COMPLETE

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Page 1: Background Information

Q1

First Name

Gillian

Q2

Last Name

Abir

Q3

Credentials

MBChB, FRCA

Q4

Institution

Stanford University School of Medicine

Q5

Street Address

453 Quarry Road

Q6

City

Stanford

Q7

State

CA

Q8

Zip Code

94304

Q9

Country

USA

Q10

Email address

Respondent skipped this question

Page 2: Institutional and Application Details

Q11

Please mark the application designation that is applicable to you.

Recertification (i.e. previously received COE certification)

Q12

Describe the institution where you provide obstetric anesthesia services

Academic/university affiliated

Q13

What is the country of the applying institution

USA

Q14

If USA application, what is the institution's zip code?

94304

Q15

Mark all that apply to your institution

Train/teach residents,

Train/teach obstetric anesthesia fellows,

Has an ACGME-accredited OB Anesthesia fellowship program

,

Train/teach other learners (student nurse anesthetists, anesthesiology assistants, medical students, etc.)

Q16

How many deliveries are there at your institution per year?

4750

Q17

What is the current cesarean delivery rate percentage at your institution? Do not enter percentage sign in your answer. Please answer in decimal format.

32.16

Page 3: General Anesthesia Rates

Q18

What is your institution's overall general anesthesia rate (percentage) for cesarean delivery?* Do not include percentage sign in answer. Please answer in decimal format.

3.55

Q19

What is your general anesthesia rate (percentage) for planned/scheduled/elective cesarean delivery? Do not include percentage sign in answer. Please answer in decimal format.

1.63

Q20

What is your general anesthesia rate (percentage) for unplanned/intrapartum/urgent cesarean delivery? Do not include percentage sign in answer. Please answer in decimal format.

5.12

Q21

Do you conduct a quality assurance review of all cases requiring general anesthesia (irrespective of your institution's general anesthesia rate)? Please provide (attach with application) evidence of your quality assurance review process.

Yes

Page 4: Institutional Details

Q22

What percentage of laboring patients at your institution receive neuraxial analgesia? Do not include percentage sign in answer. Please answer in decimal format.

88.51

Q23

What is your labor epidural block replacement rate (percentage)? The labor epidural replacement rate should ideally be 3-6%. Do not include the percentage sign in your answer. Please answer in decimal format.

7.1

Q24

What is your institution's "wet-tap" rate (percentage) in the obstetric setting? Do not include the percentage sign in your answer. Please answer in decimal format.

0.69

Q25

What is your institution's "epidural blood patch (EBP)" rate (percentage) in the obstetric setting? Do not include the percentage sign in your answer. Please answer in decimal format.

59.09

Q26

How many labor and delivery rooms are in your obstetric unit?

13

Q27

How many operating rooms are in/dedicated to your obstetric unit?

3

Q28

What American College of Obstetricians and Gynecologists (ACOG) level of maternal care (Level 1, 2, 3, or 4) is your institution? (https://www.acog.org/clinical/clinical-guidance/obstetric-care-consensus/articles/2019/08/levels-of-maternal-care)

4

Page 5: Personnel and Staffing:

Q29

How many faculty in total cover the obstetric anesthesia service (day, night, weekends, and holidays)?

23

Q30

How many of the total faculty that cover the obstetric anesthesia service have completed an ACGME-accredited obstetric anesthesia fellowship, and/or have equivalent expertise and experience in obstetric anesthesia (e.g. specific training in obstetric anesthesia, several years of practice with a focus on obstetric anesthesia, and/or evidence of expertise based on academic contributions)? Please enter the actual number and the percent of total faculty.

17/23 (74%)

Q31

On a daily basis, how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service during the daytime?

*Attending physician:	**1.5**
Fellow:	**2-4**
Resident:	**2-3**
Certified Registered Nurse Anesthetists (CRNA) / Certified Anesthesiologist Assistants (CAA)	**0**
Other (specify):	**0**

Q32

On a daily basis, how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service during the nighttime?

*Attending physician:	**1 (plus 1 backup at home)**
Fellow:	**1 (home call)**
Resident:	**1 (plus 1 until 11pm)**
Certified Registered Nurse Anesthetists (CRNA) / Certified Anesthesiologist Assistants (CAA)	**0**
Other (specify):	**0**

Q33

On a daily basis, how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service during the weekends?

*Attending physician:	**1 (plus 1 backup at home)**
Fellow:	**1 (home call)**
Resident:	**1**
Certified Registered Nurse Anesthetists (CRNA) / Certified Anesthesiologist Assistants (CAA)	**0**
Other (specify):	**0**

Q34

Estimate the proportion of each shift covered by attending specialists vs. generalists (percentage). Please do not include the percentage sign in your answer. Please answer in decimal format.

Daytime	**100**
Nighttime	**80**
Weekends	**75**

Q35 **Yes**

Are all neuraxial procedures (spinal/epidural/combined spinal epidural (CSE)/dural puncture epidural(DPE)) in labor and operating rooms performed under direct supervision of the attending physician when performed by Fellow, Resident, Student Registered Nurse Anesthetists (SRNA) and/or CRNA?

