Power System Technology
ISSN:1000-3673

Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

Quantifying the Clinical Impact of Nursing and Endoscopy Technician Decision-Making in Gastrointestinal Procedures

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Abstract

As 90% of the information that human beings receive during a procedure is visual, the anaesthetist's role is predominantly controlled through visual factors (Williams et al., 2009). The nurse anaesthetist will choose to concentrate on a visual cue because they observe that the patient's safety is compromised. The level of visual autonomy that individual nurses possess during their anaesthetic procedure will thus depend on how the procedure is performed. However, at the same time, instrument decisions and some consulting decisions can also be made without verbal interactions; the anaesthetist's necessity of interacting with others may on the contrary increase (Richardson et al., 2009). The decision quality greatly impacts the clinical outcomes of the anaesthetic procedure through surgical delays, searching for instruments, conversation contents and throughputs as well.

Keywords: Nursing; Endoscopy Technician; Decision-Making; Gastrointestinal Procedures; Patient Outcomes; Education; Protocols; Teamwork.

1. Introduction

As globally recognized leaders in patient-facing procedures, nurses and endoscopy technicians undertake substantial decision-making responsibility throughout gastrointestinal

Power System Technology
ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

(GI) endoscopy procedures. With decision-making in clinical contexts often viewed as a multidimensional construct, qualitative and quantitative assessments of the content and consequences of decisions made by these professions during GI procedures remain sparse. The 2018 study "Invisible Care: Quantifying the Clinical Impact of Nursing and Endoscopy Technician Decision-Making During Gastrointestinal Procedures" addresses this gap through a systematic exploration of decision-making practices within gastroenterology. The analysis assesses the depth and breadth of methodologically robust evidence with respect to the influence of nursing and endoscopy technician decision-making on procedure-related outcomes, defines the broad spectrum of potential interventions designed to optimize such decision-making, and clarifies several key concepts that frame the larger inquiry.

Although upper and lower GI endoscopy procedures are among the most common elements of patient care, the significance of decisions made within this domain is seldom acknowledged. In the endoscopy environment, uncertainty abounds, necessitating continual decisions regarding multiple topics including choice of contrast agent, scheduling of follow-up procedures, selection of the optimal imaging technique, and, in high-acuity cases, patient transfer from stretcher to table. Gaps in the literature specific to decisions made by registered nurses (RNs) and technicians—both in relation to those made by physicians and regarding overall process efficiency—underscore the importance of further investigation. The topic is also intrinsically compelling, with decision-making practice comprising the fulcrum around which the various consultative components of medicine—including anesthesiology, nutrition, vascular access, and transfusion therapy—pivot within the hospital and healthcare continuum.

Endoscopy is an ideal context in which to examine the impact of nursing and technician decision-making for various reasons. First, decisions are still made within clearly defined onboarding and training programs for these professions. Second, similar decision-mapping exercises may be carried out within industrial or manufacturing environments, but employees in these sectors typically lack formalized educational pathways, rendering decisions far more difficult to assess. Procedural safety, efficiency, and resource utilization comprise some of the basic enviable benefits of decision autonomy (Alsager et al., 2023) ; Williams et al., 2009. Along with the analysis, illustrative real-world scenarios from GI endoscopy capture additional insights and elucidate the theory.

2. Theoretical Framework and Definitions

An extensive body of research addresses decision-making from various perspectives (Scaffidi et al., 2022). According to Klein (1998) and O'Connor and Dweck (2020), decision-making generally consists of a choice made from options believed to influence an outcome. Decision quality reflects the decision's aptitude to fulfil its intended purpose (Rodriguez-Fernandez et al., 2013); Dawson (2018) views it as a function of information retained from past experiences, foresight about the consequences of future actions, and the degree to which

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

these determinants are pursued. Autonomy, the degree to which decisions are made independently, contrasts with supervision, whereby another party exerts influence or control (Williams et al., 2009). Endoscopy nursing, distinct from nursing per se, addresses care throughout endoscopic procedures, including preparation, monitoring, and recovery. Technician roles in endoscopy support technical and logistical aspects, allowing physicians to concentrate on clinical elements.

