PRACTICE GUIDELINES FOR OBSTETRIC ANESTHESIA

I. PERIANESTHETIC EVALUATION

• Conduct a focused history and physical examination before providing anesthesia care
  ▪ Maternal health and anesthetic history
  ▪ Relevant obstetric history
  ▪ Airway and heart and lung examination
  ▪ Baseline blood pressure measurement
  ▪ Back examination when neuraxial anesthesia is planned or place

• A communication system should be in place to encourage early and ongoing contact between obstetric providers, anesthesiologists, and other members of the multidisciplinary team

• Order or require a platelet count based on a patient’s history, physical examination, and clinical signs; a routine intrapartum platelet count is not necessary in the healthy parturient

• Order or require an intrapartum blood type and screen or crossmatch based on maternal history, anticipated hemorrhagic complications (e.g. placenta accrete in a patient with placenta previa, and previous uterine surgery), and local institutional policies; a routine blood crossmatch is not necessary for healthy and uncomplicated parturients

• The fetal heart rate should be monitored by a qualified individual before and after administration of neuraxial analgesia for labor. Continuous electronic recording of the fetal heart rate may not be necessary in the every clinical setting and may not be possible during initiation of neuraxial anesthesia.

II. ASPIRATION PROPHYLAXIS

• Oral intake of modest amounts of clear liquids may be allowed for uncomplicated laboring patients.

• The uncomplicated patient undergoing elective caesarian delivery may have modest amounts of clear liquids up to 2 hours before induction of anesthesia

• The volume of liquid ingested is less important than the presence of particulate matter in the liquid ingested

• Patients with additional risk factors for aspiration (e.g. morbid obesity, diabetes, difficult airway) or patients at increased risk for operative delivery(e.g. nonreassuring fetal heart
rate pattern) may have further restriction of oral intake, determined on a case by case basis

- Solid food should be avoided in laboring patients
- Patients undergoing elective surgery (e.g. scheduled caesarian delivery or postpartum tubal ligation) should undergo a fasting period for solids of 6-8 hours depending on the type of food ingested (e.g. fat content)
- Before surgical procedures (i.e. caesarian delivery, postpartum tubal ligation), practitioners should consider timely administration of non-particulate antacids, H3 receptor antagonists, and/or metoclopramide for aspiration prophylaxis

III. ANESTHETIC CARE FOR LABOR AND DELIVERY

Neuraxial techniques: Availability of Resources
- When neuraxial techniques that include local anesthetics are chosen, appropriate resources for the treatment of complications (e.g. hypotension, systemic toxicity, high spinal anesthesia) should be available
- If an opioid is added, treatments for related complications (e.g. pruritus, nausea, respiratory depression) should be available
- An intravenous infusion should be established before the initiation of neuraxial analgesia or anesthesia and maintained throughout the duration of the neuraxial analgesic or anesthetic
- Administration of fixed volume of intravenous fluid is not required before neuraxial analgesia is initiated

Timing of Neuraxial Analgesia and Outcome of Labor
- Neuraxial analgesia should not be withheld on the basis of achieving an arbitrary cervical dilatation, and should be offered on an individualized basis when the service is available
- Patients maybe reassured that the use of neuraxial analgesia does not increase the incidence of caesarian delivery

Neuraxial Analgesia and Trial of Labor after Previous Delivery
- Neuraxial techniques should be offered to patients attempting vaginal birth after previous caesarian delivery
- For these patients, it is also appropriate to consider early placement of a neuraxial catheter that can be used later for labor analgesia or for anesthesia in the event of operative delivery

Early Insertion of Spinal or Epidural Catheter for Complicated Parturients
- Early insertion of a spinal or epidural catheter for obstetric (e.g. twin gestation or preeclampsia) or anesthetic indications (e.g. anticipated difficult airway or obesity) should be considered to reduce the need for general anesthesia if an emergent
procedure becomes necessary. In these cases, the insertion of a spinal or epidural catheter may precede the onset of labor or a patient’s request for labor analgesia.

**Continuous Infusion Epidural (CIE) Analgesia**
- The selected analgesic/anesthetic technique should reflect patient needs and preferences, practitioner preferences or skills, and available resources.
- CIE may be used for effective analgesia for labor and delivery.
- When a continuous epidural infusion of local anesthetic is selected, an opioid may be added to reduce the concentration of local anesthetic, improve the quality of analgesia, and minimize motor block.
- Adequate analgesia for uncomplicated labor and delivery should be administered with the secondary goal of producing as little motor block as possible by using a dilute concentration of local anesthetics with opioids.
- The lowest concentration of local anesthetic infusion that provides adequate maternal analgesia and satisfaction should be administered.

**Single Injection Spinal Opioids with or without Local Anesthetics**
- Single-injection spinal opioids with or without local anesthetics may be used to provide effective, although time-limited, analgesia for labor when spontaneous vaginal delivery is anticipated.
- If labor is expected to last longer than the analgesic effects of the delivery, a catheter technique instead of a single injection technique should be considered.
- A local anesthetic may be added to a spinal opioid to increase duration and improve quality of analgesia.

**Pencil-point Spinal Needles**
- Pencil-point spinal needles should be used instead of cutting-bevel spinal needles to minimize the risk of post-dural puncture headache.

