Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 2s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Legal Safeguards for Patients Undergoing High-Risk Surgeries

Dr. Nitin R. Nangare[1], Dr. Deepti Khubalkar[2], Dr. M.B. Bagwan[3], Dr. Rahul Atul Goswami[4], Dr. Mukesh Sharma

[1]Asst. Professor, Dept. of Surgery, Krishna Institute of Medical Sciences, Krishna Vishwa Vidyapeeth "Deemed to be University",Taluka-Karad, Dist-Satara, Pin-415 539, Maharashtra, India.

Email ID: drshreesh@gmail.com

[1]Professor, Department of Surgery, Krishna Institute of Medical Sciences,Krishna Vishwa Vidyapeeth "Deemed to be University",Taluka-Karad, Dist-Satara, Pin-415 539, Maharashtra, India.

Email ID: docnitiraj@gmail.com

[2]Assistant Professor and Deputy Director, Symbiosis Law School, Nagpur campus, Symbiosis International (Deemed University) Pune, India.

Email ID: deeptik@slsnagpur.edu.in.

[3]Assoc. Prof., Dept. of Surgery, Krishna Institute of Medical Sciences Krishna Vishwa Vidyapeeth "Deemed to be University",Taluka-Karad, Dist-Satara, Pin-415 539, Maharashtra, India.

Email ID: rafiquemrb@yahoo.com

[4]Dept. of Surgery, Krishna Institute of Medical Sciences Krishna Vishwa Vidyapeeth "Deemed to be University",Taluka-Karad, Dist-Satara, Pin-415 539, Maharashtra, India.

Email ID: dr.rahulgoswami53@gmail.com

Dr. Mukesh Sharma, Arya College of Pharmacy, Jaipur, Rajasthan, India.

Email ID: mukeshsharma@aryacollege.org

Cite this paper as: Dr. Nitin R. Nangare, Dr. Deepti Khubalkar, Dr. M.B. Bagwan, Dr. Rahul Atul Goswami, Dr. Mukesh Sharma, (2025) Legal Safeguards for Patients Undergoing High-Risk Surgeries. *Journal of Neonatal Surgery*, 14 (2s), 117-127.

ABSTRACT

High-risk operations such organ transplants, complicated cardiac procedures, and large cancer operations carry a lot of medical hazards including complications, extended recovery periods, and even death. Those who undergo these procedures so not only endanger their bodies but also run moral and legal issues. Legal safeguards are required to guarantee these patients' health and respect of their rights. The primary legal rights for those undergoing high-risk therapies are examined in this article. It emphasises informed consent, medical culpability, patient autonomy, and the responsibility of healthcare professionals in ensuring patients get moral and safe treatment. To provide their informed assent, patients have to completely grasp the hazards, benefits, and different choices apart from surgery. Patients have legal right to make their own decisions about their medical treatment. This right has to be respected, hence particular attention should be paid to youngsters and those with cognitive issues. Medical malpractice laws hold medical professionals accountable for delivering inadequate treatment and prevent their negligent actions. With the aid of ethical committees and legislation review procedures, challenging decisions about high-risk therapies benefit the patient most of the time. The article also addresses the harmony between a patient's right to be left alone and their possibility of being compelled to undergo surgery. This is particularly crucial in cases when the operation's result is quite crucial. By examining these legal safeguards, the article demonstrates the need of legislation safeguarding patients' rights, therefore reducing risks and fostering confidence in the healthcare system. At last, these protections ensure that therapies with a great risk are carried out with the appropriate moral, ethical, and carefulness.

Keywords: *Legal Safeguards, High-Risk Surgeries, Informed Consent, Patient Autonomy, Patient Rights, Legal Protections, Healthcare Ethics, Patient Safety, Medical Negligence.*

1. Introduction

Right now, the health care system is very worried about high-risk treatments because they might not work out very well. Among these are brain surgery, organ transfers, heart surgeries, and advanced treatments for cancer. Usually, they need very advanced techniques, a deep knowledge of medicine, and careful care after surgery. Even though medicine has changed over time, these medicines still come with risks, such as side effects, taking a long time to get better, or even death [1]. People who go through high-risk treatments may feel a lot of physical and mental pain. Aside from medical concerns, there are also important moral and legal ones that should be thought about. People who are getting these kinds of treatments should know that the law will protect their rights and make sure that choices are made that are best for them. For very dangerous drugs, informed consent is one of the most important rules [2]. For healthcare professionals to get informed permission, they need to fully explain the risks, benefits, and other choices to the treatment or surgery they want to do. That is what the law says to do, and it is the right thing to do. The patient should be told about all the risks that come with a high-risk treatment, even if it means surgery. This is basically what leads treatments that come with risks that could kill the patient or cause long-term damage healing. Informed consent not only makes sure that patients are aware of what is going on, but it also protects their rights by letting them make decisions that are in line with their own beliefs and desires [3]. Patients' right to make their own decisions is another very important law protection in high-risk treatments. In medicine, autonomy means that a patient can make their own decisions about their care without being told what to do or being forced to. This idea is at the heart of treatments that pose a high risk because they make patients feel weak and forced to make decisions. Patients sometimes have to make very tough choices that could mean the difference between life and death. As a result, the law says that patients have enough time to learn about their options and make well-informed choices without being swayed too much by institution rules, family members, or medical staff [4]. Medical malpractice is another legal problem that comes up when patients agree to high-risk treatments even though they know about them. When a doctor hurts a patient while not following the accepted standard of care, this is called malpractice. A lot of mistakes happen in medicine during high-risk procedures where a lot is at stake and the treatments are hard. Doctors have legal rights that make them responsible if they are careless or don't follow standard medical practice [5]. The people who were hurt by bad medical care should get paid for it. This makes sure that doctors are responsible for their actions and keeps them from starting to act badly. When it comes to high-risk medicines, where big problems are more likely to happen, the law systems that handle medical errors are the most important ones. The majority of the time, ethics groups and law review boards help hospitals make tough medical decisions [6]. A lot of businesses that deal with a lot of danger know this to be true. Lawyers, ethicists, and medical professionals who work for these companies help make sure that ethical standards are met and that the patient's best interests are taken into account. Legal protections make sure that the right guardians or surrogates are chosen to make decisions for people who might not be able to or might not fully understand what is going on. People who need medical care or who have problems with their thinking should pay extra attention to this.

