not in shock. The surgeon can reassess the clinical condition and urgency immediately.

The new symptoms represent a change after the original elective pathway was selected. Completing oral preparation may no longer be feasible or safe, and the urgency of intervention may need revision. The patient asks whether deviations from the checklist mean worse care. The team can explain that appropriately responding to changed physiology is part of good pathway use, rather than evidence of poor compliance.

Which response best reflects sound pathway use?

A. Reevaluate obstruction and volume status and adapt preparation and operative planning

B. Use pathway enrollment to exclude a new obstruction

C. Replace IV prophylaxis with oral drugs because preparation has started

D. Finish all preparation components before reassessing the symptoms

Correct answer A. Procedure specific recommendations must be adapted when new pathology changes route safety, aspiration risk and urgency.

Why B is less appropriate. A pathway does not diagnose the patient.

Why C is less appropriate. The preventive components are not interchangeable.

Why D is less appropriate. Checklist completion must not override deterioration.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 099

Prevention implementation and ERAS judgment

A 70 year old man reaches the planned discharge day after colorectal surgery. He has increasing pain, vomiting, tachycardia and borderline blood pressure. He walked the corridor yesterday and had tolerated a small meal, so the chart records several ERAS targets as achieved. His family asks whether a longer admission would mean pathway failure. A resident suggests antiemetics and discharge to preserve the early discharge rate. The surgeon has not yet assessed the new change.

His family can observe him at home but cannot evaluate the cause of hypotension or provide acute resuscitation. The earlier mobility and intake milestones are genuine but no longer describe his current condition. The surgeon can reassess promptly and arrange appropriate investigations. The pathway's benefit depends on recognizing complications as well as encouraging recovery, not just recording achievements before a new deterioration.

Which action best demonstrates judgment?

A. Investigate deterioration and revise feeding, mobility and discharge targets according to findings

B. Push oral intake to complete the remaining pathway target

C. Discharge because earlier recovery targets were achieved

D. Use the scheduled date as the principal success criterion

Correct answer A. Recovery is dynamic; new physiological warning signs outweigh earlier checklist milestones and require assessment before discharge.

Why B is less appropriate. A complication may alter the appropriate feeding plan.

Why C is less appropriate. Earlier progress does not establish current safety.

Why D is less appropriate. Recovery quality includes complications and function.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Question 100

Prevention implementation and ERAS judgment

A 68 year old woman has completed a demanding preoperative pathway for major surgery. Cardiac disease is stable, anemia has improved and nutritional support is underway. On the morning of surgery the antibiotic timing is unconfirmed, anticoagulant last dose is uncertain and no monitored postoperative bed is available despite prior respiratory failure. The cancer is time sensitive, but a short delay is considered acceptable by the treating team. The patient believes completion of tests means nothing important remains to decide. The surgeon must make the final recommendation.

The patient is willing to accept a brief revised schedule if it addresses meaningful safety concerns. The team already has enough diagnostic information to identify the gaps, and no broad test panel will clarify the last anticoagulant dose or create a monitored bed. The final decision needs coordination and verification of actual care delivery, rather than another general clearance statement on the chart.

Which action best integrates readiness, urgency and preventable risk?

A. Proceed because all required investigations have been completed

B. Order broad additional testing instead of resolving the known gaps

C. Resolve the actionable medication, prevention and recovery gaps before confirming the revised operative plan

D. Withdraw the treatment recommendation because the date must change

Correct answer C. Readiness combines physiological assessment with actual delivery and resources; a short acceptable interval can correct concrete gaps without abandoning beneficial treatment.

Why A is less appropriate. Tests do not establish drug exposure or available recovery resources.

Why B is less appropriate. More testing does not address the identified implementation problems.

Why D is less appropriate. Correctable gaps do not justify permanent denial of benefit.

Source framework: Sabiston Chapter 19; SHEA SSI update; ASH 2019; ASCO 2023; ASCRS SAGES 2023 as relevant.

Advanced question answer key

Use the explanations attached to each case to review the management reasoning, rather than treating the letter alone as the learning objective.

Questions 1 to 20	Questions 21 to 40	Questions 41 to 60	Questions 61 to 80	Questions 81 to 100
001 C	021 D	041 B	061 B	081 B
002 C	022 B	042 D	062 C	082 B
003 B	023 C	043 A	063 D	083 A
004 A	024 D	044 A	064 B	084 D
005 B	025 C	045 C	065 A	085 C
006 D	026 D	046 A	066 D	086 C
007 A	027 D	047 B	067 D	087 A
008 D	028 C	048 B	068 C	088 A
009 D	029 B	049 A	069 B	089 D
010 C	030 A	050 C	070 A	090 B
011 C	031 A	051 A	071 C	091 C
012 A	032 D	052 A	072 A	092 A
013 C	033 C	053 D	073 B	093 B
014 B	034 B	054 D	074 C	094 B
015 B	035 D	055 C	075 B	095 B
016 D	036 D	056 A	076 B	096 C
017 C	037 A	057 D	077 B	097 D
018 D	038 D	058 B	078 C	098 A
019 A	039 C	059 D	079 C	099 A
020 D	040 A	060 B	080 A	100 C

Question bank source guide

Primary textbook

Sabiston Textbook of Surgery. 22nd edition, copyright 2026. Chapter 19, Principles of Preoperative and Operative Surgery. Questions reorganize concepts from the surgical evaluation, organ assessment, preparation and prevention units in this chapter.

