



Review Article

What is new in Obstetric Anesthesia in 2020: a focus on research priorities for maternal morbidity, mortality, and postpartum health

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ABSTRACT

Advances in obstetric anesthesiology have historically exemplified how scientific progress can have a transformational impact on patient safety practices. Profound reductions in anesthesia-related maternal mortality in the 20th century highlighted the specialty of anesthesiology as a leader in safety and care quality. In 2020, maternal health faces new crises: preventable maternal mortality trends worldwide continue to stagnate, and in the United States of America, mortality rates are increasing, attributable to structural care limitations, systemic racism, and social determinants of health. Postpartum health offers improvement opportunities given high rates of maternal deaths occurring within the first postpartum year, particularly in the areas of mental health, cognition, and recovery. Obstetric anesthesiologists have unique perspectives on systems of care, education and training, and device innovation. An interdisciplinary team approach to research and innovation, as well as systems based and health policy work, presents an opportunity for anesthesiologists to contribute to solutions that reduce maternal morbidity and mortality and improve postpartum health for all people.

Introduction

The annual Gerard W. Ostheimer lecture aims to update Society of Obstetric Anesthesia and Perinatology members on the relevant literature published in the preceding year. In this lecture, papers from the anesthesiology, obstetric, perinatology, neonatology, and health services literature published between January and December 2020 were evaluated and selected based on significance and relevance to clinicians and scientists. There were over 2000 articles in 90 medical journals that met this initial screening criteria for review. Among these articles, the list was narrowed to approximately 200 articles that were of high quality and relevance.

This review focuses on notable papers in 2020 that highlight potential research and innovation opportunities for the obstetric anesthesiologist.

Maternal mortality in the United States of America (USA)

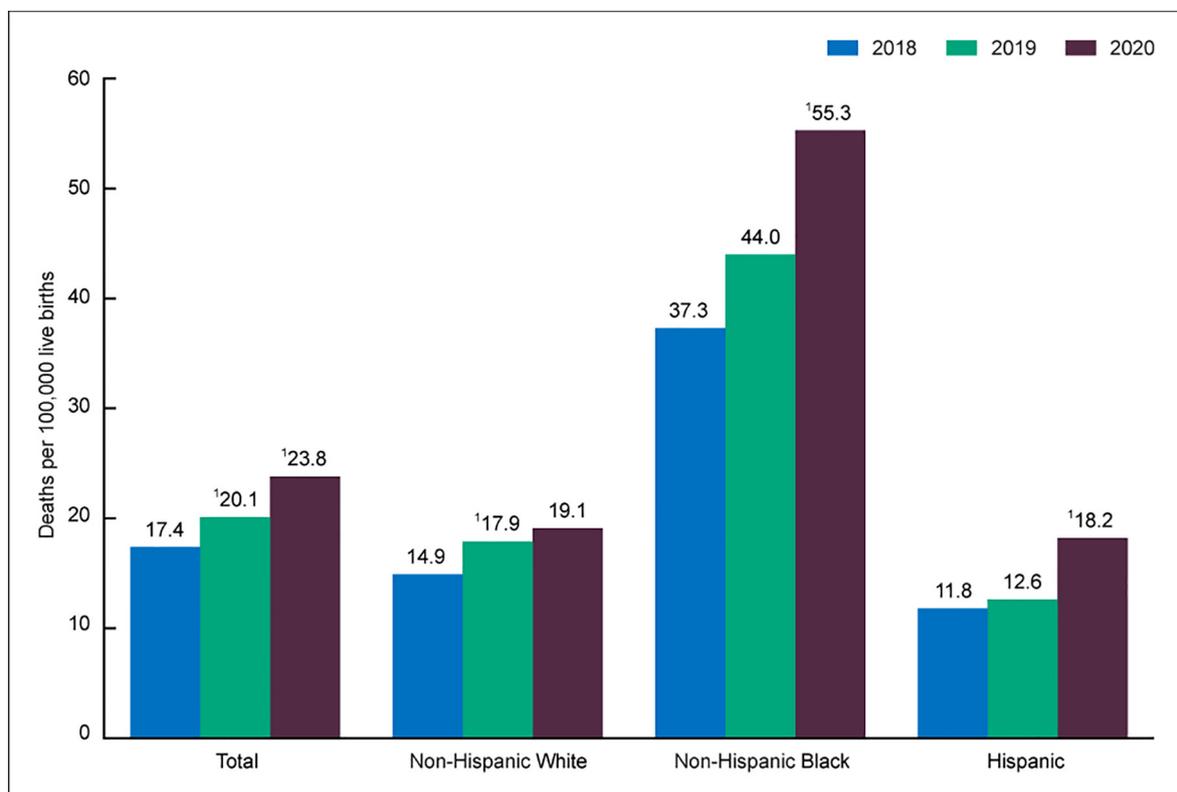
In 2020, the United States (US) Centers for Disease Control (CDC) released their first updates since 2007 on maternal mortality.¹ Over a 16-year period (2003–2018), all 50 states adopted a pregnancy checkbox on death certificates. The 2020 National Center for Health Statis-

