ELEVATE Report

ELEVATING ANESTHESIA CHOICES FOR CESAREAN DELIVERY: A ROADMAP TO PATIENT-CENTERED RESEARCH AND QUALITY IMPROVEMENT

Please cite this work as:
Lim G, Neuman M, Stanford S, Zakowski M, Pian-Smith M, editors. Proceedings of the ELEVATE Project and Summit: Elevating Anesthesia Choices for Cesarean Delivery; 2025 Jan 25-26; Pittsburgh, PA. University of Pittsburgh: Department of Anesthesiology and Perioperative Medicine; c2025. 54 pp.

ELEVATE was supported by the Department of Anesthesiology and Perioperative Medicine at the University of Pittsburgh. ELEVATE Project was funded through a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award, EASCS-34606.

Contributors and Partners

Valerie Arkoosh, MD, MPH
Secretary
Pennsylvania Department of Human Services

David Badway, MD
Vice Chair, Community Practices
Department of Obstetrics & Gynecology
University of Pittsburgh Medical Center (UPMC)

Jeanette Bauchat, MD, MS
Chair, Intersociety Committee
Society for Obstetric Anesthesia and Perinatology (SOAP)

Kristen Brenneman, MSN, RN
Quality Improvement Facilitator
Pennsylvania Perinatal Quality Collaborative (PA PQC)

Christy Cozby
Executive Director
MAYA Organization

Karen Crowley, DNP, APRN-BC, WHNP
Vice President of Nursing
Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)

Nancy Cupps, MSN, RNC-OB
Regional Director of Women's Service Line
University of Pittsburgh Medical Center (UPMC)
Secretary/Treasurer
Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) Pennsylvania Section

Nicholas Degregorio, MD, MMM, FACP
Associate Vice President, Medicaid Services
University of Pittsburgh Medical Center (UPMC) Health Plan

Marja Fox
Facilitator: Growth, Strategy, Innovation
ELEVATE Project and Summit

Ron George, MD, FRCPC
Vice President
Society for Obstetric Anesthesia and Perinatology (SOAP)
Professor & Director of Obstetric Anesthesia
Mount Sinai Hospital, Toronto, Ontario

Gabriella Gosman, MD
Vice President Medical Affairs
University of Pittsburgh Medical Center (UPMC)
Magee-Womens Hospital
Associate Executive Director and Chief of Medical Affairs
American Board of Obstetrics & Gynecology

Lily Higgins, MD, MBA, MS
Network Medical Director, Keystone First
Corporate Chief Medical Officer
Population Health, Medical Services
AmeriHealth Caritas Pennsylvania, Keystone First
AmeriHealth Caritas Family of Companies

Karen Jefferson, DM, CM, FACNM
Director, Professional Practice and Policy
American College of Nurse-Midwives (ACNM)

Rachel Kacmar, MD
Vice Chair
Committee on Obstetric Anesthesia
American Society of Anesthesiologists (ASA)

Emily Katz, MPH
Executive Director
Pennsylvania Medicaid Managed Care Organizations (PACMO)

Ruth Landau, MD
Society for Obstetric Anesthesia and Perinatology (SOAP) Past President
SOAP Centers of Excellence Committee Chair
Editor in Chief, *International Journal of Obstetric Anesthesia*

Grace Lim, MD, MSc
Principal, ELEVATE Project
Co-Chair, ELEVATE Summit
Chief of Obstetric & Women's Anesthesiology
University of Pittsburgh Medical Center (UPMC)
Magee Womens Hospital
American Society of Anesthesiologists (ASA)
Liaison to American College of Obstetricians and Gynecologists (ACOG) Alliance for Innovation on Maternal Health (AIM)

Sharee Livingston, DO, FACOG
Chair
Department of Obstetrics & Gynecology
University of Pittsburgh Medical Center (UPMC)
Lititz
Doula and Patient Advocate
Diversifying Doulas, Inc.

Annmarie Lyons, MHS
Vice President
University of Pittsburgh Medical Center (UPMC)
Women's Health Service Line and Physician Services
Executive Administrator
University of Pittsburgh Physicians Department of Obstetrics, Gynecology, and Women's Health

Lisa Manetta, MHA, BSN, RN, NE-BC, CPHQ
Director of Quality Improvement & Innovation
Patient Safety Officer
University of Pittsburgh Medical Center (UPMC)
Magee Womens Hospital

Emily McGahey, DM, MSN, CNM, FACNM
Clinical Director, The Midwife Center
Board Member, American College of Nurse-Midwives (ACNM)

Aasta Mehta, MD, MPP
Co-Chair
Pennsylvania Perinatal Quality Collaborative (PA PQC) Advisory Committee
Medical Officer of Reproductive Health
Philadelphia Department of Public Health
Division of Maternal, Child, and Family Health

Jill Mhyre, MD
Chair, Department of Anesthesiology
Dola S. Thompson Professor of Anesthesiology
University of Arkansas for Medical Sciences (UAMS)
Section Editor for Obstetric Anesthesiology, *Anesthesia & Analgesia*

Tami Minnier, MSN, RN, FACHE, FAAN
Senior Vice President, Health Services Division
Chief Quality Officer and Operational Excellence Officer
University of Pittsburgh Medical Center (UPMC)

Sara Nelis, RN, CCE
Project Manager
Pennsylvania Perinatal Quality Collaborative (PA PQC)
Jewish Healthcare Foundation

Mark Neuman, MD, MSc
Co-Principal, ELEVATE Project
ELEVATE Project Steering Committee
Director, Research Partnerships
University of Pennsylvania Leonard Davis Institute of Health Economics

Heather Nixon, MD
President
Society for Obstetric Anesthesia and Perinatology (SOAP)

Greg Palleschi, MD
Director from Community Practice
Society for Obstetric Anesthesia and Perinatology (SOAP)
Associate Professor, Anesthesiology and Obstetrics and Gynecology
Zucker School of Medicine at Hofstra/Northwell
Director, Obstetric Anesthesia Northwell Health Central Division

Cheryl Parker, DNP, CRNA, RNC-OB, FAWHONN, FAANA
Chair, Kentucky Chapter of the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)

Vivian Petticord, DNP, RNC, CNL
Director of University of Pittsburgh Medical Center (UPMC) Women's Health Service Line

May Pian-Smith, MD, MS
ELEVATE Project Steering Committee
Past President, Society for Obstetric Anesthesia and Perinatology (SOAP)
Board of Directors, Anesthesia Patient Safety Foundation (APSF)

Flint Porter, MD
American College of Obstetricians and Gynecologists (ACOG)
Medical Director, Maternal Fetal Medicine, Intermountain Health
Professor, University of Utah Department of Obstetrics & Gynecology
Past Chair, Guidance Committee, ACOG

Beth Quinn, RNC, MSN-MNN
Senior Director of Women's Health Operations
University of Pittsburgh Medical Center (UPMC)

Megan Rosenstein, MD
Director from Community Practice
Society for Obstetric Anesthesia and Perinatology (SOAP)

Rachel Somerstein, PhD, MFA
Patient Expert, Community Representative

Susanna Stanford
Co-Chair, ELEVATE Summit
ELEVATE Project Steering Committee
Patient Expert
Clinical Human Factors Group

Sara Straesser, MD
Assistant Site Chief
University of Pittsburgh Medical Center (UPMC) Altoona
Medical Director
UPMC Altoona Surgery Center

Sabrina Torres, CD, CBS
Patient Expert
Patients R Waiting, Diversifying Doulas Initiative

Christina Wood, MD, MS
Associate Professor and Faculty Anesthesiologist
Medical Director of Anesthesiology
Colorado Fetal Care Center
Section Chief OB/GYN Anesthesiology
University of Colorado Medicine

Melissa Young, MSN, RNC-OB
Director of Women's Health Operations
University of Pittsburgh Medical Center (UPMC)
Women's Health Service Line
Director, UPMC Doula Program

Mark Zakowski, MD, FASA
ELEVATE Project Steering Committee
Professor, Anesthesiology (Clinical)
Chair, American Society of Anesthesiologists (ASA) Committee on Obstetric Anesthesia
ASA Alternate Director for California
Past President, Society for Obstetric Anesthesia and Perinatology (SOAP)
Past President, California Society of Anesthesiologist (CSA)
Chair, CSA Foundation for Education
ASA Liaison to ACOG CC-OB
Vice Chair, ASA Committee on Quality Management and Departmental Administration
Chair, ASA Educational Track Subcommittee on Obstetric Anesthesia

Table of Contents

Executive Summary

Overview of the ELEVATE Project

Cesarean delivery, a common childbirth method, lacks evidence-based guidance on optimal anesthesia choices, leaving patients and providers without informed decision-making tools. The primary motivation for this work is the persistent issue of *pain and suffering during cesarean delivery*, which remains a significant and unresolved concern. Although addressing knowledge gaps is essential, the overarching goal of the project is to develop evidence-based solutions that enhance patient comfort, autonomy, and clinical outcomes. This initiative is driven by a commitment to advance both research and practice to affect meaningful improvements in obstetric anesthesia care.

Existing knowledge gaps contribute to highly varied patient experiences and outcomes. This project addresses this issue by focusing on patient-centered comparative clinical effectiveness research to promote building evidence-based anesthesia choices during cesarean deliveries. The stakeholders who convened included patient experts, providers, policymakers, payers, and quality and patient safety experts, as well as representatives from professional societies and health systems.

Purpose and Scope

Problem Statement: This project addresses the persistent issue of pain and suffering during cesarean delivery by bridging the gap in evidence-based, patient-centered guidance for anesthesia choices. The absence of clear, evidence based, and standardized recommendations limits informed and shared decision-making and contributes to highly variable patient experiences and outcomes.

Scope: The scope of this report is to outline a patient-centered research and improvement agenda aimed at enhancing informed decision making and improving anesthesia choices for cesarean delivery by identifying evidence gaps, defining patient-centered outcomes, and recommending strategies for equitable implementation across diverse clinical settings.

The ELEVATE report includes insights from leaders representing the following stakeholder types:

1. **Patients and Patient Advocates** – individuals and groups representing patient perspectives and needs.
2. **Healthcare Providers** – including anesthesiologists, obstetricians, midwives, and nurses, who contribute clinical insights on clinical practices.
3. **Professional Societies** – such as the Society for Obstetric Anesthesia and Perinatology (SOAP) and the American Society of Anesthesiologists (ASA), that offer expertise and support in clinical anesthesia practice. Other professional societies represented: the American College of Obstetricians and Gynecologists (ACOG), the American College of Nurse Midwives (ACNM), the Association of Women's Health, Obstetric and Neonatal Nurses (AWOHNN), and the Anesthesia Patient Safety Foundation (APSF).
4. **Researchers and Academic Experts** – contribute experience to the design and conduct of comparative effectiveness research.
5. **Policymakers and Healthcare Administrators** – those involved in shaping and implementing policy changes to support patient-centered care.
6. **Payers** – insurance representatives focused on reimbursement and funding strategies for women's health and anesthesia care improvements, including representatives from Medicaid and commercial payers.
7. **Quality and Patient Safety Experts** – ensure alignment with best practices, reporting, and safety standards, including representatives from the APSF and the Clinical Human Factors Group (CHFG).

8. **Health Systems Representatives** – oversee operational aspects and resource allocation within hospital systems.
9. **Community Groups** – including doulas and maternal health organizations, reflect community support structures and outreach.

Key Findings and Recommendations

Although the primary goal of ELEVATE is focused on defining a patient-centered research agenda, stakeholder conversations touched on wide-ranging topics, all of which are critical to understanding and building impactful solutions that drive meaningful improvement in anesthesia care for cesarean delivery. We have organized our findings into elements that describe the current state and the target end-state, as characterized by patient outcomes as well as solutions to bridge the gap between current and desired states (**Figure 1**). Primarily, stakeholders recommend: 1) increasing evidence around prenatal conversations or consultations with patients to reform the birth preparation and information-sharing process, with a focus on trust building; 2) improving evidence about options that support patients' sense of control and autonomy: e.g., through empathetic communication, focus on comfort and pain management, and promoting respect and sense of control, including in emergencies or cases where there is an inability to engage prenatal conversations or consultations; 3) generating better evidence to support true shared decision-making for which adjunctive medications work best and under which circumstances in situations of pain or discomfort during cesarean delivery. Patient-centered outcomes were identified and were focused on a primacy for sense of control, which represents a fundamental shift in the way that anesthesia effectiveness is considered and evaluated today. Importantly, ELEVATE stakeholders identified that all outcomes are equally important, and research may be best designed with a composite outcome defined. Stakeholders also highlighted key findings for proposed Patients, Interventions, Comparators, Outcomes, and Timeline (PICOT) (**Figure 2**).

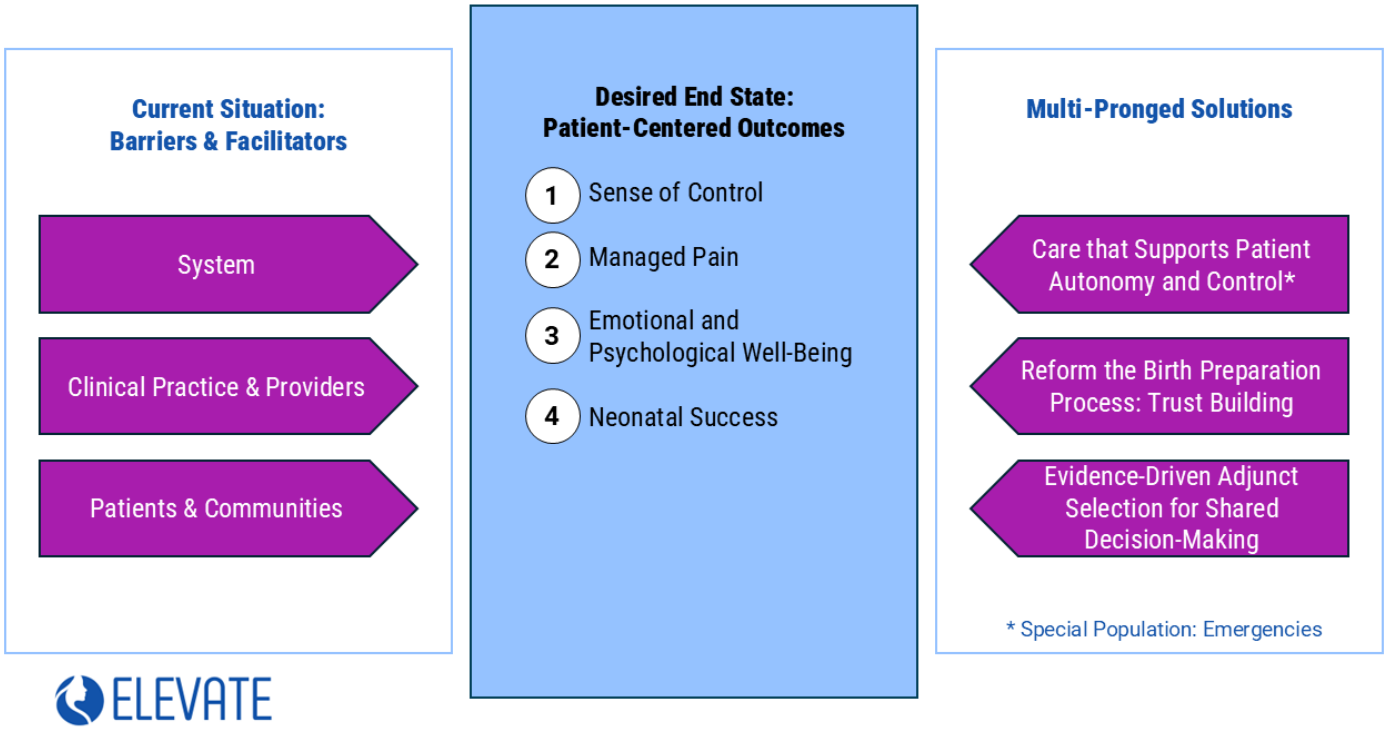

Figure 1. Framework of current state, target end state, and proposed solutions.

