SOAP 2026 Centers of Excellence: Defining Excellence in Obstetric Anesthesia Care

Excellence in obstetric anesthesia refers to delivering the highest standard of anesthesia care to pregnant patients before, during, and after childbirth, ensuring a safe and positive experience for patients and their families.[1]

Key components of excellence in obstetric anesthesia care include:

1. **Appropriately qualified personnel and 24/7 dedicated staffing,** including board-certified (or equivalent) anesthesiologists with specialized training in obstetric anesthesia
2. **Labor analgesia and cesarean delivery care** that is patient-centered, safe, and tailored to individual needs (e.g. enhanced recovery protocols, protocols for patients with opioid-use disorder)
3. **Effective management of obstetric emergencies** to reduce maternal and neonatal morbidity and mortality (e.g. postpartum hemorrhage (PPH) protocols)
4. **Comprehensive institutional protocols and policies** that are regularly updated and based on the latest evidence and expert consensus, including implementation of best practice recommendations and guidelines (e.g. Alliance for Innovation on Maternal Health (AIM) Patient Safety Bundles, Society for Obstetric Anesthesia and Perinatology (SOAP) consensus statements, and the American Society for Anesthesiologists (ASA) statements)
5. **State-of-the-art equipment and resources** to ensure optimal patient safety and effective pain management
6. **Simulation and team training** to prepare staff for obstetric emergencies and enhance multidisciplinary collaboration
7. **Quality assurance programs and patient follow-up systems** to monitor outcomes, drive continuous improvement, and ensure patient satisfaction (e.g. postdural puncture headache (PDPH) protocol)

Achieving excellence also means promoting a culture of multidisciplinary teamwork, ongoing education, and process improvement to ensure that all patients, including those with complex or high-risk pregnancies, receive optimal and safe care.

For centers that cannot provide the highest level of maternal care (Level IV) as defined by the American College of Obstetricians and Gynecologists (ACOG), clear triggers to refer and transfer pregnant patients, and ensure they receive the specialized care required for their condition, are essential.

Achieving excellence also means implementing guidelines and recommendations from leading organizations, including SOAP, the ASA, and AIM. Achieving excellence means incorporating these statements into clinical practice.

Since 2014, SOAP has produced eight consensus statements and clinical practice recommendations: the 2014 SOAP statement on the Management of Maternal Cardiac Arrest,[2] the 2018 SOAP statement on Neuraxial Anesthesia in Obstetric Patients Receiving Thromboprophylaxis,[3] the 2019 SOAP statement on Respiratory Monitoring after Neuraxial Morphine for Cesarean Delivery,[4] the 2021 SOAP statement on Neuraxial Procedures in Obstetric Patients with Thrombocytopenia,[5] the 2021 SOAP statement on Enhanced Recovery after Cesarean (ERAC),[6] with 2025 updates,[7-9] the 2023 SOAP statement on Obstructive Sleep Apnea,[10] the 2024 SOAP statement on Postdural Puncture Headache,[11,12] and the 2024 SOAP statement on Opioid-Use Disorder.[13]

The ASA has produced several important statements that form the basis for best practices in obstetric anesthesia care. These include the 2016 ASA Practice Guidelines for Obstetric Anesthesia,[14] the 2023 ASA Statement on Pain during Cesarean Delivery,[15] the 2024 ASA Statement on the Use of Adjuvant Medication and Management of Intraoperative Pain during Cesarean Delivery,[16] and the 2024 ASA Statement on Providing Psychological Support for Obstetric Patients.[17]

AIM has eight Patient Safety Bundles providing key recommendations for obstetric practice: Obstetric Hemorrhage,[18] Severe Hypertension in Pregnancy,[19] Safe Reduction of Primary Cesarean Birth,[20] Cardiac Conditions in Obstetric Care,[21] Substance Use Disorder,[22] Postpartum Discharge Transition, Perinatal Mental Health Conditions,[23,24] and Sepsis in Obstetric Care.[25]

The SOAP Centers of Excellence Designation:

In 2017, the SOAP Centers of Excellence (COE) subcommittee established benchmarks and criteria through expert consensus and evidence-based recommendations.[1] The criteria are reviewed annually and incorporate new evidence when available.

In the 2026 application, benchmarks and criteria also align with the ASA Statement on Quality Metrics,[26] which covers mode of anesthesia for cesarean delivery, neuraxial-induced hypotension during cesarean delivery, post-cesarean opioid consumption, responsiveness to the request for labor analgesia, PDPH accountability, and labor epidural replacements.