tics (NCHS) report identified 658 maternal deaths nationwide, a maternal mortality rate (MMR) of 17.4 deaths per 100 000 live births for 2018 (12.1 per 100 000 live births in 2007). Racial and ethnic disparities in MMR persisted, with Black women dying at two to four times the rate of White women (Fig. 1). Age remained an important factor: as the age at first pregnancy has been increasing in the USA, the MMR for women of 40 years or older has reached eight-times that of women aged less than 25 years.

Researchers have raised questions about the accuracy of the checkbox information. The death checkbox has led to some misclassification of maternal deaths. After quantifying the impact of including the pregnancy checkbox item on the number of deaths classified as maternal, the pregnancy checkbox identified 1527 maternal deaths in 2015 and 2016, an estimation that is three-fold higher than the 498 maternal deaths that would have been identified without the checkbox.² The sensitivity of the pregnancy checkbox in 2016 in Georgia, Louisiana, Michigan, and Ohio was 62% and the positive predictive value was 68%.³ Death certificates of non-Hispanic Black women were more likely to be false positive, and checkbox errors were more likely for women greater than 40 years and for nonspecific causes of death. Because of these ascertainment issues, in 2018 the NCHS made changes to coding rules and reporting to improve data accuracy.¹

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¹Statistically significant increase in rate from previous year ($P < 0.05$).
 NOTE: Race groups are single race.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Fig. 1. Maternal mortality rates, by race and Hispanic origin: United States, 2018–2020.

“The 2018 Method” restricts the entry of the death certificate pregnancy checkbox to women of ages 10–44 years. The NCHS also recognized the need to modernize the electronic reporting systems and add quality checks to the reporting systems.

Disparities

Disparities in racial, ethnic, and social determinants of pregnancy-related morbidity and mortality persist. A 2020 systematic review found minority race, ethnicity, public or no health insurance, and lower education levels were linked to an increased risk for maternal death and severe maternal morbidity (SMM).⁴ However, only two of the 83 studies included the impact of factors such as socio-economic, public policy, and the cultural context on these relationships. Clearly, there is a need for more research on specific factors relating to social determinants of health as it relates to maternal death and SMM.

Although social determinants are known to be a factor in SMM and mortality, health insurance status is inconsistently linked to these poor outcomes. A study of within-hospital outcomes in New York City showed that Black and Latina women are at higher risk of SMM than White women.⁵ However, these poor outcomes were not associated with differences in types of health insurance. The authors suggest that actionable areas to reduce health disparities and improve care quality include standardizing care, enhancing communication, implementing bias training, improving translation services, starting quality improvement activities targeting gaps identified in care, and strengthening community partnerships. The study highlights knowledge gaps and a need for concerted research efforts on the effect of material and physical circumstances, such as neighborhood, environment, and segregation, on poor pregnancy outcomes.

Disparities in maternal health and mortality outcomes are longstanding and Black mothers are disproportionately represented in

maternal deaths in the USA. Given these considerations, the Black Maternal Health Momnibus Act of 2020 was introduced into the US Congress.⁶ The nine bills included in the legislation aimed to take meaningful action to address each dimension of the Black maternal health crisis in the USA. These dimensions include social determinants of health, supporting community organizations, supporting women veterans, increasing perinatal workforce diversity, data collection and quality metrics, mental health care, supporting incarcerated women, digital tools and technology investments, and innovations in insurance and payment models throughout pregnancy and the first postpartum year.