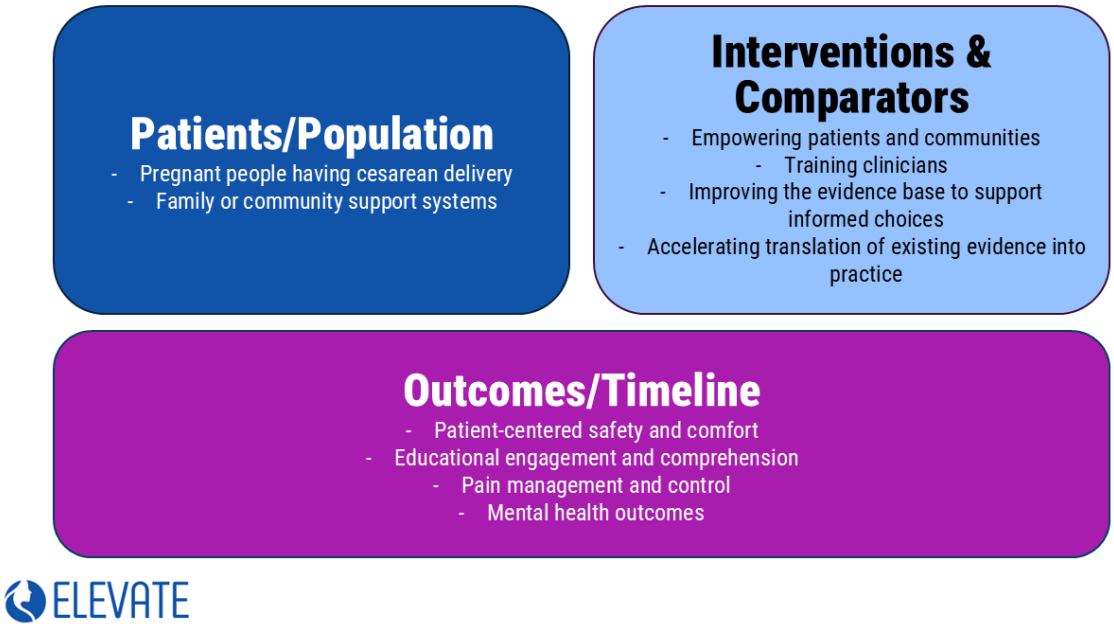

Figure 2. Overview of proposed PICOT derived from the ELEVATE Project.

Introduction

Cesarean delivery is a common mode of childbirth, yet pain and suffering during the procedure remain a significant and unresolved concern. Determining the optimal anesthesia approach is challenging due to a lack of comprehensive, evidence-based guidance that fully integrates both clinical factors and patient preferences. Historically, anesthesia decisions have prioritized medical considerations, often without adequate attention to the patient's experience, autonomy, and comfort. This gap in shared decision-making tools limits both patients and providers in selecting anesthesia options best suited to individual needs, contributing to highly variable experiences and outcomes. The ELEVATE project seeks to directly address this issue by advancing patient-centered solutions that prioritize maternal well-being, neonatal safety, and evidence-driven anesthesia care.

Importance of Patient-Centered Outcomes and Maternal-Neonatal Safety

The value of patient-centered care is well-documented, especially in obstetric settings where the choices and experiences of mothers can have profound and lasting effects on both maternal and neonatal health. For cesarean anesthesia, a patient-centered approach means understanding and responding to patients' preferences, managing expectations around pain and recovery, and fostering a sense of control and satisfaction with the birth experience. Achieving optimal maternal and neonatal safety requires that care be both clinically effective and reflective of patient priorities. By aligning anesthesia choices with what matters most to patients, the ELEVATE project aims to reduce unnecessary distress, improve recovery experiences, and enhance overall satisfaction with cesarean birth outcomes.

Objectives of the ELEVATE Project

The ELEVATE project is designed to advance patient-centered comparative clinical effectiveness research (CER) in anesthesia choices for cesarean delivery. Its objectives are threefold:

1. Define key comparators and patient-centered outcomes that should guide anesthesia decisions for cesarean delivery.
2. Develop a comprehensive CER agenda that reflects patient priorities and identifies knowledge gaps.
3. Identify barriers and facilitators that impact the implementation and dissemination of evidence-based practices in anesthesia care for cesarean delivery.

By meeting these objectives, ELEVATE will build a foundation for evidence-based, patient-centered anesthesia choices that improve maternal-neonatal health outcomes across diverse clinical settings.

Methodology of the Stakeholder Convening

To accomplish its goals, the ELEVATE project utilized a collaborative, stakeholder-centered methodology, convening a diverse group of participants to provide comprehensive insights. The stakeholder group included patient representatives, healthcare providers (such as anesthesiologists, obstetricians, and neonatologists), professional societies, researchers, policymakers, payers, quality and patient safety experts, and community organizations. This multidisciplinary convening began with pre-meeting surveys and data collection to establish baseline perspectives and identify key themes. During the convening, stakeholders participated in plenary sessions and breakout groups, where they discussed barriers, facilitators, and potential strategies to improve cesarean anesthesia choices. Post-convening feedback sessions allowed participants to validate findings and refine the agenda based on shared priorities.

This approach ensured that the ELEVATE project was informed by a wide array of perspectives, making its findings more applicable and actionable across diverse healthcare settings. The insights gathered from

stakeholders are integral to shaping a roadmap for patient-centered anesthesia choices in cesarean delivery, with a commitment to improving outcomes and promoting equitable, informed decision making for all patients.

Stakeholder Convening

The ELEVATE project relied on a comprehensive stakeholder convening process to develop a patient-centered approach to improving anesthesia choices in cesarean delivery. This section describes the diverse stakeholders and partners involved and the structured process that enabled collaborative input to shape the project's quality improvement, policy, and comparative effectiveness research agendas.

Description of Multidisciplinary Stakeholders Involved

To capture the full scope of perspectives relevant to cesarean anesthesia choices, ELEVATE convened a multidisciplinary group of stakeholders. These participants brought expertise and lived experiences that enriched the discussions and ensured the project's objectives were aligned with both clinical realities and patient priorities. Key stakeholders included:

- **Healthcare Providers**: Practicing anesthesiologists, obstetricians, and neonatologists provided critical insights from the front lines of maternal and neonatal care. Their input addressed the clinical complexities of cesarean anesthesia, from technique selection to managing patient expectations and postoperative recovery.
- **Patients and Patient Advocates**: Representing those directly affected by cesarean anesthesia decisions, patients and advocates shared experiences, priorities, and concerns. Their perspectives on pain management, autonomy, and quality of care ensured that patient-centered outcomes remained central to the project's goals.
- **Researchers and Academic Experts**: Specialists in maternal health, anesthesia, and CER contributed valuable expertise on study design, data interpretation, and evidence synthesis. Their input helped define research priorities and identify gaps in the current evidence base.
- **Policymakers and Healthcare Administrators**: Representatives from healthcare policy, quality improvement, and health administration brought an understanding of the systemic factors impacting the implementation of patient-centered anesthesia practices. They provided input on feasibility, scalability, and alignment with policy initiatives, ensuring recommendations could be realistically integrated into healthcare systems.

Process and Structure of the Convening

The stakeholder convening process was carefully structured to foster open dialogue, refine key objectives, and build consensus on project priorities. This process included pre-convening surveys and data collection, interactive plenary sessions, targeted breakout discussions, and post-convening feedback sessions.

- **Pre-Meeting Surveys and Data Collection**: Prior to the convening, stakeholders completed surveys designed to capture their initial perspectives on cesarean anesthesia, patient-centered outcomes, and barriers to implementing optimal anesthesia choices. This data provided a baseline for discussion, identifying areas of consensus and divergence that informed the agenda for the in-person sessions.

- **Plenary Sessions and Breakout Groups**: During the convening, participants engaged in plenary sessions where they reviewed and discussed high-level findings, including emerging themes around patient-centered care and current gaps in cesarean anesthesia research. Breakout groups were organized by stakeholder expertise to facilitate targeted discussions on specific issues, such as defining comparators, prioritizing outcomes, and addressing system-level barriers. These groups encouraged in-depth exploration of each topic and allowed stakeholders to share insights directly relevant to their areas of expertise.
- **Post-Meeting Feedback and Validation**: Following the convening, stakeholders participated in feedback sessions to validate the findings and refine the project's priorities. This iterative process allowed stakeholders to review preliminary recommendations, suggest modifications, and ensure alignment with their perspectives and expertise. Validation feedback reinforced stakeholder engagement, helping to create a roadmap that is actionable and resonant across clinical, community, and policy settings.

Prioritization of Outcomes by Stakeholders

To ensure that the outcomes ELEVATE prioritizes align with patient and provider values, a rigorous stakeholder-driven methodology was employed to rank the importance of each outcome. However, stakeholders also noted that all outcomes are equally important, and prioritization may come at the expense of key measures of other important outcomes. Therefore, the strongest research designs would define a composite outcome.

Methodology for Prioritization

ELEVATE's methodology for prioritizing patient-centered outcomes involved a multi-step process designed to capture diverse stakeholder input:

1. ***Initial Survey and Focus Groups***: Stakeholders, including patients, healthcare providers, doulas, policymakers, and community representatives, participated in initial surveys and focus groups. These sessions gathered input on which outcomes were most valued in cesarean anesthesia care, focusing on both maternal and neonatal perspectives.
2. ***Weighted Scoring System***: Each outcome was then evaluated using a weighted scoring system, where stakeholders rated outcomes based on factors such as impact on the patient experience, relevance to recovery and long-term health, and importance for future clinical guidance. This approach allowed ELEVATE to balance immediate clinical outcomes with longer-term, patient-centered metrics.
3. ***Consensus-Building Sessions***: Finally, stakeholders convened in consensus-building sessions to review and refine the prioritization list. These sessions aimed to build agreement on which outcomes should be emphasized in future research and clinical practice, ensuring that the final priorities represented a collaborative, multi-perspective view.

This structured, iterative convening process fostered collaboration among stakeholders, integrating diverse perspectives into the ELEVATE project's patient-centered research agenda. By engaging participants at every step, ELEVATE ensured that the project outcomes are robust, actionable, and grounded in the real-world complexities of anesthesia decision making for cesarean delivery.

Stakeholder Input: Key Areas of Alignment and Controversy

Key findings and recommendations from engagement sessions are summarized in **Table 1**. All partners were quick to understand and recognize the problem, united in emphasizing its importance and enthusiastic in

exploring causes and solutions. While the entirety of this report is based on stakeholder inputs, key areas of universal alignment and important controversies are highlighted in this section.

Table 1. Summary of key findings and recommendations according to stakeholder and partner type.

Stakeholder Type	Key Findings	Recommendations
Patients and Patient Advocates	• Patients value having their voices heard and request self-advocacy, but may lack resources to do so, or the trauma response is such that self-advocacy is not possible in that moment. • Some patients view cesarean or anesthesia in general as "failures" due to societal myths. • Some patients may not retain information about anesthesia options due to emotional stress, leading to a need for repeated communication points. • Patients often turn to social media and non-clinical sources for information, highlighting a gap in trusted educational resources from providers. • Patients desire and prioritize care improvements in the emergency or unscheduled cesarean delivery care context.	• Develop resources and education to empower patient self-advocacy. • Address societal misconceptions, reinforcing that cesarean and anesthesia care can align with personal and medical needs. • Explore simulation training for providers to enhance empathy and communication skills, particularly for high-stress cesarean scenarios. • Establish a clear definition of what high-quality care entails in emergencies or unscheduled settings.
Healthcare Providers	• Care consistency varies across provider types, impacting patient outcomes. • Some providers prioritize efficient care over personalized care. • Anesthesia healthcare providers express concerns about achieving consistent care improvements that are patient-centered, in emergencies or unscheduled cesarean deliveries.	• Implement standardized care protocols for anesthetic choices while allowing customization for patient-centered care. • Train providers in active listening and empathy to support shared decision making. • Develop standardized training for anesthesia healthcare providers to ensure consistent, high-quality care in emergency and unscheduled cesarean deliveries.

Professional Societies	• Inconsistent care quality highlights a need for better quality assurance programs.	• Develop and implement universal guidelines and metrics (e.g., ASA standards) for obstetric anesthesia care. • Advocate for compulsory prenatal consultations to engage patients in anesthesia options.
Researchers and Academic Experts	• There is a gap in evidence for optimal anesthesia choices that integrate patient perspectives.	• Prioritize and conduct research on patient-centered outcomes for anesthesia. • Incorporate qualitative data to capture the patient experience alongside clinical outcomes in future studies.
Public Health Policymakers and Healthcare Administrators	• Systemic barriers (e.g., reimbursement policies, care variability) impact consistent, high-quality anesthesia care. • Develop a pre-delivery planning process integrating social determinants (e.g., transportation, access to consultation services) to improve cesarean anesthesia care. • Introduce public health campaigns and standardized educational tools to improve awareness and alignment on anesthesia choices.	• Drive policy reforms to support reimbursement for pre-anesthesia consultations and patient-centered care initiatives. • Advocate for incentive programs to support the adoption of standardized care practices.
Payers	• The bundle care system in maternity care complicates reimbursement for specific pre-anesthesia consultations.	• Integrate pre-anesthesia consultations within bundled care reimbursement models or seek non-payment incentives for adoption. • Support insurance reforms that specifically address obstetric anesthesia and women's health services.
Quality and Patient Safety Experts	• Patient education and provider training are seen as essential but are currently insufficient for	• Focus on quality assurance in anesthetic care, emphasizing informed consent and the

	sustained improvements in patient-centered care.	reduction of in-hospital variability. • Ensure that care consistency and patient satisfaction are key quality metrics. • Develop qualitative outcomes in trials, such as a patient's sense of control or whether they felt heard, to complement clinical metrics.
Health Systems Representatives	• Competing priorities in health systems may affect focus on anesthesia-related patient care improvements.	• Implement value-based purchasing programs that promote anesthetic care quality and patient-centered approaches. • Use marketing to promote hospital and health system support for new anesthesia guidelines.
Community Groups	• Community members may lack awareness of anesthesia options and may rely on non-clinical sources for information.	• Collaborate with community organizations to distribute educational resources through familiar channels, including social media influencers, doulas, and community health centers. • Engage community voices to promote a trust-building dialogue.

Areas of Stakeholder Alignment

- All stakeholders universally recognize that the problem is important and under-resourced, under-researched, under-prioritized, under-valued, and under-funded.
- The ability for patient voices to be heard is important to patient-centered care.
- Patients should be able to advocate for themselves, but sometimes this is not possible.
- Childbirth is universally seen as complex, and there is a general sense of a mythology surrounding a perpetuated concept of a "perfect birth."
- Different care contexts (e.g., rural communities, community care facilities) will require different levels of attention.
- Patients often turn to social media and non-clinical sources for information, highlighting a gap in trusted educational resources from providers.

- Emergency or unscheduled cesarean deliveries require focused attention to make improvements on patient-centered outcomes.
- Interventions focused on promoting maternal well-being will be highly impactful and aligned with other women's health programmatic initiatives.'

Controversial Points

Partners have revealed several key controversies in considering cesarean anesthesia choices (**Table 2**). Some of these controversies relate to conflicting viewpoints held by various stakeholders, while others isolate sources of tension inherent to the healthcare delivery system that must be navigated to achieve the goals of patient-centered care in cesarean anesthesia.

Areas of Stakeholder Misalignment

- ***Inconsistent Value Placed on Patient and Provider Education***: Stakeholders are divided on the impact of patient and provider education in driving meaningful change. While some view education as crucial, others argue that it may be insufficient without systemic change, such as policy and reimbursement reforms to incentivize consistent, high-quality care.
- ***Role of Anesthesiologists in Patient Decision Making***: There is controversy around the extent to which anesthesiologists should be involved in preoperative consultations and decision making. Some stakeholders believe that anesthesiologists should play an active role, while others suggest that their involvement should be limited to avoid overstepping or creating delays in urgent scenarios.
- ***Community and Information Sources***: There is a divide between clinical stakeholders and community representatives on trusted sources of information. Clinical stakeholders prefer hospital or provider-led education, while community representatives recognize that many patients trust influencers, doulas, or social media sources more. This discrepancy poses challenges for standardized education and engagement.
- ***Specific Anesthesia Plans***: General anesthesia as an elective choice for cesarean delivery divides stakeholders, specifically patients and healthcare providers, with some advocating for it and others concerned about risks and safety.

Points of Tension or Conflict within the Healthcare Delivery System

- ***Efficient Care vs. Personalized Care***: Providers and health systems face tension between delivering efficient, streamlined care and providing personalized, patient-centered care. While efficiency is often prioritized in high-volume or time-sensitive settings, many stakeholders argue that this can compromise the quality of individualized care and shared decision making.
- ***Patient Advocacy and Self-Advocacy Limitations***: Some stakeholders view patient self-advocacy as essential to patient-centered care, yet others acknowledge that patients may not always be prepared or able to advocate for themselves effectively. This can be particularly challenging in high-stress scenarios like cesarean delivery, where patient agency may be compromised by physical, psychological, or situational factors.
- ***Perceptions of Pain and "Perfect Birth" Myths***: There's disagreement on the importance of addressing pain during cesarean delivery. Some stakeholders feel that pain management should be a central focus, while others view it as secondary to the overall birthing process. Additionally, the societal myth of a "perfect birth" can shape patient and provider expectations, sometimes leading to negative perceptions of cesarean delivery or anesthesia choices.