The first SOAP COE (n=32) received the designation in 2018 and will be expected to renew this year. These centers were mostly academic centers in the United States (U.S.), though over the years, a wide variety of centers have received the SOAP COE designation, reflecting both the diversity and breadth of institutions committed to high standards. To-date, the designation has been awarded to over 100 centers, including low- to high-volume academic medical centers, tertiary referral centers, regional hospitals, community hospitals, and international centers.

The COE designation is not limited by hospital size, volume, or location, but rather is awarded to any institution that meets the comprehensive, evidence-based criteria for excellence in obstetric anesthesia care.

This document serves as a guide and reference when applying for the SOAP COE designation or renewing a designation. Renewal is expected every four years.

Specific attention should be given to **Essential Elements**, as these are considered of paramount importance in obtaining the SOAP 2026 COE designation. This document can also serve as a blueprint for all institutions as they strive towards excellence in obstetric anesthesia care.

Metrics

Obstetric anesthesia metrics and benchmarks derive from expert consensus or published guidelines, including the ASA Quality Metrics.[26]

There are currently three specific metrics: the neuraxial labor analgesia replacement rate (expected rate 3-6%), the unintended dural puncture rate (expected rate <2%), and the general anesthesia rate for cesarean deliveries (expected rate <5%). Tracking and reporting of these rates is essential (see descriptions for how to calculate and report these rates in the sections below).

Reporting the incidence of intraoperative pain and analgesic supplementation are future metrics; we therefore recommend that centers prepare for all processes that are needed to collect these data.

Essential Element: To promote accountability, tracking, and monitoring of data, institutions must have an electronic medical record (or equivalent) to document all obstetric anesthesia care.

Recommendation: It is recommended that institutions create quarterly electronic dashboards that allow review of outcomes and trends. These should be regularly reviewed as part of ongoing Quality Assurance programs.

Personnel, Staffing, Models of Care, and Coverage

- ***Leadership***

Anesthesia leadership in the Labor and Delivery Unit must be provided by an experienced obstetric anesthesiologist.

Essential Element: The obstetric anesthesia lead must be a U.S. or international board-certified attending anesthesiologist who has completed an ACGME-accredited obstetric anesthesia fellowship or has "equivalent expertise" in obstetric anesthesia.

If "equivalent expertise", the basis for this must be clearly delineated (e.g. specific training in obstetric anesthesia, many years of practice with a focus on obstetric anesthesia, and/or evidence of expertise based on academic contributions).

- ***Staffing and Models of Care***

Clinical demands on Labor and Delivery Units are variable and unpredictable.[27] It is expected that centers have adequate numbers of specialists to staff the Labor and Delivery Unit on nights and weekends as well as weekdays.

Increased access to neuraxial labor analgesia is a dramatic step towards reducing in-hospital maternal morbidity and mortality and improving health care disparities.[28,29]

The higher ACOG Levels of Maternal Care (Levels III and IV) require 24/7 on-site anesthesia coverage directed by a board-certified anesthesiologist with obstetric anesthesia expertise.[30]

Essential Element: Centers must have adequate staffing, in number and expertise, to cover the clinical workload.[31]

There is mounting evidence suggesting that maternal and neonatal outcomes are improved if obstetric anesthesia care is provided by specialists rather than generalists.[32,33] Obstetric anesthesia specialists are anesthesiologists who are fellowship-trained obstetric anesthesiologists or part of a core group of anesthesiologists who specialize in obstetric anesthesia.

Supervision of Anesthesia Medical Trainees

Involved supervision of all anesthesia medical trainees (residents/fellows) is expected.

Essential Element: For neuraxial labor analgesia, the supervising anesthesiologist must be informed of all patients on the Labor and Delivery Unit, be involved in all medical decision-making, plus review and approve provision of neuraxial labor analgesia. It is expected that the supervising anesthesiologist is present for all neuraxial procedures, regardless of the level of the trainee.

At international centers, where the training period is longer and regulations differ, "structured independence" for unsupervised neuraxial procedures may be acceptable in the later years of training.

In this case, there must be a specific process or policy to notify the supervising anesthesiologist in the event of a difficult procedure or other complication, such as unintended dural puncture and requirements for epidural catheter replacement.

Essential Element: For cesarean delivery anesthesia, the supervising anesthesiologist must be present during all neuraxial procedures (placement or replacement), or intubation in the case of general anesthesia. The supervising anesthesiologist must be informed and immediately available for assessment of adequate block, delivery of the neonate, assessment of adequate uterine tone, management of obstetric hemorrhage, and emergence from general anesthesia.