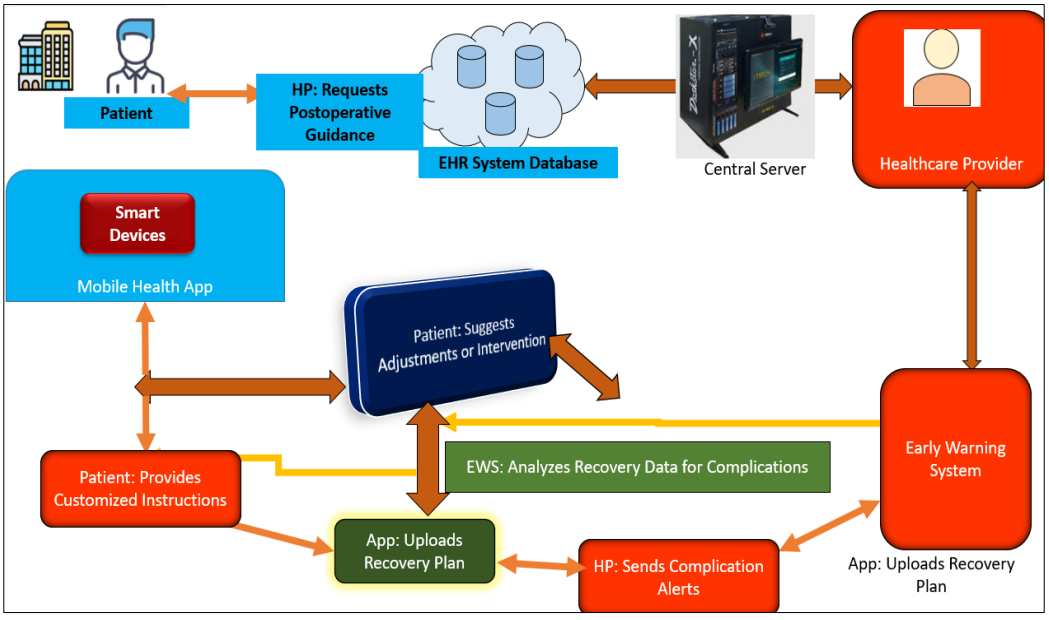

Figure 1. Diagram for Postoperative Patient Engagement

These organisations ensure that patients' rights and honour are respected during surgery, therefore providing an additional degree of safety. The regulations safeguarding those undergoing high-risk therapies are aimed to keep individuals safe and to maintain trust in the healthcare system [7]. It is obvious that we need explicit legal guidelines to handle the issues that

arise during high-risk operations as medical techniques grow more complex and specialist. These safeguards, as seen in Figure 1, assist to maintain the balance between patient rights and medical intervention. In this sense, patients may choose for ethically correct and legally safe treatment. I will go into greater detail on these legal safeguards in the coming sections of this article. I'll discuss how crucial informed permission, patient liberty, medical malpractice, and ethical committees are for ensuring patients undergoing high-risk operations are safe and healthy.

2. Foundational Studies and Key Insights

The great public health concern of the high number of fatalities after surgery emphasises the need of immediately addressing issues that arise following surgery. Many times, risks associated with surgery—such as organ damage and issues resulting from stress and inflammation—cause patients to get sicker and kill many of them [8]. Many surgeries are ambulatory therapies, so ensuring patient safety becomes much more challenging and calls for robust surveillance systems. Precision medicine approaches—such as risk stratification tools like surgical risk calculators and machine learning models that identify patients with a high risk—have proved to assist clinicians in making better choices and offering their patients better treatment [9]. Improving outcomes for vulnerable populations depends much on evidence-based guidelines, particularly when treating cardiovascular risks in therapies unrelated to the heart. Big unfavourable cardiac events and other long-term repercussions of surgical complications highlight the need of closely monitoring patients after surgery [10]. Variations in operation statistics and availability to care depending on location complicate matters even further and emphasise the necessity of risk models and treatments unique to every site. Two fresh concepts improving surgery while simultaneously addressing system flaws are goal-directed fluid management and less invasive techniques [11]. The great volume of operations performed worldwide and the financial expense of these operations highlight the need of having equitable and affordable policies to enhance health outcomes and attain more targets of economic growth and improvement of general health [12]. Eliminating postoperative hazards calls for a multifarious strategy including innovative technology, data-driven tactics, and area-specific modifications depending on need. This will assist to raise patient safety and quality of medical treatment worldwide.