- ***Funding and Reimbursement Barriers***: The lack of specific reimbursement codes for pre-anesthesia consultations and shared decision-making discussions in cesarean care is a significant point of contention. This barrier disproportionately affects rural and lower-resourced hospitals, where bundled payments do not account for these additional steps, making it harder to implement comprehensive patient-centered care.
- ***Navigating Patient-Centered Anesthesia Choices in Emergencies***: In emergency cesarean scenarios, balancing patient-centered care with timely decision-making can be challenging. Although some patients prefer not to make active choices but want to stay informed throughout the procedure, others may be unable to voice preferences due to stress or shock. Waiting for these patients to make decisions can delay necessary care, potentially causing harm. To navigate this, clinicians can focus on keeping patients informed with clear updates while making timely, safety-focused choices that reflect the patient's best interest, especially when immediate decisions are critical.

Table 2. Summary of controversial points according to stakeholder type.

Stakeholder Type	Controversial Points
Patients and Patient Advocates	• Mixed feelings on self-advocacy; some patients may feel unprepared to advocate during high-stress situations. • Differing expectations around pain management and the perception of cesarean as a deviation from a “perfect birth.”
Healthcare Providers	• Tension between efficient care delivery and personalized, patient-centered care. • Debate on the level of anesthesiologist involvement in preoperative consultations versus preserving time for urgent care situations. • Balancing a need for efficiency with personalized care is challenging because some systems prioritize volume over patient-centered outcomes. • General anesthesia as an elective choice for cesarean delivery divides stakeholders, with some advocating for it and others concerned about risks.
Professional Societies	• Differing views on prioritizing patient-centered care education; some see education as essential, while others feel it may lack impact without systemic change. • Questions around how to define and measure quality care metrics across diverse practice settings.
Researchers and Academic Experts	• Varied perspectives on the focus of research priorities: personalized patient outcomes vs. efficiency and procedural consistency. • Controversy on what constitutes “effective” patient education and how to ensure it is genuinely patient-centered.
Policymakers and Healthcare Administrators	• Disagreement on funding and reimbursement structures, particularly around bundled care models that don’t account for comprehensive consultations. • Debate on incentivizing patient-centered practices in lower-resourced settings where staff time and reimbursement are limited.

Payers	• Contentious views on whether bundled payment models can adapt to include pre-anesthesia consultations. • Controversy on the potential for policy changes to reimburse patient-centered care elements outside traditional procedural requirements, especially in community hospitals.
Quality and Patient Safety Experts	• Differing opinions on the role of education in driving quality improvements without broader policy reforms. • Debate over pain management prioritization versus focusing on broader safety and quality metrics for cesarean anesthesia care.
Health Systems Representatives	• Tension around balancing resource allocation between personalized patient experiences and maintaining care efficiency. • Disagreement on which outcomes (e.g., efficiency vs. patient satisfaction) should take precedence in driving hospital and health system incentives.
Community Groups	• Varied beliefs about trusted sources of information; while hospitals prefer provider-led education, community groups recognize that many patients trust social media, doulas, and non-clinical resources. • Different views on addressing societal myths around the “perfect birth” and cesarean stigma.

Special Populations

Emergencies and Urgent Circumstances

Based on our interviews with stakeholders, pre-hospital conversations and partnerships specifically about emergency cesarean deliveries are often not feasible, which limits opportunities for patient-centered planning and preparedness. During Stakeholder interviews, comparisons were made between emergency cesarean deliveries and other emergency surgeries (**Table 3**). In emergency surgery, shared decision-making (SDM) presents unique challenges due to the urgency and high-stakes nature of these situations. Existing research suggests that integrating SDM into emergency general surgery can help align care with patient values, though rapid decisions often limit traditional SDM approaches (Sokas 2021). Similarly, practical tools have been suggested for implementation, aimed at clarifying options during critical moments, facilitating patient and family understanding even under time constraints (Taylor 2017). These approaches emphasize the importance of adaptable SDM strategies tailored to the immediacy of emergency care contexts.

Table 3. Key differences between patient expectations and communication needs for emergency cesarean deliveries versus other emergency surgeries

Aspect	Emergency Cesarean Deliveries	Other Emergency Surgeries
Patient Expectations	Expect a focus on both maternal and fetal well-being; desire clear information on safety and outcomes for both.	Primarily focus on personal well-being and survival; less emphasis on additional family outcomes.

Communication Timing	Desire timely updates on fetal and maternal status, even during the procedure, if possible.	May expect information primarily before or after surgery, with less focus on intraoperative updates.
Support Persons Involvement	Often expect support persons to be involved or nearby for emotional support and advocacy.	Support person involvement may be secondary to medical priorities; not always expected or feasible.
Level of Detail	Expect more detail about specific procedures, potential impacts on the birth experience, and post-birth recovery.	Typically prefer concise, critical information relevant to immediate survival and recovery.
Anticipation of Surgical Outcomes	High emotional significance tied to outcomes; birth is typically anticipated as a family event, not an emergency.	Focus on personal physical recovery; less expectation of life-altering impact beyond the surgery.
Post-Surgery Communication	Desire clear communication on mother and baby's status post-procedure and any impact on future childbirth.	Prefer concise communication on personal recovery and post-operative care; less long-term focus.

Emergencies: Use Communication Tools to Build Trust in Emergencies: During an emergency or unscheduled cesarean, clinicians can strengthen trust by using clear, compassionate language and actively showing support. Simple, comforting statements that acknowledge the patient's feelings, explain each step as it happens, and emphasize the team's commitment to the patient's and baby's well-being can help patients feel more secure in high-stress moments. The NURSE (name, understand, respect, support, explore) communication tools to demonstrate empathy in cesarean emergencies have been described, with positive results on patient reported trauma outcomes (**Table 4)**.

Table 4. Clinician Empathetic Behavior Guide: NURSE Acronym

ELEMENT	DEFINITION	EXAMPLE
Name	State patient emotion	"I wonder if you are feeling worried right now about what is going on."
Understand	Empathizing with and legitimizing patient emotion	"I can't imagine how scary this must be for you."
Respect	Praise patient for strength	"You've done a great job at keeping everything in perspective."
Support	Show support	"I will be with you until the end."
Explore	Ask patient to elaborate on emotion	"Tell me more about what is upsetting you."

Abbreviation: NURSE – Name, Understand, Respect, Support, and Explore.

Adapted from Aloziem 2024, Back 2005.

Emergencies: Clinicians as Patient Agents and Advocates: In situations where patients are unable to make decisions for themselves during an emergency, clinicians have an ethical responsibility to act as their advocates, making choices that align with clinical standards on safety and efficacy for optimal outcomes, and when possible, align with known patient preferences. Physicians and clinicians serve as trusted agents to patients in these circumstances and can facilitate a patient-centered approach even when direct communication isn't possible.

Marginalized Populations

Social Determinants of Health: Barriers such as limited access to prenatal care, transportation issues, language barriers, and variations in health literacy can prevent patients from engaging in early discussions about cesarean delivery.

Acceptability and Desire for Engagement: Some patients are reluctant to engage with healthcare services during pregnancy for several reasons, including a desire to avoid medical interventions or conversations about cesarean delivery. Additionally, unrecognized pregnancies, unexpected pregnancy complications, and unplanned hospital admissions can make it difficult to establish early, comprehensive discussions about delivery options, further complicating informed decision-making in emergency situations.

Rural and Community Healthcare Settings

Stakeholders broadly recognize that rural and community healthcare settings present unique challenges in delivering equitable and high-quality anesthesia care. A central point of alignment is the need to improve access to obstetric anesthesia services in low-resource settings. Limited availability of anesthesiologists and anesthesia providers in rural areas has led to an increased reliance on general practitioners, non-anesthesia personnel, or even no provision of anesthesia services. Expanding telehealth services for prenatal anesthesia consultations has been widely supported as a potential solution to address accessibility issues, but the lack of available care providers to deliver anesthesia care in low-resource settings remains a major challenge.

Controversy arises around the adequacy of training for non-specialist providers who often manage obstetric anesthesia in these settings. Some stakeholders advocate for evidence-based protocols tailored for non-obstetric specialist anesthesia providers, ensuring that care aligns with best practices and reduces the risk of adverse maternal and neonatal outcomes. Others argue that such protocols may not fully compensate for the absence of specialized training, raising concerns about persistent issues with patient safety and quality of care.

Additionally, resource constraints, including limitations in staff, infrastructure, and emergency response capabilities, create disparities in the implementation of anesthesia best practices. Although there is agreement on the importance of mitigating these disparities, there is debate over whether policy efforts should focus on increasing workforce distribution incentives (such as loan forgiveness for specialists in rural areas) versus leveraging existing personnel through expanded scope-of-practice policies.

Interstate Variability in Health Policies

Stakeholders acknowledge that the lack of standardized policies across states significantly impacts the consistency and quality of obstetric anesthesia care. Interstate variability in scope-of-practice regulations for anesthesia providers, reimbursement policies for prenatal anesthesia consultations, and institutional protocols contribute to inconsistent patient experiences and outcomes.

There is broad agreement on the need to advocate for greater standardization in policies that directly impact patient safety and informed decision-making. For example, many stakeholders support policies that ensure reimbursement for prenatal anesthesia consultations to improve patient education and engagement, regardless of geographic location. Additionally, the development of national guidelines for anesthesia involvement for all patients admitted to labor and delivery has been proposed as a strategy to reduce variation in clinical practice.

However, controversy arises in areas where professional autonomy and regulatory oversight intersect. Some states grant independent practice authority to some anesthesia providers, leading to debates about whether

this model enhances access or compromises the quality of obstetric anesthesia care. Another area of disagreement is the role of bundled payment models, which some stakeholders argue incentivize cost-cutting measures that may deprioritize patient-centered anesthesia care.

Despite these controversies, there is a shared recognition that addressing interstate variability requires a combination of policy advocacy, institutional leadership, and research-driven practice recommendations to align best practices with evolving healthcare landscapes.

Characterizing the Problem: Barriers and Facilitators to Choice

Barriers to Optimizing Choices

Optimizing anesthesia choices for cesarean delivery faces several barriers across policy, healthcare systems, provider practices, and patient factors. These barriers impact the ability to implement patient-centered anesthesia care that is equitable, informed, and aligned with best practices. By addressing these barriers, the ELEVATE project aims to create a foundation for patient-centered, accessible, and equitable anesthesia care. Overcoming these challenges will require coordinated efforts in policy reform, provider training, community engagement, and infrastructure improvements to support informed, empowered choices for all cesarean patients (**Table 5)**.

Stakeholder interviews revealed key themes in perceived barriers, and when ranked according to importance, they found *Variability in Provider Communication Skills* and *Emphasis on Efficiency over Patient-Centered Care* to be leading barriers to improving patient outcomes (**Figure 3**). However, when analyzing responses from stakeholder group, clear differences emerged in how barriers are perceived and prioritized (**Figure 4**). Patients seem to "trust the system" more than healthcare providers, as they rank barriers such as *Inconsistent Implementation of Best Practices* and *Knowledge and Practice Gaps Among Providers* as less critical. In contrast, healthcare groups emphasize the importance of addressing these gaps, reflecting their awareness of challenges in ensuring consistent, evidence-based care. Additionally, patients identify *Societal Myths and Stigma Around Cesarean Births* as a highly critical and difficult barrier to overcome, while providers rank this barrier as less important. This contrast highlights a disconnect between patients' lived experiences and providers' perceptions of cultural and societal factors influencing care.

Other notable insights from the data include the high importance placed by patients on *Variability in Provider Communication Skills*, which providers rank lower. Conversely, patients place higher importance on barriers related to *Anxiety and Fear Related to Surgery and Anesthesia*, suggesting that their priorities are rooted in their personal experiences of care, rather than systemic or provider-focused issues.

In sum, these findings underscore the need to acknowledge the gap in perspectives between patients and healthcare providers. Addressing both systemic challenges and the nuanced priorities of patients will be essential for meaningful improvements in obstetric care.

Barriers Assessment

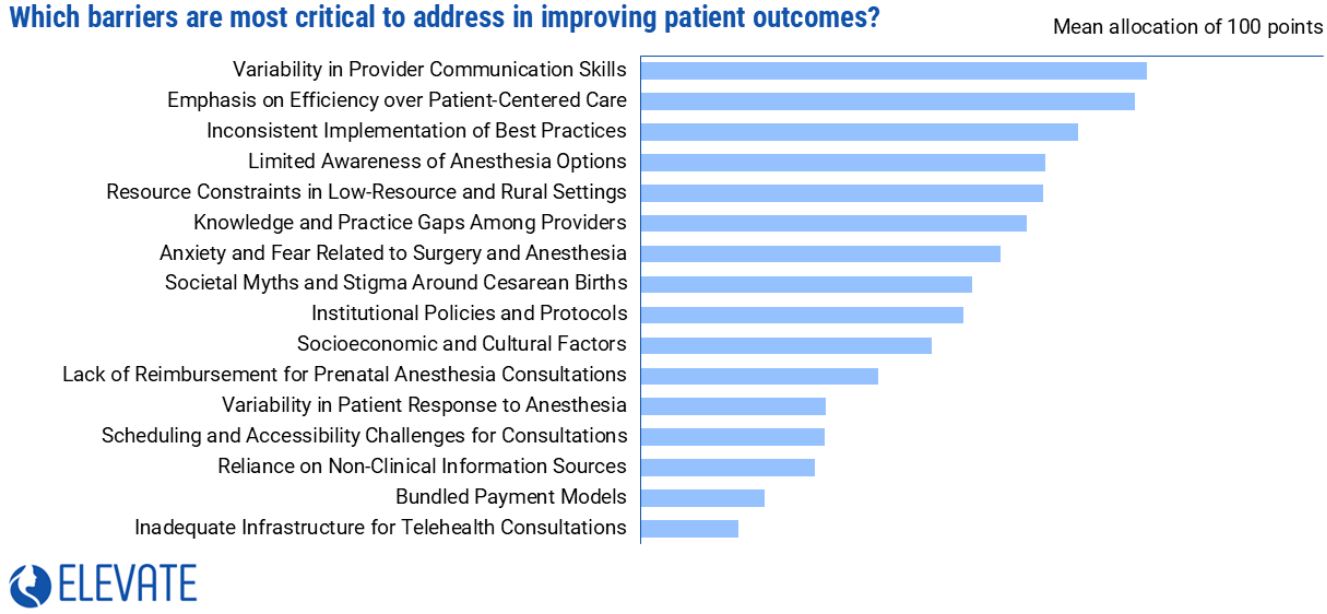

Figure 3. Barriers ranked by priority to address in improving patient outcomes.

Barriers Assessment by Stakeholder Group

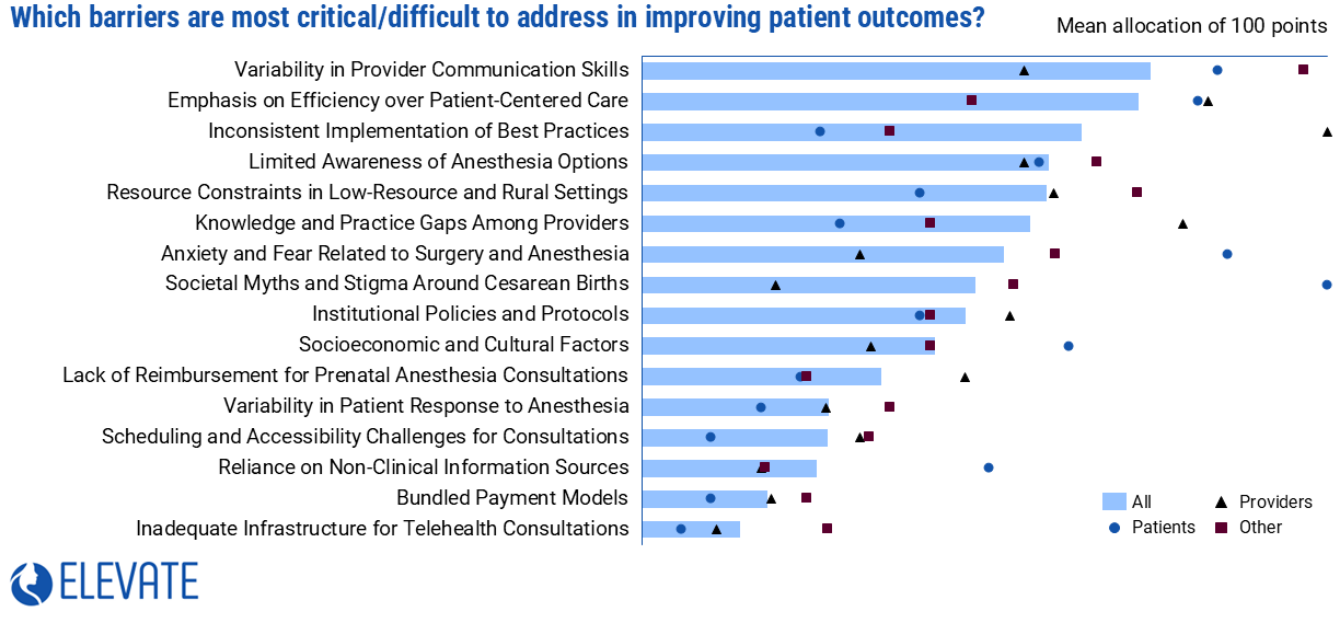

Figure 4. Barriers ranked by priority to address in improving patient outcomes, according to Stakeholder group.