In gastrointestinal procedures, endoscopy nurses facilitate admission, prepare equipment, administer medications, monitor patients, explain procedures, support the physician, and ensure cleanup. Scope of practice follows a cyclical model: assess, direct, evaluate. Allowed decisions include type and timing of pre-medications, administration of supplemental medications, options for managing adverse reactions, patient positioning, use of a throat spray, adjunctive techniques, and specimen collection. Clock-time decisions include the time stamps of arrival, procedure initiation, and departure, influencing interventional efficiency and resource utilization. Protocol adherence reflects compliance with organizational guides for preparation medication selection and supplemental agent administration (Dawson, 2018).

3. Methodological Approaches to Measuring Decision-Making

Nursing and nursing decisions play an important role in determining patient outcomes in a variety of medical interventions, and, therefore, are a subject of ongoing research among academics and practitioners alike (Dowding & Thompson, 2003). It is now widely accepted that evidence-based clinical judgment and decision-making processes impact patient outcomes. The challenge of determining the quality of clinical decisions and implementing strategies for improvement is largely due to the fact that these decisions typically have multiple interconnected outcomes. Moreover, healthcare interventions are frequently of an emergent nature, and work is carried out under strict time constraints. Such high levels of uncertainty make it even harder to pinpoint the point of origin and the quality of decisions being made during a procedure. Gastrointestinal endoscopy has been selected for study in order to overcome these obstacles. Key events and decisions occurring throughout the procedure are guided by standardized protocols, making clinical decisions easier to measure. At the same time, the intervention is sufficiently time-critical to sustain the interest of the academic and practitioner communities (Cusatis Phillips, 2015).

Nursing and technician decisions made in gastrointestinal procedures influence several important patient outcomes, including procedural safety, efficiency, and patient experience. These outcomes, in turn, are influenced by various decision quality parameters, such as rate of standard protocol adherence, speed of decision-making, and accuracy of decision-making with respect to procedural protocols. Decision quality is further seen to be shaped by situational parameters including role, team characteristics, and equipment configuration.

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ISSN:1000-3673
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3.1. Metrics for Nursing and Technician Decision Quality

During gastrointestinal procedures, technicians and nurses make timely decisions that influence outcomes and that are therefore valuable indicators of their decision quality. Three metrics capture the key dimensions of technical-procedural decision activities: **decision accuracy** indicates whether the choice adheres to accepted best practices, **clock-time decisions** quantify the efficiency and promptness of the decision-making itself, and the extent of **protocol adherence** reflects the degree of compliance with an organization's established policies and standards (Cai et al., 2022) (Richardson et al., 2009) (F. Gellad et al., 2014).

Data on decision quality originate from various sources. Information on the correctness of decisions stems from procedure documentation, patient records, and follow-up monitoring of complication rates and clinical progression. Detailed timestamps indicate when particular decisions were made, aiding assessments of overall application speed and the duration of the interstitial periods. Protocol adherence is evaluated through key-scoring frameworks and qualitative coding systems applied to written communications, videos, and peer evaluations.

3.2. Procedural Contexts in Gastrointestinal Endoscopy

Many endoscopy procedures are performed outside standard working hours; attendance is required to complete the four- to five-hour shift. This reported backlog of scheduled procedures is not uncommon.

Following transfers of patients from the recovery bays to another ward, up to an hour and a half was routinely lost due to insufficient bed availability. Night shifts on one of the two specialist units can be fast-paced; at the same time there is a lack of information handed over, leading to scheduled procedures being missed and add-on procedures being postponed. Emergency procedures were completed in a timely manner. Nonetheless, the reported differential capacity remained a matter of concern.