Area	Methodology	Key Findings	Challenges	Application
Postoperative Mortality	Global analysis of surgical outcomes and burden studies.	Postoperative mortality represents a significant global health issue requiring prioritization and intervention.	Lack of comprehensive global data and variability in healthcare systems across regions.	Developing global strategies and policies to reduce postoperative mortality.
Perioperative Risks	Studies on organ injury mechanisms, including surgical stress and inflammation.	Perioperative risks like organ injury are major contributors to adverse outcomes.	Understanding complex pathophysiology and developing targeted interventions.	Tailoring perioperative care to mitigate risks.
Ambulatory Surgery	Analysis of data from hospitals and outpatient centers.	Ambulatory surgeries account for a significant proportion of procedures but pose unique safety challenges.	Limited monitoring capabilities in outpatient settings.	Enhancing safety protocols and monitoring systems for ambulatory surgeries.
Risk Stratification	Development of tools like machine learning models and surgical risk calculators.	Precision tools effectively identify high-risk patients and guide decision-making.	Integration into diverse healthcare systems and ensuring accessibility for clinicians.	Supporting personalized patient care and improving informed consent processes.
Cardiovascular Risks	Evidence-based guidelines for perioperative management in noncardiac surgeries.	Optimized perioperative cardiovascular management reduces complications in high-risk patients.	Ensuring adherence to guidelines and addressing patient-specific complexities.	Reducing perioperative cardiac events through standardized care.

Table 1. Summarizes the Literature Review of Various Authors

Focussing on methodologies, significant discoveries, problems, and practical applications, the data provides an orderly evaluation of crucial aspects in postoperative care and surgical outcomes. It underlines the requirement of tailored therapies and robust monitoring systems because it covers many aspects, including mortality after surgery, hazards during surgery, and surgery performed on an individual's own (given in Table 1). The statistics also discuss how standards based on research, risk assessment tools, and innovative approaches might assist to make patients safer and enhance their health.

3. Legal Framework for Patient Rights

Modern healthcare systems need to have laws that protect patients' rights. This makes sure that patients are treated with respect, decency, and fairness, and that medical processes are open and accountable. It provides a base for ethical medical action by protecting patients' liberty and well-being through a number of routes, such as informed consent, the right to know, and the right to a second opinion. These factors help build trust between people and healthcare workers by following the law and moral standards.

A. Right to Information: Transparency and Communication

A basic part of patient rights is the right to information, which makes sure that patients know exactly what's going on with their health, their treatment options, and their outlook. People who have this right could make decisions that are in line with their views, beliefs, and goals. There are many national and international laws that protect this right, as well as the Universal Declaration of Human Rights and the World Health Organization's patient rights code. Because they are required by law to do so, doctors must support open conversation, which means making it safe for patients to ask questions, get answers, and share concerns. Part of it is being honest about any conflicts of interest, medical mistakes, or things you wish you hadn't done. Medical facilities could get into legal trouble, lose trust, or have their reputations hurt if they don't respect this right.

Language and culture barriers, not knowing enough about health, and finding it hard to understand medical terms could make it harder to use the right to information. To help people deal with these issues, many places need answers in simple English, trained speakers, and contact methods that are easy for everyone to understand. Digital outlets and patient websites are also useful tools for making information more accessible and helping people along their medical path.

B. Right to Second Opinion and Patient Autonomy

People can make their own decisions about their care when they have the right to a second view. Patients are officially allowed to get a second opinion on their medical situation or treatment plan, especially when things are complicated or dangerous. This right helps people trust medical decisions, lowers the chance of getting the wrong diagnosis, and looks into many ways to help people. Healthcare systems around the world have made rules that let people get second views and make sure that using this right won't get them in trouble or make them less likely to use it. If a patient wants a second opinion and asks for one, they usually can't be fined, charged more, or hurt because of the law. For example, the ethical rules of many countries' medical boards and professional groups make this right clear, which supports patients' ability to make their own choices. In real life, having the right to a second opinion could lead to issues like habits that last longer than planned, higher costs, or trouble getting care. But better cross-border healthcare deals and technology have made these issues less important, so people can see experts no matter where they live.

Laws that protect patients' rights have a big impact on how honest and fair healthcare is provided. The right to knowledge, the right to a second opinion, and intelligent agreement all work together to make freedom, openness, and fairness better. New rules and tools are making it easier to use rights, which is leading to a more patient-centered approach to healthcare, even though there are still problems with structure, culture diversity, and resources.

4. Intraoperative and Postoperative Safeguards

Safety steps are needed both before and after treatment to keep patients safe. These help lower risks, get better results, and speed up healing. These safety measures include using professional methods, new technologies, and working together as a diverse team to handle any issues that may arise during or after surgery. Safety steps taken during and after surgery are mostly what keep people safe and help them get the best results from surgery. Following medical safety rules, using real-time tracking systems like the one shown in Figure 2, and tightly following infection control rules are some of the things that are done during surgery to lower the risk. Better recovery plans, constant tracking with smart devices, and multimodal treatment are some of the safety measures that should be taken after surgery to help the body heal. With the help of new tools and methods that have been shown to work, these safety steps lower the risk of problems, improve patient results, and make surgery safer overall.

