



**EFFECTIVENESS OF ENHANCED RECOVERY
AFTER SURGERY (ERAS) PROTOCOLS IN
ACCELERATING POSTOPERATIVE RECOVERY
FOLLOWING EMERGENCY SURGERY FOR ACUTE
ABDOMINAL CONDITIONS**

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ABSTRACT

Emergency surgery for acute abdominal conditions, including intestinal obstruction, perforated gastrointestinal lesions, acute appendicitis, complicated cholecystitis, and diffuse peritonitis, is associated with substantial physiological stress and an increased risk of postoperative complications. Conventional postoperative management may involve prolonged fasting, delayed mobilization, excessive opioid administration, and unnecessary maintenance of invasive devices. Enhanced Recovery After Surgery (ERAS) protocols represent a multidisciplinary approach designed to minimize surgical stress, preserve physiological function, and facilitate safe recovery. Although ERAS principles are well established in elective surgery, their application in emergency abdominal surgery requires adaptation to the severity of the underlying disease and the patient's clinical condition. A narrative literature review was conducted using published clinical guidelines, consensus recommendations, systematic reviews, and meta-analyses addressing perioperative care in emergency abdominal surgery. Particular attention was given to postoperative length of hospital stay, gastrointestinal recovery, postoperative complications, mobilization, pain



management, nutritional support, and the safety of early discharge. Evidence from studies comparing ERAS-based management with conventional perioperative care was critically assessed. No original patient cohort was recruited, and no new clinical data were generated. Published evidence suggests that ERAS-based care may shorten postoperative hospitalization, accelerate the return of bowel function, reduce postoperative nausea and vomiting, and facilitate earlier mobilization. A 2024 systematic review and meta-analysis involving 20 studies included 1,615 patients managed using ERAS protocols and 1,933 patients receiving conventional care. The analysis reported a reduction in hospital stay of approximately 3.35 days in upper gastrointestinal surgery and 2.80 days in lower gastrointestinal surgery. A separate 2024 meta-analysis of six randomized controlled trials involving 509 patients also reported shorter hospitalization and improvements in several postoperative outcomes. Nevertheless, the certainty of evidence varies, and the effects of individual ERAS components remain difficult to separate.

Introduction: Acute abdominal conditions requiring emergency surgical intervention remain an important challenge for modern healthcare systems. Patients may present with acute appendicitis, intestinal obstruction, perforation of a hollow abdominal organ, complicated biliary disease, intestinal ischemia, or generalized peritonitis. These conditions can progress rapidly and may be accompanied by dehydration, electrolyte disturbances, systemic inflammation, sepsis, and impaired organ perfusion. Consequently, emergency surgery differs substantially from elective surgery in terms of preoperative preparation, physiological stability, operative planning, and postoperative risk. The principal objective of emergency surgical management is the timely treatment of the underlying pathology and prevention of further deterioration. Depending on the diagnosis, this may involve surgical source control, resection of non-viable tissue, repair of perforation, relief of obstruction, or drainage of infected collections. However, successful completion of the operation does not necessarily guarantee an uncomplicated recovery. Postoperative pain, nausea and vomiting, delayed gastrointestinal function, pulmonary complications, wound infection, thromboembolic events, and prolonged immobility may negatively affect the patient's clinical course. Traditional perioperative



management has often relied on prolonged fasting, delayed oral intake, routine use of nasogastric tubes and drains, and mobilization only after substantial postoperative improvement. Although some of these measures remain necessary in selected patients, their indiscriminate use may delay functional recovery. Modern perioperative medicine therefore emphasizes the importance of minimizing avoidable physiological stress while maintaining adequate treatment of the underlying disease. Enhanced Recovery After Surgery (ERAS) is a multidisciplinary, evidence-informed approach that integrates preoperative assessment, intraoperative management, and postoperative rehabilitation into a coordinated clinical pathway. Its principles include early risk assessment, appropriate fluid therapy, prevention of hypothermia, multimodal analgesia, nausea prevention, early nutrition when safe, mobilization, and removal of invasive devices when their continued use is no longer indicated. The overall purpose is to support recovery of physiological function rather than relying exclusively on the passage of time after surgery. Applying ERAS principles to emergency abdominal surgery presents specific challenges. Unlike elective procedures, emergency operations frequently involve insufficient preparation time, uncertain pathology, contamination of the abdominal cavity, hemodynamic instability, and a high risk of infection. Therefore, ERAS cannot be implemented as a rigid checklist. Its components must be selected according to the patient's condition, the urgency of surgical intervention, the extent of the operation, and the presence of organ dysfunction. The relevance of this approach is reinforced by the publication of emergency laparotomy recommendations by the ERAS Society. These recommendations address rapid assessment and optimization, intraoperative and postoperative management, and organizational aspects of care. They emphasize that the principles of enhanced recovery must be integrated with urgent resuscitation, source control, and appropriate critical care rather than replacing them [1–3]. The objective of this article is to evaluate published evidence concerning the effectiveness of ERAS protocols in accelerating postoperative recovery after emergency surgery for acute abdominal conditions and to identify practical components suitable for implementation in emergency surgical departments.