3.3. Data Sources and Study Designs

Gastrointestinal procedures feature multiple decision-making points with the potential to influence patient outcomes. Decisions regarding infection control, tool choices, medication types and doses, and procedure terminations reflect professional autonomy within the permitted scope of practice (Richardson et al., 2009). The complexity of these decisions, characterised by uncertainty and variability, interrelates with the capability to exercise those decisions and the autonomy granted. Decision-making influences on patient outcomes can be examined along three dimensions: 1. Safety and the incidence of adverse events. Decision points pertaining to infection control, instrument handling, sedation, and supplementary imaging impact the likelihood of undesirable incidents. 2. Efficiency, throughput, and resource utilisation. Choices related to procedure duration, turnover times between patients,

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

imaging requisitions, and consumable materials affect waste and system integrity. 3. Patient experience and satisfaction. Decisions that shape communication quality, informed consent clarity, and overall perceptions of safety and comfort resonate with the user experience.

The analysis prioritises gastrointestinal procedures seldom addressed in the literature and requires models to illustrate relevant decision-making points and their implications for outcomes. Endoscopy encompasses a range of tasks and responsibilities based on clinical and territorial context. Seniority and proficiency affect the nature of decision points and the breadth of optional alternatives.

4. Decision-Making Influences on Patient Outcomes

Decision-making influences on patient outcomes map pathways from decisions to outcomes; identify mediators and moderators; assess procedural safety and adverse events; link decision moments to infection control, instrument handling, sedation decisions, and complication rates; evaluate efficiency, throughput, and resource utilization; measure procedure duration, turnover, imaging time, and resource waste reductions; examine patient experience and satisfaction; assess communication quality, informed consent clarity, perceived safety, and comfort.

During gastrointestinal endoscopy, distinct interprofessional team structures enable complex procedures despite significant resource limitations. In the beauty of the endoscopy suite, every role in the workflow is essential for operational efficiency, and every team member possesses critical knowledge that could enrich pre-, intra-, or post-procedure decision-making. Certain roles are defined by job descriptions that circumscribe both allowed tasks and permissible decision-making latitude, while other roles are defined by the scope of practice established by regulatory or credentialing organizations. Different specialty settings dictate different role allocations and, therefore, different task-and-decision combinations. Nevertheless, almost a third of other professional roles participate, often with the authority to enter into decision considerations.

Nursing and endoscopy technician roles constitute an excellent comparison to examine the influence of decision-making on patient outcomes. Both roles require extensive, pathway-specific knowledge and are trained, credentialed, and certified to practice autonomously, affirming both teams' respective substantive involvement in the activity. Both also play pivotal roles in the GI meeting and decision, significantly affecting that aspect as GI procedures remain challenging on both the resource allocation and decision-ingenuity fronts. However, differences exist in the individuals' respective training, certification, and supervision levels. CT nursing associates are generally trained and credentialed to enter practice independently, whereas technician associates work as pre-credentialed trainees under preceptorship until achieving independent credentialing. This and other corresponding team

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factor differences warrant further investigation into the corresponding decision impact upon outcomes.

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4.1. Procedural Safety and Adverse Events

Decision moments eligible for scoring influence infection control, instrument handling, sedation selection, and incident rates. Established criteria for defining adverse events include mortality, unanticipated medical procedures, transfusions, extra days of hospitalization, or prolonged hospitalization or recovery due to complications related to the index procedure (Salles Maruri Correa et al., 2021).

4.2. Efficiency, Throughput, and Resource Utilization

Reduction of procedure duration, turnover time, imaging time, and resource waste supports patients through additional safety-net checks, leading to fewer documented procedural complications. In a Canadian study, the transition from manual credentialing to an electronic system achieved an overall 26% reduction in credentialing time, shortening committee review time and increasing throughput by 12% (W. Day & Belson, 2015). Efforts to minimize waste also provide indirect support for patient safety.

4.3. Patient Experience and Satisfaction

The instructional and preparatory aspects of the endoscopy procedure are crucial for patient satisfaction (Tierney et al., 2016). During the discussion of endoscopy modalities, emphasis is placed on safety, comfort, sedation, and length of procedure. This aligns with the ability of nursing and technician personnel to improve experience through active input and team debriefing (Triantafyllou et al., 2016). Interventions targeting nurse decision-making have demonstrated positive impacts on patient throughput and time-related metrics; patient communication regarding the proposed intervention and pre-procedure sedation are cited as important topics for discussion.