Q36

*Outline the expertise and experience of the obstetric anesthesia lead. The obstetric anesthesia lead must be a board-certified physician anesthesiologist who has completed an ACGME-accredited obstetric anesthesia fellowship, and/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, several years of practice with a focus on obstetric anesthesia, and/or evidence of expertise based on academic contributions). Please provide the curriculum vitae of the lead obstetric physician anesthesiologist with your application.

Brendan Carvalho is the obstetric anesthesia lead and is a board-certified physician anesthesiologist who has completed an ACGME-equivalent fellowship program in obstetric anesthesiology. Brendan is past president of SOAP and world-leader in the field of obstetric anesthesiology for 20 years, and his academic contributions include major developments in clinical practice and advances in translational research.

Q37

*Provide evidence of ongoing participation in continuing medical education and professional practice improvement. The obstetric anesthesia lead and the majority of core faculty members need to show evidence of ongoing participation in continuing medical education relevant to the practice of obstetric anesthesia (e.g. SOAP membership, attendance at a SOAP conference or equivalent obstetric anesthesia-focused meeting at least every other year, and can provide examples of professional practice improvement or evidence-based updates to clinical practice).

There are 17 core faculty members, which include Brendan Carvalho (Division Chief), Brian Bateman (Chair of Department of Anesthesiology), Gillian Abir (Associate Division Chief), Edward Riley, Pamela Flood, Alex Butwick, Andrea Traynor, Pervez Sultan, Naola Austin, Clemens Ortner, Lindsey Ralls, Kelly Fedoruk, Jessica Ansari, Cedar Fowler, Cesar Padilla, Emily Stockert and Dominique Arce. The group's obstetric anesthesia expertise, extensive participation and academic contributions are well known to SOAP. The division members are all SOAP members who attend the annual meeting almost every year and several are active members on SOAP's Board of Directors and on various SOAP committees. The faculty have presented at many SOAP meetings and Sol Shnider Obstetric Anesthesia meetings over the past few decades. Dr. Pervez will give the Gerard W. Ostheimer Lecture at the SOAP 2023 meeting.

Faculty members have published numerous manuscripts each year in peer-reviewed journals that evaluate our current practice (e.g. changes in blood transfusion practices and analgesia regimens). The faculty have also been involved in consensus statements relevant to obstetric anesthesia such as the SOAP Consensus Statement on the Management of Cardiac Arrest in Pregnancy, the ASA's consensus statement on Reducing Maternal Peripartum Racial and Ethnic Disparities in Anesthesia Care and the SOAP Consensus Statement on the Anesthetic Management of Pregnant and Postpartum Women Receiving Thromboprophylaxis or Higher Dose Anticoagulants.

Q38

If applicable, please also outline efforts made to ensure continuing medical education for all non-core faculty that cover the obstetric service.

We have a small group of 6 non-OB fellowship trained faculty (4 generalists, 1 intensivist and 1 pediatric anesthesiologist) who cover 5-6 shifts a month. They are hand-selected, excellent clinicians who have done OB anesthesia for many years. They are invited to attend our weekly and quarterly QI sessions, our divisional grand round lectures, M&M meetings, and we conduct an annual obstetric anesthesia review lecture specifically directed to them which covers important clinical topics e.g. management of obstetric hemorrhage to aid their ongoing education. These people are part of the OB group because of special sets of skills they bring to the group (ICU fellowship trained, expertise with the EMR, Wellness lead for the department, etc.).

Q39

Outline obstetric anesthesia-related staff meetings. Regular (e.g. every 1-2 months) staff meetings for obstetric anesthesia providers to provide clinical service updates and ongoing education is recommended.

We hold 2 obstetric anesthesia-related staff meetings every month, one 1.5h meeting where we discuss clinical and education updates, and one 1.5h research meeting to cover research and scholarship. Faculty review our QI data every quarter at our monthly obstetric anesthesia division meeting, where 2-3 cases of interest are presented. Three times per year we have a combined obstetric/obstetric anesthesia M&M meeting and presentation which serves as an important source of ongoing education for our division.

Q40

*Outline your coverage model. In-house (24/7) coverage of obstetric patients, by at least one board-certified (or equivalent) physician anesthesiologist who is dedicated to cover the obstetric service without additional responsibilities for non-obstetric patients is emphasized. If a low volume center (<1500 deliveries per year), non-dedicated coverage with minimal additional responsibilities may be acceptable. If a very high volume center (>5000 deliveries per year), solo dedicated coverage may not be adequate unless there is a readily available physician anesthesiologist backup with adequate numbers of trainees/CRNAs to support the clinical load. If applicable, provide the full list of out-of-unit responsibilities, and the frequency at which faculty are called to complete these duties outside the obstetric unit.