1. System Barriers: Structure and Policy

- ***Lack of Reimbursement for Prenatal Anesthesia Consultations***: Stakeholders identified this as a leading structural barrier to effective improvements. Current reimbursement policies often do not cover prenatal consultations with anesthesiologists, limiting opportunities for patients to discuss anesthesia options, voice concerns, and making informed decisions. Without financial incentives, these consultations remain infrequent, especially in lower-resourced or rural settings where time and staffing are already limited.
- ***Bundled Payment Models***: Bundled maternity care payments can disincentivize the inclusion of individualized anesthesia consultations, as these models often do not account for added services like prenatal education. This financial limitation particularly affects hospitals and practices with higher patient volumes, where additional consultations may be challenging to implement.
- ***Institutional Policies and Protocols***: Many institutions lack standardized policies for providing cesarean anesthesia consultations, resulting in inconsistent practices and varying levels of support across healthcare systems. Institutional protocols may prioritize efficiency or resource allocation over patient-centered consultations.
- ***Resource Constraints in Low-Resource and Rural Settings***: Limited access to specialized anesthesia care is common in rural and lower-resourced areas, where anesthesiologists may be less available and under-resourced healthcare facilities may lack the capacity for comprehensive preoperative planning. Additionally, the availability of different anesthesia types and adequate staffing often depend on institutional resources, limiting patient choice in certain settings.

2. Clinical Practice and Provider Barriers

- ***Emphasis on Efficiency over Patient-Centered Care***: In high-volume healthcare environments, providers may prioritize efficiency, leading to rushed consultations and limited time for patient questions. This emphasis on speed can prevent meaningful, patient-centered interactions, particularly in urgent cesarean cases where time constraints are heightened.
- ***Variability in Provider Communication Skills***: There is a lack of standardized training in patient-centered communication, especially around topics like pain management, autonomy, and shared decision making. This variability can lead to inconsistent patient experiences, where some feel well-informed and empowered, while others feel dismissed or inadequately supported.
- ***Misaligned Goals and Hierarchy within the Care Team***: Patient-centered decision-making is undermined when care teams function more as individuals with their own charges than colleagues working together towards a common goal. Additionally, strong hierarchies may silence the voices of those best positioned to accurately observe and communicate with patients.
- ***Systemic, Structural and Implicit Bias***: Well-documented, widely-held, and inaccurate assumptions around pain tolerance and expression in minority populations and those with a history of drug abuse impede providers' ability to hear patients on a level ground.
- ***De-prioritization of Obstetric Services (Relative to Operating Rooms)***: In many healthcare settings, there is no OB-dedicated anesthesiology team. In those settings, there is frequently both structural and individual preference and esteem for time spent in OR settings.
- ***Knowledge and Practice Gaps Among Providers***: Variability in providers' knowledge about updated anesthesia practices, especially regarding patient-centered care, can limit effective choice discussions

with patients. Some providers may be unfamiliar with the latest research on anesthesia options or with non-clinical approaches to reduce patient anxiety and enhance communication.

- ***Inconsistent Implementation of Best Practices***: Despite existing guidelines for cesarean anesthesia, adherence to best practices varies widely across institutions and providers. This inconsistency is partly due to a lack of accountability structures and partly due to competing clinical priorities, which can overshadow adherence to patient-centered approaches.
- ***Variability in Patient Responses to Anesthesia***: Differences in how patients respond to various anesthesia types can complicate efforts to standardize care, as individual responses often necessitate customized approaches. This variability requires flexible, informed consent processes, which may be limited by time or knowledge constraints among providers.

3. Patient and Community Barriers: Informational

- ***Limited Awareness of Anesthesia Options***: Many patients are unaware of their anesthesia choices for cesarean delivery or the differences between general, spinal, epidural, and combined spinal-epidural techniques. Without comprehensive education, patients are often unable to make informed choices that align with their preferences and clinical needs.
- ***Socioeconomic and Cultural Factors***: Socioeconomic constraints, cultural beliefs, and language barriers can affect a patient's ability to understand or feel comfortable with anesthesia options. Patients from marginalized communities may face additional barriers to communication, trust, and access to personalized care, which can discourage them from engaging in shared decision making.
- ***Reliance on Non-Clinical Information Sources***: Patients often turn to non-clinical sources, such as social media, friends, or doulas, for information on anesthesia options. While these sources provide supportive perspectives, they may lack accurate, evidence-based details about anesthesia choices, leading to misinformation or unrealistic expectations.

4. Patient and Community Barriers: Psychosocial and Emotional

- ***Anxiety and Fear Related to Surgery and Anesthesia***: Anxiety surrounding cesarean delivery and anesthesia, especially when unexpected or medically necessary, can prevent patients from actively participating in decision making. This is particularly true for patients with previous traumatic medical experiences or those with high baseline anxiety levels.
- ***Societal Myths and Stigma Around Cesarean Births***: Cultural narratives around the "perfect birth" can leave patients feeling as though cesarean anesthesia represents a deviation from an ideal delivery. This stigma can contribute to reluctance in discussing anesthesia options, as patients may feel disappointment, guilt, or judgment regarding their anesthesia choices.

5. Patient and Community Barriers: Logistical and Operational

- ***Scheduling and Accessibility Challenges for Consultations***: For many patients, prenatal anesthesia consultations are difficult to schedule due to limited availability of anesthesia providers, transportation issues, or scheduling conflicts, particularly in communities with fewer healthcare resources.
- ***Inadequate Infrastructure for Telehealth Consultations***: Although telehealth offers potential solutions for remote consultations, many healthcare systems lack the infrastructure or reimbursement models to support virtual preoperative anesthesia planning. Without these options, patients in rural or underserved areas may miss opportunities for early engagement and education on anesthesia options.

- ***Cost and Payments***: Stakeholders noted that total system cost is anticipated as a potential barrier to successful and sustainable implementation of any improvement strategy.

Facilitators for Supporting Choices

Supporting patient-centered choices in cesarean anesthesia requires targeted strategies that empower patients, enhance provider-patient communication, and improve access to information and resources. Key facilitators identified through the ELEVATE project include policy innovations, community engagement, provider training, and the use of digital tools to enhance accessibility and patient education. These facilitators help overcome existing barriers and create a supportive environment for informed and equitable anesthesia choices. These facilitators create a foundation for a supportive, informed, and patient-centered approach to anesthesia choices in cesarean delivery. By addressing structural, educational, and communicative needs, these strategies help ensure that all patients, regardless of background or location, can engage in meaningful decision making and receive compassionate, tailored anesthesia care. (**Table 5**)

Table 5. Summary of Barriers and Facilitators to achieving PICOT for ELEVATE.

BARRIERS	
System Level	• Complexity of how we deliver care • Limited time in urgent situations • Societal myth of a "perfect birth" • Pain is not perceived to be as important as other things related to birth. • Cesarean or pain management are viewed by some patients and communities as a "failure." • "Survivorship" concept is not pervasive in childbirth.
Clinician Level	• Lack of time or adequate staffing to sufficiently address the need for patient partnership and education • Tension between standardized and personalized care. Some do not think shared decision making (SDM) is needed or justified in some settings. • Some think they are practicing SDM, but their methods are not truly SDM. • Individual attitudes and beliefs
Anesthesiology Level	• Perceived lack of time or adequate staffing to sufficiently address the need for patient partnership and education • Need for decision-making authority: While anesthesia providers aim to guide patients in decision-making, they may ultimately need to make critical choices on the patient's behalf. However, it remains essential that providers have the discretion and authority to exercise this judgment effectively. • Limited patient interaction prior to surgery: Anesthesia providers often encounter patients only immediately before the surgical procedure, limiting opportunities for relationship-building, trust, and informed decision-making. • Identification of at-risk patients for early consultation: There is a need to establish screening protocols to identify at-risk patients who would benefit from a preoperative anesthesiology consultation, facilitating timely engagement and preparedness.

	• There are no universal systems for monitoring quality of epidural labor analgesia, which leaves risk for intraoperative pain during cesarean. • There is no established infrastructure for pre-anesthesia consultation, particularly in rural or low-resource settings.
Patient and Community Level	• Patients may not be ready to receive information or may not want to talk about cesarean deliveries or anesthesia. Therefore, they may not read or engage with educational material. • Community may not realize that they have an unmet need. • Community may not understand that they have a voice. • Information sources: community does not trust science or clinicians as much as an influencer on social media or their immediate friends and support systems. • Community may prioritize other aspects of birth preparation more than this issue.
Payer Level	• Maternity care is in a bundle. If the focus is informed consent alone, this may not be reimbursable. • Pre-anesthesia conversations about consent are not necessarily reimbursable. Lack of reimbursement may impede adoption at community hospitals. Unbundling would be a long road, and getting a new code would be a big lift. • Bundled payments may limit financial incentives for pre-anesthesia consultations, reducing their feasibility in certain healthcare settings.

FACILITATORS

Patient/Provider Level	**Leverage Existing Relationships** • Routinely do nine obstetric visits throughout pregnancy. • Competition between hospitals and systems makes it desirable to have distinctive areas of care enhancements. • Practice respect, dignity, and control in patient interactions. • Consider pain management, informed consent, and integration of patient voices in decision making. • Include existing community members who are engaged in these conversations. • Existing state departments of health and other state agencies can develop programming with any resource that they have been given. • Tailor programming interventions to maternal level of care or to focus on promotion of maternal mental health and well-being.
Community Level	• Engage doulas and community health workers in education efforts can help reach patients who distrust the healthcare system.
Practice Level	• The large number of cesarean births make any improvement scalable to large public health benefits.

Hospital Level	• Focus on patient satisfaction, including their satisfaction with their providers, which is tied to reimbursement and National Committee for Quality Assurance (NCQA) rankings.
System Level	• Marketing or promotion of services to attract patients: benefits of anesthesia pre-evaluation using telehealth or other accessible formats. • Government advocacy for payment or reimbursement and policies. • Telehealth and digital tools could enable preoperative anesthesia counseling, overcoming logistical barriers like transportation and scheduling.
Payer Level	• "Evaluation and management" are reimbursable for pre-anesthesia conversations but needs to go beyond informed consent conversation. • Tie the intervention or initiative to a designation program – such as a maternity care recognition program that includes anesthesiology practice. • Generating this type of evidence is necessary to ultimately change the way reimbursement is structured for these high value activities. • Patient experience focus, which is tied to hospital reimbursement. • Telehealth is reimbursable for health visits, and this improves accessibility.

1. Clinical Practice and Provider Facilitators

- ***Continuing Education and Training for Providers***: Ongoing training in patient-centered care, empathy, and anesthesia techniques ensures that providers are equipped with up-to-date knowledge and skills. Continuing education reinforces best practices, builds clinical confidence, and enhances the patient-provider relationship by ensuring that clinicians are informed and competent.
- ***Implementation of Best Practice Guidelines***: Applying standardized guidelines for cesarean anesthesia, such as documenting the patient's anesthesia level before the start of the procedure, promotes consistency in care quality. Standardization of these practices helps maintain safety and comfort for patients while also creating a cohesive experience across different institutions.
- ***Empathy and Active Listening Training***: Training providers in empathy and active listening skills helps improve communication and patient satisfaction, particularly in high-stress situations like cesarean deliveries. This training enables providers to better understand and address patient concerns, thereby fostering trust and making patients feel heard.
- ***Simulation Training for Cesarean Scenarios***: Simulation programs focused on cesarean anesthesia scenarios provide an opportunity for providers to practice patient-centered communication and clinical skills in a realistic, controlled environment. Such training can enhance provider readiness to handle diverse patient responses and improve decision making during unexpected situations.

2. Patient and Community Facilitators

- ***Patient Education Initiatives***: Education programs designed to increase patient understanding of anesthesia options empower patients to engage more fully in decision making. These initiatives may include informational sessions, printed resources, or digital tools that clarify the benefits and risks of various anesthesia techniques, enhancing patient confidence and comprehension.

- ***Shared Decision-Making Models***: Shared decision-making models encourage collaborative conversations between patients and providers, ensuring that patient values, preferences, and goals are integrated into anesthesia planning. This approach fosters a sense of agency for patients and supports more personalized, satisfying cesarean experiences.
- ***Community Health Worker and Doula Involvement***: Engaging community health workers and doulas as trusted sources of information can improve patient education and support, particularly for marginalized groups. Doulas and community health workers can facilitate conversations around anesthesia options, provide emotional support, and act as patient advocates during consultations.
- ***Culturally and Linguistically Appropriate Education Materials***: Providing educational resources that are culturally relevant and available in multiple languages helps bridge communication gaps and ensures that all patients understand their anesthesia options. By tailoring resources to meet diverse needs, healthcare systems can make informed decision making accessible to a broader population.
- ***Community Engagement Programs***: Developing programs that connect patients with resources and information in their communities, such as group education sessions or information distributed through local health organizations, can empower patients. Community-based programs can reach individuals who might otherwise face access barriers and provide a familiar, trusted setting for learning about cesarean anesthesia options.

3. System-Level Facilitators: Digital Tools and Information Access

- ***Online Education Portals***: Digital education portals that provide comprehensive information on anesthesia choices, pain management, and patient rights offer patients easy access to resources. These portals can include videos, Q&A sections, and interactive modules to support learning at the patient's own pace.
- ***Preoperative Decision Aids***: Tools such as decision aids or mobile apps that guide patients through their anesthesia options can support informed decision making. By explaining risks, benefits, and outcomes in accessible language, these aids allow patients to explore their options in detail and bring informed questions to consultations.
- ***Anesthesia Information Hotline***: Establishing a dedicated hotline for cesarean anesthesia questions provides patients and their families with a direct line to trained professionals who can answer questions, clarify doubts, and provide additional support outside of regular appointments.

4. System-Level Facilitators: Quality Metrics and Continuous Feedback

- ***Patient Satisfaction and Quality of Care Metrics***: Implementing metrics that track patient satisfaction and quality of anesthesia care allows for continuous improvement. By collecting patient feedback and monitoring key indicators—such as pain management satisfaction and perceived support—healthcare systems can refine practices and address areas where patient experiences can be improved.
- ***Data Collection for Identifying Best Practices***: Collecting data on patient-centered outcomes and analyzing this information to identify best practices for anesthesia care helps ensure that evidence-based approaches are continually refined. Sharing data with providers and institutions promotes accountability and supports the adoption of effective, patient-centered methods.

5. System-Level Facilitators: Policy and Reimbursement

- ***Reimbursement for Prenatal Anesthesia Consultations***: Expanding reimbursement policies to include prenatal consultations with anesthesiologists could facilitate early patient engagement, allowing time for comprehensive education and shared decision making. Incentivizing prenatal consultations, especially for high-risk or first-time cesarean patients, enables healthcare systems to offer tailored consultations as a standard component of maternity care.
    - ***Recommendations*:**
        - Integrate the intervention into bundled care models: Identify pathways to incorporate the intervention within bundled care packages, utilizing non-payment incentives to encourage adoption at the community hospital level.
        - Expand the scope of pre-anesthesia consultations: Ensure that pre-anesthesia discussions extend beyond informed consent to encompass comprehensive optimization measures, including mental health prevention and enhancement strategies.
        - Advocate for insurance reform in obstetrics and women's health: Focus insurance reform efforts on securing appropriate reimbursement models specifically tailored to support obstetric and women's health services.
        - *In the bundled care model, the primary objective for the hospital is to achieve cost savings for the hospital and healthcare system while enhancing patient outcomes. This includes reducing readmissions, complications, rates of depression, medication use, and length of stay. To support this goal, data demonstrating improved outcomes across one or more of these variables is essential.*
- ***Telehealth Infrastructure and Reimbursement***: Building robust telehealth platforms and advocating for telehealth reimbursement can enhance access to anesthesia consultations for patients in rural or underserved areas. Telehealth facilitates timely and convenient patient-provider interactions, reducing barriers related to transportation and scheduling conflicts.
- ***Policy Changes to Support Evidence-Based Practices***: Policy adjustments that promote evidence-based care practices in cesarean anesthesia help ensure consistency and adherence to high standards across clinical settings. Such policy changes can encourage the integration of best practices and further incentivize hospitals to prioritize patient-centered care.
- ***Enhancements in Resource Allocation and Infrastructure***: Improving resource allocation—such as by expanding access to anesthesia options or increasing provider availability—supports a more equitable distribution of care, particularly in lower-resourced settings. Investments in infrastructure and staff training provide a foundation for consistent, quality care across diverse locations.