**Combined Spinal-Epidural (CSE)**
- CSE techniques may be used to provide effective and rapid analgesia for labor.

**Patient-controlled Epidural Analgesia (PCEA)**
- PCEA may be used to provide an effective and flexible approach for the maintenance of labor analgesia.
- PCEA may be preferable to CIE for providing fewer anesthetic interventions, reduced dosages of local anesthetics, and less motor blockade than fixed rate continuous epidural infusions.
- PCEA may be used with or without a background infusion.

**IV. REMOVAL OF RETAINED PLACENTA**
- In general, there is no preferred anesthetic technique for removal of retained placenta.
  - If an epidural is in place and the patient is hemodynamically stable, epidural anesthesia is preferable.
- Hemodynamic status should be assessed before administering neuraxial anesthesia.
- Aspiration prophylaxis should be considered.
• Sedation/analgesia should be titrated carefully due to the potential risks of respiratory depression and pulmonary aspiration during the immediate postpartum period
• In cases involving major maternal hemorrhage, general anesthesia with an endotracheal tube may be preferable to neuraxial anesthesia
• Nitroglycerin may be used as an alternative to terbutaline sulfate or general endotracheal anesthesia with halogenated agents for uterine relaxation during removal of retained placental tissue
  o Initiating treatment with incremental doses of intravenous or sublingual (i.e. metered spray dose) nitroglycerin may relax the uterus sufficiently while minimizing potential complications (e.g. hypotension)

V. ANESTHETIC CHOICES FOR CAESARIAN DELIVERY

• Equipment, facilities, and support personnel available in the labor and delivery operating suite should be comparable to those available in the main operating suite
  o Resources for the treatment of potential complications (e.g. failed intubation, inadequate analgesia, hypotension, respiratory depression, pruritus, vomiting) should be available in the labor and delivery operating suite
  o Appropriate equipment and personnel should be available to care for obstetric patients recovering from major neuraxial or general anesthesia
• The decision to use a particular anesthetic technique should be individualized based on anesthetic, obstetric, or fetal risk factors (e.g. elective vs. emergency) the preferences of the patient, and the judgment of the anesthesiologist
  o Neuraxial techniques are preferred to general anesthesia for most caesarian deliveries
• An indwelling epidural catheter may provide equivalent onset of anesthesia compared with initiation of spinal anesthesia for urgent caesarian delivery
• If spinal anesthesia is chosen, pencil-point spinal needles should be used instead of cutting-bevel spinal needles
• General anesthesia may be the most appropriate choice in some circumstances (e.g. profound fetal bradycardia, ruptured uterus, severe hemorrhage, severe placental abruption)
• Uterine displacement (usually left displacement) should be maintained until delivery regardless of the anesthetic technique used
• Intravenous fluid preloading may be used to reduce frequency of maternal hypotension after spinal anesthesia
• Initiation of spinal anesthesia should not be delayed to administer a fixed volume of intravenous fluid
• Intravenous ephedrine and phenylephrine are both acceptable drugs for treating hypotension
  o In the absence of maternal bradycardia, phenylephrine may be preferable because of improved fetal acid-base status in uncomplicated pregnancies
• For postoperative analgesia after neuraxial anesthesia for caesarian delivery, neuraxial opioids are preferred over intermittent injections of parenteral opioids

VI. POSTPARTUM TUBAL LIGATION
• For postpartum tubal ligation, the patient should have no oral intake of solid foods within 6-8h of the surgery, depending on the type of food ingested
• Aspiration prophylaxis should be considered
• Both the timing of the procedure and the decision to use a particular anesthetic technique should be individualized based on anesthetic risk factors, obstetric risk factors (e.g. blood loss), and patient preferences
• Neuraxial techniques are preferred to general anesthesia for most postpartum tubal ligations
  o Be aware that gastric emptying will be delayed in patients who have received opioids during labor and that an epidural catheter placed for labor may be more likely to fail with longer postdelivery time intervals
• If a postpartum tubal ligation is to be performed before the patient is discharged from the hospital, the procedure should not attempted at a time when it might compromise other aspects of patient care on the labor and delivery unit.

VII. MANAGEMENT OF OBSTETRIC AND ANESTHETIC EMERGENCIES
• Institutions providing obstetric care should have resources available to manage hemorrhagic emergencies
  o In an emergency, the use of type-specific or O negative blood is acceptable
  o In cases of intractable hemorrhage when banked blood is not available or the patient refuses banked blood, intraoperative cell-salvage should be considered if available
  o The decision to perform invasive hemodynamic monitoring should be individualized and based on clinical indication that include the patient’s medical history and cardiovascular risk factors
• Labor and delivery units should have personnel and equipment readily available to manage airway emergencies, to include a pulse oximeter and qualitative carbon dioxide detector consistent with the ASA Practice Guidelines for Management of Difficult Airway
  o Basic airway management equipment should be immediately available during the provision of neuraxial analgesia
  o Portable equipment for difficult airway management should be readily available in the operative area of labor and delivery units
  o The anesthesiologist should have a preformulated strategy for intubation of difficult airway
  o When endotracheal intubation has failed, ventilation with mask and cricoids pressure, or with laryngeal mask airway or supraglottic device (e.g., Combitube,
Intubating LMA(Fastrach)) should be considered for maintaining an airway and ventilating the lungs

- If it is not possible to ventilate or awaken the patient, an airway should be created surgically

- Basic and advanced life support equipment should be immediately available in the operative area of labor and delivery unit

- If cardiac arrest occurs during labor and delivery, standard resuscitative measures should be initiated
  - Uterine displacement (usually left displacement) should be maintained
  - If maternal circulation is not restored within 4 min, caesarian should be performed by the obstetric team