LEADERSHIP IN THE SURGEON AND ITS BENEFIT IN SURGICAL PRACTICE

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Abstract. Leadership in surgery is increasingly recognised as a core professional competency that extends beyond technical expertise and individual authority. In contemporary surgical practice, where patient care depends on multidisciplinary coordination, rapid decision-making, technological innovation, and high-risk clinical judgement, the surgeon's leadership role directly influences team performance, patient safety, and surgical outcomes. This article critically examines leadership in the surgeon and its benefits in surgical practice by emphasising the integration of technical competence with non-technical skills, including communication, situational awareness, emotional intelligence, ethical judgement, teamwork, adaptability, and reflective decision-making. Rather than viewing leadership as a fixed personal attribute, the discussion conceptualises surgical leadership as a dynamic, context-sensitive practice shaped by team maturity, clinical complexity, institutional culture, and patient needs. Transformational, situational, democratic, and strategic leadership approaches are particularly relevant in promoting trust, reducing preventable errors, encouraging shared responsibility, and strengthening professional development within surgical teams. However, ineffective leadership, including authoritarian control, poor communication, micromanagement, and failure to value feedback, may undermine morale, increase burnout, and compromise clinical safety. The article argues that leadership training should be systematically embedded within surgical education and residency programmes to cultivate surgeons who are not only clinically competent, but also ethically grounded, emotionally intelligent, and capable of leading safer, more collaborative surgical systems.
Keywords: *leadership, surgery, surgical leadership, non-technical skills, technical skills*

Introduction

Surgery has traditionally been associated with technical mastery, decisive action, and the individual authority of the surgeon. Historically, surgeons have occupied a central position in diagnostic reasoning, therapeutic decision-making, and operative responsibility, particularly in high-risk clinical contexts where immediate judgement is required. However, contemporary surgical practice has become increasingly complex, multidisciplinary, and system-dependent. Surgical care now requires coordinated interaction among surgeons, anaesthesiologists, nurses, residents, students, technicians, administrators, and patients. Therefore, the success of surgical practice can no longer be explained solely through operative skill or individual expertise. It also depends on the surgeon's ability to lead teams, communicate effectively, manage uncertainty, maintain professional standards, and create a safe working environment throughout the preoperative, intraoperative, and postoperative phases. In this regard, leadership becomes an essential characteristic of the modern surgeon, as it enables the integration of technical competence with organisational, collaborative, and ethical responsibilities in patient care. Muir et al. (2024) emphasises that leadership is not merely an individual attribute, but a process of influence that allows the surgeon to guide others toward common clinical objectives. Similarly, Maxwell's concept of leadership as influence is

relevant to surgery because the surgeon-leader must inspire trust, provide direction, and support the team in achieving shared goals (Maxwell, 2011).

The importance of surgical leadership is particularly evident in the operating room, where clinical outcomes may be affected not only by surgical technique but also by communication, coordination, emotional control, decision-making, and team behaviour. The operating room is a high-pressure environment in which preventable errors may arise from unclear instructions, weak teamwork, poor delegation, authority gradients, fatigue, and ineffective communication. For this reason, leadership in surgery must be understood as closely connected to non-technical skills. These skills include situational awareness, teamwork, communication, decision-making, ethical judgement, teaching ability, empathy, and the capacity to respond constructively under pressure. Rojas et al. (2022) argue that the modern surgeon must exercise leadership through idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration, all of which contribute to team development and improved surgical practice. Likewise, Parker et al. (2013) highlight that intraoperative leadership involves observable behaviours that influence communication, team coordination, and safety during surgical procedures. In this sense, leadership should not be viewed as secondary to technical competence; rather, it is a core dimension of surgical excellence because it directly shapes patient safety, team morale, and the quality of clinical decision-making.