Proposed Solutions

Stakeholder interviews revealed three key areas for interventions or solutions: policy, evidence gaps, and relational factors. Addressing these solutions will promote a holistic, patient-centered approach to care across diverse healthcare settings.

1. Filling Evidence and Knowledge Gaps

Significant gaps exist in understanding the outcomes and patient experiences associated with different cesarean anesthesia approaches. Proposed strategies to address these gaps include:

- **Comparative Effectiveness Research**: Conduct research to directly compare outcomes and patient satisfaction among anesthesia methods, including spinal, epidural, general, and combined spinal-epidural techniques, especially focusing on patient-centered outcomes like pain control, recovery experience, and sense of control.
- **Qualitative Research on Patient Experiences**: Capture the voices of diverse patient groups through qualitative research, including interviews and focus groups. Themes like perceived quality of care, trauma related to feeling unheard, and satisfaction with anesthesia choices should inform best practices.
- **Developing and Validating New Outcome Metrics**: Create validated metrics for outcomes that matter to patients, such as trauma incidence, autonomy, and quality of pain management. This should include both clinical and emotional aspects of the cesarean experience, aiming to improve both physical and mental health outcomes.
- **Simulation Training for Providers**: Implement simulation programs to train healthcare providers, including anesthesiologists and obstetricians, in empathetic communication, shared decision making, trauma-informed care and non-pharmacological support techniques. Studies have shown that empathy training can significantly enhance patient experiences.
- **Standardizing Use of Cross-Disciplinary Risk Assessment Tool**: Capture the known risk factors for pain in cesarean such that the entire care team contributes to the collection and communication of important patient characteristics that inform smart anesthesia choices.
- **Emphasize Empathetic Communication Skills and Debiasing in Early Provider Education**: Across disciplines, ensure that the human side of care is given equal footing and emphasis as new providers are recruited and trained.
- **Develop Usable Protocols for Generalist Anesthesiologists**: Capture the evidence-based expertise of OB specialists in a simple, usable format to aid decision-making of anesthesia providers less accustomed to cesarean pain management.

2. Building Trust and Relationships

To improve cesarean experiences and outcomes, particularly among marginalized and underserved communities and during emergencies, a focus on trust-building and supportive patient-provider relationships is essential. Proposed solutions include:

- **Prenatal Consultation Programs**: Establish prenatal consultation programs where patients can meet with anesthesia providers during the third trimester. These consultations would address anesthesia options, manage expectations, and provide an opportunity for patients to voice concerns, thus reducing anxiety and building rapport.
- **Engagement with Community Health Workers and Doulas**: Integrate community health workers and doulas into prenatal education efforts. Trusted figures from the community can help bridge gaps in understanding and communication, especially for patients with cultural or language barriers.

- **Public Awareness Campaigns on Anesthesia Options and Patient Rights**: Launch campaigns in collaboration with healthcare providers and community organizations to inform patients about their anesthesia choices, rights, and what to expect. Ensuring patients feel empowered and well-informed supports a more trusting relationship with their care team.
- **Non-Clinical Support Training for Anesthesia Teams**: Provide training in non-clinical support techniques, like active listening, providing reassurance, and non-verbal communication. Simple actions, such as making eye contact or acknowledging patient concerns, can significantly enhance the perception of care and build trust in the healthcare environment.
- **Provide Reassuring, Transparent Communication in Emergencies**: In emergency cesareans, especially for marginalized and underserved communities, clinicians can build trust by offering clear, empathetic explanations of each step as it unfolds. Acknowledging the patient's emotions and affirming the team's commitment to their safety can help foster a sense of security and support, even in high-stress moments.
- **Increase Presence of Doulas and Other Support People during Cesarean Deliveries**: Remove access barriers so support personnel may be present during cesarean delivery. Define and encourage their role in ensuring patients are heard.

3. Policy Strategies

Addressing disparities in anesthesia care for cesarean delivery requires policy strategies that support equitable access, incentivize patient-centered practices, and address systemic barriers. Key policy interventions include:

- **Standardizing Prenatal Anesthesia Education and Consults**: Advocate for policy changes to reimburse prenatal anesthesia consultations, especially for high-risk patients and in maternity care deserts. These consults help manage expectations, improve patient satisfaction, and reduce trauma related to cesarean deliveries.
- **Incorporating Quality Metrics**: Partner with professional organizations and policymakers to develop quality metrics for patient-centered outcomes in cesarean anesthesia. Metrics like patient satisfaction, feeling heard, and postpartum trauma incidence can be integrated into reporting systems like those of the Centers for Medicare & Medicaid Services and the NCQA to incentivize quality over efficiency.
- **Expanding Telehealth and Remote Consultations**: Support telehealth reimbursement policies to facilitate prenatal consultations for rural and underserved populations. Digital consultations can bridge gaps in access and provide early education on anesthesia options, promoting informed decision making.
- **Enhancing Community Education through Public Health Campaigns**: Work with state and local public health departments to launch campaigns educating expectant mothers on cesarean anesthesia choices. Clear, accessible information about anesthesia and pain management options can help patients feel empowered and reduce misinformation spread through non-clinical sources.
- **Reduce Labor & Delivery Nurse Turnover**: Labor & delivery nurses have more time and access to patients. With experience, they are well-positioned to communicate with patients, identify risk indicators early, and break through misconceptions and stigma around cesarean delivery.

Defining Comparators and Interventions Aligned to Solutions

In developing a patient-centered approach to anesthesia choices for cesarean delivery, ELEVATE partners defined comparators that prioritize patient empowerment, informed choice, and a comprehensive understanding of anesthesia options. These comparators are designed to support diverse populations, including marginalized and historically underserved groups, and address significant gaps in anesthesia knowledge, patient experience, and equity. Comparators focus on educational, motivational, and community-oriented interventions, enhancing the communication and decision-making processes that shape anesthesia care. Options include but are not limited to a comprehensive set of comparators from ELEVATE, allowing flexibility in addressing both clinical and non-clinical factors influencing anesthesia care. This ensures equitable, accessible, and informed anesthesia options for all patients undergoing cesarean delivery while leaving room for future refinements based on emerging evidence.

Each comparator is suited to different contexts:

- **Motivational Interviewing and Doula Support**: Effective in diverse settings, especially where patients may benefit from additional emotional or advocacy support.
- **Prenatal Consultations and Communication Interventions**: Essential for enhancing patient-provider interactions in both urban and rural settings, particularly where high-quality, patient-centered care is a priority.
- **Community Engagement and Policy Advocacy**: Best suited to communities where healthcare literacy is a barrier or where policy changes could support broader implementation of patient-centered practices.

Stakeholders provided several preliminary insights into proposed solutions highly likely to impact patient-centered outcomes (**Figure 5**). *Comparative Effectiveness Research* and *Engagement with Community Health Workers and Doulas* stand out as highly impactful and relatively feasible solutions. In contrast, *Standardizing Prenatal Anesthesia Consults* is recognized as highly important but presents significant challenges for implementation. This underscores the need for systemic changes or innovative strategies to overcome logistical and operational hurdles while pursuing this goal.

Providing Transparent Communication in Emergencies emerges as a key solution that balances impact and feasibility. Its importance highlights the critical role of communication in improving patient trust and outcomes, and efforts should be directed toward developing practical ways to achieve this improvement.

Expanding Telehealth Services is identified as both impactful and highly feasible. Given the minimal barriers to implementation, this solution offers a practical and immediate opportunity to enhance patient access to care and consultations.

Provider-focused solutions, such as *Simulation Training for Providers* and *Non-Clinical Support Training for Anesthesia Teams*, emphasize the importance of equipping providers with the skills and resources needed to improve care delivery. However, these efforts may face challenges related to scalability or resource availability, requiring targeted investments and planning.

Public awareness initiatives, including *Community Education Campaigns* and *Awareness Campaigns on Anesthesia Options and Rights*, are rated as less critical but still valuable. While they may not be immediate priorities, they have the potential to support broader efforts by addressing misconceptions and improving patient engagement.

Figure 6 provides a framework for proposed solutions categorized by both their potential impact and feasibility. High-priority, high-impact solutions with moderate difficulty should serve as focal points for immediate action, while more resource-intensive or lower-priority solutions may warrant phased implementation or supplementary efforts over time. Solutions such as *Engagement with Community Health Workers and Doulas* and *Expanding Telehealth and Remote Consultations* emerge as both highly significant and relatively easy to implement, making them ideal candidates for prioritization due to their balance between potential impact and feasibility. In contrast, *Standard Prenatal Consults*, *Incorporate Quality Metrics*, and *Prenatal Consultation Programs* fall into the high-difficulty, high-significance quadrant, reinforcing their importance but highlighting the need for substantial resources and long-term strategies to overcome challenges. Meanwhile, solutions like *Community Education* and *Public Awareness Campaigns on Anesthesia Options and Rights* are positioned as low-significance, low-difficulty initiatives, representing "low-hanging fruit" that could still provide incremental benefits alongside higher-priority efforts. An outlier, *Non-Clinical Support Training for Anesthesia Teams*, is seen as having low significance but relatively high difficulty, suggesting it is a lower-priority area for investment. Finally, several research- and training-focused solutions, such as *Simulation Training for Providers*, *Qualitative Research on Patient Experiences*, and *Develop and Validate New Outcome Metrics*, are clustered together with moderate-to-high significance and difficulty. This grouping reflects the recognition of their importance in building evidence and enhancing provider capacity but require concerted efforts to make them scalable and practical.

Overall, the stakeholders suggest a focus on solutions that combine high impact with feasibility, including *Comparative Effectiveness Research*, *Engagement with Community Health Workers*, and *Expanding Telehealth Services*. Addressing more complex challenges, such as *Standardizing Prenatal Anesthesia Consults*, will require strategic planning and sustained efforts to achieve meaningful progress.

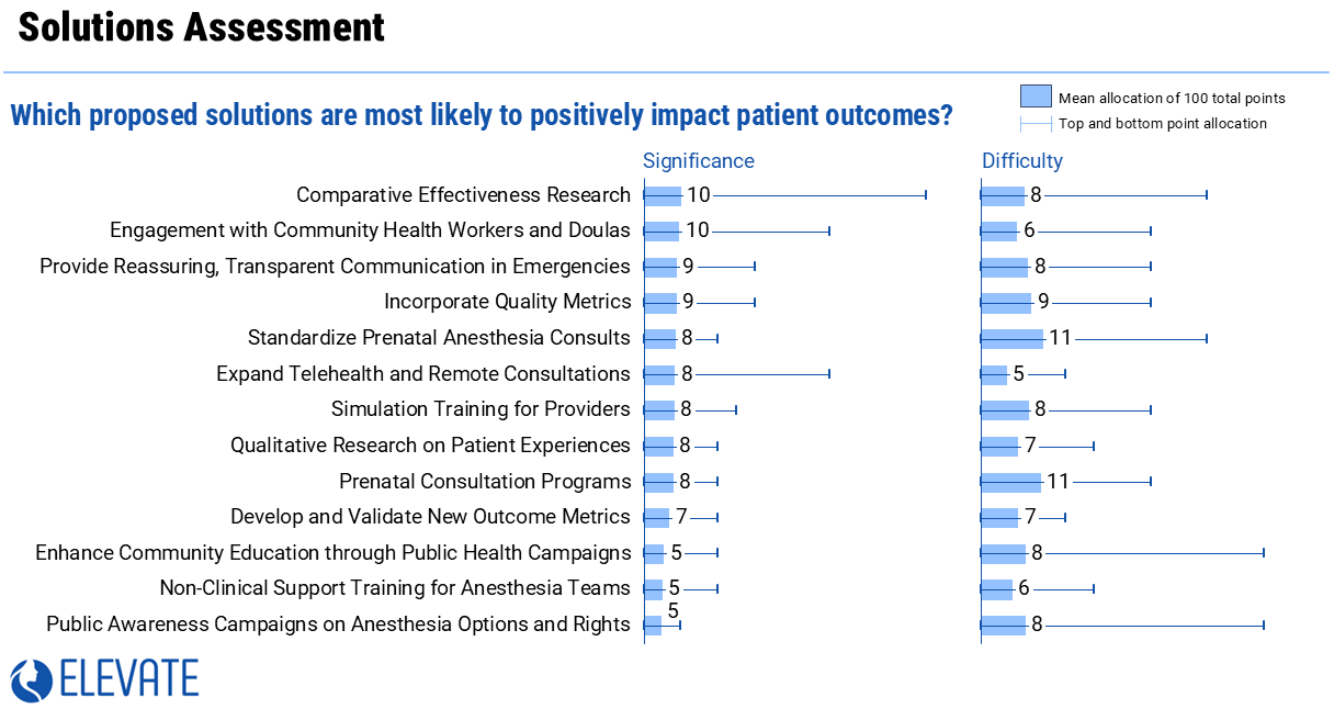

Figure 5. Stakeholder proposed solutions assessed on relative significance/ impact to patient outcomes and relative difficulty of implementation, based on an average allocation of 100 total points across each dimension.

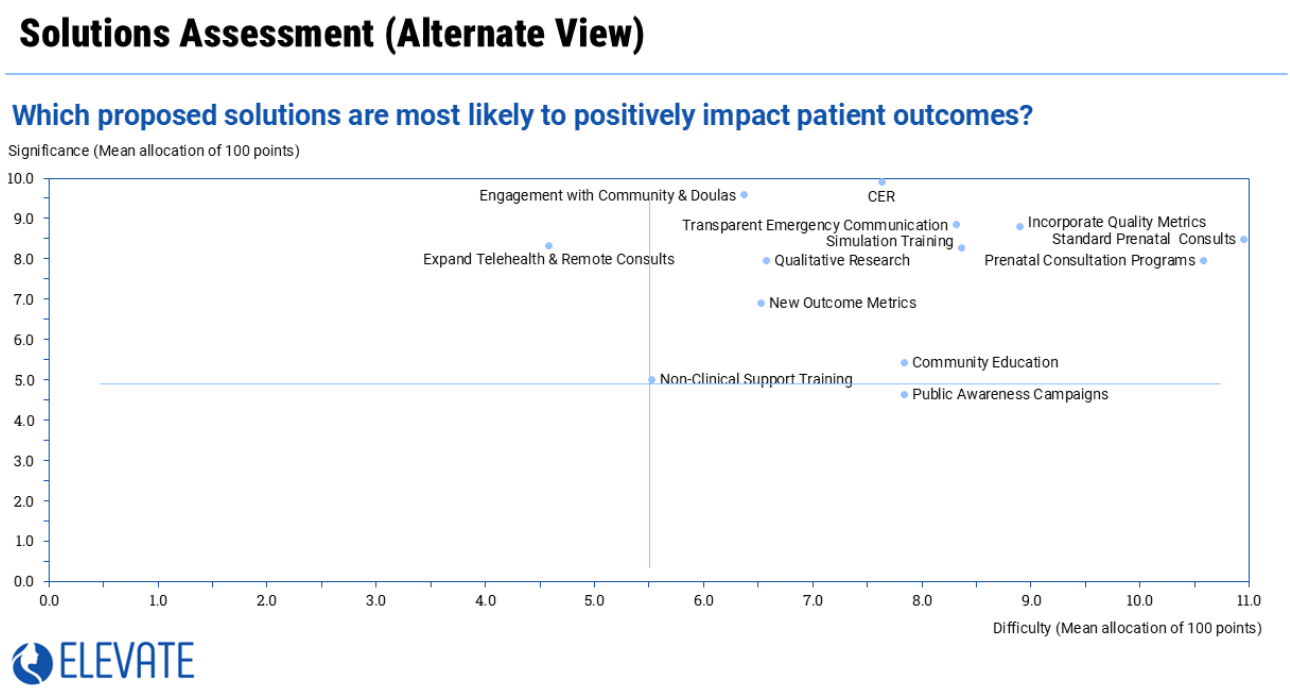

Figure 6. Assessment of solutions by perceived significance and difficulty. Upper-left quadrant are high-impact, low-difficulty opportunities; upper-right quadrant is high-impact, high-difficulty initiatives requiring resources and long-term strategies.