There should be a specific process or policy for when to notify the supervising anesthesiologist in case of intraoperative complications such as hemorrhage, intraoperative pain, cardio-respiratory decompensation, and any condition necessitating conversion to general anesthesia.

- ***Supervision of Nurse Anesthetists and Certified Anesthesia Assistants***

Appropriate medical supervision of Certified Registered Nurse Anesthetists (CRNAs) and Certified Anesthesia Assistants (CAAs) is expected in order to ensure that the Anesthesia Care Team model is maintained within the Anesthesiologist Provided Care model.

Essential Element: The supervising anesthesiologist must be in-house and have situational awareness of patients admitted to the Labor and Delivery Unit. The supervising anesthesiologist must be involved in any medical decision-making before the provision of anesthesia care. Neuraxial labor analgesia must be approved by the supervising anesthesiologist before the procedure.

There must be a specific process or policy in place to notify the attending anesthesiologist in the event of a difficult procedure or other complication, such as unintended dural puncture or requirement for epidural replacement.

Essential Element: For cesarean delivery anesthesia, the supervising anesthesiologist must be present during all neuraxial procedures (placement or replacement), or intubation in the case of general anesthesia. The supervising anesthesiologist must be informed and immediately available for assessment of adequate block, delivery of the neonate, assessment of adequate uterine tone, management of obstetric hemorrhage, and emergence from general anesthesia. The supervising anesthesiologist must be in-house and immediately available.

Essential Element: There must be a specific process or policy for when to notify the supervising anesthesiologist in case of complications such as hemorrhage, intraoperative pain, cardio-respiratory decompensation, and any condition necessitating conversion to general anesthesia.

- ***Coverage***

Recommendation: The supervising anesthesiologist should attend daily multidisciplinary rounds and sign-outs and should be alerted about medically complex patients present or imminently transferred to the Labor and Delivery Unit.

Essential Element: The obstetric anesthesia service must be covered by at least one board-certified (eligible, or equivalent for international centers) supervising anesthesiologist, providing dedicated coverage 24/7 without additional responsibilities for non-obstetric patients.

In low-volume centers with <1,500 deliveries per year, non-dedicated coverage with minimal additional responsibilities may be acceptable.

Likewise, in high-volume centers with >5,000 deliveries per year, solo dedicated coverage may not be adequate unless there are adequate numbers of trainees/CRNAs to support the clinical load, and a readily available backup anesthesiologist.

- ***Back up***

Recommendation: The ability to mobilize additional anesthesia personnel, within a 30-minute timeframe, in case of obstetric emergencies or high clinical volume beyond the capacity of in-house staff assigned to the obstetric anesthesia service is recommended.

Neuraxial Labor Analgesia

The current U.S. average labor epidural rate is >70%, with regional variability.[1,34]

Recommendation: It is recommended to have a high neuraxial labor analgesia rate as it is associated with reduced maternal morbidity and mortality.[35-37]

- ***Standardization***

One of the primary objectives of neuraxial labor analgesia is to provide optimal pain relief with minimal motor block and side effects.

Essential Element: Centers must use high-volume, low-concentration local anesthetic solutions (≤0.1% bupivacaine or ≤0.15% ropivacaine) with lipophilic opioid.

Dilute local anesthetic solutions (≤0.1% bupivacaine or ≤0.15% ropivacaine) reduce motor block, operative vaginal deliveries and duration of second stage of labor.[38,39]

Recommendation: It is recommended to have these solutions provided pre-mixed by the pharmacy to reduce the likelihood of medication errors and to reduce variability among providers.

Recommendation: It is recommended to use background programmed intermittent epidural boluses (PIEB) with patient-controlled epidural analgesia (PCEA) for neuraxial labor analgesia, rather than continuous epidural infusion with PCEA.[40-42]

- ***Responsiveness to the Request for Labor Analgesia***

Recommendation: It is recommended to track the response time from patient's request for neuraxial labor analgesia and the anesthesia team's response (arrival). The ASA Quality Metrics recommend a response time <30 min.[26]

- ***Labor Analgesia Assessment***

Active management of labor epidural analgesia with regular assessment of the adequacy of neuraxial labor analgesia is expected; it improves patient satisfaction and contributes to lower rates of general anesthesia in the setting of intrapartum cesarean delivery. The functionality of the indwelling epidural catheter and the medication delivery system must be rigorously assessed, to ensure adequate labor epidural analgesia and to facilitate conversion to epidural anesthesia for intrapartum cesarean delivery.[43]

Essential Element: Pain scores must be documented by nursing staff (e.g. every 1-2 hours) and anesthesia provider rounds with evaluations of the level of comfort and analgesia must occur regularly (e.g. every 2-4 hours).