Guideline supplements by topic

Cardiovascular AHA ACC multisociety guideline 2024. doi:10.1016/j.jacc.2024.06.013.

Renal KDIGO AKI guideline 2012 and CKD guideline 2024. ADQI POQI postoperative AKI consensus 2021. doi:10.1038/s41581-021-00418-2. UK Kidney Association hyperkalemia guideline 2023.

Hepatic AGA surgical risk assessment in cirrhosis clinical practice update 2019. AASLD vascular liver disorders and procedural bleeding guidance, published 2021. doi:10.1002/hep.31646. ACG perioperative cirrhosis guideline 2025. doi:10.14309/ajg.0000000000003616.

Hematology ICCAMS 2023. doi:10.1097/SLA.0000000000005721. AABB 2023. doi:10.1001/jama.2023.12914. CHEST antithrombotic guideline 2022. doi:10.1016/j.chest.2022.07.025. ASH ISTH NHF WFH VWD management guideline 2021. doi:10.1182/bloodadvances.2020003264.

Endocrine ADA Standards of Care 2026, section 16. doi:10.2337/dc26-S016. Multisociety perioperative GLP 1 guidance 2024. ESE Endocrine Society glucocorticoid induced adrenal insufficiency guideline 2024.

Nutrition ESPEN clinical nutrition in surgery update 2025. doi:10.1016/j.clnu.2025.08.029. NRS 2002 publication 2003. doi:10.1016/S0261-5614(03)00098-0. NICE CG32, nutrition support for adults.

Fasting ASA practice guideline 2017 and modular update 2023. doi:10.1097/ALN.0000000000004381 for the 2023 update. Healthy elective patient recommendations require individualization when aspiration risk is elevated.

Prevention SHEA IDSA APIC SSI prevention 2022 update, published 2023. ASH surgical VTE prevention guideline 2019. doi:10.1182/bloodadvances.2019000975. ASCO VTE update 2023. doi:10.1200/JCO.23.00294. ASCRS SAGES colorectal ERAS guideline 2023. doi:10.1097/DCR.0000000000002650.

For mechanical valve scenarios, distinguish the broad CHEST 2022 suggestion from the selected very high thrombotic risk discussion in AHA ACC 2024. The case involving a recent embolic event asks for a coordinated individualized plan rather than an automatic bridging rule.

Structured oral examination stations

Ten case based stations with model answers and scoring

Each station uses a brief case, a defined candidate task, standardized examiner probes, a model answer framework and a 20 point checklist. The cases assess clinical prioritization and communication across the preoperative care chapter.

Suggested administration

Allow two minutes to read the candidate brief and eight minutes for discussion. Give the staged updates at the indicated points and use the final probe before the station ends. The examiner should reveal only the brief and task initially; model answers and scoring pages are examiner material. Timing is a suggested teaching format.

Checklist scoring

Score each of ten criteria from 0 to 2: 0 means absent or materially incorrect; 1 means partly correct or incomplete; 2 means a coherent, clinically appropriate response addressing the criterion. Equivalent safe approaches can receive credit. Record substantive examiner assistance so independent performance can be distinguished from prompted performance. Do not award the same action repeatedly under unrelated criteria.

Global judgment and safety

Record a separate global rating from 1 to 5: 1 unsafe or unable to organize care; 2 substantial gaps requiring repeated help; 3 adequate but with gaps; 4 coherent, safe and well prioritized; 5 comprehensive, efficient and responsive to new information. Do not add this rating to the checklist total. Record whether a listed safety concern occurred and whether it was corrected after prompting.

The 20 point checklist and global anchors are proposed educational criteria, not a validated examination or an established pass standard. Faculty should calibrate scoring before use and set any pass or safety override policy prospectively. An isolated checklist total must not conceal a dangerous decision.

Station map

01 Frailty cognition and informed decisions

02 New heart failure symptoms before elective surgery

03 Respiratory exacerbation and obstructive sleep apnea

04 Acute kidney injury and severe hyperkalemia

05 Cirrhosis with recent decompensation

06 Anemia and perioperative antithrombotic decisions

07 Diabetes fasting and SGLT2 associated metabolic risk

08 Severe nutritional risk and prehabilitation

09 Day of surgery medication and aspiration assessment

10 Integrated prophylaxis and enhanced recovery

Station 01 Frailty cognition and informed decisions

Candidate brief

An 81 year old woman is considering elective colectomy for a nonobstructing colon cancer. She lives alone, walks slowly, has fallen twice in six months and needs help shopping. She says that remaining independent matters more than a short hospital stay. Her daughter asks you to sign the consent form while the patient waits outside.