Literature review: The conceptual foundations of enhanced recovery are associated with the recognition that postoperative outcomes depend not only on the technical success of surgery but also on the patient's physiological response to surgical trauma. Kehlet's work on multimodal approaches to controlling postoperative pathophysiology contributed to the development of modern enhanced recovery principles, including coordinated analgesia, reduced physiological stress, and early functional rehabilitation [4]. ERAS pathways were initially developed and evaluated predominantly in elective surgical settings. Their implementation demonstrated the potential value of standardized perioperative care, early feeding, reduced reliance on opioids, and mobilization. However, emergency surgical patients differ from elective patients because the underlying disease may already have caused significant physiological deterioration before the operation. This difference makes direct transfer of every elective-surgery recommendation



inappropriate. The ERAS Society's recommendations for emergency laparotomy provide a framework for adapting enhanced recovery to high-risk patients. The preoperative recommendations emphasize rapid diagnosis, structured assessment of physiological derangement, identification of sepsis, resuscitation, and timely preparation for surgery [1]. The intraoperative and postoperative recommendations address anesthetic management, fluid and temperature control, prevention of postoperative nausea and vomiting, pain management, infection prevention, and rehabilitation [2]. Organizational recommendations further emphasize coordinated teamwork, structured pathways, and the need to integrate emergency surgery with postoperative and critical care services [3]. An important contribution to this field was provided by McKechnie and colleagues, whose systematic review and meta-analysis evaluated ERAS protocols after emergency intra-abdominal surgery. The review included 20 studies involving 1,615 patients managed within ERAS programs and 1,933 patients receiving conventional care. The authors reported a shorter postoperative hospital stay in both upper and lower gastrointestinal surgery groups. The estimated reduction was approximately 3.35 days for upper gastrointestinal procedures and 2.80 days for lower gastrointestinal procedures. A reduction in postoperative morbidity was also reported in the lower gastrointestinal subgroup. However, the authors rated the overall certainty of evidence as low to very low, indicating that the findings should be interpreted cautiously [5]. A separate systematic review and meta-analysis published in 2024 focused on randomized controlled trials of ERAS after emergency laparotomy. Six trials involving 509 patients were included. The analysis reported shorter hospital stays, earlier mobilization, earlier return of bowel function, and reduced postoperative nausea and vomiting among patients managed with ERAS. It also identified reductions in pulmonary and surgical-site complications, although the precision of individual estimates varied [6]. These findings support the potential value of coordinated perioperative management while highlighting the need for further well-designed trials. Infection prevention remains particularly important in emergency abdominal surgery because contamination, perforation, and delayed presentation may increase the risk of surgical-site infection. The World Health Organization's global guidelines and the Centers for Disease Control and Prevention recommendations provide evidence-based principles for surgical-site infection prevention, including appropriate antimicrobial prophylaxis, skin antisepsis, and other measures adapted to the type of procedure and the patient's risk [7, 8]. In patients with established infection or sepsis, therapeutic antimicrobial management must be distinguished from routine prophylaxis and guided by the clinical diagnosis and local protocols. Nutritional management is another important element of recovery. Surgical stress, inflammation, and inadequate nutrient intake can contribute to loss of muscle function and delayed rehabilitation. Contemporary perioperative nutrition principles support avoiding unnecessary fasting and resuming oral or enteral nutrition when the patient's condition and the operative findings permit it. Nevertheless, early feeding must be individualized in patients with persistent intestinal obstruction, severe gastrointestinal dysfunction, uncontrolled vomiting,