Essential Element: There must be a standardized approach for managing breakthrough pain with epidural "top-up" doses according to the stage of labor, and if labor epidural analgesia is not achieved with "top-up", the patient is offered replacement of the epidural catheter.

Essential Element: Centers must track the neuraxial labor analgesia replacement rate. The expectation is 3-6%.

This is the first of three current metrics, and the expected rate of poorly functioning epidural catheters, when proceeding with appropriate procedural technique and after troubleshooting, is 3-6%. Replacement of poorly functioning epidural catheters as part of active management of labor epidural analgesia is expected.[44] This reduces the likelihood of poor labor analgesia and patient dissatisfaction, and the risk of failed epidural anesthesia in case of intrapartum cesarean delivery. Robust quality assurance is required to track neuraxial failure rates.[45]

To calculate the neuraxial labor analgesia replacement rate, centers report on:

- **The annual number of neuraxial labor analgesia procedures**
- **The annual number of replacement procedures during labor (in the labor room)**

Unintended Dural puncture, Postdural Puncture Headache, Epidural Blood Patch

The second of three current metrics is the unintended dural puncture rate.

Essential Element: Centers must track the unintended dural puncture rate. The expectation rate is <2%.

To calculate the unintended dural puncture rate, centers report on:

- **The combined annual number of epidurals, combined spinal-epidurals (CSEs), and dural puncture epidurals (DPEs) (for neuraxial labor analgesia or cesarean delivery anesthesia, or other procedures)**
- **The annual number of unintended dural punctures ("wet tap")**

Essential Elements: Centers must implement recommendations from the 2024 SOAP statement on Postdural Puncture Headache (PDPH).[12] Centers must track the PDPH rate, and the epidural blood patch (EBP) rate, with appropriate follow-up.

Essential Element: Centers must use small-diameter (25G or smaller) pencil-point needles for all neuraxial procedures with intended dural puncture (CSE, DPE, spinal).[12] (In some clinical circumstances, 24G pencil-point needles may be used).

Routine use of cutting-edge spinal needles is not recommended.[46,47]

To calculate the PDPH rate and the EBP rate, centers report on:

- The combined annual number of spinals, epidurals, CSEs, and DPEs (for neuraxial labor analgesia or cesarean delivery anesthesia, or other procedures including cerclage)
- The annual number of patients with PDPH
- The annual number of patients receiving an EBP

Cesarean Delivery Management

General Anesthesia

The general anesthesia rate for cesarean delivery is the last of three current metrics.

Essential Element: Centers must track the overall general anesthesia rate for all cesarean deliveries, including surgically complex cases (e.g. cesarean hysterectomy), with the goal to be <5%.

Additionally, centers must track the general anesthesia rates for scheduled cases (i.e. planned, booked, elective) versus unscheduled cases (i.e. intrapartum, urgent/stat).

Ideally, the rate of failed conversion from labor epidural analgesia to epidural anesthesia for intrapartum cesarean delivery, further converted to general anesthesia, should be tracked and reported (this will become a future metric).

Essential Element: Centers must review all general anesthesia cases in a quality assurance review to reduce avoidable general anesthesia.

A general anesthesia rate >5% may be acceptable in certain situations; however, understanding what is driving the high rate, and a quarterly review to guide processes aimed at reducing this rate (e.g. reducing failed conversions from labor epidural analgesia to epidural anesthesia for intrapartum cesarean delivery, improving communication and intrapartum/preoperative huddles) is expected. Tracking general anesthesia rates for surgically complex cases (hysterectomy for atony or placenta accreta spectrum (PAS)) provides useful information to understand general anesthesia rates. Most centers that provide optimal obstetric anesthesia care can achieve general anesthesia rates below 5%.[28,29,31,33,34]

To calculate the overall general anesthesia rate, centers report on:

- **The annual number of all cesarean deliveries (including complex surgical cases and cesarean hysterectomy)**
- **The annual number of general anesthetics**

To calculate the general anesthesia rate for scheduled cases, centers report on:

- **The annual number of scheduled cesarean deliveries (non-laboring, elective cases)**
- **The annual number of general anesthetics for scheduled cesarean deliveries**

To calculate the general anesthesia rate for unscheduled cases, centers report on:

- **The annual number of unscheduled cesarean deliveries (intrapartum, urgent/stat)**
- **The annual number of general anesthetics for unscheduled cesarean deliveries**

Essential Element: Centers must have an institutional standardized enhanced recovery protocol or clinical care pathway that is consistent with the 2021 SOAP Consensus Statement and Recommendations for Enhanced Recovery After Cesarean[32] and the 2025 Updated Guidelines from the Enhanced Recovery After Surgery Society Recommendation before,[9] during,[7] and after cesarean delivery.[8]

Essential Elements: There are several components of the ERAC protocol that must be implemented by the anesthesia care team, including spinal hypotension prevention/treatment with continuous vasopressor medication, maintenance of normothermia with warming devices, prophylactic antibiotics, antiemetics, optimal uterotonics, intraoperative (lipophilic opioids), and postoperative analgesics (neuraxial opioid, nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen).

Recommendation: Patient education and preparation are recommended, along with reducing unnecessary prolonged fasting before cesarean delivery (consistent with ACOG and ASA guidelines).[9,14]

Neuraxial Anesthesia

- ***Spinal Needles***

Essential Element: Centers must use small-diameter (25G or smaller) pencil-point needles for spinal procedures, consistent with 2023 ASRA/SOAP evidence-based clinical practice guidelines on PDPH.[12] (In some clinical circumstances, 24G pencil-point needles may be used).

- ***Spinal Hypotension Prevention and Treatment***

Essential Element: Centers must use a prophylactic infusion of phenylephrine (or other vasopressor) to maintain blood pressure within 10% of baseline, with IV boluses as appropriate to treat hypotension, as well as IV fluid co-load during spinal or CSE anesthesia.[7,43,48]

Blood pressure monitoring from neuraxial anesthesia administration until delivery of the neonate should be frequent (e.g. every 1-2 minutes). Spinal hypotension prevention and treatment should be based on an institutional protocol with minimal variation among providers.

- ***Temperature Management***

Essential Element: Centers must use active warming devices and have a standardized minimum operating room temperature of at least >72F/23C, and/or operating room temperature based on gestational age for cesarean delivery.

Maintenance of normothermia of both the patient and the neonate is recognized as an important aspect of intraoperative care.[7] Maintaining normothermia in the surgical patient has been shown to reduce infection risk and may help minimize shivering and can be achieved by active warming (fluids and forced-air warming).[49]

- ***Appropriate Antibiotic Prophylaxis to Prevent Surgical Site Infection***

Essential Element: Centers must select appropriate antibiotic(s), with immediate access and timely administration to promote reduction of infections.

There should be an institutional protocol for the timely administration of weight-based surgical site infection prophylaxis (e.g. IV cefazolin 2g, or 3g if >120 kg), with intraoperative redosing in case of hemorrhage >1,500 mL, and additional antibiotics for intrapartum cesarean delivery, or in the setting of suspected intra-amniotic infection (e.g. IV azithromycin 500 mg).[50] An evidence-based approach to patients with reported penicillin allergy is important as secondary antibiotics are inferior to cephalosporins in preventing surgical site infections.

- ***Management of Neuraxial-Induced Side Effects***

Essential Element: Centers must have a standardized approach involving at least two prophylactic antiemetic agents routinely administered with an alternative class of antiemetic agent available for additional prophylaxis (e.g. in patients at higher risk for postoperative nausea and vomiting) and for treatment of nausea and vomiting.

Recommendation: Ideally, there should be a standardized approach to the treatment of intraoperative and postoperative shivering.[51]

This should be based on an institutional protocol with minimal variation among providers.

- ***Multimodal analgesia protocols***

Essential Element: Centers must use a standardized stepwise multimodal analgesic protocol with neuraxial administration of long-acting opioid (intrathecal morphine 100-150 mcg or epidural morphine 2-3 mg, or equivalent) and scheduled administration of both NSAIDs and acetaminophen, consistent with the SOAP Consensus Statement and Recommendations for ERAC,[7,8] and the ACOG Recommendations for Stepwise Postpartum Pain Management.[52]

- ***Intraoperative Pain***

Essential Element: Centers must use a standardized approach to ensure that neuraxial anesthesia is adequate, to mitigate and manage intraoperative pain during cesarean delivery, and to follow up with patients who have experienced intraoperative pain. Centers must track intraoperative pain during cesarean delivery and must include pain during cesarean delivery in their quality review processes. Institutional protocols must be consistent with the 2023 ASA Statement on Pain during Cesarean Delivery,[15] the 2024 ASA Statement on the Use of Adjuvant Medication and Management of Intraoperative Pain during Cesarean Delivery,[16] and the 2025 SOAP Peripartum Pain Management Toolkit for Cesarean Delivery.[43]