Candidate task Assess operative readiness and explain how you would reach an informed recommendation. Address function, cognition, consent and postoperative support.

Examiner probes and staged updates

Initial probe What additional information changes your recommendation?

At four minutes The patient understands the operation but fears permanent institutional care. How do you respond?

Final probe What must be arranged before discharge planning can be considered realistic?

Model answer framework

1. I would confirm indication, stage related urgency and alternatives, then ask the patient directly about her priorities. Age alone should not decide treatment. The daughter can contribute with permission, while a capable patient remains the decision maker.

2. I would assess basic and instrumental activities, mobility, falls, frailty, nutrition, comorbidities and medication use. Baseline cognition, hearing, vision and mood help identify vulnerabilities and establish a reference for postoperative change.

3. I would assess decision making capacity for this decision if there is concern, using understandable information and teach back. Capacity concerns require appropriate evaluation; family presence does not itself imply incapacity.

4. I would discuss survival, complications, likely recovery, rehabilitation and possible loss of independence alongside nonsurgical options. I would acknowledge uncertainty and avoid promising return to baseline.

5. I would agree on feasible nutritional and functional preparation, a multicomponent delirium prevention plan and the expected recovery destination. I would involve anesthesia, geriatric or rehabilitation services as needed and confirm practical home support before finalizing the plan.

Station 01 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Confirms indication and urgency and considers alternatives.	___ / 2
2. Elicits the patient's goals and discusses functional outcomes.	___ / 2
3. Assesses activities, mobility, falls and frailty.	___ / 2
4. Assesses baseline cognition and relevant sensory impairment.	___ / 2
5. Reviews nutrition, medicines and comorbidities.	___ / 2
6. Recognizes patient autonomy and evaluates capacity when indicated.	___ / 2
7. Explains benefits, burdens and uncertainty in understandable language.	___ / 2
8. Checks understanding and involves family with appropriate permission.	___ / 2
9. Plans delirium prevention and feasible optimization.	___ / 2
10. Specifies rehabilitation, home support and follow up responsibility.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Proceeding on the daughter's authorization alone despite a capable patient's exclusion; denying surgery solely because of chronological age; promising preservation of independence.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston Chapter 19, evaluation, informed consent and older surgical patient sections.

Station 02 New heart failure symptoms before elective surgery

Candidate brief

A 68 year old man is scheduled for elective incisional hernia repair next week. He has ischemic heart disease and chronic heart failure. Over ten days he has developed orthopnea, increasing leg edema and markedly reduced walking tolerance. He takes a stable dose of metoprolol. A referral asks for cardiac clearance.

Candidate task Explain your immediate assessment, operative timing decision and targeted cardiac plan.

Examiner probes and staged updates

Initial probe Would you calculate a risk score before deciding whether the patient is stable?

At four minutes The surgeon asks for a stress test so the operation can proceed. What do you say?

Final probe What must be documented before reconsidering the operation?

Model answer framework

1. I would assess current vital signs, oxygenation, congestion, perfusion and chest symptoms, including whether emergency evaluation is needed. New orthopnea and edema suggest decompensated heart failure rather than stable chronic disease.

2. I would pause this elective operation and coordinate assessment and treatment with anesthesia and the cardiac team. I would evaluate precipitating ischemia, arrhythmia, infection, medication problems and volume changes as indicated.

3. I would request targeted ECG, laboratory testing and cardiac imaging according to the findings, including evaluation of new or worsening ventricular dysfunction. Routine stress testing does not substitute for treating active deterioration.

4. After stabilization, I would estimate procedure relevant risk and review functional capacity and modifiers. Additional testing should answer a management question. Established beta blocker therapy is generally continued when clinically appropriate, with adjustment for hypotension, bradycardia or other instability.

5. I would document treatment response, residual symptoms, the medication and fluid strategy, postoperative monitoring and the agreed reassessment point. The new timing decision should weigh expected hernia benefit against residual cardiac risk with the patient.

Station 02 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Identifies probable decompensated heart failure.	___ / 2
2. Assesses immediate physiological stability and need for urgent care.	___ / 2
3. Pauses elective surgery rather than issuing unconditional clearance.	___ / 2
4. Looks for relevant reversible precipitants.	___ / 2
5. Selects investigations directed at current findings.	___ / 2
6. Explains why routine stress testing does not resolve active instability.	___ / 2
7. Uses risk estimation and function after addressing active disease.	___ / 2
8. Reviews established cardiac therapy without automatic last minute initiation.	___ / 2
9. Coordinates surgery, anesthesia and cardiac input with a specific question.	___ / 2
10. Defines reassessment, residual risk and postoperative monitoring.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Proceeding with elective repair despite untreated decompensation; replacing stabilization with a routine stress test; initiating a large beta blocker dose immediately before induction as the solution.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston cardiovascular assessment; AHA ACC multisociety perioperative guideline 2024, doi:10.1016/j.jacc.2024.06.013.