There is a board-certified or board-equivalent anesthesiologist in the hospital 24/7 who is dedicated to cover the obstetric anesthesia service and is not responsible for any other service commitments. There is an in-house anesthesia resident who is present on the labor and delivery unit 24/7 who is also not responsible for any other service commitments. The attending and resident call rooms are located immediately adjacent to the labor and delivery unit, antepartum and the postpartum ward.

Q41

Outline your supervision policy. In academic centers that train residents or fellows, institutional policy should dictate that the physician anesthesiologist dedicated to the obstetric floor is present (regardless of the level of experience of the trainee) for placement and induction of neuraxial labor analgesia procedures with rare exceptions (e.g. simultaneous emergency), and should be present (regardless of the level of experience of the trainee) at induction and emergence from general anesthesia. For team-based (physician plus CRNA) care models, physician leadership and active medical management involvement is necessary. Evidence of physician contribution to education and training of fellow, resident, CRNA and Student Registered Nurse Anesthetist (SRNA) should be provided.

The in-house attending anesthesiologist who is covering the labor and delivery unit is required to be present during key portions of every anesthetic. The service expectation clearly states that the attending anesthesiologist is present for placement and induction of neuraxial labor analgesia procedures, cesarean deliveries, and other operative cases being performed on the labor and delivery unit involving neuraxial and/or general anesthesia (induction and emergence). An attestation is signed for billing purposes that states the attending anesthesiologist was present for key portions of the procedure. Additionally, policy dictates that attendings and residents are notified for any intrapartum cesarean delivery, any obstetric hemorrhage (or if a patient requires a second-line uterotonic agent), and any OB Rapid Response trigger.

Q42

*Outline your backup system. Ability to mobilize (within 30-minute timeframe) additional anesthesia personnel in case of obstetric emergencies or high clinical volume beyond the capacity of in-house staff assigned to the obstetric service is required.

For acute surges in clinical work that exceeds the work force of the in-house obstetric anesthesia team, we have several anesthesiologists that we can call for assistance. We have 2 attendings in-house (general and pediatric anesthesia service) plus 3 residents (pediatric anesthesia, acute pain, general operating room) to call for immediate help. We have an obstetric anesthesia fellow on home-call and available to be in the hospital within 30 minutes. For additional help/complex cases that require expert assistance, there is a backup obstetric anesthesiologist faculty on call 24/7 who is expected to be in the hospital within 30-60 minutes. The backup notification personnel and contact numbers are posted by the nurse's station, and in the call rooms.

Q43

Outline if anesthesia techs or equivalent are staffed on the obstetric unit. Describe their availability (24/7 or only daytime) and if anesthesia techs are dedicated to the obstetric service.

There is 24/7 availability of anesthesia techs who are dedicated solely to the obstetric service. Anesthesia techs are instrumental to the flow of anesthesia care in the operative rooms (three total). Anesthesia techs also help with essential labor and delivery anesthetic care, such as setting up nitrous oxide tubing for laboring patients requesting this type of labor analgesia.

Page 6: Equipment, Protocols and Policies

Q44

Outline your hemorrhage risk stratification algorithm and management protocol. Protocols should consider core elements of the National Partnership Obstetric Hemorrhage Bundle (1), California Maternal Quality Care Collaborative Obstetric Hemorrhage Toolkit (2), or comparable recommendations to manage obstetric hemorrhage.

Our obstetric hemorrhage management protocol combines elements of the National Partnership Bundle, the CMQCC protocol as well as the ACOG hemorrhage management recommendations. The protocol is regularly updated, and is distributed electronically to all anesthesiologists who cover the labor and delivery unit, and is also available in each labor and delivery room and is displayed as a poster in each obstetric operating room. There are also very detailed guidelines displayed in the call rooms, which have also been distributed electronically.

Q45

*Describe your massive transfusion protocol. Availability of a massive transfusion protocol with O-negative blood and other blood products, and an emergency release system for available blood is essential. Blood bank protocol needs to have been tested and be functional on the obstetric unit.

We have availability of an obstetric-specific massive transfusion protocol and immediate release of blood products from blood bank (which is on-site, in the same building on a different floor). The protocol includes 6 units PRBCs, 4 units of FFP and 1 unit of pooled platelets. There are 6 units of O-negative PRBCs available in the neighboring unit (on the same floor) which can be utilized prior to arrival of the MTP, if the clinical need necessitates. There is the ability to order specific blood products 'a la carte' via an emergency release process (for example, if progressing towards a 3rd or 4th MTP). When the obstetric-specific massive transfusion protocol is activated, we have a streamlined and coordinated response, which includes a staff member with a designated role as the 'runner' to obtain the blood products, and nurses with specific roles to help both the anesthesia and obstetric teams.

Q46

*Describe your rapid-infuser devices. Rapid-infuser device to assist with massive resuscitation (e.g. Belmont® Rapid Infuser, Level 1® Fast Flow Fluid Warmer) should be stored on the obstetric unit.