A standardized approach to recognize, prevent, and manage intraoperative pain for scheduled and intrapartum cesarean delivery is expected.[53-56] Strategies including active management of labor analgesia with regular rounding every 2-4 hours, early replacement of inadequate labor epidural analgesia, testing of the block to ensure that neuraxial anesthesia is adequate before the start of surgery, appropriate administration of epidural medication (if working epidural catheter available) and/or systemic adjuvants are expected. Conversion to general anesthesia when the neuraxial block is inadequate is expected.

Debriefing with the patient and family, and follow-up with maternal mental health services is key to prevent childbirth-related post-traumatic stress disorder.[17,57]

Opioid-Use Disorder

Essential Element: Centers must implement all elements from the 2025 SOAP/SMFM/ASRA Consensus Statement on Pain Management for Pregnant Patients with Opioid-Use Disorder[13] and the Substance Use Disorder AIM Patient Safety Bundle.[22] Early antenatal evaluation is expected. Tailored approaches and protocols for post-cesarean analgesia must be available for patients at increased risk of postoperative pain, such as those with a substance use disorder, chronic pain, or chronic opioid use.

Postpartum Management and Neonatal Care

- ***Management and risk of respiratory depression***

The risk of respiratory depression in the pregnant population receiving low-dose neuraxial opioid is extremely rare [58] and lower than that of the general population.

Essential Element: Centers must implement the recommendations in the 2023 Society of Anesthesia and Sleep Medicine (SASM) and the SOAP Consensus Guideline on Obstructive Sleep Apnea in Pregnancy.[10] Because excessive monitoring can interfere with the parent/infant dyad, the institutional protocol for respiratory monitoring must risk-stratify according to the 2019 SOAP Consensus Recommendations for the Prevention and Detection of Respiratory Depression Associated with Neuraxial Morphine Administration for Cesarean Delivery Analgesia.[4] These are less strict than those of the ASA (every 2h for the first 12h after neuraxial morphine), except in high-risk patients.

- ***Institutional efforts to minimize opioid consumption***

Essential Element: In-hospital routine opioid use must be limited (e.g. <30 mg oxycodone/24 hours), and the number of prescribed opioid tablets at the time of discharge should be limited (e.g. 10-20 tablets) and ideally individualized, consistent with the 2021 ACOG Clinical Consensus on Pharmacologic Stepwise Multimodal Approach for Postpartum Pain Management.[52]

Recommendation: It is recommended to track and report on the number (and percentage) of in-hospital patients who receive opioids after cesarean delivery after Post-Anesthesia Care Unit discharge. This is consistent with the ASA Quality Metrics.[26]

- ***Baby-Friendly and Neonatal Resuscitation***

Recommendation: Baby-friendly practices are encouraged, and neonatal resuscitation by a dedicated team should be available.

- ***Postpartum Reproductive Care***

Recommendation: It is recommended to ensure postpartum tubal ligation procedures are available. These should be prioritized and performed promptly per ACOG recommendations.[59,60]

Obstetric Hemorrhage Management

PPH is one of the leading causes of maternal mortality in the U.S. and in the world.[61]

- ***Protocols and policies***

Essential Element: Centers must have institutional protocols and policies for obstetric hemorrhage risk stratification, administration of second-line uterotonic drugs, management of obstetric hemorrhage with blood products (ideally goal-directed therapy), access to activate a massive hemorrhage/transfusion protocol, and checklists and system preparedness in the event of a known or unknown PAS, which includes transferring out.[18]

Essential Element: Centers must have institutional protocols that incorporate core elements of the AIM Obstetric Hemorrhage Bundle,[62,63] the California Maternal Quality Care Collaborative Obstetric Hemorrhage Toolkit,[64] or comparable recommendations to manage obstetric hemorrhage.

Barriers to implementation of validated practice guidelines for PPH management (e.g. bundles) can be overcome with protocol-driven management, unit-based simulation drills, blood loss quantification, and team huddles and debriefings.[65]

Essential Element: Centers must have a Quality Assurance Review of all severe hemorrhage cases defined at an institutional level (e.g. transfusion of 4 units of blood products and/or hemorrhage >1,500 mL), and all unplanned intrapartum hysterectomies must be part of a Quality Improvement process.

- ***Equipment***

Essential Element: Centers must have a rapid infusion device present on the Labor and Delivery Unit.