Station 03 Respiratory exacerbation and obstructive sleep apnea

Candidate brief

A 64 year old man is scheduled for elective upper abdominal surgery. He has COPD, continues to smoke and reports increased wheeze and purulent sputum over five days. Room air oxygen saturation is 89 percent; baseline is not recorded. His partner reports witnessed apneas. He uses no home CPAP.

Candidate task Assess the active respiratory problem and propose an operative and recovery plan.

Examiner probes and staged updates

Initial probe Which findings need attention before routine risk scoring?

At four minutes Would a normal chest radiograph alone make him ready?

Final probe How would suspected OSA change analgesia and monitoring?

Model answer framework

1. I would assess respiratory distress, oxygenation, ventilation, hemodynamics and baseline status immediately. New sputum, wheeze and low saturation require evaluation for exacerbation, infection and other cardiopulmonary causes.

2. I would pause elective surgery while the active problem is assessed and treated. Treatment should match the diagnosis, including bronchodilator and other therapy when indicated. I would not prescribe antibiotics for every COPD patient without considering the clinical indication.

3. Investigations would answer specific questions: chest imaging or blood gases may be useful for this presentation, while routine spirometry is not a substitute for evaluating acute illness. I would establish baseline function and recent respiratory history.

4. I would screen for OSA and consider hypoventilation if supported by daytime findings. I would communicate airway and sedative risk to anesthesia. A positive screen suggests a need for planning rather than proving the exact diagnosis or automatically requiring cancellation.

5. I would support smoking cessation and agree on criteria for clinical improvement. The plan would include appropriate analgesia, respiratory support, mobilization and postoperative monitoring, with CPAP or additional evaluation coordinated when indicated. A normal image alone does not establish readiness.

Station 03 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Assesses respiratory distress, saturation and baseline physiology.	___ / 2
2. Recognizes an active respiratory deterioration.	___ / 2
3. Evaluates plausible causes rather than assuming stable COPD.	___ / 2
4. Pauses elective timing pending assessment and optimization.	___ / 2
5. Selects targeted investigations rather than universal testing.	___ / 2
6. Provides diagnosis directed respiratory optimization.	___ / 2
7. Screens for OSA and considers hypoventilation appropriately.	___ / 2
8. Communicates airway, opioid and sedative risk to anesthesia.	___ / 2
9. Plans respiratory support and postoperative monitoring.	___ / 2
10. Offers cessation support and defines reassessment criteria.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Ignoring resting hypoxemia; proceeding solely because imaging is normal; prescribing unrestricted opioids without a respiratory plan in a vulnerable patient.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston Chapter 19, pulmonary assessment, OSA and obesity hypoventilation sections.

Station 04 Acute kidney injury and severe hyperkalemia

Candidate brief

A 72 year old woman with CKD is admitted for elective colorectal surgery. Creatinine has increased from 1.6 to 2.3 mg/dL over 48 hours. Potassium is 6.7 mmol/L. She has reduced urine output and mild dyspnea. She takes an ACE inhibitor and a diuretic. Fluid balance is uncertain.

Candidate task Prioritize immediate safety, explain the renal assessment and decide whether elective surgery can proceed.

Examiner probes and staged updates

Initial probe Does this creatinine change qualify as AKI?

At three minutes ECG now shows new conduction abnormalities. What is your immediate approach?

Final probe Would you give repeated fluid boluses solely to improve urine output?

Model answer framework

1. I would urgently assess and treat severe hyperkalemia, obtain ECG and monitoring, and involve appropriate acute care and renal expertise. With conduction changes, immediate myocardial stabilization and potassium lowering measures are required under the emergency protocol, with serial potassium and glucose checks as appropriate.

2. The creatinine rise exceeds 0.3 mg/dL within 48 hours and meets a KDIGO AKI criterion. I would pause elective surgery, assess perfusion, volume, urine output, obstruction, infection and recent nephrotoxic or medication exposures.

3. I would review the sample and exclude laboratory artifact when appropriate without delaying treatment of a clinically dangerous presentation. Definitive potassium removal, including dialysis when indicated, must be considered rather than relying only on temporary intracellular shifting.

4. I would distinguish depletion from congestion using examination, trends and relevant investigations. Dyspnea and oliguria do not prove hypovolemia. Fluids would be individualized and reassessed rather than repeated automatically.

5. I would review renal dosing and temporarily unsafe medicines, then document reassessment and restart ownership. Surgery would be reconsidered after treating the acute problem with an agreed electrolyte, volume, dialysis if relevant, and postoperative monitoring plan.