This article examines leadership in the surgeon and its benefits in surgical practice by critically analysing the characteristics, styles, and practical implications of leadership within surgical teams. It argues that effective surgical leadership should not be assumed to emerge automatically from seniority, authority, or technical expertise. Instead, it should be cultivated as a structured professional competency through surgical education, residency training, reflective practice, and institutional support. Different leadership styles may be required depending on the clinical situation, level of urgency, complexity of the procedure, and maturity of the surgical team. Hersey and Blanchard's situational leadership model is particularly useful in this regard because it suggests that leaders must adapt their approach according to the competence and commitment of team members (Hersey and Blanchard, 1997). In complex or emergency procedures, a more directive style may be necessary to ensure clarity and rapid action, whereas in experienced teams, a participative or delegative style may encourage autonomy, shared responsibility, and professional growth. Evidence from Hu et al. (2016) further indicates that surgeons' leadership styles influence team behaviour in the operating room, particularly in relation to communication and participation. Therefore, the surgeon-leader is not simply an authority figure who commands the team, but a professional who builds trust, manages risk, develops others, protects patients, and transforms surgical practice into a collaborative pursuit of safety and excellence.

Materials and Methods

This study employed a systematic literature review approach to identify, analyse, and synthesise existing evidence on surgical leadership and its impact on surgical practice. This method was considered appropriate because surgical leadership is not limited to technical competence, but also involves non-technical skills, communication, teamwork, decision-making, emotional regulation, ethical judgement, and patient safety. The review was guided by the understanding that leadership in surgery should be examined as a dynamic clinical and organisational competency rather than merely as an individual

trait or hierarchical position. Previous studies have emphasised that surgical leadership influences team behaviour, intraoperative communication, safety culture, and the overall quality of surgical care (Hu et al., 2016; Parker et al., 2013). Therefore, this review aimed to critically examine how leadership behaviours and leadership styles contribute to safer, more collaborative, and more effective surgical practice.

The literature search was conducted using PubMed, Google Scholar, and Cochrane databases, covering publications available up to 2025 in English and Spanish. These databases were selected because they provide access to biomedical, surgical, clinical, educational, and healthcare management literature. The search strategy used Medical Subject Headings (MeSH), keywords, and Boolean operators to identify relevant studies. The main search terms included "surgical leadership," "surgeon leadership," "leadership in surgery," "non-technical skills," "leadership styles in the operating room," "operating room teamwork," "patient safety," "surgical team performance," and "leadership training in surgical residency." These terms were selected because surgical leadership is closely related to influence, teamwork, situational awareness, communication, and safety-related behaviours (Muir et al, 2024; Rojas et al., 2022). In addition, leadership theories such as Maxwell's concept of leadership as influence and Hersey and Blanchard's situational leadership model were used to support the analytical framing of the review, particularly in understanding how surgeons adapt their leadership style according to team maturity, clinical urgency, and procedural complexity (Maxwell, 2011; Hersey and Blanchard, 1997).

Inclusion and exclusion criteria

The inclusion criteria were designed to ensure that the reviewed literature was directly relevant to surgical leadership and its practical implications in surgical care. Articles were included if they consisted of original publications, systematic reviews, narrative reviews, or conceptual papers that addressed surgical leadership or its major components, including leadership styles, non-technical skills, communication, teamwork, decision-making, patient safety, and surgical education. Studies focusing on practising surgeons, surgical residents, surgeons in training, or multidisciplinary surgical teams were prioritised because leadership in surgery is exercised within complex clinical environments involving different professionals and levels of expertise. This focus is consistent with the view that surgical leadership influences operating room communication, team participation, and patient safety outcomes (Hu et al., 2016; Parker et al., 2013).

Publications were also included if they were available in full text through open access or institutional access and were published in English or Spanish up to 2025. Full-text availability was necessary to allow proper evaluation of the study design, conceptual framework, findings, and relevance to surgical practice. Studies were considered especially relevant when they described or evaluated the impact of surgical leadership on safety culture, surgical team performance, clinical outcomes, professional development, or leadership training. This criterion was important because surgical leadership should not be treated only as an abstract personal quality, but as a measurable and teachable competency that contributes to safer and more effective clinical practice. Literature discussing leadership as influence, situational leadership, and transformational leadership was also included when it provided useful theoretical grounding for understanding how surgeons guide teams, adapt to clinical pressure, and

support collaborative decision-making (Rojas et al., 2022; Maxwell, 2011; Hersey and Blanchard, 1997).