suspected ischemia, or other contraindications. Multimodal analgesia is designed to provide adequate pain relief while limiting the adverse effects associated with excessive opioid use. Combining appropriate analgesic methods may support coughing, deep breathing, sleep, and mobilization. Similarly, early supervised mobilization may help reduce the functional consequences of prolonged bed rest, although its timing must be determined by hemodynamic stability, respiratory status, pain control, and surgical restrictions. Overall, the literature supports the potential effectiveness of ERAS in emergency abdominal surgery. However, differences in patient selection, surgical diagnoses, protocol components, outcome definitions, and study design limit the certainty of conclusions. Current evidence therefore favors individualized, structured implementation accompanied by clinical monitoring and further research.

Materials and methods: This article was prepared as a narrative literature review. Its purpose was to synthesize published evidence concerning ERAS implementation in emergency intra-abdominal surgery and to evaluate the potential relationship between enhanced recovery components and postoperative outcomes. The literature considered for this review included international consensus guidelines, systematic reviews, meta-analyses, randomized controlled trials summarized in published reviews, and authoritative recommendations on perioperative infection prevention and nutritional care. Priority was given to publications addressing emergency laparotomy and emergency intra-abdominal procedures rather than elective surgery alone. The principal topics examined were rapid preoperative assessment and resuscitation, perioperative antimicrobial management, anesthetic and fluid management, maintenance of normothermia, multimodal analgesia, prevention of postoperative nausea and vomiting, gastrointestinal recovery, nutritional support, early mobilization, management of drains and catheters, and criteria for safe discharge. The principal outcomes of interest were postoperative length of hospital stay, time to mobilization, return of bowel function, postoperative nausea and vomiting, surgical-site infection, pulmonary complications, other postoperative morbidity, readmission, and overall recovery. Findings from published systematic reviews and meta-analyses were interpreted according to their reported study populations, effect estimates, and limitations. Because the present work is a narrative review, no original patient recruitment, randomization, laboratory testing, or statistical analysis of a new clinical dataset was performed. Numerical results presented in this article are derived from the cited publications and are not original findings generated by the authors. A limitation of the methodology is that the review was not designed as a fully systematic review with a prespecified protocol, duplicate screening, or independent risk-of-bias assessment. Accordingly, the article provides a critical synthesis of available evidence rather than a new quantitative estimate of ERAS effectiveness.

Results: Postoperative length of hospital stay is one of the most frequently reported outcomes in enhanced recovery research. It reflects several aspects of clinical progress, including pain control, gastrointestinal recovery, mobility, nutritional tolerance, and the absence of complications requiring continued inpatient treatment. The systematic review and meta-



analysis by McKechnie and colleagues included 20 studies, with 1,615 patients managed using ERAS protocols and 1,933 receiving conventional care. The analysis reported reductions in postoperative length of stay of approximately 3.35 days after upper gastrointestinal surgery and 2.80 days after lower gastrointestinal surgery in the ERAS groups [5]. These findings suggest that coordinated recovery pathways may reduce hospitalization in selected emergency surgical populations. The 2024 meta-analysis of randomized controlled trials also reported a reduction in hospital stay following emergency laparotomy. The estimated mean difference was approximately 2.92 days in favor of ERAS, with a 95% confidence interval from approximately 2.10 to 3.73 days shorter [6]. Although this finding is clinically relevant, the result should not be interpreted as a guaranteed reduction for every patient or every type of emergency operation. Hospital discharge depends on multiple factors beyond the protocol itself. These include disease severity, postoperative infection, the need for additional procedures, availability of outpatient support, and local discharge policies. Therefore, length of stay should be interpreted together with patient safety, readmission, functional recovery, and the need for continued treatment.