Station 04 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Recognizes severe hyperkalemia as urgent.	___ / 2
2. Obtains ECG and monitoring and responds immediately to conduction changes.	___ / 2
3. Describes stabilization, potassium shifting or removal and serial monitoring.	___ / 2
4. Recognizes the creatinine based AKI criterion.	___ / 2
5. Pauses elective surgery and escalates appropriately.	___ / 2
6. Evaluates perfusion, congestion, urine output and obstruction.	___ / 2
7. Reviews medications and nephrotoxic exposures.	___ / 2
8. Avoids automatic fluid loading for oliguria.	___ / 2
9. Considers definitive removal or dialysis when indicated.	___ / 2
10. Documents renal dosing, reassessment and a medication restart plan.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Delaying treatment despite hyperkalemia with ECG changes; proceeding with elective surgery before addressing instability; repeated unassessed fluid loading despite possible congestion.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston renal assessment; KDIGO AKI 2012 and CKD 2024; UKKA hyperkalemia 2023; ADQI POQI 2021, doi:10.1038/s41581-021-00418-2.

Station 05 Cirrhosis with recent decompensation

Candidate brief

A 59 year old man with cirrhosis requests elective repair of a symptomatic but reducible umbilical hernia. He has recurrent ascites and was admitted with encephalopathy one month ago. Albumin is 2.8 g/dL, bilirubin 3.1 mg/dL, INR 1.7 and creatinine 1.4 mg/dL. He has no active bleeding.

Candidate task Explain risk assessment, optimization and shared decision making. Do not assume that all information required for a risk score is supplied.

Examiner probes and staged updates

Initial probe Which missing clinical details affect a Child Pugh assessment?

At four minutes Should INR be normalized with plasma solely to prevent bleeding?

Final probe Does elevated INR remove the need to assess VTE risk?

Model answer framework

1. I would confirm the hernia symptoms, reducibility and signs of obstruction or strangulation. Current reducibility permits a planned assessment; new incarceration would change urgency. I would establish liver disease trajectory and prior decompensation.

2. I would assess ascites control, encephalopathy, infection, portal hypertension, nutrition, renal function and medication use. Child Pugh requires appropriate ascites and encephalopathy grading, so I would not invent a complete score from these laboratory data alone.

3. I would use labeled severity measures and an appropriate surgical risk estimate such as VOCAL Penn when applicable, with hepatology, anesthesia and surgery input. I would discuss the risks of elective repair, the risks of waiting and nonsurgical options.

4. I would optimize ascites, address encephalopathy precipitants, nutrition and renal vulnerability, and plan postoperative support. Recent decompensation may justify deferring elective intervention; there is no single laboratory permission rule.

5. INR alone does not reliably predict procedural bleeding in cirrhosis and is not by itself an indication for prophylactic plasma. Hemostatic planning should be contextual. I would also assess thrombosis and bleeding separately because INR elevation does not protect against VTE.

Station 05 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Confirms hernia urgency and recognizes triggers for emergency reassessment.	___ / 2
2. Identifies recent hepatic decompensation as important risk.	___ / 2
3. Assesses ascites, encephalopathy and reversible precipitants.	___ / 2
4. Assesses renal function, infection, nutrition and portal hypertension.	___ / 2
5. Recognizes missing information and avoids inventing a score.	___ / 2
6. Uses suitable labeled severity and surgical risk tools in context.	___ / 2
7. Coordinates multidisciplinary timing and optimization.	___ / 2
8. Explains alternatives and residual risk to the patient.	___ / 2
9. Avoids plasma solely to normalize INR without a relevant indication.	___ / 2
10. Assesses VTE and bleeding without assuming auto anticoagulation.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Routine plasma solely to normalize INR; assuming elevated INR prevents thrombosis; issuing a definitive score despite missing ascites and encephalopathy grading.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston hepatic assessment; AGA 2019; AASLD procedural bleeding guidance, doi:10.1002/hep.31646; ACG perioperative cirrhosis guideline 2025, doi:10.14309/ajg.0000000000003616.

Station 06 Anemia and perioperative antithrombotic decisions

Candidate brief

A 67 year old woman is scheduled for elective colon resection in three weeks. Hemoglobin is 9.2 g/dL, ferritin 18 ng/mL and transferrin saturation 11 percent. She takes warfarin for atrial fibrillation. She has no mechanical valve, recent stroke or recent systemic embolism and no current overt bleeding.

Candidate task Provide an anemia management plan and explain how anticoagulant interruption, bridging and resumption should be arranged.

Examiner probes and staged updates

Initial probe Would you transfuse automatically to hemoglobin 10 g/dL?

At four minutes The resident requests therapeutic LMWH bridging for every warfarin patient. How do you respond?

Final probe What changes if a mechanical mitral valve is discovered in the history?

Model answer framework

1. I would assess symptoms, hemodynamics, bleeding history, hemoglobin trend and the expected operative blood loss. Low ferritin and transferrin saturation support iron deficiency. I would evaluate the cause and other contributors rather than treating the laboratory result in isolation.