5. Comparative Analysis: Roles of Nurses versus Endoscopy Technicians

Examining the impact of nursing and technician decision-making on clinical outcomes in gastrointestinal (GI) endoscopy reveals interesting trends. Observations and analysis show that the effects of decisions can depend on the role of the individual making them and the

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ISSN:1000-3673
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specific context in which the decision occurs. Effects are notably apparent in the comparative analysis of nurses and endoscopy technicians, with decision-making by technicians generally associated with a greater impact on GI procedure outcomes than those made by nurses. Such differences are analyzed along several dimensions.

The first dimension concerns the respective scopes of practice of nurses and technicians. Nursing permits a broader and more complex set of decisions during GI procedures, as reflected in comparisons of decision autonomy across occupations (Williams et al., 2009). Technicians participating in endoscopy must typically rely on day-to-day direction from nursing staff, whereas nursing decisions for colonoscopy and other GI (gastrointestinal) procedures have historically been made with little or no direct supervision. The technicians' limited role in the decision-making process accounts for the weaker observed connection between the decisions they make in endoscopy and relevant clinical outcomes.

Another influencing factor is the degree of formal training and evaluation required to attain competency in the respective roles. In GI endoscopy, training for nurses seeking to become competent independent operators is often significantly longer—sometimes extending to several years—than for technicians, who may reach competence in a matter of months (Richardson et al., 2009). Decision-making, especially in high-stakes environments like GI procedures, improves with competence and experience; the longer training period for nurses developing independent procedural skills thus tends to be associated with advanced development of independent decision-making skills.

Finally, structured and consistent communication within the GI team—as measured through briefing and debriefing protocols and the quality of interprofessional exchanges—also appears to moderate the impact of clinical decision-making on procedure outcomes (Sun Kim et al., 2012). Nurses have greater opportunity to shape and influence communication during team interactions and handoffs, particularly between the GI nurse and GI technician, compared to the more constraining influences on technician-to-nurse communication.

Overall, decision-making by endoscopy technicians is associated with greater procedural impact than that by nurses. Nevertheless, a substantial portion of the technicians' decision-making remains supervised and thus contingent, while the decisions of independent nursing operators fall into a fuller spectrum of determinants.

5.1. Scope of Practice and Decision Autonomy

During endoscopy, nurses and endoscopy technicians in Ontario can make permissible decisions at their own discretion in different scopes of practice (Richardson et al., 2009) ; (Williams et al., 2009). Nurses can operate independent of a physician and, given appropriate training, are licensed to start procedures such as VCE (capsule endoscopy), flexible sigmoidoscopy, screening colonoscopy, and ERCP (endoscopic retrograde

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cholangiopancreatography). In EUS (endoscopic ultrasound), the medical directive framing and procedural involvement determine GO-NO GO decisions. Endoscopy technicians work within an ancillary role and are governed by indirect verbal physician supervision. While equipment setup and preparation is permissive in various workflows, monitoring decisions require a specific 'going-on-task' ask agent from the physician before acting autonomously.

Unlike technicians, nurses enjoy greater decision-making latitude through a comprehensive, independent scope of practice. Workload stresses may invite violations throughout either role. Decision autonomy does not equate to decision quality, and attentional or cognitive load must be decoded; other contextual influences also operate (Sonnenberg, 2017). Expanding entry-to-practice frameworks across surgeons, nurses, and ancillary staff can clarify and promote compliant decision-making. A formalized, contextualized breakdown of permissible scope within independent and interdependent practice for nursing or intertwined decision pathways would support further evaluation across Ontario settings or examine decisions pertaining to particular GI procedures.

5.2. Training, Certification, and Competency Milestones

The competencies of nurses and endoscopy technicians (ETs), who can work under a restricted or a nonrestricted scope of practice, are not equivalent in practice settings that allow limited decision-making by both roles (M. Chalikonda & H. Henry, 2023). To specify the procedures, tasks, and decisions that characterize the work of nurses and ETs in settings that support limited decision-making, these systems have been defined in 4 separate routine GI procedures: colonoscopy and endoscopic retrograde cholangiopancreatography (ERCP) in the outpatient and endoscopic ultrasonography (EUS) in the inpatient setting. Each of these procedures encompasses distinct sets of activities and corresponding workflows that determine the permitted moments for decisions to be made and the nature of the choices allowed (Siau et al., 2022).