There are two Belmont® Rapid Infuser devices stationed on the labor and delivery unit to assist with resuscitation during a massive hemorrhage, as well as a cell salvage machine (see below). All obstetric operating rooms have in-line intravenous warming devices. There is a dedicated hemorrhage cart outside the obstetric operating rooms that contains emergency equipment necessary for the anesthesiologist as well as the obstetrician to manage a massive hemorrhage that can be moved to any location/room in the labor and delivery unit. The hemorrhage cart has an index card of all items contained within the cart, so that regular checks can ensure all items are present and within expiration dates. All emergency equipment and emergency medication boxes are located in the labor and delivery operating room hallway, with the exception of the second code cart that is located in the labor room hallway.

Q47

Outline how obstetric blood loss is recorded (quantitative versus estimated blood loss) and how the incidence of postpartum hemorrhage is tracked.

Obstetric blood loss is recorded by using a quantitative blood loss (gravimetric methodology using the Triton system) for all vaginal deliveries and cesarean deliveries. The data is documented in the patient's EMR and the incidence of postpartum hemorrhage is tracked by a Professional Practice Evaluation Program Manager who reports the data monthly to unit and hospital committees.

Q48

*Outline plans for difficult peripheral and/or central intravascular access, e.g. ultrasound and intraosseous kits available.

To assist with difficult peripheral and/or central intravascular access, we have two anesthesiology-dedicated ultrasound machines (a console machine with four probes, two different linear probes for intravenous access; and a portable tablet ultrasound device with a linear probe) and intraosseous devices in the code carts readily available on the labor and delivery unit.

Q49

Describe your point-of-care equipment to assess hematocrit and/or coagulation. Outline if thromboelastography (TEG®), thromboelastometry (ROTEM®), sonorheometry (QuantraTM) or other viscoelastic monitoring technology are available to guide management.

An i-STAT® portable analyzer is available on the labor and delivery unit for immediate point-of-care use. TEG® is available in the laboratory with immediate electronic reporting to guide management. We are in the process of installing the TEG6 cartridge-based point-of-care system on L&D to supplement the laboratory-based TEG system.

Q50

Outline availability of intraoperative cell salvage for patients who refuse banked blood, and/or during high-risk cesarean deliveries. How are patients who refuse blood transfusion identified prior to presenting for delivery, counselled regarding blood product options, and prepared or optimized for delivery?

A cell salvage machine is stationed on the labor and delivery unit for immediate use if necessary during resuscitation, or for empirical use in high-risk surgical procedures in patients who have elected not to receive banked blood products. Patients are identified by the obstetric team and referred to the obstetric anesthesia high-risk clinic. They are counselled by the obstetric team and the obstetric anesthesia team and complete a specific consent form to indicate which blood product(s), if any, they consent to receive. Patients are optimized for delivery with antepartum treatment for anemia, if detected.

Q51

Describe your hemorrhage quality assurance review process. Quality assurance review of all “severe” hemorrhage cases (defined at an institutional level, e.g. >4 unit blood transfusion) and all unplanned intrapartum hysterectomies should be in place so that opportunities for improvement can be identified and initiated.

The multidisciplinary Professional Practice Evaluation Committee meets every other month to discuss severe hemorrhage cases, select provider reported incidences, and other significant maternal and neonatal outcomes.

Q52

*Briefly describe and provide your institution’s obstetric hemorrhage toolkit (including protocols, checklists and/or algorithms).

See attached PDF with our obstetric hemorrhage protocols, checklists and algorithms.

Q53

*Outline your policies/procedures for suspected abnormal placentation (e.g. placenta accreta/percreta) cases. Describe the location (obstetric or main operating suite), staffing (e.g. obstetric anesthesia specialists), planning process (e.g. multidisciplinary meeting) and other considerations (e.g. blood management) for these cases.

In-patient placenta accreta syndrome (PAS) cases are included in the twice-daily MDR. Out-patient PAS cases are reported to the Clinical Director for obstetric anesthesiology. The default operating location is the main operating suite, however in an emergency if the patient is cardiovascularly unstable, the surgery can be performed in an obstetric operating room which is located on the labor and delivery unit (due to proximity of antepartum to the labor and delivery unit vs. the main operating suite). PAS cases are always staffed by obstetric anesthesia specialists. The planning process involves a multidisciplinary approach, which includes the blood transfusion service. The anesthesiology team have a PAS checklist for the OR preparation which includes 1-2 MTPs to be in the OR prior to the start of the case. Intraoperative blood management is under the direction of the anesthesiology team. A cardiac anesthesiologist is on standby to assist in TEE interpretation and hemodynamic management if needed.

Q54

Outline your difficult airway cart and supplies (laryngoscopes, endotracheal tubes, rescue airway devices (e.g. supraglottic airway device such as a laryngeal mask airway), video-laryngoscope and surgical airway equipment) that are stored on the obstetric unit.