Policy Strategies to Encourage High-Level Incentives

Accelerating the implementation of patient-centered anesthesia practices for cesarean delivery may require policy interventions and behavioral strategies for clinicians. Comparators in this area include:

- **Policy Testing for Reimbursement of Prenatal Consultations**: Testing policies that promote reimbursement for prenatal anesthesia consultations, particularly for high-risk groups, to incentivize early engagement and informed choice.
- **Behavioral Interventions for Clinicians**: Initiatives that encourage frontline clinicians to adopt patient-centered practices through incentives, educational campaigns, or peer support programs.

Filling Knowledge Gaps: Empowering Patients and Communities

Comparators in this category are aimed at preparing patients and caregivers with clear information on what to expect during cesarean delivery, anesthesia options, and tools to voice preferences. Interventions include:

- **Motivational Interviewing**: A structured approach that encourages patients to express preferences, ask questions, and explore concerns regarding anesthesia, enhancing confidence and promoting active engagement in decision making.
- **Cesarean Hotline**: A hotline dedicated to answering patient and caregiver questions about cesarean delivery and anesthesia, providing immediate access to information and support outside of clinical appointments.

- **Doulas and Supportive Figures**: Utilizing doulas and other community members as trusted sources of support to provide emotional reassurance, guidance, and patient advocacy, particularly in low-resource or high-stress situations.
- **Group Consultations with Anesthesiology and Other Providers**: Sessions where patients can meet with anesthesiologists and other relevant care providers collectively, enabling shared learning, addressing common concerns, and fostering a sense of community and mutual support.
- **Community Engagement Programs**: Programs to reach patients in their own communities, offering structured education sessions on anesthesia choices and facilitating dialogue between patients, providers, and community health advocates.

Filling Knowledge Gaps: Improving the Evidence Base to Support Informed Choices

Evidence-based comparators are critical for advancing patient-centered anesthesia options and ensuring effective pain management and mental health support. Key comparators here include:

- **Trials of Framing Approaches for Anesthesia Choices**: Testing different approaches to presenting anesthesia choices to patients, including language, framing, and communication style, to optimize comprehension and reduce decision-related stress.
- **Addressing Unanticipated Maternal Pain or Distress**: Research trials aimed at exploring interventions for unexpected pain or distress during cesarean delivery, assessing strategies for rapid response and patient reassurance.
- **Implementation of Existing Guidelines**: Trials focused on implementing recommendations, guidelines, and consensus statements to accelerate the translation of evidence-based practices into routine clinical care.

Filling Knowledge Gaps: Patient-Centered Outcomes of Anesthesia Options for Cesarean Delivery

Anesthesia options for cesarean delivery fall into two main categories: general anesthesia and regional anesthesia, with additional adjuncts available to enhance regional techniques.

- **General Anesthesia**: Often used in emergency situations or when regional anesthesia is contraindicated, general anesthesia induces a state of unconsciousness and requires airway management through intubation. Although effective for rapid anesthesia onset, it is associated with higher risks for both maternal and neonatal outcomes, including a potential impact on neonatal Apgar scores and maternal recovery experiences.
- **Regional Anesthesia**: The most common choice for cesarean delivery, regional anesthesia includes spinal anesthesia, epidural anesthesia, and combined spinal-epidural techniques.
    - ***Spinal Anesthesia***: Involves a single injection of anesthetic into the subarachnoid space, providing rapid onset of anesthesia suitable for cesarean procedures. It is favored for its predictable effect and minimal neonatal impact but is limited by its single-dose nature, making prolonged use difficult.
    - ***Epidural Anesthesia***: Anesthetic medication is administered into the epidural space. This technique allows for continuous or repeated dosing, which can be advantageous for extended procedures or for labor analgesia that may transition into cesarean delivery.

- ***Combined Spinal-Epidural***: Combines the rapid onset of spinal anesthesia with the flexibility of an epidural, providing options for prolonged or complex surgeries with a fast initial effect. This approach is particularly useful when there is uncertainty about the duration of the procedure.

- **Adjuncts for Regional Anesthesia**: Various adjuncts, such as alpha agonists and mu agonists, are used to enhance the effectiveness of regional anesthesia. These adjuncts can improve pain management, reduce opioid requirements, and potentially shorten recovery times. Alpha agonists, for instance, enhance the duration of the block, while mu agonists target pain relief.

Summary of Agreed Comparators

The following comparators were identified as relevant based on their alignment with the defined criteria and their suitability for various clinical contexts. However, options may include but not be limited to these comparators, allowing flexibility in future research and practice adaptations.

1. ***General Anesthesia***: Applicable in emergency situations or when rapid anesthesia induction is essential. General anesthesia is also considered in cases where regional anesthesia is contraindicated due to patient conditions, previous spinal surgeries, or specific obstetric emergencies. Its primary benefit is the speed of onset, making it critical for high-risk or time-sensitive cases, though stakeholders acknowledge its greater maternal and neonatal risk profile.
2. ***Neuraxial Anesthesia***: Recognized for its rapid onset and predictable efficacy, spinal anesthesia is a preferred comparator for planned cesarean deliveries without anticipated complications. It is particularly effective in settings where a single, reliable anesthetic dose is appropriate, offering a lower-risk option for both mother and child in comparison to general anesthesia. For continuous dosing capability, epidural anesthesia is beneficial in cases where cesarean delivery may follow an extended labor or when prolonged anesthesia might be needed. It is well-suited to settings with resources for monitoring and maintaining continuous anesthesia and is favored for its adaptability and patient comfort. Combined spinal epidural (CSE) is a versatile comparator suitable for cases where rapid onset and sustained anesthesia are both desirable. It is particularly applicable to cesarean deliveries that may vary in complexity or duration, offering the benefits of spinal anesthesia's rapid onset with the flexibility of extended epidural dosing. Stakeholders identified CSE as a critical option in tertiary care centers or settings with the capacity for complex, prolonged cesarean procedures.
3. ***Adjuncts for Regional Anesthesia (e.g., Alpha Agonists, Mu Agonists)***: To enhance patient comfort and reduce opioid requirements, adjuncts to regional anesthesia were included as comparators. These adjuncts are suitable across various settings, offering options to extend the duration and efficacy of spinal or epidural anesthesia and providing improved pain management and recovery experiences.
4. ***Intravenous Medications***: Intravenous (IV) medications such as midazolam, remimazolam, dexmedetomidine, and fentanyl are used as adjuncts or alternatives to neuraxial and general anesthesia, particularly when regional anesthesia isn't feasible or additional sedation is needed. These options can enhance pain relief and reduce anxiety, contributing to the patient's sense of control and overall satisfaction. However, IV medications require a balance between effective sedation and maintaining patient-centered outcomes, as deeper sedation may impact patient autonomy during labor and delivery. *Challenges in Assessing Outcomes:* Real-time assessment of patient-centered outcomes, such as control and satisfaction, can be difficult. Immediate feedback is often variable and differs from postoperative reflections, making it challenging to gauge the true impact of IV medication use during the delivery experience.

Trials should explore different adjunctive medications and related interventions to assess their effectiveness in enhancing regional anesthesia for cesarean delivery. Options may include but not be limited to a variety of

adjuncts, recognizing that real-world considerations such as patient response variability, feasibility, and evolving evidence may influence study designs.

Building Relationships: Training Clinicians in Communication and Patient Engagement

Training interventions focus on improving clinician communication skills to support patient-centered care during cesarean delivery. Examples of these comparators include:

- **Trials of Communication Interventions**: These trials assess different preoperative and intraoperative communication techniques, exploring how various approaches influence patient comfort, satisfaction, and perceptions of control.
- **Anesthesia Consultation upon Admission**: Establishing an anesthesia consultation upon arrival to labor and delivery, or ideally, as a compulsory prenatal consultation, to provide patients with early information on anesthesia options, set expectations, and build trust with their anesthesia team.
- **Clinician Empathy and Active Listening Training**: Interventions focused on empathy and active listening can improve the patient-provider relationship and ensure that patients feel supported and heard throughout their cesarean experience.

PICOT Framework

Stakeholders were asked to provide input on specific elements of the Patient/Population, Intervention or Comparator, Outcome, Timeframe (PICOT) Framework. Key elements factoring into the PICOT framework are itemized in **Table 6**.

Table 6. PICOT Framework (Patient/Population, Intervention or Comparator, Outcome, Timeframe).

PICOT Element	Specific Recommendations
Patients or Population	***Pregnant people having cesarean delivery*** • Marginalized populations: minoritized groups, LGBTQ+, Indigenous peoples, low socioeconomic status, prior birth experience, non-English language speakers, rural or remote populations, prisoners, people with disabilities • Stratification of treatment benefits to subgroups that would benefit most • Any groups for whom there are demonstrated care disparities or inequities ***Family or community support systems***
Comparators or Interventions	***Empowering patients and communities*** Interventions focused on preparing patients and caregivers regarding what to expect during cesarean delivery; anesthesia options; and empowering patients to voice preferences and priorities for anesthesia care: • Motivational interviewing • Cesarean hotline • Doulas or other support people as intraoperative social support

- Group consultations with anesthesiology alongside other care providers
- Community engagement sessions or programs

Training and educating clinicians:

- Trials of novel or established communication interventions focused on pre- and intra-operative care

Improving the evidence base to support informed choices:

- Trials of different approaches to addressing unanticipated maternal pain or distress during cesarean delivery
- Anesthesia evaluation and conversation on arrival to labor and delivery, or compulsory prenatal consultation

Accelerating translation of existing evidence into practice

- Testing policy strategies to create high-level motivations for change
- Testing behavioral interventions focused on front-line clinicians
- Engaging patients and other carers as advocates for best practices
- Implementation of recommendations, guidelines, consensus statements

Outcomes and Timeline

Patient-Centered Safety and Comfort

- Unwanted pain during cesarean delivery: Frequency and severity of pain reported during cesarean delivery.
- Perception of Safety: Evaluate patients' perceived safety and support during birth, leveraging models such as the *Childbirth Experience Questionnaire (CEQ)*, which includes questions like, "Did you feel safe during birth?"

Educational Engagement and Comprehension

- Percentage of uptake of intervention, such as education
- Retention or comprehension scores of the educational materials

Pain Management and Control

- Pain scores
    - Time frame: Intraoperative, postpartum (in hospital), postpartum (out of hospital at six to eight weeks and up to 12 months postpartum)
- Sense of autonomy, control, and respect:
    - Preoperative, intraoperative, postoperative

Mental Health Outcomes

- Depression, anxiety, monitored at multiple stages
    - Preoperative, postoperative, in hospital, and up to 12 months postpartum
- Trauma symptoms and diagnoses

- Screening for History of Trauma: Standardize the collection of trauma histories during hospital admissions, ideally using structured screening tools that can be documented in the electronic medical record. Screening could be completed by the patient or administered by a nurse.
- Time Frame: Preoperatively, intraoperatively, postoperatively, and at six to eight weeks and 12 months postpartum to account for delayed responses.

Note: All outcomes should incorporate qualitative insights from patients to provide a more comprehensive understanding of their experiences and needs.

Patient-Centered Outcomes

The ELEVATE project places a strong emphasis on defining and measuring patient-centered outcomes in anesthesia care for cesarean delivery. These outcomes are designed to capture not only clinical effectiveness but also the quality of the patient's experience, focusing on elements that matter most to patients and their families. Prioritization of metrics such as pain control, emotional well-being, and sense of control throughout the cesarean process are key themes found in ELEVATE that ensure that cesarean anesthesia care is both safe and aligned with the individual's values and preferences.

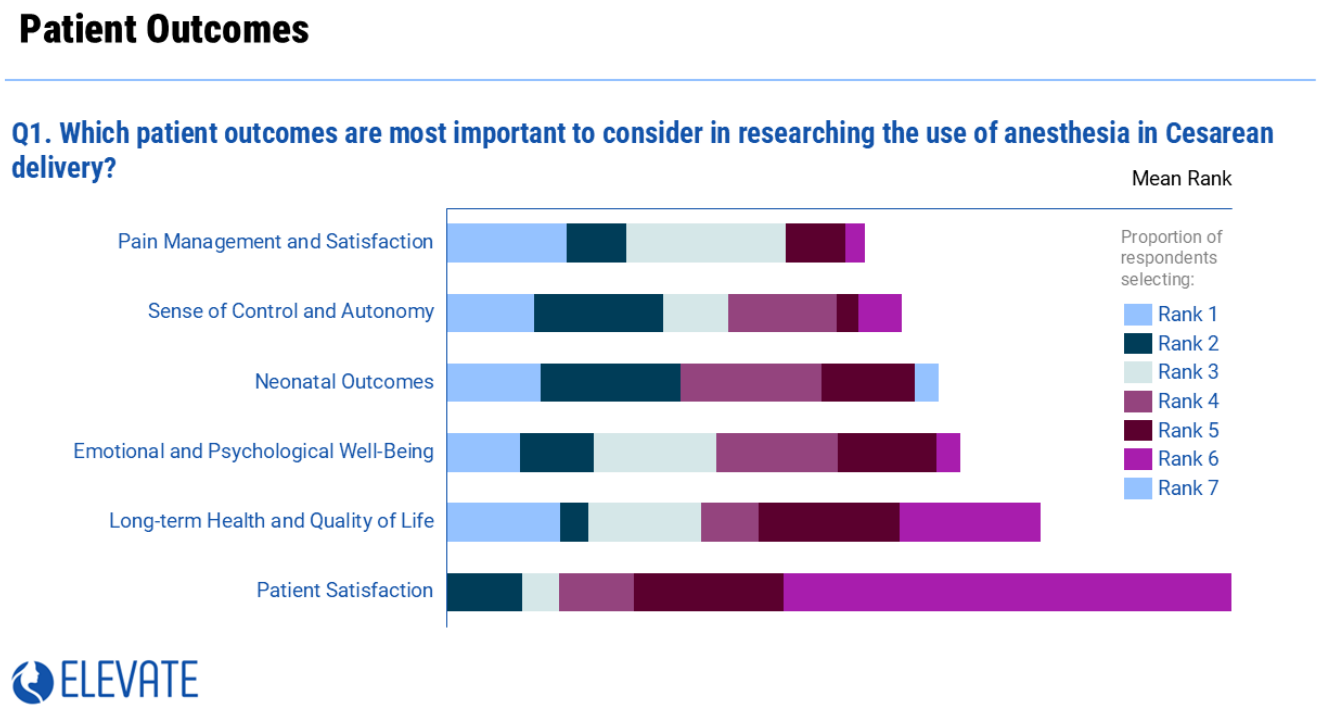

Figure 7. Overall ranking of patient outcome priorities by ELEVATE Stakeholders.

When examining overall priorities, neither patients nor provider stakeholders emphasized *Patient Satisfaction* as a broad, overarching construct (**Figure 7**). However, patients do prioritize specific components that contribute to satisfaction, such as a sense of control and autonomy, as well as emotional well-being. A notable contrast emerges in the prioritization of *Pain Management*, which providers rank higher than patients (**Figure**

8). Stakeholders attributed this disparity to the belief that patients typically trust the healthcare system to effectively manage pain during cesarean deliveries as a given and fundamental aspect of safe and effective care. In contrast, providers recognize the challenges involved in consistently achieving this goal, highlighting the complexity of delivering optimal pain management in these contexts.