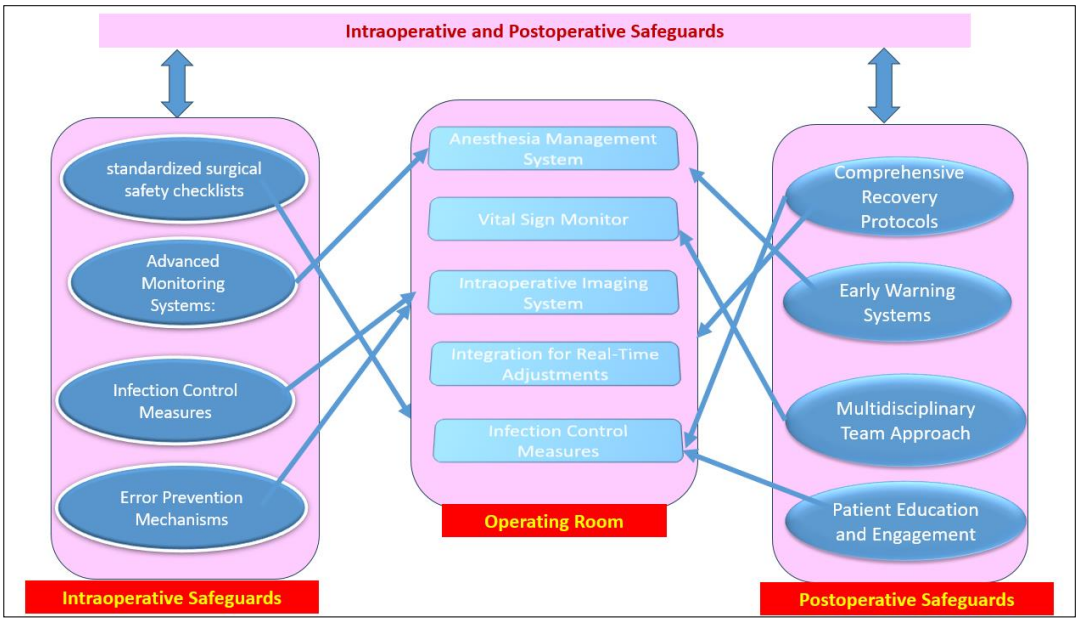

Figure 2. Graphical Tree Representation of Intraoperative and Postoperative Safeguards

They are vital in preventing adverse events, including infections, surgical errors, and delayed recovery, thereby maintaining high standards of care and patient trust.

Intraoperative Safeguards

Intraoperative safeguards are measures implemented during surgery to ensure patient safety and optimize outcomes. These safeguards encompass preemptive planning, meticulous execution, and real-time monitoring. Key components include:

1. Adherence to Surgical Checklists:

The use of standardized surgical safety checklists, such as those developed by the World Health Organization (WHO), has significantly reduced errors and complications. These checklists cover critical steps, including patient verification, surgical site marking, and equipment readiness. By fostering effective communication among surgical team members, they mitigate the risks of wrong-site surgeries and other preventable errors.

2. Advanced Monitoring Systems:

Intraoperative monitoring technologies, including anesthesia management systems and real-time imaging tools, play a pivotal role in maintaining patient safety. Continuous monitoring of vital signs, such as heart rate, oxygen saturation, and blood pressure, allows anesthesiologists and surgeons to detect abnormalities promptly. Advanced imaging systems, such as intraoperative CT or MRI, enhance precision by providing real-time visualization of surgical fields, reducing the risk of inadvertent damage to critical structures.

3. Infection Control Measures:

Stringent infection control protocols are crucial during surgery to prevent surgical site infections (SSIs). Measures include maintaining a sterile environment, proper hand hygiene, and the use of antimicrobial prophylaxis. Laminar airflow systems in operating rooms further reduce airborne contaminants, enhancing overall sterility.

4. Error Prevention Mechanisms:

Technology-driven safeguards, such as robotic-assisted surgery and computer-assisted navigation, minimize human error and enhance surgical precision. These systems allow for meticulous planning and execution, reducing the likelihood of complications.

5. Data Analysis and Discussion

Legal safeguards for patients undergoing high-risk treatments are very important to make sure that their rights are protected, that they get correct information, and that they are safe from harm caused by medical negligence. Ethical panels, patient liberty, informed consent, and lawsuit rules are just a few of the laws and policies that help make the healthcare system safer for patients and build trust in it. Informed permission is the most important safety measure because it makes sure that patients get full, clear, and easy-to-understand information about the risks, benefits, and possible alternatives to high-risk treatments. Researchers have found that when people are properly told, they have more faith in the decisions they make. This leads to

better outcomes in terms of patient happiness and mental health. People can't get medicines without fully understanding what might happen, especially when there are problems. Because of this safety step, no one can act in that way. It is hard to get informed permission, even though it is very important. Patients may still feel rushed to make decisions, especially if they need to move right away because of their health. Patients who are under a lot of stress might not fully understand or take in what they are being told. Even though informed consent is still an important legal defence, doctors need to make sure that their patients have the time and mental ability to make smart choices.