The training, certification, and ongoing competency evaluation systems influencing the quality and autonomy of decision-making vary markedly between nurses and ETs. Systematic reviews of the comparative effects of decision-making by these roles have shown that both possess opportunities to make decisions during procedures, but the range of what is allowed and the independence with which choices can be exercised differ substantially. While a decision-control framework provides insights into these contrasts, elucidating the underlying competency structures proved intractable. A parallel analysis of the frameworks governing training and credentialing for the 2 professions has been incorporated to assist in clarifying their impact on decision opportunities and oversight.

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5.3. Team Collaboration and Communication

The role of collaboration and communication in multiprofessional decision-making cannot be underestimated. A widely recognized framework for team dynamics views information flow between team members as constituting or constraining decision quality, along with factors such as leadership, capacity for shared mental models, and team structure (M Gillespie et al., 2017). The procedure context can impose significant constraints on this communication and the ability to share mental models.

In the specific case, laparoscopic corrective surgery of a spontaneous rupture of the left atrium was performed on a 30-year-old female who had undiagnosed rheumatic fever, and the importance of communication and teamwork was emphasised.

6. Interventions to Improve Decision-Making

Nursing and endoscopy technician decision-making influences a range of clinical aspects in gastrointestinal procedures, from safety to efficiency and patient experience (Alsager et al., 2023). Strategies to enhance the quality of these decisions can therefore yield significant benefits. Interventions to improve decision-making may be grouped into three major categories—(1) education and simulation-based training, (2) decision support tools and informatics, and (3) standardization and checklists—each of which has been addressed in the broader decision-making literature. Each category contains multiple tactical possibilities; the following section highlights selected options.

Education and simulation-based training improve decision-making by developing knowledge, skills, and judgment. Several programs offer potential insight into the design of endoscopic training interventions. The indication to proceed with endoscopy represents a core decision point (Russell et al., 2021). This decision depends upon information, known preparation quality, physical status, and clinical urgency. Recognizing the clinical context—e.g., semiquantitative score of < 60%—could constitute an eligible guideline to advance or delay the procedure.

6.1. Education and Simulation-Based Training

Simulation-based education enhances technical skills in gastrointestinal procedures by improving the technical component of medical staff training through experiential learning, training that does not compromise patient safety, education that uses virtual or augmented reality, or fellows who practice on simulators before seeing live cases, but many important nontechnical skills supporting a culture of safety such as teamwork, communication, situational awareness, and decision-making may not receive sufficient attention in gastrointestinal education and training programs (Khan et al., 2017). Deficiencies in these nontechnical skills increase the risk of medical errors and directly affect technical proficiency. Many available interventions can effectively improve these nontechnical skills

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Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

and training in these components simulated without the necessity of performing live endoscopy, but the impact of these training modules on clinical colonoscopy performance has not been established (Kanno et al., 2024).

The conventional master-apprentice model meets the educational objectives of the gastroenterology training programme but requires precarious balance to safeguard both trainee and patient interests, rendering simulation a desirable educational supplement (Silva Mendes et al., 2021). Simulation-based training in gastrointestinal procedures becomes more popular among healthcare professionals at all stages of further training, but establishing preclinical and circumstances clarifying utility of simulation programs remains a priority. Various educational packages employing simulation technology have emerged in the specialty, although limited systematic evaluation of simulation training in gastroenterology and the impact on situational awareness and decision-making performance has occurred.

6.2. Decision Support Tools and Informatics

The need for decision support tools stems from the ever-increasing complexity of care provision to patients in contemporary healthcare due to the flood of new data, technology and knowledge. Tooling decisions is impossible because the managing systems implemented to keep track of all this information yield a not so optimum result of noise and a centralized solution that collapses under care complexity–similar to decimating raw data through a single interpolation and terminate with choosing the mean value of noise. Decision aids, prompts, and checklists are decision support tools than can provide some assistance so the sheer amount of data do not overload the decision-maker .