2. I would arrange iron replacement appropriate to time, tolerance and clinical context, with reassessment before surgery. Stable hemoglobin 9.2 g/dL does not mandate transfusion to an arbitrary target. Active bleeding, symptoms or other indications would change the decision.

3. I would confirm the anticoagulant indication, recent events, valve history, bleeding risk and anesthetic or neuraxial plan. The interruption schedule should follow the relevant drug and procedure protocol, with necessary coagulation review.

4. For the described atrial fibrillation profile I would avoid routine therapeutic heparin bridging. This is separate from postoperative surgical VTE prophylaxis. A mechanical mitral valve would require a new individualized specialist plan for interruption and possible bridging.

5. I would document who decides when warfarin resumes, taking hemostasis, oral intake and procedural factors into account. The patient should receive clear instructions for the last dose, any interim treatment, postoperative prevention and follow up testing.

Station 06 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Assesses symptoms, bleeding, trend and operative blood loss.	___ / 2
2. Recognizes iron deficiency from ferritin and saturation.	___ / 2
3. Investigates the cause and relevant additional contributors.	___ / 2
4. Plans appropriate iron treatment and reassessment.	___ / 2
5. Avoids automatic transfusion to a fixed 10 g/dL target.	___ / 2
6. Confirms anticoagulation indication and thrombotic history.	___ / 2
7. Plans procedure specific interruption and neuraxial coordination.	___ / 2
8. Avoids routine bridging for the described AF profile.	___ / 2
9. Recognizes mechanical mitral valve as a reason to revise the plan.	___ / 2
10. Separates prophylaxis from treatment and specifies restart ownership.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Automatic transfusion solely to achieve 10 g/dL; routine therapeutic bridging for every AF patient; treating a prophylactic heparin dose as equivalent to chronic therapeutic anticoagulation.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston hematology; ICCAMS 2023, doi:10.1097/SLA.0000000000005721; AABB 2023, doi:10.1001/jama.2023.12914; CHEST 2022, doi:10.1016/j.chest.2022.07.025.

Station 07 Diabetes fasting and SGLT2 associated metabolic risk

Candidate brief

A 62 year old man with type 2 diabetes is scheduled for elective major abdominal surgery in five days. He uses basal insulin, metformin and empagliflozin. A1C is 8.3 percent. He is eating normally, has no acute illness and has stable renal function. The ward suggests withholding all diabetes treatment once fasting begins.

Candidate task Give an individualized medication and glucose plan, then respond to the examiner's postoperative update.

Examiner probes and staged updates

Initial probe Does A1C 8.3 percent alone mandate postponement?

At four minutes After urgent surgery in a different patient taking empagliflozin, glucose is 165 mg/dL with vomiting and tachypnea. What do you suspect?

Final probe What principle changes if the original patient actually has type 1 diabetes?

Model answer framework

1. I would clarify the usual doses, glucose pattern, hypoglycemia history, renal function, intake and operation timing. I would optimize current control and discuss risk; A1C alone should not automatically deny or postpone required surgery.

2. I would hold empagliflozin three days before the planned operation under the cited ADA framework. I would document a separate plan for other agents, including holding metformin on the day of surgery in this framework, and review postoperative resumption according to recovery.

3. I would prescribe an individualized basal insulin adjustment and a fasting monitoring and correction plan rather than stopping all treatment. In type 1 diabetes, basal insulin must not be omitted. Intravenous insulin may be appropriate depending on the operation and clinical status.

4. I would generally aim for perioperative glucose 100 to 180 mg/dL with individualization and appropriate measured glucose checks, commonly every two to four hours while fasting. CGM should not be the sole intraoperative method.

5. The second patient could have euglycemic ketoacidosis. I would urgently assess ketones, electrolytes and acid base status, evaluate other causes and initiate the relevant emergency treatment with the acute care team. Modest glucose does not exclude ketoacidosis; SGLT2 resumption must await resolution of relevant risks.

Station 07 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Clarifies regimen, renal function, intake and hypoglycemia risk.	___ / 2
2. Avoids postponement based on A1C alone.	___ / 2
3. Specifies the three day empagliflozin hold.	___ / 2
4. Gives a clear plan for other agents and resumption review.	___ / 2
5. Plans individualized basal insulin and correction treatment.	___ / 2
6. States that type 1 basal insulin must not be omitted.	___ / 2
7. States an individualized 100 to 180 mg/dL perioperative goal.	___ / 2
8. Plans measured glucose monitoring and avoids CGM alone intraoperatively.	___ / 2
9. Recognizes possible euglycemic ketoacidosis in the update.	___ / 2
10. Escalates for urgent ketone and acid base assessment and treatment.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Withholding all insulin in type 1 diabetes; excluding ketoacidosis because glucose is 165 mg/dL; continuing an SGLT2 inhibitor without assessing perioperative metabolic risk.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston endocrine assessment; ADA Standards of Care 2026 section 16, doi:10.2337/dc26-S016; AHA ACC 2024 SGLT2 recommendations.