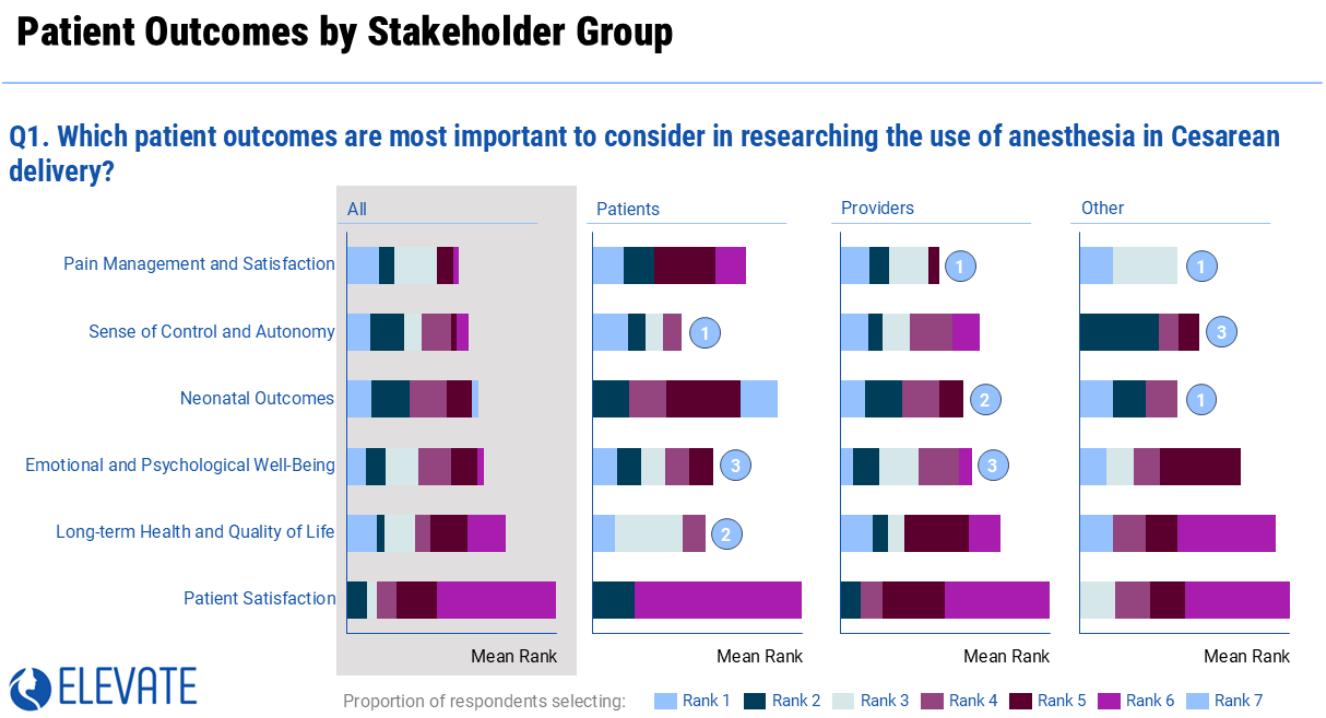

Figure 8. Rankings of patient outcome priorities according to Stakeholder group.

Stakeholders recommended that hospitals, systems, payers, and quality specialists should disaggregate obstetrics-specific metrics from broader hospital performance measures to enable targeted and meaningful improvements in obstetric care. They noted that existing hospital rankings and payment systems are not designed to effectively support quality improvement efforts in these critical areas of maternity care.

Key Patient-Centered Outcomes

1. Pain Management

- ***Intraoperative and Postpartum Pain Scores***: Pain control is critical for cesarean patients, and accurate assessment of intraoperative, immediate postpartum, and longer-term pain is essential. ELEVATE stakeholders recommend pain scores at various time points up to 12 months postpartum, allowing a comprehensive view of both short- and long-term pain relief. Satisfaction metrics will assess not only pain relief but also the patient's overall perception of care quality and provider empathy. Stakeholders emphasized the need for contextualizing the pain scores, including simultaneous assessment of sense of control, autonomy, and respect.
- ***Unanticipated Pain Management***: Outcomes also address the management of unexpected pain or distress during cesarean delivery. Trials may explore different interventions for rapid response to pain, aiming to minimize patient distress and ensure a comfortable experience.

2. Sense of Control and Autonomy and Respect

- ***Preoperative, Intraoperative, and Postoperative***: Many patients express the importance of feeling in control during their delivery experience. This outcome measures the patient's sense of autonomy and participation in decision making across various stages of cesarean delivery.

  A suggested, noncomprehensive list of potential outcome measures include:

  - **MADM (Mother's Autonomy in Decision Making Scale)**. The MADM (Vedam 2017) measures the extent to which a pregnant person perceives autonomy in making decisions about their maternity care. It assesses informed choice, respect for decisions, and decision-making involvement. The scale is commonly used to evaluate patient-centered care and shared decision-making in obstetric settings.
  - **MORi (Mothers on Respect Index)**. The MORi (Vedam 2017) measures how respected and valued a mother feels during childbirth and maternity care. It captures interpersonal interactions, autonomy, and the level of respect shown by providers. This scale helps identify disparities in respectful maternity care, particularly for marginalized populations.
  - **NABQ-R (Nurses' Attitudes and Beliefs Questionnaire – Autonomy)**. The NABQ-R (Levine 2015) assesses nurses' perceptions of patient autonomy, decision-making, and provider influence in maternity care. It evaluates how nurses view and support patient autonomy during childbirth and prenatal care.

  A suggested, noncomprehensive list of resources to evaluate autonomy, respect, equity, shared decision-making, and respectful maternity care practices:

  - **Birthplace Lab Autonomy and Respect Measures**. The Birthplace Lab develops and validates measures related to autonomy, respect, and equity in maternity care. Their work includes tools like the MADM and MORi scales, which assess decision-making and respectful care across different birth settings. Their research supports patient-centered, community-driven improvements in maternal health outcomes.
  - **WPRMC (White Ribbon Alliance's Respectful Maternity Care (RMC) Charter)**. The White Ribbon Alliance's RMC Charter outlines universal rights of childbearing women, including autonomy, informed consent, and dignity. While not a specific scale, it serves as a global framework for measuring and advocating for respectful maternity care. Some studies adapt its principles into assessment tools for maternity care quality and autonomy.
  - **IRTH (Identifying Respectful and Transformative Healthcare) – Birth Without Bias (Seals)**. IRTH is a community-driven rating and feedback platform that evaluates maternity care experiences, particularly for Black, Indigenous, and other marginalized birthing people. The IRTH "Seals" are badges awarded to hospitals and providers who meet high standards of respectful, unbiased, and equitable care.

- ***Decision-Making Support***: Outcomes related to decision support include assessments of how well patients feel informed about their anesthesia options and their ability to voice preferences during the prenatal and delivery stages. Suggested potential outcome measures are listed above.

3. Emotional and Psychological Well-Being

- ***Perception of Safety***: Evaluate patients' perceived safety and support during birth, leveraging models such as the Childbirth Experience Questionnaire (CEQ) (Dencker 2010), which includes questions like, "Did you feel safe during birth?"

- ***Anxiety and Depression***: The project measures both preoperative and postoperative anxiety and depression levels, recognizing that mental health impacts can extend well beyond the hospital stay. ELEVATE follows these metrics up to 12 months postpartum, providing insights into both immediate and long-term emotional outcomes.
- ***Post-traumatic stress disorder (PTSD), Trauma Symptoms, and Screening for Prior Trauma***: Acknowledging that some patients may have a history of trauma, ELEVATE proposes incorporating trauma screening into routine care or into outcomes assessment of clinical research and trials in this context. This inclusion enables clinicians to address potential triggers and provide sensitive, supportive care to reduce the risk of trauma recurrence or exacerbation. It also enables clinicians to assess whether the proposed intervention of interest and under investigation, has any meaningful benefits to PTSD outcomes related to birth trauma.

4. Neonatal Outcomes

- ***Immediate Neonatal Health***: Outcomes such as Apgar scores and respiratory function provide early indicators of neonatal health and are sensitive to anesthesia choices. These immediate outcomes reflect the newborn's stability and readiness for bonding with the mother, which is foundational to early developmental success.
- ***Long-Term Developmental Outcomes***: Recognizing that anesthesia choices can have subtle but lasting effects on the newborn, ELEVATE also examines long-term developmental outcomes. Monitoring for milestones in motor skills, cognitive development, and social behaviors allows a comprehensive understanding of the impact on neonatal health and provides guidance for ongoing maternal-newborn care.

5. Long-Term Health and Quality of Life

- ***Physical Recovery Outcomes***: Outcomes related to physical recovery, including the need for ongoing medical intervention or support, will be assessed. Long-term outcomes aim to capture whether anesthesia choices affect physical recovery, quality of life, and return to normal activities postpartum. The ability to resume daily activities is a key metric for maternal health. ELEVATE stakeholders recommend including assessments of postoperative mobility, time to discharge, and readiness to care for the newborn, all of which contribute to maternal satisfaction and quality of life.
- ***Emotional Resilience and Family Well-Being***: Recognizing that cesarean delivery can impact family dynamics and maternal bonding, ELEVATE considers outcomes related to the patient's overall resilience and the emotional support provided during and after delivery.

6. Patient Satisfaction

- ***Individual Satisfaction Scores and Consistency of Care***: Patient satisfaction encompasses multiple dimensions, including communication quality, pain management, and perceived empathy from providers. Satisfaction scores will be collected individually and as a measure of consistency across different care teams, highlighting areas where care may vary and identifying opportunities for improvement.
- ***Retention and Comprehension of Education***: As part of improving patient satisfaction, ELEVATE measures patient comprehension and retention of preoperative information regarding anesthesia options. This outcome assesses how well patients understand their choices and whether the information provided was sufficient for informed decision making.

Significance of Patient-Centered Outcomes in Cesarean Anesthesia Care

Patient-centered outcomes in ELEVATE ensure that cesarean anesthesia practices are aligned with patients' needs and values. By focusing on pain control, sense of control, psychological well-being, satisfaction, and long-term and neonatal health, ELEVATE aims to enhance quality of care and support meaningful, positive experiences for all cesarean patients. These outcomes also support equitable care by emphasizing the experiences of marginalized groups, ultimately contributing to improved maternal and neonatal health across diverse populations.

Key Recommendations

The following key recommendations offer a comprehensive approach to optimizing anesthesia choices for cesarean delivery. These strategies prioritize solutions that resonate with patients, clinicians, policymakers, and payers, addressing policy gaps, evidence needs, and patient-provider relationships in ways that promote maternal well-being and elevate women's health standards.

By implementing these key recommendations, healthcare systems can encourage a patient-centered approach to cesarean anesthesia that prioritizes patient empowerment, aligns with evidence-based practices, and promotes a collaborative, trusting environment. Through policy reform, research support, and innovative communication strategies, these initiatives aim to improve maternal and neonatal outcomes, setting a high standard for anesthesiology in women's health.

Recommendation #1: Advance Research to Close Knowledge Gaps and Build Better Evidence to Promote Anesthesia Choices

- **Promote Research**: Prioritize comparative effectiveness research to evaluate different anesthesia strategies and their impact on patient outcomes. Support research focused on the comparative clinical effectiveness of different anesthesia techniques, as well as studies exploring diverse framing methods for anesthesia options. This research helps to clarify the most effective ways to communicate with patients, address pain and anxiety, and tailor anesthesia choices to individual needs, particularly for marginalized groups.
- **Risk assessment**: Develop and validate multidisciplinary risk assessment tools to improve decision making and reduce risk for intraoperative pain or discomfort.
- **Promoting Clinical Practice Guidelines and Recommendations**: Advocate for the adoption and consistent implementation of clinical practice recommendations by the ASA to ensure high standards and evidence-based approaches in cesarean anesthesia. Additionally, implement the Obstetric Anaesthetists' Association (OAA) guidelines on testing neuraxial anesthesia blockade, ensuring comprehensive and safe anesthesia practices.
- **Adding Autonomy and Respect to Patient-Centered Pain Outcomes**: Analgesia research in obstetric areas should emphasize patient-centered dimensions of pain management, specifically, patient sense of control or autonomy, and sense of respect. Stakeholders agree that these dimensions are as important as numeric pain scores in making a complete and holistic pain assessments.

- **Promoting Qualitative Outcomes**: Conduct qualitative studies on patient experiences to refine best practices in patient-centered obstetric anesthesia care. Incorporate qualitative elements into all trials to integrate the patient's voice. This approach incentivizes the inclusion of maternal experience measures into trials of cesarean delivery anesthesia approaches, ensuring outcomes reflect patient-centered metrics such as sense of control, understanding, and feeling heard.

Recommendation #2: Build Trust and Relationships through Patient Involvement and Expanded Access to Prenatal Anesthesia Consultations

- **Public Health Campaigns and Community Education Initiatives**: Launch public health campaigns and standardized educational tools to improve awareness and alignment on anesthesia choices. By engaging communities in educational dialogues, these campaigns can demystify anesthesia options, dispel myths, and encourage informed decision making among diverse patient populations.
- **Reimbursement**: Ensure payments for prenatal anesthesia consultations are uniformly applied to support informed decision-making for patients and are not disincentivized compared to other sources of anesthesia service payment.
- **Improved Informed Consent Processes**: Strengthen informed consent processes to ensure patient comprehension and comfort. Standardize the inclusion of anesthesia informed consent during prenatal education to empower patients and reduce perioperative anxiety.
    - ***Train Patients to Speak Up***: Educate patients about procedural risks and empower them to speak up, emphasizing their role in monitoring and understanding potential anesthesia complications.
    - ***Advance Timing of Consent***: Provide informed consent earlier in the prenatal process to avoid consent under duress, allowing patients time to fully understand and ask questions before cesarean delivery.
- **Recognition of Psychological Trauma as a Safety Error**: Incorporate psychological trauma considerations into anesthesia safety metrics, recognizing that trauma responses can arise from experiences where patients do not feel adequately heard or respected. By viewing trauma as a potential safety error, healthcare providers are encouraged to mitigate trauma responses by fostering an environment of trust and validation.
- **Engagement Through Alternative Information Channels**: Recognize and utilize non-traditional channels for information dissemination, as many birthing individuals rely on community-based or digital sources for healthcare information. Engage community structures, doulas, social media influencers, and digital health media to distribute accurate, relatable, and accessible information on anesthesia options, reaching patients where they already seek knowledge and support.
- **Encouraging Collaborative Prenatal Programs**: Beyond the clinical setting, integrate anesthesiology consultation into prenatal programs that emphasize shared decision making and trust-building between patients and healthcare providers. This collaborative approach ensures that patients feel well-prepared for delivery and empowered to make informed choices about anesthesia.
- **Supporting Patients During Emergencies**: In emergency or unscheduled cesarean deliveries, patients may struggle to make or voice decisions due to the urgency and emotional strain of the situation. Clinicians can build trust by using empathetic communication tools, and by taking an active, supportive role, providing clear, concise updates on anesthesia choices and procedures, and affirming

their commitment to the patient's safety and well-being. Physicians and clinicians acting as agents for patients in emergencies, including implementing care plans while keeping patients informed throughout, is another way to assure patients remain safe while receiving care that is informed of their trauma. These approaches respect patient needs for information while relieving them of decision-making pressures that can lead to further distress, ensuring care remains patient-centered even in high-stakes moments.

Recommendation #3: Prioritize Maternal Anesthesia Choice as a Health Imperative

- **High-Impact Focus on Maternal Well-Being**: Recognize cesarean anesthesia choice and its impact on maternal health as being critical to women's health and well-being. Align anesthesia choice initiatives with broader women's health programs, emphasizing the unique needs of birthing populations and the transformative effects of patient-centered anesthesiology on maternal outcomes.
- **Universal Stakeholder Engagement**: Encourage a collaborative approach among all relevant stakeholders—patients, clinicians, policymakers, and payers—to drive sustainable solutions. Establishing cesarean anesthesia choice as a health priority supported by diverse voices ensures that policies and practices align with the needs of those directly impacted.

Recommendation #4: Design and Implement Structural Revisions and Interventions Supporting Evidenced-Based Anesthesia Protocols for Generalist Providers

- **Standardization**: Create standardized and evidence-based protocols for non-specialist anesthesia providers in low resource settings. Promote standardization of practices across states to ensure consistent care quality.
- **Training**: Enhance training and simulation opportunities to improve empathetic communication training among all care providers.
- **Collaboration**: Support cross-disciplinary collaboration by incorporating anesthesia best practices into institutional protocols for labor and delivery.
- **Mandatory Prenatal Anesthesiology Consultations**: Implement universal and compulsory prenatal anesthesiology consultations for patients considering or planning a cesarean delivery. These consultations will serve as a standardized method to educate patients on anesthesia choices, manage expectations, and prepare patients in a collaborative, trusting environment. This practice fosters early patient-anesthesiologist connections and improves both clinical and psychological readiness for delivery.
- **Value-Based Purchasing Programs**: Leverage value-based purchasing programs as incentives to drive the implementation of patient-centered anesthesia practices. These programs reward institutions and providers who prioritize quality and patient satisfaction, encouraging the adoption of patient-centered anesthesiology consultation models and best practices.
- **Government Policymaking and Reimbursement Reform**: Pursue legislative reforms that address reimbursement for prenatal anesthesiology consultations and promote evidence-based anesthesia choices in obstetric care. Sustainable reimbursement structures ensure that patients in diverse settings have equitable access to prenatal anesthesiology consultations and that these interactions are consistently supported by policy.

Recommendation #5: Support Wide-spread Access

- **Infrastructural Enhancements and Resource Allocation**: Advocate for investments in infrastructure to support equitable anesthesia consultation access, particularly in underserved and rural settings. Enhanced resource allocation—such as expanded telehealth capabilities, trained staff, and multidisciplinary prenatal consultation models—can support consistent delivery of patient-centered anesthesia care.
- **Standardized Educational Tools and Resources**: Develop and disseminate standardized educational resources on anesthesia options, available in multiple languages and accessible to patients from all backgrounds. Providing consistent, evidence-based information ensures that all patients have the foundational knowledge they need to make informed choices, regardless of their cultural or linguistic background.
- **Team-Based and Interdisciplinary Care**: Strengthen interdisciplinary care models including integration of doulas and support people, midwives, and community health workers in cesarean delivery and anesthesia care. Implement incentive programs to attract anesthesia providers with interest in obstetrics to underserved areas. Increase investment to local infrastructure such as staffing support and emergency anesthesia response capabilities.