There is a dedicated difficult airway cart located in the labor and delivery operating room hallway along with other emergency equipment. It contains the necessary basic and advanced airway equipment and adjuncts to deal with a difficult airway. Equipment includes: oral airways, supraglottic airway devices (standard LMA), LMA ProSeal™, intubating LMA (Fastrach™)), laryngoscope blades, endotracheal tubes, Airtraq™ scope, fiberoptic intubating scope, and a cricothyrotomy kit. The difficult airway cart has an index card of all items contained within the cart, so that regular checks can ensure all items are present and within expiration dates. Each obstetric operating room has a dedicated mobile video-laryngoscope, and jet ventilator.

Q55

*Describe if you have an obstetric-specific difficult airway protocol on the difficult airway cart and in obstetric operating rooms.

In each obstetric operating room and every labor and delivery room, there is an obstetric anesthesia emergency manual that includes an obstetric-specific difficult airway algorithm.

Q56

Describe the availability of suction devices. Suction and a means to deliver positive pressure ventilation (e.g. bag-valve mask device) is required to be immediately available in readily accessible locations where neuraxial analgesia/anesthesia and/or general anesthesia are administered.

There are wall-based suction devices available in every operating room and in every labor and delivery room. There are also two portable suction devices readily available on the labor and delivery unit, which are positioned on the code carts. There are bag-mask-valve ventilation devices (Ambu bag) in every operating room, in every labor and delivery room, in the PACU, on the code carts, and also positioned in several locations in the labor and delivery hallway. The two epidural carts on labor and delivery also contain emergency airway equipment.

Q57

Describe your in-house backup plan to provide personnel with surgical airway access skills if needed 24/7.

There is in-house backup (24/7) from the trauma team who can perform emergency surgical airway access, if needed. ENT specialists are available daytime and on-call for consultation and assistance as needed.

Q58

*Outline your lipid emulsion availability, appropriate supplies, and protocols that allow a timely response to local anesthetic systemic toxicity.

There is a dedicated portable medication box located in the labor and delivery operating room hallway that contains bags of 20% lipid emulsion (Intralipid®) along with administration instructions (ASRA guidelines), in the event of LAST. Expiry dates are regulated by the pharmacist. Code carts and emergency airway equipment (in the epidural carts) are located in the labor and delivery hallway and in the labor and delivery operating room hallway.

Q59

Outline your malignant hyperthermia protocol. Dantrolene formulations and sterile water vials, along with other supplies must be available to allow a timely response to malignant hyperthermia.

A fully stocked malignant hyperpyrexia cart is maintained in the main operating rooms of Stanford University Medical Center and Lucile Packard Children’s Hospital, Stanford (conjoined buildings). Both of these locations are proximate (within a 5 minute walk) to the labor and delivery unit such that dantrolene can be administered in a timely manner. An additional supply of dantrolene is readily available from the pharmacy.

Q60

Outline cognitive aids and training resources. Provide evidence for cognitive aids and clinician awareness of resources to manage emergencies, and training to facilitate team member awareness of the location and means to retrieve resources to better manage emergencies.

There are multiple obstetric-specific cognitive aids located in each obstetric operating room, in all the labor and delivery rooms, as well as on the two code carts located in the labor and delivery unit. There is an obstetric anesthesia emergency manual located in each obstetric operating room and in each labor and delivery room (also available electronically) as a resource to manage emergencies. All new staff (faculty, fellows and residents) are oriented to the emergency resources in the labor and delivery unit. All anesthesiology attendings who cover the labor and delivery unit, obstetric anesthesiology fellows, and anesthesiology residents participate in multidisciplinary team-based simulation drills that cover obstetric and obstetric anesthesia emergencies.

Q61

*Outline availability and usage by obstetric anesthesia providers of ultrasound devices for peripheral and central intravenous access, neuraxial blocks, regional blocks (e.g. transversus abdominis/quadratus lumborum/erector spinae), and point-of-care evaluations (gastric, airway, lung, and cardiac).

There are 2 mobile ultrasound machines (GE Venue) dedicated for anesthesiology usage in the labor and delivery unit that contain linear, curvilinear and cardiac probes to enable all the required imaging modalities. All obstetric anesthesiology attendings and fellows attend a Focus-assessed transthoracic echocardiography (FATE) course. The FATE course is organized and run annually by obstetric anesthesiologists for the whole of the Anesthesiology Department. Twice a month there are dedicated POCUS teaching sessions on the labor and delivery unit for residents, fellows and attendings, and everyone has the opportunity to participate in daily POCUS rounds by the departmental POCUS team.

Q62

*Describe systems in place to ensure inter-professional communication and situational awareness on your obstetric unit such as: board sign-out at each shift change of anesthesiology staff; pre-procedural timeouts; post-procedural briefings, as indicated; daily multidisciplinary rounds or huddles to discuss management plans for patients on labor and delivery, antepartum and postpartum.

At every change of shift, there is an anesthesia-specific sign-out at the front board on the labor and delivery unit for all members of the anesthesiology team. There is an electronically generated sign-out sheet to assist change of shift transfers of care. Pre-procedural multidisciplinary briefings and timeouts are carried out on all high-risk patients, and post-procedure multidisciplinary debriefings are performed after certain emergencies and other triggering events, as indicated. Twice daily (8:30 am and 9:00 pm) multidisciplinary huddles are carried out to discuss all patients on the labor and delivery unit, all antepartum ward patients (including pregnant patients in other locations in the hospital, for example in CCU or ICU), and any high-risk in-house postpartum patients.