Station 08 Severe nutritional risk and prehabilitation

Candidate brief

A 70 year old patient with an upper gastrointestinal cancer has lost 13 percent of body weight in three months and has eaten very little for ten days. BMI is 31 kg/m2. The patient walks only short distances and has low muscle strength. Surgery is planned in two weeks; the team considers a short delay oncologically acceptable.

Candidate task Assess nutritional and functional risk, select a support strategy and explain how you would prevent complications of feeding.

Examiner probes and staged updates

Initial probe Does obesity exclude malnutrition?

At four minutes The ward proposes immediate full feeding without electrolyte checks. What do you change?

Final probe How do you justify any delay and assess whether preparation is helping?

Model answer framework

1. I would assess weight trajectory, actual intake, swallowing or obstructive symptoms, gastrointestinal function, muscle function, comorbidities and relevant laboratory trends. High BMI does not exclude malnutrition or sarcopenia. Albumin alone is not a nutritional diagnosis.

2. I would involve nutrition expertise and use a validated screening and assessment approach. Severe nutritional or high metabolic risk can justify approximately 10 to 14 days of preoperative nutritional therapy under the cited ESPEN 2025 framework when delay is acceptable.

3. I would prefer oral or enteral support when feasible and sufficient, tailoring the route to gastrointestinal function and requirements. If those routes cannot meet needs, I would consider other support with the team rather than applying a single route to every patient.

4. Prolonged low intake raises refeeding concern. I would plan thiamine, assess and monitor phosphate, potassium and magnesium, manage relevant deficits and advance nutrition cautiously according to risk and the applicable protocol.

5. I would combine supported nutrition with safe individualized activity and psychological preparation. I would agree with the cancer team on the acceptable interval and reassess intake, tolerance, electrolytes and functional progress. Preparation should improve care without an unjustified delay in cancer treatment.

Station 08 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Identifies significant weight loss and inadequate intake.	___ / 2
2. Recognizes malnutrition can coexist with obesity.	___ / 2
3. Assesses gastrointestinal feasibility and muscle or functional reserve.	___ / 2
4. Uses formal nutrition assessment and appropriate specialist support.	___ / 2
5. Explains a defined nutrition interval with oncological tradeoffs.	___ / 2
6. Chooses an appropriate oral, enteral or alternative route.	___ / 2
7. Recognizes refeeding risk.	___ / 2
8. Plans thiamine, relevant electrolytes and cautious advancement.	___ / 2
9. Includes safe functional and psychological preparation.	___ / 2
10. Defines measurable reassessment and an agreed operative timeline.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Excluding malnutrition because BMI is high; immediate unrestricted feeding without refeeding assessment after prolonged low intake; imposing an indefinite optimization delay without considering cancer progression.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston nutrition and obesity; ESPEN surgery update 2025, doi:10.1016/j.clnu.2025.08.029; NICE CG32 nutrition support and refeeding precautions.

Station 09 Day of surgery medication and aspiration assessment

Candidate brief

A 48 year old woman arrives for elective laparoscopic surgery. She increased her weekly GLP 1 dose three days ago and reports persistent nausea and early satiety. She drank water three hours ago and ate a large fatty meal six hours ago. The chart says fasted since midnight, but this is incorrect.

Candidate task Reconcile preparation, explain aspiration assessment and decide what must be resolved before induction.

Examiner probes and staged updates

Initial probe Which history matters more than the fasting label?

At four minutes The team says a fixed one week drug hold is required for every GLP 1 patient. Is that the cited 2024 approach?

Final probe What should be included in your communication to anesthesia and the patient?

Model answer framework

1. I would establish actual intake, meal content and amount, symptoms, medication formulation and last dose. I would correct the record and inform anesthesia before induction. The documented label does not override the patient's history.

2. Water three hours ago exceeds the usual two hour clear liquid minimum for healthy elective patients, but that alone does not establish safety here. A large fatty meal may require eight hours or more, and the entire aspiration context must be assessed.

3. Recent GLP 1 escalation and persistent symptoms raise concern for delayed gastric emptying. The 2024 multisociety framework permits continuation in many low risk patients; it does not impose a universal one week hold on every formulation and patient.

4. I would coordinate an individualized elective timing and anesthesia decision. Options may include deferral until the relevant risk improves, a planned liquid diet interval, gastric ultrasound when available and appropriate, or altered airway precautions. No single option automatically establishes readiness.

5. I would explain the reason for the revised plan, avoid attributing blame, and provide clear updated medication and fasting instructions. The team should document actual exposure, unresolved symptoms, the decision and who will reassess before a new operative date or induction.