In addition to these historic legislative activities, the Department of Health and Human Services (HHS) and Surgeon General released two reports in 2020: an ‘Action Plan’ and ‘Call to Action’ to improve maternal health, respectively.^{7,8} Both reports included detailed actions, with most items targeting improving care for racial and ethnic minorities. The HHS Action Plan focuses on changes within the health care system, while the Surgeon General’s report highlights opportunities for action across all stakeholders, including payors, employers, innovators, and patients. In the Action Plan, HHS provides a roadmap to address factors before and during pregnancy, to improve quality and access to pregnancy and postpartum care, and to support research to fill evidence gaps. The report identifies specific areas of improvement in cesarean delivery rates and hypertension. Low-risk cesarean delivery rates ranged from 16.7 to 31.8 per 100 deliveries in the USA, which exceed the World Health Organization’s global target of 10–15%. Also, 33% of pregnancy-related deaths were associated with cardiovascular conditions, and uncontrolled pre-pregnancy hypertension was associated with a higher risk of serious pregnancy complications and lifelong cardiovascular risk. The Action Plan outlines three specific targets to improve the nation’s maternal health outcomes by 2025: firstly, to reduce the maternal mortality rate by 50%, secondly;

to reduce low-risk cesarean deliveries by 25%; finally, to achieve blood pressure control in 80% of women of reproductive age with hypertension. The HHS further outlines ways in which they are programmatically advancing these goals. Examples include funding new projects related to maternal health data, funding multidisciplinary research to understand, prevent, and reduce racial disparities and rural health care disparities, and advancing nationwide paid family leave plans. Altogether, the combined efforts of the HHS and Surgeon General set clear and ambitious agendas for improving maternal health within the next five years.

As Callaghan suggests, “Our societal valuation of women and marginalized populations is only as good as our actions.”⁹ In 2020 and moving forward, our research and clinical work should focus on health services research, quality improvement work at local and national levels, as well as health policymaking.

Cardiovascular health and cardio-obstetrics

The HHS Blood Pressure control target aligns with a known leading cause of maternal mortality: cardiovascular disease. Cardio-obstetrics has emerged as an important multidisciplinary field that facilitates a team approach to the optimal management of cardiovascular disease during and after pregnancy.

Cardiovascular disease is changed by pregnancy, and pregnancy serves as a window to view risks for cardiovascular disease across the lifespan. In a prospective cohort study of over 1000 women, Black women were found to have a less rapid decrease in blood pressure compared with White women, resulting in higher blood pressure at six weeks postpartum.¹⁰ Sixty-eight per cent of Black women and 51% of White women met criteria for stage 1 or stage 2 hypertension. These important findings underscore the critical need to extend ongoing postpartum care beyond the traditional period of six weeks. It also highlights innovation opportunities for postpartum care involving a novel postpartum remote blood pressure monitoring program starting at the time of delivery.

Levels of Maternal Care

The Levels of Maternal Care were updated by the American College of Obstetricians and Gynecologists in 2019.¹¹ They define appropriate hospital-level assignments based on equipment, service capabilities, health care providers, and type of care needed. A national case-control study in France described the effectiveness of this type of care centralization in improving maternal outcomes.¹² The investigators assessed the risk of peri-hospital maternal death according to hospital characteristics. After adjusting for referral bias related to prepartum morbidity, the study found that the risk of maternal mortality differs by hospital characteristics; delivering in a public maternity hospital, Level 2 or 3, and with an anesthesiologist available 24 hours a day, resulted in a lower risk of maternal death. The findings may reflect differences in practice patterns: the authors note that in private hospitals, decisions are usually made by individual physicians, whereas teaching hospitals tend to use collegiate decision-making and team-based work. Teamwork is known to improve care quality, and these collegiate decisions increase management concordance with recommendations and consistency of decisions in emergencies.¹³ Collaborative quality improvement work between different hospitals can be a complex undertaking, especially when there are no formal relationships between hospitals. Successful partnerships between low- and high-acuity centers will require time and resource investment to build successful bi-directional relationships.