Surgery Type	Total Patients	Patients Who Received Full Informed Consent (%)	Patients Who Felt Adequately Informed (%)	Patients Who Reported Feeling Pressured (%)
Heart Bypass Surgery	200	92%	88%	10%
Organ Transplant	150	95%	90%	8%
Complex Cancer Surgery	180	85%	80%	12%
Neurological Surgery	120	90%	85%	6%

Table 2. Informed Consent Compliance in High-Risk Surgeries

This data reveals the number of patients who said they felt pressured throughout high-risk treatments, were appropriately informed, and provided full informed permission. Of all the patients undergoing any kind of surgery—95% of those having heart bypass, organ donation, cancer, or brain surgery—most provided their complete informed permission. The greatest percentage of collaboration was seen in organ transplant operations—95%. Many patients—especially those undergoing complex cancer treatments—said they felt pressured to make choices (table 2 shows the outcomes). The statistics highlight the need of bettering patient communication and instruction, particularly in high-stakes procedures where patients can experience rush or overload.

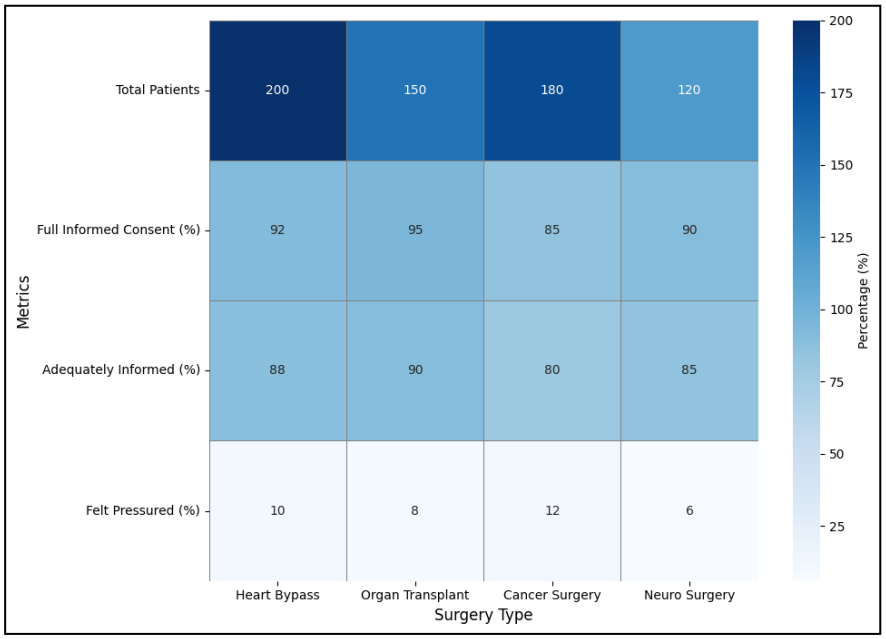

Figure 3. Pictorial Representation of Informed Consent Compliance in High-Risk Surgeries

Patient liberty is another crucial legal idea as it allows individuals to decide on their medical treatment according on their own beliefs and preferences. In high-risk therapies specifically, autonomy is crucial as patients often have to make difficult decisions about circumstances that can kill them. Though it involves contradicting what their physicians advise they should do, the legal system ensures that individuals may decline or accept to treatments without being compelled to. Respecting patient liberty may be challenging when an emergency, cognitive issue, or old age renders the patient unable of making

decisions. Legal procedures for proxy decision-making ensure that, even if they are unable to express what they want, the best interests of a patient are looked after, therefore helping to address this issue (See Figure 3 above.). This emphasises how crucial it is to strike the proper balance between honouring a patient's right to make their own choices and ensuring they get appropriate treatment should their inability to do so.

Surgery Type	Total Patients	Patients Who Felt Their Autonomy Was Respected (%)	Patients Who Used a Surrogate for Decision-Making (%)	Patients Who Reported Coercion or Pressure (%)
Heart Bypass Surgery	200	87%	5%	8%
Organ Transplant	150	92%	3%	4%
Complex Cancer Surgery	180	80%	15%	20%
Neurological Surgery	120	85%	8%	7%

Table 3. Patient Autonomy in Decision-Making for High-Risk Surgeries

This data reveals the degree of respect individuals had for their freedom to make autonomous judgements. Most patients—especially those who underwent heart bypass operations (87% of them) and organ replacements (92% of them)—felt as if their rights were respected. Many who had complicated cancer treatments (15%), or were under pressure (20%), claimed to have alternate decision-makers. As Table 3 demonstrates, this indicates that under great stress individuals may not be able to make their own judgements. According to the statistics, healthcare professionals should concentrate more on allowing patients to make their own choices, particularly in significant operations when the patient may not be able to do so because to how swiftly and complex the matter is.