The tool ought to propose actions based on the allowed scope of practice for the role context and take advantage of embedded procedural packages whenever is technically attainable; having access to the procedure context is paramount. In GI endoscopy it would be feasible to extract automatically the current procedure folder from the Patient Data Management System and trigger repeatedly decision support only to the roles of Nurses and Endoscopy Technicians similarly through the Endoscopy Information System (EIS).

6.3. Standardization and Checklists

Standardized protocols and checklists improve team communication, reinforce clarity about roles and tasks, and facilitate adherence to safety measures (Bitar et al., 2021). They also provide reminders of potential procedural risks, help to activate safeguards, and facilitate the establishment of a culture of shared responsibility for patient safety. Standardization combined with auditing of compliance enhances the expected benefits. Process checklists confirm the completion of vital procedural prerequisites and support handovers between team members. Decision-support systems provide staff with periodic reminders about substantial decisions to be made during procedures.

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7. Ethical, Legal, and Organizational Considerations

The legal and organizational frameworks governing endoscopy practice and nurse/technician roles significantly influence widening the scopes of practice, increasing demands for nursing- and technician-led procedures and services, and enhancing the efficiency of organizations, systems, and processes across the healthcare continuum. Applicability of safety-science andhigh-reliability practices domain describes three key areas that require governing-forward policies and regulations: 1) a move toward systems–thinking-based governance frameworks for governing medical and care practices characterizing decision-making and in the absence of second-by-second supervision directly governs possible both hampered and hero decisions—and their corresponding accountability systems; 2) a move from centralized-permission governance-to-limited-resource systems-building based on, and at the same, widely posing availability of requested governance systems; and 3) an opposite move from inclusive-systems governance arrangements characterizing-in-situ systemic performance, share, and improvement among selective among the living-living majority of medical and care-adjunction portfolios (Richardson et al., 2009) ; (Williams et al., 2009).

7.1. Patient Safety and Accountability

Patient safety is a serious public health issue with significant implications for morbidity, mortality, and quality of life. Medical errors are the third leading cause of death in the U.S., with estimates suggesting hundreds of thousands of deaths annually. The World Alliance for Patient Safety and national programs, such as Brazil's National Patient Safety Program, promote safety committees, protocols, and incident management. An endoscopy safety checklist has been implemented at the country's leading university hospital (Matharoo et al., 2013). A patient safety incident is any event that could have caused or did cause harm to a patient, with adverse events producing actual harm. The use of gastrointestinal endoscopy has increased, necessitating attention to safety and quality indicators, including trained teams, proper equipment, and monitoring (Salles Maruri Correa et al., 2021). Studies address safety aspects from patient admission to procedural monitoring, aiming to prevent incidents like patient misidentification, failure to monitor oxygen saturation, wrong procedures, and misplaced tubes. Quality indicators for gastrointestinal procedures are essential for ensuring patient safety and accountability. Process quality measures and the incidence of acute complications have been studied in large series of outpatient colonoscopies. Safety checklists, such as the Surgical Safety Checklist, reduce morbidity and mortality, although effectiveness varies.

Patient safety in endoscopy involves risks associated with invasive procedures, sedation, and complex therapies inherent in advanced therapeutic techniques. The increase in endoscopic volume, driven by an aging population and technological advancements, heightens the importance of safety measures. National emphasis on safety includes mandatory reporting of

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

serious incidents, known as "Never Events," such as overdose of sedatives, patient misidentification, wrong-site procedures, and misplacement of tubes. Errors can occur at multiple steps; most are corrected without harm, but unaddressed errors may lead to significant harm. Safety protocols and a checklist are essential to prevent errors and improve patient outcomes (Bitar et al., 2021).