Emerging data suggest a relative increase in maternal deaths occurring outside medical centers, specifically, in patients' homes.¹⁴ Deaths in inpatient facilities, outpatient facilities, and emergency rooms are falling, although overall pregnancy-related deaths continue to increase

in all settings. These maternal mortality trends are driven by social, cultural, and economic issues that are outside of the direct control of the traditional medical system. Therefore, innovating solutions to these challenges will need to incorporate interventions beyond the traditional medical systems.

Altogether, substantive policy, research, and social activities in 2020 focused on curbing maternal mortality and addressing health disparities. The problems, as well as the solutions, are highly complex and will require concerted research and collaborative efforts across multiple levels of experts and stakeholders to improve maternal health outcomes worldwide.

Cognitive function, mental health, and recovery

Severe maternal morbidity affects long-term health and recovery well beyond the immediate postpartum period. A single-center case-control study identified women with SMM and compared them with a randomly sampled control group without SMM.¹⁵ The 315 women in the SMM group had fewer children after the index pregnancy, new complications in subsequent pregnancies, and required specialized medical care after delivery. The authors suggest that surveillance and follow-up of women with SMM should extend beyond the typical 42 days postpartum, although they also suggest that this surveillance should be individualized, and of a duration determined by the stabilization of the condition.

Reducing morbidity and mortality are high priorities for perinatal care. However, women deserve much more than to know they are simply going to survive childbirth.¹⁶ A successful transition to motherhood encompasses optimal recovery, mental health, and cognitive health. Recent investigations have highlighted the impact that hypertensive disorders of pregnancy (HDP) have on future cardiovascular and cerebrovascular health. A Taiwanese National Health Insurance database study investigated women with and without HDP matched by age. Those with HDP had a two-fold higher risk of developing stroke than did women without it.¹⁷ Hypertensive disorders of pregnancy also predict future cardiovascular health.¹⁸ Women with preeclampsia have a higher lifetime risk of stroke, ischemic heart disease, heart failure, and venous thromboembolism. A “dose response” effect seems to regulate this relationship; severe HDP, early-onset HDP, co-existence of fetal growth disorders, and recurrence of HDP result in worse cardiovascular measures. In addition to a risk of future stroke and poor general cardiovascular health, questions have been raised about HDP and the risk of neurocognitive impairment. A nested cohort study,¹⁹ embedded in a prospective cohort study from early pregnancy onwards, measured cognitive performance in 115 women with a history of HDP and in 481 women with a previous normotensive pregnancy. Women with HDP had reduced objective measures of cognitive function in memory and verbal learning. Study limitations included a lack of cognitive tests prior to or during pregnancy. Also, the investigators used outdated criteria for a HDP diagnosis, which may have artificially limited the sampling pool and affected the results. Nevertheless, the findings call attention to the potential long-term risks of cognitive impairment in women with HDP. Future trials should clarify whether cognitive decline in women with HDP is a true phenomenon and whether earlier treatment of HDP, with better follow-up in the “fourth trimester” or the first 12 weeks after delivery, can prevent cognitive decline and improve lifelong cognitive outcomes.

A biologic explanation for these findings of cognitive impairment after HDP may exist. A pilot study²⁰ examined transgenic mice that chronically overexpress human renin and angiotensin, and exhibit gestational proteinuria, mimicking human preeclampsia. Offspring of these index mothers were compared with control animals for spatial learning and memory tasks. Escape latency (the time required for the mouse to escape the maze) was worse in experimental compared

with control mice in the acute postpartum period. At three months postpartum, index mothers performed worse for new object recognition memory testing. At eight and 12 months, pups of index mothers performed worse for these tasks. Hemodynamic alterations that may be driving cognitive performance deficits were examined. The findings revealed that increases in cerebral blood flow were driving a surge in oxygenated hemoglobin and deoxygenated hemoglobin was observed to be washed out of the activated region. Overall, this study may validate a hemodynamic model for preeclampsia and cognitive impairment that could be used in future studies to decipher the mechanisms of long-term cognitive deficits found in mothers and offspring.