Q63

Outline how timeouts are performed prior to all anesthetic interventions.

Prior to every anesthetic procedure (in a labor and delivery room or operating room) a time-out is performed by the anesthesiologist who is performing the procedure and the assisting nurse. Timeouts follow wall-mounted and electronically generated checklists in the EMR that are specific for neuraxial labor analgesia and obstetric operative anesthetic procedures.

Q64

Outline evaluations by the anesthesiology service of: 1) all patients undergoing scheduled cesarean delivery and other obstetric-related surgeries, and 2) the vast majority of patients presenting to labor and delivery. Patients presenting to labor and delivery should be triaged, and/or evaluated by the anesthesiology service soon after admission.

All patients undergoing scheduled cesarean delivery are evaluated by an anesthesiologist. Patients undergoing external cephalic version, cervical cerclage, and postpartum tubal ligation are also evaluated prior to their procedures. Antepartum patients are evaluated by the anesthesiology team upon notification of their admission and medical condition by the obstetric team and/or nursing staff. Patients on the labor and delivery unit are triaged by the anesthesiology team in consultation with the obstetric team and/or nursing staff, and evaluated if deemed necessary and appropriate. All high-risk patients and the vast majority of laboring patients are evaluated by our anesthesia service soon after admission.

Q65

Outline the system in place to screen and identify all high-risk patients. Discuss early anesthesia evaluation of high-risk antenatal patients prior to admission for scheduled surgery or labor and delivery (e.g. high-risk anesthesia clinic).

Every Wednesday afternoon, there is a dedicated high-risk obstetric anesthesiology clinic where high-risk patients are evaluated. Obstetricians refer patients that meet pre-defined criteria. If a patient is not able to attend the clinic, an alternative day and location will be arranged for the consultation to suit the patient. Nurses and obstetricians notify the anesthesia service of all high-risk patients admitted to the labor and delivery unit, or to the antepartum ward (or in other locations in the hospital, for example in CCU or ICU). Our unit's culture of safety dictates that nurses should notify the anesthesia team of patients with any significant medical condition, obesity, TOLAC, abnormal fetal condition, etc.
We conduct a monthly multidisciplinary meeting for MFM, obstetric anesthesiology (+/- cardiac anesthesiology) and cardiology (congenital specialists) to discuss and plan delivery for any pregnant patient with cardiac disease. The meeting decides on management plans for each patient, and these plans are electronically distributed to all obstetric anesthesia care providers and are available in the patients' electronic medical record (EMR). Any other high-risk patients are referred to our high-risk anesthesiology clinic.

Q66

*Describe the availability of surgical backup. Surgical backup (e.g. trauma and/or gyn-onc surgeons) must be available, ideally 24/7 and in-house.

Trauma surgeons are in-house 24/7, and other surgical disciplines such as vascular, gyn-onc, and ENT attendings are available 24/7 on-call.

Q67

Outline your protocol or pathway to activate interventional radiology.

Interventional radiologists are available 24/7 on-call. There is no specific protocol; the on-call interventional radiologist is contacted directly and arrangements are instigated as necessary.

Q68

Describe the intensive care units available to receive obstetric patients (e.g. expertise, proximity to the obstetric unit and capacity).

Intensivists are available in-house 24/7 for consultation, and admission of patients if required. There are two intensive care faculty with a specific interest in obstetric patients. We also have a board-certified intensivist in the OB anesthesia division who is involved in CCM education within and outside the unit.

Q69

Outline the qualifications of nursing staff who provide post-anesthesia care in the obstetric unit and describe their competencies to recover surgical patients from both neuraxial and general anesthesia.

All labor and delivery nurses are qualified to recover postoperative patients in PACU (located in the labor and delivery unit), and they are all certified in obstetric life support (OBLS). All labor and delivery transport nurses and many labor and delivery charge nurses have additional certification in ACLS.

Q70

*Describe your obstetric emergency response team and policy. Outline obstetric conditions and/or vital sign parameters that warrant activation, the means of notifying all members of the response team, and the approach for including anesthesiologists in the response to obstetrical emergencies such as hemorrhage, severe hypertension and non-reassuring fetal heart rate.

A text-based 'OB Rapid Response' alert notifies the obstetric team, obstetric anesthesiology team, pharmacist, labor and delivery charge nurse and the nursing supervisor when an emergency response is needed for maternal and/or fetal indications (in any location in the hospital). An 'Obstetric Code Blue' alert (in addition to the team members alerted by an OB Rapid Response) notifies the neonatal complex team and the adult code team. In 2019, an automated, electronic maternal early warning score alert notification platform as an early-warning surveillance system was incorporated in the EMR as a strategy to detect and reduce maternal morbidity and mortality. Also in 2019, a text-based automated alert system that alerts anesthesia providers whenever a second-line uterotonic drug is administered.