7.2. Staffing Models and Workload Management

Patient safety remains the primary objective of any healthcare system, yet efforts to safeguard patient well-being through staffing policies have tended to contrast financial incentives with care quality. Information on the necessary number of staff for maintaining an appropriate level of quality is therefore essential (Weiss et al., 2017). Workforce-planning models analyze quality, efficiency, and other factors to define realistic staffing requirements (G. Sauer et al., 2016). Attention to staffing remains necessary during an endoscopic intervention, as the decision to employ supplementary personnel hinges on workload evaluation,-the potential care compromise remaining the counterbalance. Balancing workload, care quality, and equipment optimisation constitutes an ongoing challenge, given their interdependence and inherent complexity, particularly due to the wide variability of the procedures. The parameters of both workload and quality can exhibit a high degree of variability, consequently establishing models independent of such indicators would seem to solve the challenge (Kortbeek et al., 2012).

The relationship between activity, staffing levels, and care quality is further complicated by the fact that an inherent uncertainty governs these three main aspects, a situation mirrored in other healthcare domains. Such uncertainty justifies the use of models; but unlike many other domains, time and resource lengths can be anticipated for endoscopic procedures, enabling explicit graph modelling of the overall flow and improving quality analysis. Precedence diagrams generate conduct models that abstractly capture the flow of procedural phases, facilities, and agents involved. Models based on explicit distributions or metrics apply specifically to wholly defined activity systems. By treating both efficiency and quality as explicit systems, specific behaviour could be determined across multiple scenarios.

7.3. Policy Implications and Guideline Development

Policy changes in healthcare are difficult to implement and rarely have widespread support. This study advocates evidence-based guidelines for nursing and technician decision-making in GI procedures. The narratives below illustrate specific decision-making scenarios and their potential consequences. These examples clarify the clinical importance of non-physician decision-making and support recommendations for further investment in policy development and guideline creation (Richardson et al., 2009) ; (Williams et al., 2009).

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Technician missing a step during ERCP. An EUS was performed following an unsuccessful CBD stone retrieval during ERCP. The required EUS Chiba needle was missing; a nurse found it in a backup cabinet after searching multiple other locations. A nurse technician reported the EUS Chiba needle was ready before the physician arrived. The procedure was unnecessarily prolonged. Each person involved estimated the delay to be at least 15 minutes, inhibiting access to other patients.

Nurse forgot to administer sedation before EGD using a video laryngoscope for intubation. Because the physician intended to use a video laryngoscope, the nurse browsed for a specific type of video laryngoscope. The nurse recognized the oversight only once in the room and asked the physician whether to administer the sedation first. The requested drug was a short-acting agent and would not have affected patient condition during dilation. The decision may not have led to the trainee accompanying the physician lost advantage during the procedure.

Nurse required to abandon endoscopic exam after staff shortage; gastroenterologist started proceeding without consent. Due to a sudden shortage of nursing staff while the physician was preparing information to fill out the Form 2 required for consent, the nurse had to leave for another patient to assist with a closed-room procedure. Consent had not been obtained when the physician re-entered for the next examination. During procedures on other patients he realized the gastroenterologist was not present inside the room, and he started proceeding without a signed consent on the patient. No direct connection to patient or gastroenterologist for the following steps of the exam had been encountered, preventing any additional undesired actions.

Nurse technician waited unexpectedly for the physician too long when the procedure suddenly finished, and was ready on time but no checking whether the physician came started again and missed the following patients (Alsager et al., 2023).

8. Case Studies: Illustrative Scenarios in Gastrointestinal Endoscopy

The following case studies illustrate typical decision moments that affect clinical outcomes. Each vignette captures the permitted decisions, procedural context, staffing constraints, rationale, and implications for safety, efficiency, and patient experience. These examples show how evaluation and training can be focused on representative team scenarios that incorporate nursing or technician assistance and influence important outcomes.

➔ Columbian Colonoscopy Prior to Polypectomy: Anaesthetist Choice of Midazolam, Propofol or Both As an Endoscopy Nurse within a Urban Interventional Suite Team. Prior Anaesthetist Discussion with Refering Colorectal Surgeon, and Nurse Comfort with Trade-Off of Longer Recovery Time. Decision Resulted in Greater Patient Comfort and Satisfaction whilst Streamlining Removal of Anxious Patients from Awaiting List.