Path Forward for ELEVATE-ing Anesthesia Choice

The following logic model outlines the foundational inputs, planned activities, anticipated outputs, and desired short- and long-term outcomes for implementing patient-centered, evidence-based anesthesia practices for cesarean delivery (**Table 7**).

Inputs

Key resources and foundational elements that support the project's implementation:

- **Stakeholder Expertise**: Contributions from anesthesiologists, obstetricians, neonatologists, patient advocates, doulas, and community health representatives provide clinical, experiential, and community insights that inform patient-centered anesthesia practices.
- **Policy and Legislative Support**: Engagement with policymakers to advocate for reimbursement reforms, policy adjustments, and infrastructure funding essential for prenatal anesthesia consultations and telehealth services.
- **Professional Society Guidelines**: Clinical guidelines and best practices from organizations such as the ASA and OAA serve as evidence-based frameworks for safe and effective anesthesia care.
- **Funding and Financial Resources**: Resources invested in the ELEVATE project, including funding from healthcare institutions, governmental grants, and value-based purchasing programs, support research, training, infrastructure, and educational initiatives.
- **Research and Data Infrastructure**: Tools and systems for data collection, qualitative and quantitative research, patient surveys, and metrics tracking to monitor outcomes and inform evidence-based decisions. This includes data and evidence gathered to inform key project decisions and outcome measures.

- **Patient Education Materials**: Development of culturally and linguistically appropriate educational resources and decision aids to support informed patient choices.

Activities

Core actions and strategies to address gaps and promote patient-centered cesarean anesthesia practices:

1. Policy and Advocacy Initiatives

- Advocate for mandatory prenatal anesthesia consultations and seek reimbursement support for consultations to ensure patients have equitable access to anesthesia education.
- Promote policy changes to include maternal experience metrics in clinical trials and encourage value-based purchasing models to support patient-centered practices.

2. Development of Educational and Communication Tools

- Create standardized educational materials, including brochures, videos, and digital resources, to explain anesthesia options in accessible language.
- Develop public health campaigns and engage non-traditional channels (e.g., social media influencers, community-based groups, doulas) to disseminate accurate information on anesthesia choices and patient rights.

3. Provider Training and Clinical Protocols

- Train providers on empathy, active listening, and shared decision making to improve patient communication and support trauma-informed care.
- Implement ASA and OAA clinical guidelines, including protocols for testing neuraxial anesthesia blockade and documenting anesthesia levels before procedures.
- Provide simulation and scenario-based training for handling diverse anesthesia responses and improving informed consent processes.

4. Research and Data Collection: Potential Research Questions

- Conduct trials to compare anesthesia techniques and develop evidence on the psychological and clinical impacts of various anesthesia choices.
- Incorporate qualitative metrics in trials to measure patient experience, including sense of control, feeling heard, and satisfaction with anesthesia care.
- Convene stakeholders in sessions focused on identifying barriers, facilitators, comparators, and patient-centered outcomes in cesarean anesthesia care.
- Engage in research and analysis, using data to define comparators and to better understand factors impacting patient-centered anesthesia.
- Possible Research Questions:
    - Does the presence of an effective doula or other support person in the OR improve outcomes? What should that role look like to be most beneficial?

- Which adjunctive medications provide the most effective pain (or other symptom) relief and under what circumstances? Comparative effectiveness research is needed to identify the optimal use of adjuncts in cesarean delivery anesthesia, balancing efficacy, safety, and patient preferences to support true shared decision-making.
- Can a standardized, validated, multi-disciplinary risk assessment tool support conversations and decision-making that reduce the incidence of intraoperative pain?
- Does care from general anesthesiologists benefit from codifying the knowledge of specialists in evidence-based, usable protocols?
- Does inclusion of anesthesia in prenatal care increase patient communication that drives improved care and reduced trauma?

5. Community Engagement and Support Programs

- Establish prenatal education and consultation programs that integrate community health workers, doulas, and advocates to enhance patient support.
- Organize group sessions where patients can consult with anesthesiologists and obstetric teams, allowing shared learning and addressing common concerns in a collaborative environment.

6. Dissemination of Findings

- Share project findings with stakeholders through reports, publications, conferences, and digital platforms to promote widespread awareness and adoption of best practices.

Outputs

Tangible products and immediate results from project activities:

- **Educational Materials and Tools**: Distribution of standardized, patient-friendly anesthesia education materials in multiple languages through digital and physical channels.
- **Provider Training Programs**: Completion of training modules for healthcare providers on communication skills, trauma-informed care, and shared decision making for cesarean anesthesia.
- **Data and Research Findings**: Published research on the comparative effectiveness of anesthesia options, as well as studies incorporating qualitative patient experience metrics into anesthesia trials.
- **Defined Comparators and Outcomes**: Established comparators, outcomes, and qualitative measures to be used in cesarean anesthesia studies and clinical practice.
- **Identified Barriers and Facilitators**: Documentation and categorization of barriers and facilitators that impact patient-centered anesthesia practices, informing actionable recommendations for improvement.
- **Reports and Publications**: Development and dissemination of project findings through reports, peer-reviewed publications, and presentations at conferences.
- **Public Health Campaigns**: Execution of community-targeted educational campaigns, utilizing social media, doula networks, and digital health platforms to reach diverse patient populations.

- **Collaborative Community Programs**: Established prenatal education and group consultation programs that bring together community health workers, doulas, and clinical teams to support patients' anesthesia choices.

Outcomes

Short-Term Outcomes (1-2 years)

These outcomes lay the groundwork for evidence-based, patient-centered anesthesia decisions, promoting a deeper understanding of how routine versus standard prenatal anesthesia consultations impact patient satisfaction, preparedness, and overall care quality.

Publish ELEVATE Summit Findings

Disseminate research results to increase awareness and support evidence-based anesthesia choices.

Define Key Comparators and Outcomes

Establish and clarify core comparators and desired patient-centered outcomes in anesthesia care, including routine versus standard prenatal anesthesia consultations, assessing impact on patient-centered outcomes.

Develop a Comprehensive Patient-Centered CER Agenda

Create a focused agenda to guide comparative effectiveness research on anesthesia choices that prioritizes patient preferences and experiences.

Identify Initial Barriers and Promoters

Recognize the primary obstacles and facilitators influencing patient-centered anesthesia in emergency and scheduled cesarean deliveries.

Medium-Term Outcomes (3-5 years)

These medium-term outcomes aim to improve anesthesia options and patient experiences, creating a foundation for lasting change in clinical practices and policy.

Dissemination to Stakeholders

Distribute findings and tools to stakeholders through webinars, conferences, and reports to relevant medical societies and organizations.

Strengthen Collaboration for Implementation

Foster partnerships among healthcare providers, patient advocacy groups, and policymakers to support the adoption of patient-centered anesthesia practices in clinical settings.

Improved Clinical Practices and Patient Outcomes

Increased implementation of patient-centered anesthesia approaches, leading to enhanced maternal and neonatal outcomes, including reductions in pain, anxiety, and psychological trauma.

Elevated Maternal and Neonatal Health Outcomes

Improved patient health outcomes from informed, patient-centered anesthesia care, focusing on reduced pain, anxiety, and postpartum psychological well-being.

Standardized Patient-Centered Policies

Adoption of patient-centered policies within healthcare systems, such as universal prenatal anesthesia consultations and integration of maternal experience metrics in outcome assessments.

Data-Driven Practice Improvements

Utilization of research findings and patient feedback to continuously refine and improve anesthesia practices, establishing a data-driven culture in patient-centered care.

Reduced Disparities in Care Access

Enhanced access to high-quality anesthesia care for marginalized and underserved populations through increased availability of consultations, educational resources, and support networks.

Long-Term Outcomes (5+ years)

These long-term outcomes ensure a sustained improvement in anesthesia choices, promoting a healthcare environment that values patient-centered, equitable, and evidence-based practices.

Widespread Adoption of Data-Informed, Patient-Centered Practices

Nationwide adoption of anesthesia practices that prioritize patient-centered outcomes, fostering a standardized approach that aligns with patient needs and values.

Sustainable Policy and Reimbursement Reforms

Establishment of permanent policy and reimbursement structures that support prenatal anesthesia consultations and incentivize patient-centered cesarean anesthesia care.

Enhanced Maternal and Neonatal Safety and Health

Long-term improvements in maternal and neonatal safety, driven by patient-centered, evidence-based anesthesia practices that prioritize holistic well-being and reduce procedural risks.

Strengthened Community Trust and Engagement

Development of a trust-based patient-provider relationship through consistent, respectful communication, with active community engagement in cesarean anesthesia education and support.

Embedded Patient-Centered Standards

Integration of patient-centered anesthesia practices as a nationwide standard for cesarean delivery, ensuring equitable, respectful, and informed care across all healthcare settings.

Table 7. Summary of short-, intermediate-, and long-term outcomes for ELEVATE.

Outcome Type	Outcomes
Short-Term (1-2 Years)	• Publish ELEVATE Project and Summit findings

	• Define key comparators and outcomes • Develop a comprehensive patient-centered CER agenda
Intermediate-Term (3-5 Years)	• Conduct high-priority CER • Dissemination to stakeholders • Strengthen collaboration for implementation • Improved clinical practice and patient outcomes • Elevated maternal and neonatal health outcomes • Standardized patient-centered policies • Data driven practice improvements • Reduced disparities in care access
Long-Term (5+ Years)	• Widespread adoption of data-informed, patient-centered practices • Sustainable policy and reimbursement reforms • Enhanced maternal and neonatal safety and health • Strengthened community trust and engagement • Embedded patient-centered standards

Conclusion

The ELEVATE project offers a structured framework to enhance anesthesia choices in cesarean delivery, emphasizing a patient-centered, evidence-based approach. Through collaborative input from healthcare providers, patients, policymakers, and community representatives, ELEVATE has identified key findings and established recommendations to address current gaps in knowledge, communication, and equitable access to anesthesia care.

Summary of Key Findings: The project's findings highlight several areas of focus. First, a consistent gap exists in patient understanding of anesthesia options and informed decision making, largely due to variability in communication and limited access to prenatal anesthesiology consultations. Additionally, both patient-centered policies and standardized protocols—such as those for testing neuraxial anesthesia and enhancing informed consent—are necessary to improve patient experience and clinical outcomes. Stakeholders also identified the need for qualitative measures that capture patient experience alongside traditional clinical outcomes, providing a more comprehensive view of maternal well-being.

Implications for Future Research and Practice: The findings from ELEVATE indicate a need for expanded research on the comparative effectiveness of different anesthesia techniques and patient-centered communication strategies in cesarean delivery. Integrating maternal experience metrics into research studies will be essential for advancing a holistic understanding of patient well-being. Furthermore, standardizing clinical practices and implementing ASA and OAA guidelines across diverse healthcare settings can help reduce inconsistencies in care quality and improve maternal-neonatal safety outcomes. Future research should also focus on evaluating the long-term impacts of patient-centered approaches and identifying effective ways to incorporate non-traditional communication channels to reach patients.

Recommendations for Next Steps in the ELEVATE Initiative: Building on these findings, the next steps for the ELEVATE initiative should include further development and implementation of policy and practice recommendations to promote universal access to prenatal anesthesia consultations, alongside continued advocacy for reimbursement reforms to support these services. Expanding training for providers on empathy, communication, and trauma-informed care can enhance patient-provider interactions. Additionally, ELEVATE should prioritize data collection and analysis to assess the effectiveness of these recommendations in clinical settings. Establishing metrics to evaluate both patient-centered outcomes and care consistency will enable continuous improvement and support the initiative's long-term objectives of enhancing patient safety, satisfaction, and maternal-neonatal health.

Acknowledgements

This project would not have been possible without the invaluable contributions of Ms. Jasmin Brown, and Marja Fox, whose support was instrumental in guiding the project success. We are also indebted to Christine Burr and Andrey Romanov who guided communications and digital material preparations. We extend our deepest thanks to these individuals for their commitment to advancing patient-centered care.

References

American Society of Anesthesiologists (ASA). (2022). Statement on quality metrics in obstetric anesthesia. Retrieved July 22, 2024, from https://www.asahq.org/standards-and-practice-parameters/statement-on-quality-metrics#/

American Society of Anesthesiologists (ASA). (2023). Statement on pain during cesarean delivery. Retrieved July 22, 2024, from https://www.asahq.org/standards-and-practice-parameters/statement-on-pain-during-cesarean-delivery

American Society of Anesthesiologists (ASA). (2024). Statement on the use of adjuvant medications and management of intraoperative pain during cesarean delivery. Retrieved November 7, 2024, from https://www.asahq.org/standards-and-practice-parameters

Aloziem, O. U., Thurston, A. L., Romeo, R. C., Bauchat, J. R., Gopalan, P., Smith, C. T., & Lim, G. (2025). Anesthesiologist training in empathetic communication for obstetric emergencies improves patient-reported outcomes. Anesthesiology. Advance online publication. PMID: 39946191.

Back, A. L., Arnold, R. M., Baile, W. F., Tulsky, J. A., & Fryer-Edwards, K. (2005). Approaching difficult communication tasks in oncology. CA: A Cancer Journal for Clinicians, 55(3), 164-177. https://doi.org/10.3322/canjclin.55.3.164

Birthplace Lab. (n.d.). Birthplace Lab: Research and tools for respectful maternity care. Retrieved March 8, 2025, from https://www.birthplacelab.org

Dencker, A., Taft, C., Bergqvist, L., Lilja, H., & Berg, M. (2010). Childbirth experience questionnaire (CEQ): Development and evaluation of a multidimensional instrument. BMC Pregnancy and Childbirth, 10, 81. https://doi.org/10.1186/1471-2393-10-81

IRTH. (n.d.). Identifying Respectful and Transformative Healthcare (IRTH) app. Retrieved March 8, 2025, from https://irthapp.com

Levine, M. S., & Lowe, N. K. (2015). Measuring nurse attitudes about childbirth: Revision and pilot testing of the Nurse Attitudes and Beliefs Questionnaire. Journal of Nursing Measurement, 23(2), 287-301. https://doi.org/10.1891/1061-3749.23.2.287

Plaat, F., Stanford, S. E. R., Lucas, D. N., Andrade, J., Careless, J., Russell, R., Bishop, D., Lo, Q., & Bogod, D. (2022). Prevention and management of intra-operative pain during caesarean section under neuraxial anaesthesia: A technical and interpersonal approach. Anaesthesia, 77(5), 588-597. PMID: 35325933; PMCID: PMC9311138.

Sokas, C., Yeh, I. M., Coogan, K., Bernacki, R., Mitchell, S., Bader, A., Ladin, K., Palmer, J. A., Tulsky, J. A., & Cooper, Z. (2021). Older adult perspectives on medical decision making and emergency general surgery: "It had to be done." Journal of Pain and Symptom Management, 61(5), 948-954. https://doi.org/10.1016/j.jpainsymman.2020.09.039

Taylor, L. J., Nabozny, M. J., Steffens, N. M., Tucholka, J. L., Brasel, K. J., Johnson, S. K., Zelenski, A., Rathouz, P. J., Zhao, Q., Kwekkeboom, K. L., Campbell, T. C., & Schwarze, M. L. (2017). A framework to improve surgeon communication in high-stakes surgical decisions: Best case/worst case. JAMA Surgery, 152(6), 531-538. https://doi.org/10.1001/jamasurg.2016.5674

Vedam, S., Stoll, K., Martin, K., Rubashkin, N., Partridge, S., Thordarson, D., Jolicoeur, G., & Changing Childbirth in BC Steering Council. (2017). The Mother's Autonomy in Decision Making (MADM) scale: Patient-led development and psychometric testing of a new instrument to evaluate experience of maternity care. PLoS One, 12(2), e0171804. https://doi.org/10.1371/journal.pone.0171804

Vedam, S., Stoll, K., Rubashkin, N., Martin, K., Miller-Vedam, Z., Hayes-Klein, H., & Jolicoeur, G. (2017). The Mothers on Respect (MOR) Index: Measuring quality, safety, and human rights in childbirth. SSM - Population Health, 3, 201-210. https://doi.org/10.1016/j.ssmph.2017.01.005

White Ribbon Alliance. (2019). Respectful maternity care charter: The universal rights of women and newborns. Retrieved March 8, 2025, from https://www.whiteribbonalliance.org