Articles were excluded if they lacked methodological support, conceptual clarity, or direct relevance to surgical leadership. Duplicate studies and articles containing redundant information were removed to avoid repetition and overrepresentation of similar findings. Publications were also excluded if they discussed leadership only in a general organisational or business context without meaningful application to surgery, healthcare teams, medical education, patient safety, or operating room practice. This exclusion was necessary because leadership in surgery occurs within a high-risk clinical environment where decisions may have immediate consequences for patients. Therefore, leadership theories and evidence must be interpreted critically within the realities of surgical practice, including hierarchy, urgency, interprofessional coordination, ethical responsibility, and clinical accountability.

Results and Discussion

The formula for leadership

Leadership in surgical practice should not be understood merely as the authority to direct others, but as the capacity to influence, coordinate, and transform the behaviour of a multidisciplinary team toward a shared clinical purpose. In its simplest form, a leader is someone who guides others toward a common goal; however, in surgery, this definition requires deeper interpretation because the "common goal" is not only task completion, but also patient safety, clinical precision, ethical responsibility, and collective professional performance. Muir et al. (2024) explains that leadership in surgery is closely related to the surgeon's ability to guide teams in complex clinical settings, while Maxwell (2011) defines leadership as influence. This concept is particularly relevant to surgical practice because the surgeon's influence is exercised not only through technical expertise, but also through communication, trust, emotional control, professional example, and the ability to maintain team focus under pressure. Therefore, the "formula" for surgical leadership may be understood as the interaction between influence, trust, competence, communication, adaptability, and ethical responsibility.

Maxwell's leadership principles provide a useful theoretical foundation for understanding surgical leadership. His "Law of Process" suggests that leadership develops continuously rather than instantly, which is highly applicable to surgical training, where leadership competence must be cultivated progressively through clinical exposure, mentorship, reflection, and repeated decision-making (Maxwell, 2011). The "Law of Navigation" is also relevant because surgeons are required to plan procedures, anticipate complications, and guide teams through uncertain clinical situations. Similarly, the "Law of Solid Ground" emphasises trust as the foundation of leadership, which is essential in the operating room because team members must believe in the surgeon's judgement, technical ability, fairness, and emotional stability. Finally, the "Law of Respect" suggests that people follow leaders whose competence and character they recognise. In surgical practice, this means that leadership cannot depend solely on seniority or formal title; it must be earned through consistent professional conduct, clinical excellence, ethical behaviour, and respect for the team.

The four dimensions of leadership described by Rojas et al. (2022) further strengthen this argument by linking surgical leadership with transformational behaviour. First,

idealised influence refers to the surgeon's ability to act as a professional role model whose behaviour inspires confidence among colleagues, students, nurses, anaesthesiologists, and patients. This dimension is especially important because the surgeon's attitude often shapes the emotional tone of the operating room. A calm, respectful, and competent surgeon may promote confidence and cooperation, whereas an aggressive or dismissive surgeon may create fear, silence, and hesitation. Second, inspirational motivation involves the ability to communicate goals clearly and encourage the team toward improvement. In surgery, this may include setting expectations before an operation, reinforcing shared responsibility, and motivating team members to maintain high standards. Third, intellectual stimulation requires the surgeon to value feedback and encourage critical thinking. This is crucial because surgical safety depends on whether team members feel able to raise concerns, question assumptions, and contribute alternative perspectives. Fourth, individualised consideration reflects the surgeon's responsibility to support the growth of others through teaching, mentoring, and constructive feedback. Together, these dimensions show that surgical leadership is not a one-way exercise of authority, but a relational process that develops the capability of the whole team.

A critical issue in surgical leadership is that no single leadership style is appropriate for all situations. Hersey and Blanchard's situational leadership model is valuable because it recognises that effective leaders must adapt their style according to the competence, confidence, and commitment of team members (Hersey and Blanchard, 1997). In a surgical environment, this adaptability is essential. For example, during a high-risk emergency operation, a directive style may be necessary because clear instructions and rapid coordination are required. However, in an elective procedure involving an experienced team, a participative or delegative style may be more effective because it allows autonomy, shared responsibility, and professional confidence. This demonstrates that surgical leadership is not rigid; it is situational, responsive, and context-dependent. A surgeon who always leads in an authoritarian manner may suppress communication and increase team anxiety, while a surgeon who always delegates without sufficient supervision may compromise safety in complex or unfamiliar situations. Therefore, leadership effectiveness depends on the surgeon's ability to read the clinical environment and adjust their behaviour accordingly.