Preoperative management in emergency surgery is primarily directed toward rapid diagnosis, identification of life-threatening physiological abnormalities, and preparation for definitive treatment. ERAS principles support structured assessment without introducing unnecessary delays to surgery. Important elements include assessment of airway and respiratory status, circulation, consciousness, hydration, urine output, relevant comorbidities, and the probability of sepsis. Laboratory and imaging investigations should be selected according to the clinical presentation and should not delay urgent source control when immediate intervention is indicated. Fluid and electrolyte disturbances should be corrected according to the patient's clinical condition, with particular attention to hypotension, dehydration, renal dysfunction, and ongoing losses from vomiting or intestinal obstruction. Patients with suspected sepsis require prompt assessment and treatment in accordance with established sepsis-management principles. The principal benefit of this stage is not simply faster preparation but more appropriate prioritization. Patients who are physiologically stable may proceed through a structured pathway, whereas those with shock, severe respiratory compromise, or organ dysfunction may require intensive resuscitation and postoperative critical care. ERAS should complement these measures rather than replace them [1]. Intraoperative care can influence postoperative recovery through its effects on temperature, perfusion, respiratory function, pain, and the inflammatory response to surgical trauma. Maintenance of normothermia is an important component of perioperative care. Active warming and appropriate temperature monitoring may help prevent unintended hypothermia. Fluid therapy should be individualized to avoid both inadequate perfusion and excessive fluid administration. The choice and volume of intravenous fluids should be guided by hemodynamic findings, ongoing losses, laboratory results, and the patient's response to treatment. Appropriate anesthetic management, respiratory support, monitoring, and prevention of postoperative nausea and vomiting are also relevant. In



emergency laparotomy, the patient's condition and the extent of contamination or tissue injury may necessitate a more intensive approach than would be required in elective surgery. Surgical source control remains the priority. No enhanced recovery measure should delay a necessary operation, compromise the adequacy of the procedure, or encourage premature removal of essential monitoring and supportive measures. The purpose of ERAS is to reduce avoidable treatment-related stress while preserving the safety and effectiveness of emergency surgical care [2]. Pain is a major barrier to early mobilization, effective coughing, deep breathing, sleep, and participation in rehabilitation. Inadequate analgesia may contribute to immobility, while excessive opioid exposure can increase sedation, nausea, vomiting, constipation, and respiratory depression. Multimodal analgesia involves the appropriate combination of analgesic techniques to achieve effective pain relief while reducing reliance on any single medication class. The choice of agents must account for renal function, gastrointestinal bleeding risk, cardiovascular status, hemodynamic stability, and other contraindications. Regional or local anesthetic techniques may be considered when clinically appropriate and when trained personnel and monitoring are available. Postoperative nausea and vomiting can interfere with oral intake, medication administration, and mobilization. The emergency laparotomy recommendations support a multimodal approach to nausea prevention, including minimizing avoidable triggers and using antiemetic treatment according to the patient's risk and clinical needs [2]. The randomized-trial meta-analysis published in 2024 reported lower odds of postoperative nausea and vomiting in patients managed with ERAS than in those receiving conventional care (odds ratio 0.32; 95% confidence interval 0.20–0.51) [6]. This result supports the potential value of a coordinated approach to analgesia and symptom control, although the contribution of individual protocol elements cannot be determined from the overall estimate alone.

Restoration of gastrointestinal function is a central component of recovery after abdominal surgery. Delayed gastrointestinal motility may lead to abdominal distension, nausea, vomiting, feeding intolerance, and prolonged hospitalization. ERAS principles discourage unnecessary prolongation of fasting when oral or enteral intake can be resumed safely. The timing of postoperative feeding should be determined by the nature of the operation, the condition of the gastrointestinal tract, hemodynamic stability, and the presence of complications. Early oral intake may be appropriate in selected patients, whereas others may require a slower progression or temporary withholding of enteral intake. Patients with persistent obstruction, suspected bowel ischemia, severe gastrointestinal dysfunction, uncontrolled vomiting, or other specific contraindications require individualized decisions. The absence of a universal feeding schedule is particularly important in emergency surgery because the underlying pathology and extent of operative intervention vary considerably.

The 2024 meta-analysis of randomized trials reported earlier return of bowel function in ERAS-managed patients, with an estimated mean difference of approximately 1.26 days in favor of ERAS [6]. This supports the potential benefits of coordinated perioperative



management, although the clinical significance may differ across procedures and patient groups. Nutritional assessment should also consider pre-existing malnutrition, prolonged illness, reduced intake, and increased metabolic demands. When oral intake is insufficient or contraindicated, the need for alternative nutritional support should be assessed by the clinical team according to the patient's condition and applicable guidance.