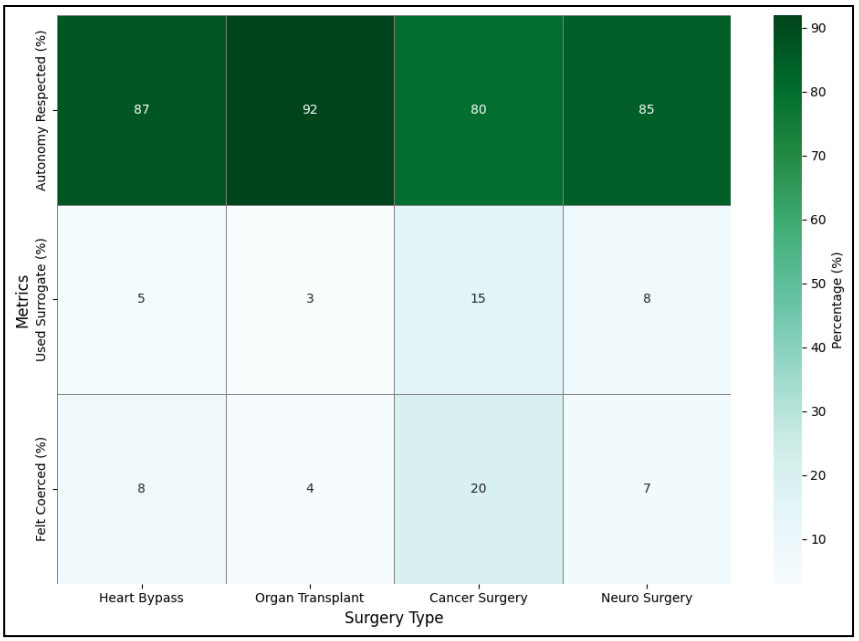

Figure 4. Pictorial Representation of Patient Autonomy in Decision-Making for High-Risk Surgeries

By making physicians and nurses answerable for any errors or negligence occurring during high-risk operations, medical malpractice rules strengthen legal defences even more. Studies and legal decisions repeatedly reveal that malpractice lawsuits are a powerful tool for deterring physicians from doing poor work. Doctors doing high-risk treatments—where issues are already likely to arise—have to follow established protocols to prevent errors. Should a patient suffer injuries because from someone else's carelessness—medical errors, inadequate information, or insufficient post-operative care—money may be obtained from the judicial system. Another issue malpractice cases highlight is how difficult it is to establish negligence, particularly in light of the widespread medical community knowledge of recognised hazards associated with the procedure.

Figure 4 above indicates how difficult it may be to determine if the medical practitioner exceeded the accepted level of treatment in certain circumstances. Nonetheless, malpractice regulations guarantee responsibility, which is crucial for patient safety and maintaining faith in medical professionals.

Surgery Type	Total Surgeries	Number of Malpractice Claims (%)	Claims Resulting in Compensation (%)	Average Compensation (USD)
Heart Bypass Surgery	500	2%	70%	120,000
Organ Transplant	400	3%	80%	150,000
Complex Cancer Surgery	450	4%	65%	130,000
Neurological Surgery	300	5%	60%	100,000

Table 4. Medical Malpractice Claims in High-Risk Surgeries

This data reveals the frequency of medical negligence lawsuits including many high-risk procedures. Although there are quite few malpractice claims—between 2% and 5%—the data indicates that many of them result in pay-back. Organ transplants, for instance, have the greatest average pay ($150,000) and claim success rate (80%). According to the statistics, malpractice is still a major issue in high-risk operations even if it is not quite common. Legal and financial issues may influence overall level of treatment as well as patient performance.

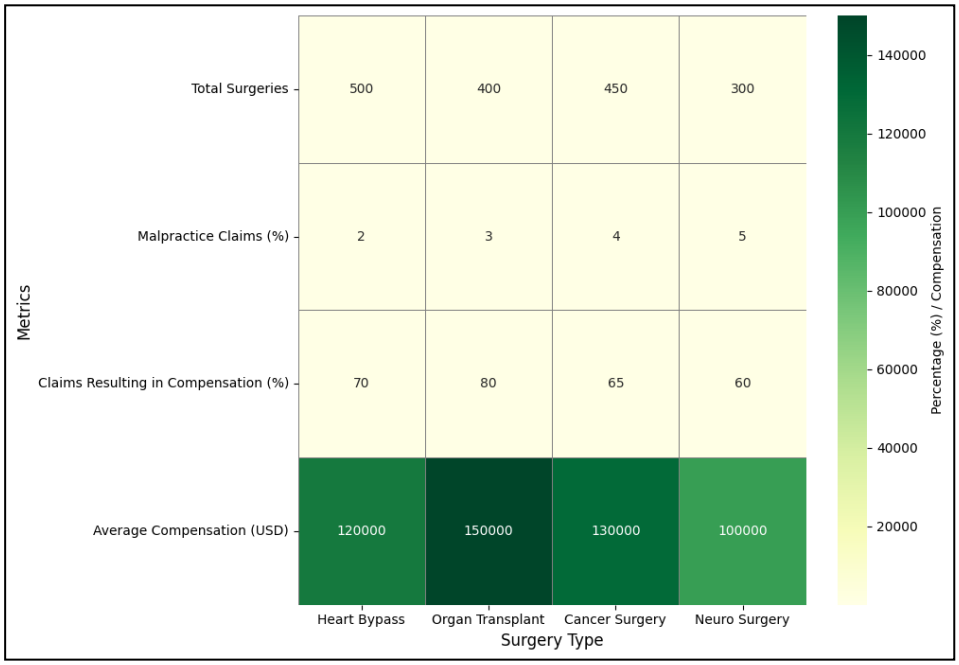

Figure 5. Pictorial Representation of Medical Malpractice Claims in High-Risk Surgeries