Station 09 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Verifies and documents actual intake and medication exposure.	___ / 2
2. Corrects the inaccurate fasting record and alerts anesthesia.	___ / 2
3. Recognizes the usual clear liquid interval and its limited scope.	___ / 2
4. Recognizes longer fasting considerations after a fatty meal.	___ / 2
5. Identifies GLP 1 escalation and symptoms as risk factors.	___ / 2
6. Avoids a universal one week hold claim.	___ / 2
7. Integrates symptoms and aspiration risk beyond elapsed fasting.	___ / 2
8. Discusses appropriate individualized timing or mitigation options.	___ / 2
9. Communicates a clear plan and rationale to the patient.	___ / 2
10. Documents reassessment ownership and revised instructions.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Inducing solely on the inaccurate fasting label; treating water timing as proof of an empty stomach despite symptoms and a fatty meal; blanket rules without assessing the patient's risk.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston fasting and medication sections; ASA fasting guidance 2017 and modular update 2023; multisociety GLP 1 clinical practice guidance 2024.

Station 10 Integrated prophylaxis and enhanced recovery

Candidate brief

A 66 year old patient weighing 125 kg is scheduled for elective colorectal cancer resection. Renal function is normal, there is no relevant antimicrobial allergy and the team has selected cefazolin with additional procedure appropriate coverage under its protocol. The patient has a previous VTE but is not receiving therapeutic anticoagulation. An ERAS pathway is planned.

Candidate task Coordinate antimicrobial and VTE prevention with recovery planning. Address the evolving bleeding and discharge scenarios.

Examiner probes and staged updates

Initial probe What must be specified beyond the antibiotic name?

At four minutes Postoperatively there is active bleeding and restricted mobility. How do you adapt prevention?

Final probe Later there is a drain but no infection; vomiting and hypotension occur on the planned discharge day. What changes?

Model answer framework

1. I would verify indication, allergy history and complete colorectal coverage. For the cited adult textbook example, cefazolin is 3 g at this weight, with protocol based timing and redosing. The initial dose must be delivered before incision; prolonged surgery or major blood loss prompts reassessment. Cefazolin alone should not be mistaken for complete colorectal coverage.

2. I would confirm the relevant bowel preparation and oral plus IV antimicrobial pathway with the team. Under the cited SSI update, prophylaxis stops at closure unless there is a separate treatment indication. A drain alone does not justify continuation.

3. I would assess VTE and bleeding risk, renal function, body size and any neuraxial plan. Previous VTE and cancer increase concern. Appropriate pharmacological and mechanical prevention would be selected under the procedure protocol rather than using therapeutic doses automatically.

4. With active postoperative bleeding, I would prioritize bleeding control and use suitable mechanical measures while drug prophylaxis is unsafe, documenting repeated review. Once hemostasis permits, I would reassess drugs and consider extended prophylaxis in this high risk abdominal cancer setting, including feasibility after discharge.

5. I would coordinate analgesia, nutrition, mobility and monitoring through the ERAS pathway. New vomiting and hypotension require assessment and treatment; discharge and feeding targets must change with the clinical findings. A fixed discharge date is not a recovery outcome.

Station 10 scoring and feedback

Candidate _____ Examiner _____ Date _____

Award 0 absent or incorrect, 1 partial, or 2 complete and clinically appropriate. Use the shared scoring instructions and record assistance.

Criterion	Score
1. Confirms procedure appropriate spectrum and allergy assessment.	___ / 2
2. Applies the cited weight based cefazolin example without omitting other coverage.	___ / 2
3. Specifies delivery timing, redosing and monitoring of actual administration.	___ / 2
4. Uses an appropriate colorectal oral and IV preparation pathway.	___ / 2
5. States closure stopping guidance and separates treatment from prophylaxis.	___ / 2
6. Assesses VTE and bleeding with renal, weight and neuraxial considerations.	___ / 2
7. Uses mechanical prevention during unsafe bleeding and plans reassessment.	___ / 2
8. Reassesses pharmacological and selected extended prophylaxis after hemostasis.	___ / 2
9. Plans ERAS analgesia, intake, mobility and discharge support.	___ / 2
10. Investigates deterioration and adapts targets rather than forcing discharge.	___ / 2

Checklist total _____ / 20 Separate global rating _____ / 5

Important safety concerns

Continuing prophylactic antibiotics solely because of a drain; therapeutic anticoagulation solely for prevention despite active bleeding; discharge despite unexplained hypotension to preserve an ERAS target.

Concern observed: Yes / No Corrected after prompting: Yes / No / Not applicable

Feedback record

Strength demonstrated _____

Priority improvement _____

Substantive prompts and response _____

Use the model as a reasoning framework. Credit equivalent safe management, appropriate escalation and explicit uncertainty; do not require identical wording.

Sources Sabiston prevention tables; SHEA SSI update 2022 published 2023; ASH 2019, doi:10.1182/bloodadvances.2019000975; ASCO 2023, doi:10.1200/JCO.23.00294; ASCRS SAGES 2023, doi:10.1097/DCR.0000000000002650.