Prolonged bed rest may contribute to reduced muscle strength, functional decline, pulmonary complications, and venous thromboembolism. Early mobilization is therefore an important ERAS component, provided that it can be performed safely. Mobilization may progress from repositioning and sitting upright to standing and walking with assistance. The timing and intensity should be determined by the patient's hemodynamic stability, respiratory status, pain control, level of consciousness, and surgical restrictions. Patients with ongoing shock or other unstable conditions should not be subjected to an inappropriate mobilization schedule. Pulmonary care includes appropriate pain control, positioning, respiratory assessment, and encouragement of deep breathing and coughing when clinically indicated. Measures to prevent venous thromboembolism should be selected according to individual risk, bleeding risk, and local clinical protocols. The randomized-trial meta-analysis reported earlier mobilization among patients managed with ERAS and a reduction in pulmonary complications [6]. These findings are consistent with the principle that postoperative recovery depends on coordinated interventions rather than on any single procedure. Invasive devices may be essential for monitoring, decompression, drainage, or urinary output measurement. However, maintaining them longer than clinically necessary may restrict mobility and increase discomfort or device-associated complications. ERAS pathways encourage daily reassessment of the indication for each drain, catheter, and tube. Removal should be based on clinical criteria rather than a fixed timetable. A nasogastric tube may remain necessary in selected patients with persistent obstruction, severe ileus, or other indications. Similarly, urinary catheters and surgical drains should not be removed prematurely when continued monitoring or drainage is required. Postoperative surveillance should include repeated assessment of vital signs, pain, urine output where indicated, abdominal findings, gastrointestinal function, wound condition, and signs of infection or organ dysfunction. Any deterioration should prompt timely investigation and treatment rather than continued adherence to a routine recovery schedule. This approach helps maintain the balance between avoiding unnecessary invasive care and preserving essential support for patients at high risk of complications [2, 3].

The available evidence indicates that ERAS protocols may improve several aspects of postoperative recovery following emergency abdominal surgery. The most consistently reported benefits include shorter hospital stay, earlier mobilization, earlier return of bowel function, and reduced postoperative nausea and vomiting. Some analyses also suggest reductions in pulmonary complications, surgical-site infection, and overall morbidity [5, 6]. However, the strength of the evidence differs between outcomes. The 2024 systematic review of emergency



intra-abdominal surgery rated the overall certainty of evidence as low to very low, reflecting limitations in the available studies [5]. Therefore, the results support carefully adapted ERAS implementation but do not establish that every protocol component produces the same benefit in every emergency surgical setting.

Discussion: The findings reviewed in this article suggest that ERAS protocols can contribute to improved recovery following emergency abdominal surgery. Their principal value lies in the coordinated application of perioperative measures intended to minimize avoidable physiological stress, restore functional capacity, and prevent complications. The reported reductions in hospital stay are particularly relevant because prolonged hospitalization can increase healthcare costs, expose patients to hospital-associated risks, and delay return to daily activities. Nevertheless, the effectiveness of ERAS in emergency surgery must be interpreted differently from its effectiveness in elective procedures. Emergency patients may present with established infection, severe dehydration, shock, organ dysfunction, or extensive intra-abdominal contamination. In these circumstances, urgent resuscitation, appropriate antimicrobial treatment, surgical source control, and intensive monitoring take precedence over routine recovery targets. An important implication is that ERAS should be understood as an adaptable clinical pathway rather than a rigid protocol. For example, early oral feeding may be appropriate after certain procedures in clinically stable patients, but may be unsuitable in patients with persistent obstruction or significant gastrointestinal dysfunction. Early mobilization can support recovery, but its timing must be adjusted in patients with hemodynamic instability or substantial respiratory impairment. Likewise, removal of invasive devices is desirable when safe, but should not be driven by predetermined time limits when a clear clinical indication remains. The evidence concerning length of hospital stay is encouraging but should not be considered sufficient by itself to establish overall effectiveness. A shorter stay is beneficial only when it is accompanied by appropriate recovery, adequate symptom control, safe discharge planning, and acceptable readmission and complication rates. Differences in healthcare organization, availability of follow-up services, and discharge criteria can also influence this outcome. Consequently, hospitals implementing ERAS should evaluate multiple clinical indicators rather than relying exclusively on length of stay. The findings of the two 2024 meta-analyses are broadly consistent in suggesting that enhanced recovery may improve postoperative outcomes [5, 6]. However, the underlying evidence has limitations. The studies differ in the types of emergency procedures performed, patient selection, the components included in ERAS pathways, and the definitions of recovery outcomes. Some protocols may be implemented as complete multidisciplinary pathways, whereas others may incorporate only selected elements. These differences complicate direct comparisons and make it difficult to determine which individual components account for the observed effects. Another challenge is the need to distinguish the impact of the protocol from the effects of broader improvements in clinical organization. Standardized monitoring, multidisciplinary communication, improved