In high-risk therapies, ethics panels and legal review boards are very crucial as they monitor complex situations and ensure adherence to ethical norms. These organisations ensure that patients' rights are protected and that decisions are in keeping with medical ethics, therefore helping to resolve differences on how to treat them. Ethics panels may assist to make judgements from a neutral point of view when it is unclear if a patient can make decisions or when family members and medical professionals have conflicting objectives. Involvement of patients, their families, and healthcare professionals holds them all to ethical norms. This guarantees that decisions are taken in the patient's best advantage (Figure 5 Above). Particularly in cases of medical conflicts, the court review procedures provide even another degree of security. They ensure sure the decisions are not only moral but also lawful.

Surgery Type	Total Cases Reviewed by Ethics Committees	Ethics Committee Involvement (%)	Patient Outcome (Positive) (%)	Disputes Resolved Without Legal Action (%)
Heart Bypass Surgery	50	10%	90%	85%
Organ Transplant	40	15%	95%	90%
Complex Cancer Surgery	60	25%	80%	75%
Neurological Surgery	30	12%	85%	80%

Table 5. Role of Ethics Committees in High-Risk Surgery Decision-Making

This data examines how ethics committees influence patient outcomes and participate in high-risk therapies. According to the figures, 25% of more complex cancer therapies must be checked by an ethical panel. This is so because many of these instances have moral dilemmas and are somewhat intricate. According to the statistics, patient outcomes are more likely to be positive when ethics committees participate (95% of organ donation procedures conclude in success, as Table 5 demonstrates). Ethical panels help to resolve conflicts more frequently without involving legal action. This demonstrates their significance in enabling individuals to make moral judgements and in preventing the escalation of instances.

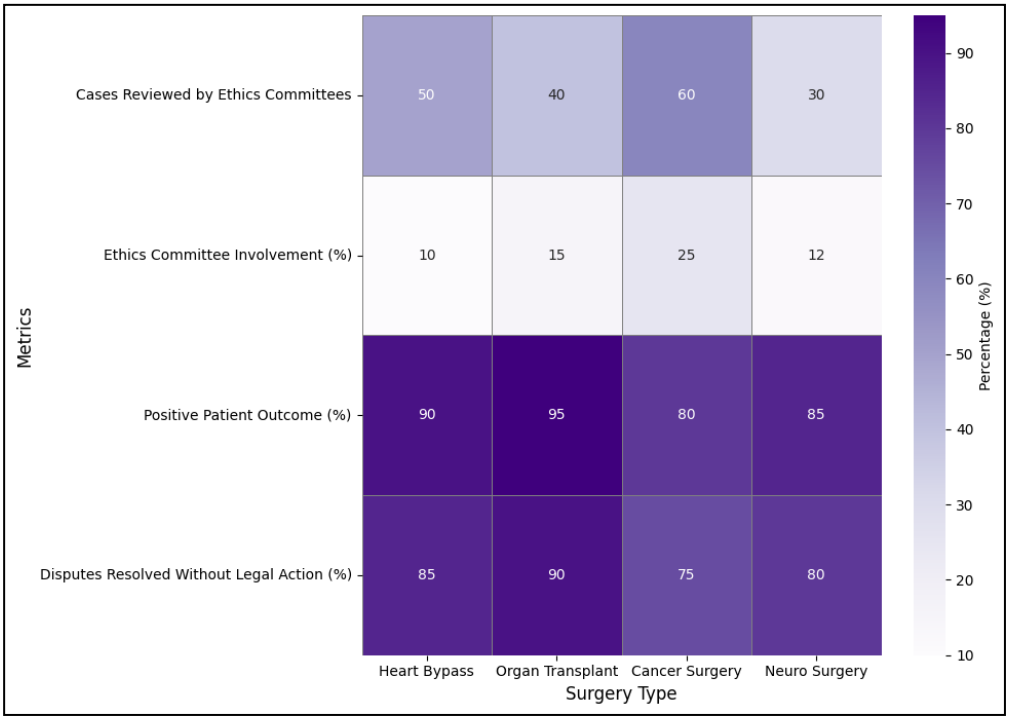

Figure 6. Pictorial Representation of Role of Ethics Committees in High-Risk Surgery Decision-Making

These measures are difficult to apply regularly even if they provide a great amount of safety. Force still causes great concern, particularly in cases where patients must make life-or-death decisions and might feel pressured to consent to surgery. Although the legislation is supposed to reduce this danger, for these safeguards to be effective it relies on the honesty of healthcare professionals and their dedication to patient-centered care. Legal safeguards must evolve with changing surgical methods and medical technology to address fresh moral and legal concerns (Figure 6 Above). For example, advances in gene editing or robotic surgery might create new hazards that must be handled in fresh laws and morals to correctly safeguard individuals. The results of the research reveal that keeping patients safe during high-risk operations depends much on legal safeguards like informed consent, patient liberty, malpractice rules, and ethics committees. These provisions guarantee that patients' rights are respected, that medical professionals are held accountable, and that, after complete education, patients may select their own treatment. The actual application of these safety precautions is still difficult; however, they must be

continuously monitored and improved to handle evolving new issues in the area of high-risk surgery, which is continually dynamic. Stronger legal defences will help the healthcare system establish confidence, enhance patient outcomes, and guarantee respect of patients' rights and humanity during operation.