Outside of hypertensive disorders, childbearing may have a protective effect, potentially improving parental cognitive outcomes.²¹ In one observational study, response time, visual memory, and relative brain age (a measure of the deviation of a person's brain structural aging from the population's normal pace) were investigated in more than 300 000 subjects from the UK Biobank cohort. Subjects with two or three offspring had significantly reduced brain age compared with those without offspring, the difference being 0.6–0.7 years. The benefit was not monotonic; having three or more children was associated with similar brain age as cohorts without children. The authors suggest that these findings may reflect physical and financial stressors associated with having more children. Since the findings were similar between sexes, the authors further proposed that lifestyle factors associated with having children, such as improved social connectedness, and emotional support that comes from adult children, may influence long-term cognitive benefits.

In summary, cognitive function, mental health, and recovery are important aspects of postpartum health. More evidence is emerging suggesting that hypertensive disorders of pregnancy are a 'stress test' and a window into future cerebrovascular and cardiovascular health. Anesthesiologists can focus clinical, research, and innovation efforts on HDP and its potential risk of long-term neurocognitive impairment.

Depression and pain

Optimizing pain management and managing mental health is important for postpartum health. Several investigations have probed the roles that pain, use of neuraxial labor analgesia, and other acute care factors potentially play on postpartum mental health outcomes such as depression. However, pain, depression, and labor factors influencing use or non-use of neuraxial analgesia are complex traits. This complexity, like other complex psychiatric traits, is not easily predicted using a single risk factor.²² The genotype–phenotype map for complex traits reveals processes and environmental interactions that influence multiple levels of risk across various stages in development. Similarly, constructing models assessing risk factors and relationships among complex traits such as pain experience, analgesic effectiveness, and depression requires a multifaceted approach that considers pain, depression, and other psychological factors that can change over time.

In a Scandinavian cohort of 1500 women, the links between fear of childbirth, childbirth experience, use of neuraxial labor analgesia, and postpartum depression (PPD) were investigated.²³ Neuraxial analgesia was not associated with the risk of PPD at six weeks postpartum after adjusting for age, fear of childbirth, and antenatal depressive symptoms. However, these findings do not preclude a potential association between PPD and childbirth pain or other aspects of neuraxial analgesia that were not measured in this study. The study adds to evidence suggesting that neuraxial analgesia use in labor does not influence PPD risk.

Irrespective of neuraxial labor analgesia use, pain itself is a complicated experience, and pain treatment response exhibits individual variability. Therefore, uncovering the potential relationships between labor pain and depression remains an important, yet unanswered,

research question. Some studies have investigated these nuanced relationships and factors that may lead to pain-augmented perinatal depression.²⁴ One observational study of 645 women examined the role of labor pain and birth experience in the development of PPD diagnosed eight weeks after delivery. Labor pain and birth experience data were missing, however preliminarily, links between PPD and pre-pregnancy pain, history of depression, and birth experience with severe acute pain were identified. Another study found that PPD symptoms are moderated by perceived quality of care, which included pain interference, a measure of the extent to which pain hinders daily life.²⁵ Women who had pain that interfered with routine activities at two months postpartum were at increased odds of experiencing PPD symptoms. Perceived very good quality of care was protective against PPD symptoms, except for women reporting "quite a bit" of pain.

Similarly, using more sophisticated modeling, a study of 615 women in Chile²⁶ investigated reciprocal relationships between physical health indicators, including prenatal and immediate postpartum pain, and mental health. The investigators used random intercept cross-lagged panel models to analyze four waves of data, starting four to eight weeks before delivery and ending six months postpartum. These methods overcome traditional analysis limitations by factoring in intra-individual variability in depressive symptoms. Although some women were likely to present increasing levels of depressive symptoms over time, the investigators were able to test whether increasing within-person depressive symptoms were associated with a change in physical health symptoms, and vice versa. They found that postpartum physical health and depressive symptoms mutually influence each other. Pain intensity and postpartum depressive symptoms were bidirectionally related along all the data waves. Depressive symptoms were the dominant process leading to higher pain intensity. The authors suggest fostering better postpartum care by attending to both physical and mental health symptoms, and offering an integrated health care approach, because both depressive symptoms and physical health symptoms mutually influence each other. Taken together, these studies suggest that when we address depression, we must also validate physical health symptoms and not attribute them to emotional conflicts, thus avoiding giving patients a message that invalidates their physical discomfort. These studies reveal opportunities for anesthesiologists to investigate or collaborate on individualized complementary and alternative medicine options to build trust and therapeutic alliances with women at risk for severe pain and mental health perturbations.