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➔ Screening Colonoscopy with No Clean Sector Visible in Endoscopy Theatre 1. Uncontracted Procedure: Only Specialist Trainees in Clinician Roles. Flow-Minimisation Decision by Team A to Activate Nursing Flow-Support Activity — Unilaterally Direct Care Path Collection for Unnecessary Investigation of For-Sale Prospect Hand-off Permit Post-Dialkenthing Salvage. Acknowledged Multiple Opportunity for Option B.

➔ Follow-up for Refering Colleague after Excision of Large Right Colon Tumour before Presenting Case – Rectal Ligation not Sedation-Reaction to Advance Wireless Technology. Team Explained that Only Demanding End-To-End Grid-Scanning Process Accompanied by PowerPoint Presentation Would be Accepted.

➔ Per-Octave Sampling appearing Doubtfull by Team — Scripted Advisory-Report not Delivered / Alternate Backup Encoding Tracks Incomplete. Risk of Early-Track Access and Last-Stage Collapse Covered by visiting Multiple Stations to Announce Maintenance-window Existence at one Hundred Peers-Lags Resolution instead of Current Twenty-Three and Single Announcer Tuning.

9. Synthesis of Evidence and Gaps in Knowledge

People repeatedly assumed the clinical impact of endoscopy technician and nursing decisions but lacked firm evidence. Both practitioners carried out independent, pre-analyses after assessing the current status. These choices allowed for continuous workflow within set parameters. Each background depended on staff balance and regulatory procedures. Inter- and intra-colonoscopic frameworks clarified wider scopes of practice; however, choice complexity remained consistent. The decisions taken could vary in significance yet could also facilitate straightforward, efficient processes. Practitioners faced no individual or joint responsibility for patient oversight, potential hazards, and related questions. Various decision points occurred. Independent mid colon progression evaluation, for example, constituted the only permitted action throughout screening and certain surveillance colonoscopy. Yet staff did not bear direct accountability for patient safety or procedural success (Richardson et al., 2009) ; (Williams et al., 2009).

Decision quality influences patient results. Four primary outcome categories emerged—safety, efficiency, patient experience, and satisfaction. Nursing and technician decisions materially affected colonoscopy delay, canister and scope-related questions, instrument selection, and insufflation timing. Overlooked aspects included throughput capacity as perceived and reported by competing practitioners.

Probing nursing and technician effects on endoscopic procedures blemishes direct continuations. Technicians—entrusted to scour subclass involvement—remain substantially bigger than yet exceptionally tighter than other subs tatting films, graphing unnoticed personnel circulation. Rare movie extraction assistance raising freshness embellishes visual

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ISSN:1000-3673
Received: 16-06-2025 Revised: 05-07-2025 Accepted: 05-08-2025

encumbrance throughout stop shines. Accountable challenge selection warranted during smeary contours, dragging remote recognition capacities. Anesthesia or fixing solution timing prompts readiness checks on possibility of counter questions during colon diagnosis; circulation enhancement considerably stagnates. Enforcement emerges as the principal learning gap, justifying extensive technician requirement amidst clock-relevant engagements.

10. Conclusion

Decision-making plays a key role in care delivered by nurses and endoscopy technicians during gastrointestinal procedures, despite these professions being often overlooked in the literature. Academic, professional, and political interest in gastroenterology and endoscopy has proliferated in recent years, yet the decision-making process and the influence of the nursing and technician role have remained largely unexplored and unquantified (Alsager et al., 2023). Decisions made by nurses and endoscopy technicians have a significant impact on the safety, efficiency, and overall patient experience for gastrointestinal procedures. Colonoscopies, endoscopic retrograde cholangiopancreatography (ERCP), and endoscopic ultrasound (EUS) were examined within the context of decision quality across a variety of roles. Evidence from multiple studies indicates that the decision-making of both nurses and endoscopy technicians has a direct effect on the quality of patient care received. Methods to improve decision-making are essential to ensure optimal care is given and therefore should be made a priority by both institutions and healthcare professionals.

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