Q71

*Outline your simulation drills and training.

Since 2005, we have had an active multidisciplinary simulation team, which is comprised of obstetricians, obstetric anesthesiologists, neonatologists, labor and delivery nurses, a simulation specialist and risk management faculty. There are on average 1-2 in-situ multidisciplinary simulation drills performed each month and the topics contain obstetric and anesthesiology critical events. Participants include obstetricians, anesthesiologists (attendings, fellows and residents) labor and delivery nurses, maternity nurses, labor and delivery operating room and anesthesiology technicians. The anesthesiology attendings that participate include the core obstetric anesthesiology group as well as non-specialist anesthesiology attendings who cover the labor and delivery unit on-call. Recent drill topics include: maternal sepsis; stat cesarean delivery for twin B and preeclampsia; postpartum hemorrhage; fire in the operating room during a cesarean delivery; LAST and maternal cardiac arrest; eclampsia; disaster preparedness; shoulder dystocia and neonatal resuscitation.
Our obstetric simulation program at Stanford is highly regarded, faculty are nationally recognized, and several manuscripts related to obstetric/obstetric anesthesia simulation training have been published by our division.

Q72

Outline the percentage of anesthesiology faculty (who cover obstetric anesthesia call), obstetricians, nurses, and other personnel who have participated in obstetric simulation (or inter-professional team training) in the last five years. _____%

Anesthesiology faculty (who cover OB) = 92%
Obstetricians = 45%
Nurses = 100%
Other personnel = 100%

Q73

Describe simulation training scenarios practices and compliance with The Joint Commission (JACHO) requirements for obstetric hemorrhage and preeclampsia simulations. (https://www.jointcommission.org/standards/r3-report/r3-report-issue-24-pc-standards-for-maternal-safety/#.YofbDHbML-g)Physicians providing obstetric anesthesia should participate in at least one simulation drill every five years. An active multidisciplinary program with obstetric and anesthetic emergency simulation drills (e.g. emergent cesarean delivery, maternal cardiac arrest, difficult/failed intubation, obstetric hemorrhage, and eclampsia) is preferable. Simulation drills for anesthesiology providers only may be acceptable, if no formal multidisciplinary program exists, or to supplement pre-existing drills.

Annual postpartum hemorrhage and preeclampsia simulation drills have been established to be in compliance with The Joint Commission standards.

Q74

Describe your ability to provide anesthesia care for postpartum tubal ligation procedures within 24 hours of delivery, and urgent cerclage placement within 12 hours of surgical request. Outline policies/procedures to ensure postpartum tubal ligation are prioritized and performed in a timely manner as per ACOG recommendations. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2021/06/access-to-postpartum-sterilization

Anesthesiologists are available 24/7 upon surgical request to provide anesthesia for postpartum tubal ligations, emergency D&Es, and cerclages on the labor and delivery unit. There is a unit specific policy to facilitate postpartum tubal ligations, and the division's culture is that these are deemed as urgent procedures that should not be delayed or cancelled.

Q75

*Outline options for an additional operating room (with nursing/tech/obstetric and anesthesiology personnel) that is available at all times for emergency obstetric procedures (if all obstetric unit operating rooms are occupied).

We have three obstetric-specific operating rooms. If these are all occupied, the main operating room and pediatric operating rooms are alerted and additional operating room space is held until the obstetric-specific operating rooms are available. There is 24/7 availability of an obstetric anesthesia fellow and obstetric anesthesiology faculty (separate to the anesthesiology team covering the labor and delivery unit) to provide anesthesia for obstetric procedures if there is no availability on the labor and delivery unit. If emergent and after hours, additional (non-obstetric) anesthesiologists are located in-house that can provide care while the backup obstetric anesthesiology attending and fellow are on-route to the hospital.

Q76

Describe your ability to provide invasive monitoring and other advanced management techniques for high-risk patients on the obstetric unit, including arterial lines, central lines, cardiac output monitoring, and transthoracic/transesophageal echocardiography.

The ability to place invasive monitoring (arterial and central venous lines) is readily available on the labor and delivery unit, and monitoring is available with permanent or portable monitors, as applicable. Transthoracic echocardiography (TTE) is available on the labor and delivery unit as a means to monitor cardiac output and function. All obstetric anesthesiology attendings are certified in TTE point-of-care ultrasound (and new appointments within 1-year of employment) and all obstetric anesthesiology fellows during the 1-year fellowship. Transesophageal echocardiography can also be carried out on the labor and delivery unit by a cardiac anesthesiologist on request.

Q77

Outline your management of patients who need vasoactive drug infusions, intensive care or cardiac care, and/or additional monitoring requirements (e.g. monitored bed, telemetry).