Leadership must also be distinguished from position, title, salary, or individual achievement. A surgeon may hold a senior position and possess excellent technical skills, yet still fail as a leader if they cannot communicate effectively, support colleagues, manage conflict, or create psychological safety. Hersey and Blanchard's model suggests that leadership requires the ability to empower others, recognise their contributions, understand their concerns, and provide development opportunities (Hersey and Blanchard, 1997). This is particularly important in surgery because team members often work under intense pressure, time constraints, and emotional demands. When leadership becomes overly controlling, dismissive, or punitive, it can lead to fear, reduced participation, loss of trust, burnout, and avoidable errors. Conversely, effective surgical leadership creates an environment where team members feel valued, respected, and capable of contributing to patient safety. Thus, leadership should be evaluated not only by whether tasks are completed, but also by whether the team becomes safer, more competent, more confident, and more ethically engaged.

Poor leadership can have serious consequences for surgical teams. Micromanagement, lack of communication, unrealistic urgency, failure to listen, and

disregard for feedback may generate emotional exhaustion and reduce team commitment. In high-risk clinical environments, these problems are not merely interpersonal weaknesses; they are patient-safety concerns. A team that feels intimidated may hesitate to speak up when a mistake is about to occur. A resident who is not supported may lose confidence in decision-making. A nurse whose concerns are ignored may become less willing to communicate critical observations. Therefore, ineffective leadership can weaken the safety culture of the operating room. In contrast, effective leadership supports autonomy, fair recognition, transparent expectations, and respectful communication. This suggests that leadership in surgery should be treated as a clinical safety mechanism, not simply as a desirable personality trait.

Leadership as a surgeon's characteristic

Leadership is one of the defining characteristics of the modern surgeon because surgical practice requires the integration of technical skill, ethical judgement, team coordination, and decision-making under uncertainty. Following the organisational theories discussed by Aguirre and Clavero, leadership in surgery can be understood as a form of non-coercive influence directed toward a common purpose: patient care (Sádaba et al., 2003). This definition is important because it challenges the assumption that leadership in the operating room should be based primarily on command and control. Although surgery often requires decisive action, effective leadership depends more on trust, credibility, competence, mutual respect, and the ability to mobilise team members toward safe clinical outcomes. In this sense, the surgeon-leader does not merely "manage" people; the surgeon-leader creates the conditions for coordinated, ethical, and high-quality care.

Several qualities are essential to surgical leadership. These include the ability to establish and maintain professional standards, preserve self-control under pressure, support team members, anticipate problems, evaluate risks and benefits, create alternative solutions, implement decisions, and review outcomes (Pekolj, 2020). These characteristics are significant because they connect leadership with both clinical judgement and organisational responsibility. A surgeon who establishes standards contributes to quality assurance and patient safety. A surgeon who maintains self-control prevents emotional escalation during crisis situations. A surgeon who anticipates risks improves preparedness and reduces the likelihood of preventable complications. A surgeon who reviews decisions promotes reflective practice and continuous improvement. Therefore, leadership in surgery is not an abstract concept; it is expressed through concrete behaviours that influence the safety, efficiency, and learning culture of surgical practice.

The literature also identifies effective surgeon-leaders as equitable, communicative, ethical, empathetic, organised, professional, technically competent, charismatic, and capable of teaching others (Piñango et al., 2022; Maxwell, 2011). These characteristics are important because they show that surgical leadership combines both technical and human dimensions. Technical competence gives the surgeon credibility, but credibility alone is not sufficient. The surgeon must also demonstrate fairness, empathy, and communication skills to sustain team trust. This is especially relevant in surgical education, where residents and junior doctors learn not only operative techniques, but also professional behaviour, ethical judgement, and team interaction. A surgeon who teaches respectfully and models reflective practice contributes to the formation of future surgical leaders. In contrast, a technically excellent surgeon who humiliates, excludes,

or intimidates others may reproduce harmful workplace cultures and weaken long-term professional development.