infection prevention, and clearer criteria for intervention may improve outcomes independently or interact with ERAS components. Future studies should therefore describe protocol adherence, patient characteristics, surgical diagnosis, severity of illness, and the reasons for deviations from the planned pathway. Implementation also requires appropriate education and coordination among surgeons, anesthesiologists, nurses, physiotherapists, nutrition specialists, and critical care teams. Without clear responsibilities and consistent documentation, an ERAS pathway may be applied unevenly. A practical approach is to introduce a locally adapted pathway, define essential safety criteria, train the relevant staff, and review clinical outcomes regularly. For healthcare institutions with limited resources, the priority should be given to evidence-informed interventions that are feasible within existing services. These may include structured assessment, avoidance of unnecessary fasting, appropriate pain and nausea management, temperature monitoring, individualized fluid therapy, early nutrition when safe, and mobilization when clinically appropriate. The availability of advanced monitoring or specialist services may vary, but this does not remove the value of coordinated care. The present review has several limitations. It is a narrative synthesis rather than a systematic review with a registered protocol and formal quantitative pooling. It does not provide original clinical data or directly compare outcomes in a local patient population. Furthermore, the limited certainty of the published evidence means that the reported effects should not be interpreted as definitive estimates applicable to all emergency abdominal procedures. Future research should include adequately powered randomized trials and prospective multicenter studies. Investigations should evaluate not only length of hospital stay but also postoperative complications, functional recovery, readmission, patient-reported outcomes, mortality, healthcare costs, and adherence to individual ERAS components. Research in different healthcare settings would also help determine how emergency-specific pathways can be adapted to local resources and clinical practices. Overall, ERAS appears to be a promising framework for improving postoperative care after emergency abdominal surgery. Its successful application depends on individualized clinical judgment, multidisciplinary coordination, and the preservation of urgent life-saving treatment as the overriding priority.

Conclusion and practical recommendations: Enhanced Recovery After Surgery protocols offer a structured approach to perioperative care that may accelerate postoperative recovery following emergency surgery for acute abdominal conditions. Published systematic reviews and meta-analyses report shorter hospital stays, earlier mobilization, earlier return of bowel function, and improvements in selected postoperative outcomes. However, the certainty of the available evidence remains limited, and the magnitude of benefit may vary according to the diagnosis, severity of illness, type of operation, and organization of postoperative care. ERAS should not be regarded as a substitute for urgent surgical intervention, resuscitation, or critical care. Instead, it should complement these essential measures by reducing avoidable treatment-related stress and supporting the safe restoration of physiological function. Protocol components must



be individualized, and clinical deterioration should always take precedence over routine recovery targets.

Practical recommendations:

1. **Introduce a standardized emergency perioperative pathway.** Develop a locally adapted ERAS pathway for emergency abdominal surgery that includes rapid assessment, risk stratification, timely resuscitation, appropriate antimicrobial management, intraoperative care, postoperative monitoring, and discharge planning. The pathway should permit documented deviations when the patient's condition requires them.

2. **Prioritize physiological stability and adequate source control.** Assess and correct clinically significant fluid and electrolyte disturbances, monitor for sepsis and organ dysfunction, and ensure that indicated surgical treatment is not delayed by non-essential preparation. Postoperative management should be guided by repeated clinical assessment.

3. **Apply individualized multimodal analgesia and symptom prevention.** Provide adequate pain relief using appropriate combinations of analgesic methods and minimize avoidable opioid-related adverse effects. Assess the risk of postoperative nausea and vomiting and provide preventive or therapeutic treatment according to clinical need.

4. **Support early functional recovery when clinically safe.** Resume oral or enteral nutrition when appropriate to the operative findings and gastrointestinal function. Introduce supervised mobilization as soon as the patient's condition permits, and reassess the need for drains, nasogastric tubes, urinary catheters, and other invasive devices daily.

5. **Monitor outcomes and improve the pathway continuously.** Record length of stay, postoperative complications, time to mobilization, return of bowel function, surgical-site infection, readmission, and adherence to pathway components. Use these data for clinical audit, staff education, and periodic revision of the local protocol.

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