Recommendation: Ideally, point-of-care testing (including viscoelastic testing) should be available on the Labor and Delivery Unit.[66] If not available, there should be a mechanism to expedite the processing of laboratory testing in obstetric emergencies.

Essential Element: Centers must have intraoperative cell salvage availability for high-risk scenarios (e.g. patients who do not accept banked blood, unavailable blood due to immunological incompatibility, anticipated major hemorrhage/PAS cases, etc.).

Airway Management and Emergency Resources

- ***Airway management***

Despite the lack of a standardized definition of difficult intubation in obstetric patients, the estimated rate of difficult intubation in the obstetric population currently ranges between 1:25 and 1:50,[67,68] which is likely lower than in the past, due to improvements in equipment and use of videolaryngoscopy.[69] The Obstetric Anaesthetists' Association (OAA) and Difficult Airway Society (DAS) published guidelines with the aim to standardize airway management for the routine obstetric general anesthetic, as well as give guidance with a series of algorithms and cognitive aids.[70,71]

Essential Element: Centers must have difficult airway supplies on the Labor and Delivery Unit, along with institutional and/or difficult airway algorithms attached to the difficult airway cart and/or displayed in the operating rooms.

Essential Element: Centers must have immediately available dedicated suction and means to deliver positive pressure ventilation and supplemental oxygen (e.g. bag valve mask device) in accessible locations where neuraxial analgesia/anesthesia and/or general anesthesia are administered, including labor rooms where labor neuraxial analgesia is administered.

- ***Emergency resources***

Essential Element: Centers must have lipid emulsion (Intralipid™), along with other supplies to allow a timely response to local anesthesia systemic toxicity (LAST).

Cognitive aids and clinician awareness of resources to manage all emergencies on the Labor and Delivery Unit should be available, and training to facilitate team member awareness of the location and means to retrieve resources to better manage LAST.

Essential Element: Centers must have dantrolene formulations and sterile water vials, along with other supplies to allow a timely response to malignant hyperthermia (MH).

Cognitive aids and clinician awareness of resources to manage all emergencies on the Labor and Delivery Unit should be available, and training to facilitate team member awareness of the location and means to retrieve resources to better manage MH.

Recommendation: Cognitive aids and clinician awareness of resources to manage all emergencies on the Labor and Delivery Unit should be available, and training to facilitate team members' awareness of the location and means to retrieve resources to better manage anesthetic and obstetric emergencies is recommended.

Multidisciplinary Team-Based Approach and Institutional Resources Education

- ***Communication***

Evaluating high-risk patients (e.g. cardiac patients) in high-risk obstetric anesthesia outpatient clinics (pre-delivery) improves communication, preparedness, management, and outcomes.[72-75]

Essential Element: Centers must have systems in place to ensure interprofessional communication regarding antepartum patients, patients on the Labor and Delivery Unit, and postpartum patients (e.g., board sign-out at each change shift of anesthesiology staff, pre-procedural time-outs, post-procedural briefings as indicated, twice daily interdisciplinary rounds or huddles to discuss management plans for all patients, and notification of admission of new high-risk patients).

- ***Higher level of care***

Recommendation: It is recommended to have the capability for invasive monitoring, and that administration of vasopressors is available on the Labor and Delivery Unit (preferably) or in an ICU in conjunction with Labor and Delivery personnel.

Essential Element: For patients requiring a level of care above that available at a given center, there must be a process for transferring out to a higher-level care facility.

Education

- ***Learning and teaching***

Essential Element: The obstetric anesthesia lead and the majority of core faculty members must show evidence of ongoing participation in continuing medical education relevant to the practice of obstetric anesthesia (e.g. SOAP/subspecialty membership – over 80% target for attending specialists being SOAP members - with attendance at annual SOAP meetings or equivalent obstetric anesthesia-focused meetings at least every other year, and can provide examples of professional practice improvement or evidence-based updates to clinical practice).

Essential Element: The attending anesthesiologists providing obstetric anesthesia care must participate regularly in multiprofessional simulation drills to maintain readiness for obstetric emergencies and crisis management skills (ideally annually). Centers must have an active multidisciplinary program with obstetric and anesthetic emergency simulation drills on specific scenarios (e.g. emergent cesarean delivery, maternal cardiac arrest,[76] difficult/failed intubation, obstetric hemorrhage, and eclampsia). The Joint Commission requirement is for centers to have annual postpartum hemorrhage and maternal severe hypertension/preeclampsia drills.