Different leadership styles may operate within surgical practice, including transformational, transactional, autocratic, laissez-faire, strategic, and democratic leadership (*Figure 1*). Transformational leadership is particularly valuable because it focuses on inspiration, motivation, and changing the perspectives of team members toward higher standards of performance. This style is strongly aligned with the development of safe and collaborative surgical cultures. Transactional leadership, based on rewards and performance expectations, may be useful in structured institutional settings but may be insufficient when creativity, trust, and moral commitment are required. Autocratic leadership may be necessary in immediate life-threatening emergencies where rapid decisions are required, but if used excessively, it can suppress team communication and reduce psychological safety. Laissez-faire leadership may support autonomy among highly experienced teams, but it may also become dangerous if the leader becomes passive in situations requiring guidance. Democratic leadership is often effective in healthcare because it encourages participation and values the perspectives of team members, while strategic leadership helps align surgical teams with institutional goals and quality improvement priorities (Samperio and Malagón, 2006; Sádaba et al., 2003).

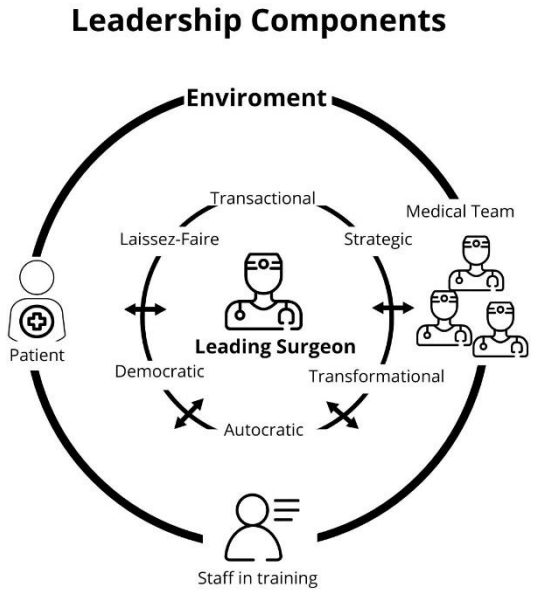

Figure 1. *Leadership components in surgical practice.*

From a power perspective, surgical leadership is most effective when grounded in expert power and referent power rather than coercive or reward power. Expert power comes from the team's recognition of the surgeon's knowledge, skill, and clinical judgement, while referent power arises from admiration, respect, and trust in the surgeon's behaviour (Sádaba et al., 2003). These two forms of power are more sustainable because they depend on professional credibility and moral authority rather than fear or dependency. Coercive power may force compliance, but it can damage trust and reduce the willingness of team members to speak up. Reward power may motivate

performance in some settings, but it may not produce deep professional commitment. Therefore, the highest form of surgical leadership is not domination, but influence rooted in competence, integrity, and respect.

Several leadership theories help explain the practical application of leadership in surgery. The behavioural approach distinguishes between task-oriented and team-oriented leadership. In surgical practice, both are necessary. A task-oriented approach ensures efficiency, procedural discipline, and adherence to standards, while a team-oriented approach supports morale, communication, and professional well-being. Fiedler's contingency model is useful because it suggests that leadership effectiveness depends on the relationship between the leader, the team, the task structure, and the degree of authority. In surgery, this means that leadership must be adapted to the complexity of the operation, the experience of the team, and the urgency of the clinical situation. Path-goal theory further highlights the importance of motivation, suggesting that leaders should remove barriers, clarify expectations, and help team members achieve shared goals. Meanwhile, the leadership life cycle theory emphasises that as team members gain competence and autonomy, the leader should gradually reduce direct control and support independent decision-making (Sádaba et al., 2003; Hersey and Blanchard, 1997).

Evidence from operating room studies supports the practical importance of surgical leadership. Hu et al. (2016) found that surgeons' leadership styles influence team behaviour in the operating room, particularly communication and participation. This finding is highly significant because communication failures are among the major contributors to clinical errors in high-risk environments. Parker et al. (2013) also developed the Surgeons' Leadership Inventory, which demonstrates that intraoperative leadership can be observed, categorised, and assessed. This challenges the assumption that leadership is an innate or informal quality. Instead, leadership can be taught, measured, and improved through structured training. Such evidence supports the need to integrate leadership education into general surgery residency programmes, simulation-based training, morbidity and mortality discussions, and continuing professional development.