Opioids

Peripartum pain and depression can impact postpartum opioid requirements.²⁷ A retrospective study of 900 women found an association between antepartum depression and acute pain after cesarean delivery, and increased postpartum opioid use. Notably, the group with depression had higher rates of tobacco use and general anesthesia, both of which are independently associated with increased postoperative pain and subsequent rescue opioid use. Similarly, a retrospective study of 615 women after cesarean delivery²⁸ found that the severity of acute postoperative pain was higher on postpartum day three in women with PPD, defined as a positive depression screen, compared with those women without PPD. There was a significantly higher rate of emergency cesarean delivery in women with depression which may have contributed to the postpartum pain experience. These links between acute peripartum pain and postpartum depression should continue to be investigated, as optimizing both pain management and care of depression will improve the general health of all women after delivery. These investigations continue to clarify the role that complex traits such as pain and individualized pain control interventions have in optimizing postpartum recovery and opioid stewardship. This research will also clarify whether controlling major

depression in the perinatal period can have additional postpartum benefits related to pain and opioid use. Anesthesiologists should continue to work on closing these knowledge gaps to improve these important outcomes.

Pain definitions, obstetric pain management, and enhanced recovery after cesarean (ERAC)

In 2020, the International Association for the Study of Pain (IASP) concluded a multinational, multidisciplinary task force that developed a revised definition of pain, with input from relevant stakeholders, including persons with pain and their caregivers (Table 1).²⁹ The 2020 definition of pain is, “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.” The new and enhanced definition of pain is intended to better convey the nuances and the complexity of pain, having the ultimate goal of improving assessment and management of pain.

A 2020 systematic review and network meta-analysis addressed questions about transversus abdominis plane (TAP) block and wound catheters or wound infiltration for post-cesarean analgesia. The primary outcome was 24-h opioid consumption. The network meta-analysis showed no difference in 24-h opioid consumption among wound catheter, wound infiltration, and TAP block groups. However, SUCRA (surface under the cumulative ranking) values suggested that the rank order of effectiveness among techniques is TAP block, followed by wound catheter infusion, and then wound infiltration. There were no differences between TAP block and wound catheters for pain outcomes at 12 or 24 h. These techniques were highlighted as necessary elements in specific care situations in the 2020 Society for Obstetric Anesthesia and Perinatology (SOAP) Enhanced Recovery After Cesarean (ERAC) Consensus Statement.³⁰ The Statement gives detailed, element by element, peri-operative recommendations, beginning with the pre-operative phase and extending through the postoperative phase. Core elements for ERAC were assigned with strengths of the recommendation and the levels of evidence for each recommended element. In contrast to other published recommendations on ERAC, the SOAP ERAC elements focus on anesthesia-related practices that can impact peripartum recovery. Examples include lactation and breastfeeding support by promoting skin-to-skin in the operating room, hemoglobin optimization, preventing spinal anesthesia-induced hypotension with prophylactic vasopressor infusions, initiating multimodal analgesia, and optimizing uterotonic administration.