ACOG recommends that drills be run quarterly, rotating personnel so everyone has an opportunity to participate; monthly drills may be beneficial in larger/high-volume units. This approach helps maintain readiness for obstetric emergencies, improves team communication and enhances patient safety. Simulation drills for anesthesiology providers only may be acceptable, if no formal multidisciplinary program exists, or to supplement pre-existing drills.

Recommendation: It is recommended to have regular (e.g. every 1-2 months) staff meetings for updates on the clinical service and ongoing education.

Addressing Disparities and Inequities in Clinical Care and in the Workforce

Racial and ethnic disparities exist in obstetric anesthesia, and action is required to minimize them and address all racial and ethnic disparities affecting pregnancy-related outcomes.[77-79]

Essential Element: Centers must adopt patient-centered, equitable, and compassionate practices throughout the peripartum period and address disparities in obstetric anesthesia care. Resources for non-English speakers (translation and interpretation services 24/7) and access to information and communication in patients' preferred language must be available. All anesthesia team members providing obstetric anesthesia care must attend some form of education on respectful care, patient autonomy, and cultural humility. Centers should actively work to reduce disparities in obstetric anesthesia care, and challenge misconceptions and biases (e.g. implicit bias, micro-aggression) that affect clinical decisions.

A diverse organization creates a culture where the values of inclusion, respect, and appreciation are reinforced. Inclusivity provides equitable access to opportunities and resources for people who might otherwise be excluded or marginalized.[80]

Essential Element: Centers must foster an inclusive environment with a diverse workforce; this includes dedicated diversity, equity, and inclusivity (DEI) committees, leadership roles for underrepresented groups, and a pipeline for equitable professional development for individuals of underrepresented groups in medicine, according to the SOAP DEI statement.[80]

Recommendations and Guidelines Implementation

- ***Practice Guidelines for Obstetric Anesthesia by the ASA Task Force***

Essential Element: Centers must adhere to the 2016 ASA Practice Guidelines for Obstetric Anesthesia recommendations regarding neuraxial labor analgesia (i.e. there is no need for routine platelet count immediately prior to neuraxial labor procedure in healthy patients; appropriate liquid and diet restrictions should apply; early placement of labor analgesia if requested and *"not withhold neuraxial analgesia on the basis of achieving an arbitrary cervical dilation"*).[14]

- ***SOAP Consensus Statement on the Management of Cardiac Arrest in Pregnancy***

Essential Element: Centers must implement the 2014 SOAP statement on the Management of Maternal Cardiac Arrest.[2]

- ***SOAP Consensus Statement on Thromboprophylaxis (Anticoagulation)***

Essential Element: Centers must adhere to the 2018 SOAP statement on Neuraxial Anesthesia in Obstetric Patients Receiving Thromboprophylaxis (anticoagulation) and provide evidence of implementation.[3]

- ***SOAP Consensus Statement on Thrombocytopenia***

Essential Element: Centers must adhere to the 2021 SOAP statement on Neuraxial Procedures in Obstetric Patients with Thrombocytopenia and provide evidence of implementation.[5]

- ***AIM Patient Safety Bundles***

AIM is a U.S. nationally funded Quality Improvement initiative formed in 2014 to support best practices that make childbirth safer, to improve maternal health outcomes and save lives.[81,82] Since 2015, there has been a call to action for anesthesiologists to actively participate and implement Patient Safety Bundles.[83] Patient Safety Bundles are a structured way of improving the processes of care and patient outcomes through collections of evidence-informed best practices, developed by multidisciplinary experts, which address clinically specific conditions in pregnant and postpartum patients. Patient Safety Bundles are organized into five domains (the 5Rs): **Readiness, Recognition and Prevention, Response, Reporting and System Learning,** and **Respectful Care.**

Essential Element: Centers must implement all Patient Safety Bundles according to AIM. In addition to providing evidence of implementation of the Obstetric Hemorrhage and Substance Use Disorder Bundles in their respective sections above, centers must separately provide evidence of implementation of the following four bundles: Hypertension in Pregnancy,[19] Cardiac Conditions in Obstetric Care,[21] Perinatal Mental Health Conditions,[23,24] and Sepsis in Obstetric Care.[25]

Quality Assurance and Patient Follow-Up

Essential Element: All postpartum patients must be evaluated, and protocol criteria fulfilled prior to discharge or transfer from the Labor and Delivery Unit. All patients who received an anesthetic or analgesia procedure must be evaluated by the anesthesia team on the postpartum floor prior to hospital discharge.

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