In practical terms, there is no single ideal type of surgeon-leader. Each surgeon may have a different leadership style shaped by personality, training, institutional culture, clinical experience, and the demands of the surgical environment. However, the most effective surgeon-leaders are those who can adapt their leadership style without losing ethical clarity or patient-centred focus. In complex procedures, a directive approach may be necessary to ensure safety and coordination. In experienced teams, a delegative approach may strengthen autonomy and professional confidence. In teaching hospitals, a participative and transformational style may be particularly valuable because it supports both patient care and the development of future surgeons. Therefore, the surgeon-leader must be flexible, reflective, and capable of balancing authority with collaboration.

Leadership training should therefore be regarded as an essential component of surgical education. Technical skill alone is insufficient to prepare surgeons for the realities of modern healthcare, where outcomes depend on teamwork, communication, systems awareness, ethical decision-making, and emotional resilience. Leadership programmes in general surgery residency can strengthen residents' ability to coordinate teams, manage conflict, communicate under pressure, and make safe decisions (Piñango et al., 2022). Such training also helps shift surgical culture away from the outdated

model of the isolated heroic surgeon toward a more collaborative model of shared responsibility. This is not a weakening of surgical authority; rather, it is a more mature and evidence-informed form of authority that recognises the complexity of patient care. Overall, the findings suggest that leadership is not an optional or secondary characteristic of the surgeon. It is a central competency that directly affects patient safety, team performance, professional development, and the ethical quality of surgical practice. Effective surgical leadership combines technical expertise with emotional intelligence, situational awareness, communication, humility, adaptability, and moral responsibility. It allows the surgeon to guide the team not only toward procedural success, but also toward a culture of trust, learning, accountability, and patient-centred excellence. Therefore, surgical leadership should be systematically taught, assessed, and reinforced as part of modern surgical training and institutional quality improvement.

Conclusion

Surgical leadership is a central determinant of safe, effective, and humane surgical practice. The surgeon's leading role during surgical procedures is essential not only because of technical authority, but because the surgeon coordinates judgement, communication, teamwork, emotional control, and ethical responsibility in moments where clinical decisions may have immediate consequences for patient outcomes. Therefore, leadership in surgery should not be understood merely as command, hierarchy, or operative expertise. It is a complex professional competency that requires the surgeon to recognise personal strengths and limitations, respond constructively to pressure, support the multidisciplinary team, and create a working environment where safety, trust, and accountability can be sustained. Evidence on intraoperative leadership shows that surgeons' leadership styles influence team communication, participation, and behaviour in the operating room, making leadership a direct contributor to patient safety and surgical performance (Hu et al., 2016; Parker et al., 2013). In this sense, the surgeon-leader is not only the individual who performs the operation, but also the person who shapes the conditions under which the entire team can perform effectively.

More critically, surgical leadership must be viewed as a form of service and professional responsibility rather than as a privilege attached to seniority or status. A surgeon who leads well integrates knowledge, ethical judgement, emotional intelligence, humility, and pedagogical sensitivity in order to protect patients while also developing the people around them. This means that leadership is not achieved only through individual excellence, but through the ability to build relationships, encourage feedback, reduce fear, promote learning, and transform surgical practice into a collaborative pursuit of the common good. Leadership theories such as influence-based leadership and situational leadership are particularly relevant because they show that effective leaders must inspire trust while adapting their approach to the competence, maturity, and needs of the team (Maxwell, 2011; Hersey and Blanchard, 1997). For this reason, leadership training should be systematically incorporated into general surgery residency and continuing professional development programmes. Future surgical education must prepare surgeons not only to operate, but also to communicate, mentor, delegate, manage conflict, evaluate risk, and lead ethically within complex healthcare systems. Strengthening surgical leadership is therefore not an optional addition to surgical training; it is a strategic requirement for improving patient-centred care, institutional performance, and the future quality of surgical practice.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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