5. Conclusion

People who are having high-risk surgeries have legal laws that help a lot to make sure that their rights are protected and kept during the surgery. By looking at informed permission, patient freedom, medical carelessness, and the role of ethics groups, we can see that there are many ways to protect these rights. The results show that things could be done better even when most patients give their consent after being told about the risks and their rights are protected. People who are sick should have the time and room to choose what they want to do; they shouldn't be pushed to. There is still a big problem with medical malpractice in high-risk treatments. The law is a very important way to make sure that doctors are responsible. Ethics panels are also very important to make sure that hard decisions are made for the benefit of the patient, especially when there are moral issues. Even though these steps have led to good results, there are still issues, such as the possibility that patients with serious or urgent illnesses may feel rushed. The numbers also show how important it is to use these legal rights more often, especially during treatments that put people in a lot of physical or mental danger. As medical technology and surgery methods change, so should the legal system. This way, it can adapt to new moral issues and legal problems. Patients' rights, safety, and health will be protected as long as these defences are always made stronger and followed. Because of this, more people will trust the healthcare system. Not only do these legal protections have to be there, they are also very important for supporting responsible, patient-centered care during high-risk treatments, when a lot is at stake and there are big risks.

REFERENCES

[1] Nepogodiev D, Martin J, Biccard B, Makupe A, Bhangu A; National Institute for Health Research Global Health Research Unit on Global Surgery. Global burden of postoperative death. Lancet. 2019;393(10170):401.

[2] Bartels K, Karhausen J, Clambey ET, Grenz A, Eltzschig HK. Perioperative organ injury. Anesthesiology. 2013;119(6):1474-1489.

[3] Hall MJ, Schwartzman A, Zhang J, Liu X. Ambulatory surgery data from hospitals and ambulatory surgery centers: United States, 2010. Natl Health Stat Report. 2017;(102):1-15.

[4] Corey KM, Kashyap S, Lorenzi E, et al. Development and validation of machine learning models to identify high-risk surgical patients using automatically curated electronic health record data (Pythia): a retrospective, single-site study. PLoS Med. 2018;15(11):e1002701.

[5] Bilimoria KY, Liu Y, Paruch JL, et al. Development and evaluation of the universal ACS NSQIP surgical risk calculator: a decision aid and informed consent tool for patients and surgeons. J Am Coll Surg. 2013;217(5):833-42.e1, 3.

[6] Fleisher LA, Fleischmann KE, Auerbach AD, et al. 2014 ACC/AHA guideline on perioperative cardiovascular evaluation and management of patients undergoing noncardiac surgery: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation. 2014;130(24):2215-2245.

[7] Choi BG, Rha SW, Yoon SG, Choi CU, Lee MW, Kim SW. Association of major adverse cardiac events up to 5 years in patients with chest pain without significant coronary artery disease in the Korean population. J Am Heart Assoc. 2019;8(12):e010541.

[8] Talmor D, Kelly B. How to better identify patients at high risk of postoperative complications? Curr Opin Crit Care. 2017;23:417–423.

[9] Stefani LC, Hajjar L, Biccard B, et al. The need for data describing the surgical population in Latin America. Br J Anaesth. 2022

[10] Gutierrez CS, Passos SC, Castro SMJ, et al. Few and feasible preoperative variables can identify high-risk surgical patients: derivation and validation of the Ex-Care risk model. Br J Anaesth. 2021;126:525–532.

[11] Passos SC, Stahlschmidt A, Blanco J, et al. Derivation and validation of a national multicenter mortality risk stratification model - the ExCare model: a study protocol. Braz J Anesthesiol. 2022;72:316–321.

[12] Yildiz GO, Hergunsel GO, Sertcakacilar G, et al. Perioperative goal-directed fluid management using noninvasive hemodynamic monitoring in gynecologic oncology. Braz J Anesthesiol. 2022;72:322–330.

[13] Weiser, T. G. et al. Estimate of the global volume of surgery in 2012: an assessment supporting improved health outcomes. Lancet 385, S11 (2015).

[14] Meara, J. G. et al. Global Surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. Surgery 158, 3–6 (2015).

[15] Childers, C. P. & Maggard-Gibbons, M. Understanding costs of care in the operating room. JAMA Surg. 153, e176233 (2018).

[16] Zegers, M. et al. The incidence, root-causes, and outcomes of adverse events in surgical units: implication for potential prevention strategies. Patient Saf. Surg. 5, 13 (2011).

[17] Lewandrowski, K.-U. et al. Regional variations in acceptance, and utilization of minimally invasive spinal surgery techniques among spine surgeons: results of a global survey. J. Spine Surg. 6, S260–S274 (2020).

[18] Bardakcioglu, O., Khan, A., Aldridge, C. & Chen, J. Growth of laparoscopic colectomy in the United States: analysis of regional and socioeconomic factors over time. Ann. Surg. 258, 270–274 (2013).