Table 1

Revised International Association for the Study of Pain definition of pain and notes

1979 Definition of Pain	2020 Revised Definition of Pain
An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage	An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage
2020 Revised Definition of Pain Notes	
<ul style="list-style-type: none"> • Pain is always a personal experience influenced to varying degrees by biological, psychological, and social factors • Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons • Through their life experience, individuals learn the concept of pain • A person's report of an experience as pain should be respected • Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being • Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain 	

From: Raja et al. Revised IASP definition of pain: concepts, challenges, and compromises. (2020) Pain.²⁹

Two articles evaluated patient-reported outcome measures (PROM) for postpartum recovery.^{31,32} In the first investigation,³¹ a systematic review of 573 studies included 233 PROMs assessing postpartum recovery. They found PROM use among studies to be heterogeneous, highlighting the need to psychometrically evaluate the quality of available PROMs. In the second investigation,³² investigators evaluated the validity, reliability, and responsiveness of a 10-item instrument, the Obstetric Quality of Recovery-10 (ObsQoR10) with the EuroQoL-5-dimension PROM and global health visual analog scale (VAS) scores within 72 h of delivery. Inpatient quantitative recovery after vaginal delivery was found to be superior to cesarean delivery, supporting face validity. The ObsQoR10 appropriately negatively correlated with length of stay, estimated blood loss, transfusion requirement, and anti-emetic use. The authors concluded that the ObsQoR10 is a valid and reliable PROM. Expanding the tools that are used to measure postpartum recovery is critical to advancing health and recovery after childbirth.

A high-quality systematic review and meta-analysis of 281 randomized controlled trials of over 24 000 adults examined peri-operative gabapentinoid effectiveness for prevention and control of pain.³³ Peri-operative gabapentinoids initiated between one week prior to and 12 h after surgery were not found to reduce acute postoperative pain up to 72 h postoperatively. They did not reduce opioid requirements to a clinically significant extent. This study adds to the literature on this topic by including 72-h outcomes. Importantly, it assessed minimally important clinical differences rather than just statistically significant differences. This study contributes to a growing body of evidence suggesting that peri-operative gabapentin can be harmful with greater risk of dizziness, sedation, visual disturbances, somnolence, and cognitive impairment.³⁴ Day-of-surgery gabapentinoid use has a dose-dependent increased odds of pulmonary complications such as respiratory failure, invasive and non-invasive ventilatory support, and intensive care unit admission, without reducing length of stay or opioid requirements. Gabapentin-associated ataxia has also been reported after cesarean delivery. Altogether, given current evidence of harm and likely minimal benefit, gabapentin use should be approached with caution in ERAC protocols.

Several studies support the value of ERAC protocols to enhanced patient care. In a single-center impact study,³⁵ the investigators compared hospital opioid requirements and length of stay before and after ERAC protocol implementation. They found significantly lower peak pain scores after ERAC, although mean pain scores were not different. There was a 38% reduction in total postoperative opioid consumption. Length of stay was shorter by almost half a day after ERAC implementation. More patients (70% of the cohort) were discharged on the third day after cesarean delivery after ERAC was implemented. A systematic review of ERAC vs. standard care studies found a low-grade level of evidence for all outcomes.³⁶ Most ERAC studies showed benefit, and no studies showed harm. Altogether, adoption of ERAC is safe, and its adoption is recommended for all modern maternity centers. However, there is a clear need for better evidence and research on the specific elements of ERAC to identify which elements are most helpful, or potentially harmful, in promoting cesarean delivery recovery.

In summary, there are several clinical and research opportunities for anesthesiologists focused on maternal health outcomes. Future work should focus on health and recovery optimization. A new definition of pain offers the chance to focus on non-traditional methods for pain treatment and a holistic approach to pain and recovery management. Currently, anesthesiologists serve well in acute care and hospital settings to meet or exceed demands in clinical safety and quality. To focus on these additional areas to reduce maternal morbidity and mortality and improve recovery, will require a radical paradigm shift in the way anesthesiologists conceptualize our role in the peripartum period. By embracing innovation, engaging broader care teams, and reimagining how we deliver our services, not only in the hospital, but also in the prenatal and postpartum phases, we will expand the value

that we add to a multidisciplinary team that shares a common goal: improving maternal health, beyond survival, after childbirth.

Conclusion

In 2020, maternal morbidity and mortality and postpartum health continue to be major problems worldwide. Opportunities for anesthesiologists to contribute new knowledge to innovate, close gaps, and improve clinical care include focusing on care disparities, hypertensive disorders of pregnancy, recovery and mental health, pain management, system improvement for care regionalization, and health policy.

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Declaration of interests

The author declares no competing interests.

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