Patients requiring intensive care (including vasoactive drug infusions) can be managed on the labor and delivery unit by the anesthesiology team whilst the patient is awaiting transfer to ICU or CCU. If a patient requires additional monitoring (such as telemetry) a specialized cardiac nurse is requested to be present at the patient's bedside throughout the labor and delivery process (along with the labor and delivery nurse). If a patient requires a high level of observation and monitoring in the postpartum period, the patient is transferred to either CCU or ICU, or will have one-to-two nursing surveillance and extended monitoring on the postpartum ward.

Q78

Outline your approach to educating expectant people, patients and families.

Once a month, expectant people can attend a live presentation by an obstetric anesthesiology fellow on a wide range of obstetric anesthesia-related topics with an opportunity to ask questions directly. Patients and families are educated in-person by any member of the obstetric anesthesiology team, and there are obstetric anesthesiology-specific webpages incorporated in the hospital's website aimed at current and future patients.

Q79

Outline your approach to educating nurses, obstetricians and other healthcare providers.

Through multidisciplinary simulation, nurses, obstetricians and other healthcare providers are educated about obstetric anesthesiology topics. Three times per year, obstetric anesthesiology attendings lecture OB/Gyn residents on obstetric anesthesiology topics. Three times per year, the obstetric anesthesiology fellows present at a Joint OB/OB Anesthesiology morbidity and mortality meeting, which is attended by the OB/Gyn department, division of obstetric anesthesiology and Labor and delivery nurses. In addition, and any other healthcare providers who have been involved with the case being discussed are invited to attend, for example cardiac anesthesiologists, general surgeons, cardiac surgeons). The obstetric anesthesiology fellows and attendings also present cases at the Department of Anesthesiology's morbidity and mortality grand round's lectures, which is attended by all anesthesiologists (attendings, fellows and residents). All MFM fellows participate in a 1-2 week elective in obstetric anesthesiology and OB/Gyn residents can also elect this.

Q80

Outline your approach, if applicable, to educating obstetric anesthesia training for residents, fellows, CAAs, and/or SRNAs.

Through multidisciplinary simulation, nurses, obstetricians and other healthcare providers are educated about obstetric anesthesiology topics. Three times per year, obstetric anesthesiology attendings lecture OB/Gyn residents on obstetric anesthesiology topics. Three times per year, the obstetric anesthesiology fellows present at a Joint OB/OB Anesthesiology morbidity and mortality meeting, which is attended by the OB/Gyn department, division of obstetric anesthesiology and Labor and delivery nurses. In addition, and any other healthcare providers who have been involved with the case being discussed are invited to attend, for example cardiac anesthesiologists, general surgeons, cardiac surgeons). The obstetric anesthesiology fellows and attendings also present cases at the Department of Anesthesiology's morbidity and mortality grand round's lectures, which is attended by all anesthesiologists (attendings, fellows and residents). All MFM fellows participate in a 1-2 week elective in obstetric anesthesiology and OB/Gyn residents can also elect this.

Q81

*Outline the initiatives that you have done at your institution to better meet the needs of patients from the most prevalent racial and ethnic minority group(s) that your facility serves (e.g. implicit bias training of healthcare providers; provision of health educational resources for non-English speakers). Describe efforts to promote diversity, equity and inclusion of your workforce (e.g. support pipeline programs for groups underrepresented in medicine; diversity, equity and inclusion hiring/promotion practices; microaggression and bystander response training; mentorship/sponsorship of individuals from groups underrepresented in medicine and female trainees and faculty).

The division of Obstetric Anesthesiology and the Department of Anesthesiology are leaders in promoting gender, race and ethnic equality. We have a named Diversity and Healthcare Disparities lead/director position (Cesar Padilla) in the OB anesthesia division. Two members of our division are on the Department of Anesthesiology's Diversity, Equity and Inclusion council.
Several faculty in the division have published on maternal healthcare disparities. One faculty, Cesar Padilla, holds several national roles promoting Diversity, Equity and Inclusion. Dominique Arce who recently joined the division led the DEI efforts at Brigham and Women's Hospital as Vice Chair of DEI.
All faculty participate in an 'Implicit bias training of healthcare providers' course and other training programs/material are available.
Non-Stanford medical students participate in clerkships via the Stanford Clinical Opportunity for Residency Experience (SCORE) Program, which includes individuals who are underrepresented in medicine, socially, economically, or educationally disadvantaged, and others whose backgrounds and experiences help diversify clinical fields.
One of our obstetric anesthesiology fellows has been instrumental in educating obstetric anesthesiology attendings, fellows and residents about the needs of non-English speaking patients, which includes: a monthly lecture for residents; the purchase of additional mobile electronic devices for interpretation for the labor and delivery unit; education for staff on how to contact an in-person interpreter. Staff have the ability to request an in-person Spanish interpreter 24/7, and access to multiple other language interpreters via an electronic live-stream platform 24/7. Plans are being made to produce videos on obstetric anesthesiology procedures for non-English speaking patients (initially in Spanish) which will be published on the hospital's obstetric anesthesiology webpage.

Page 7: Cesarean Delivery Management

Q82

*Outline, describe, and provide your enhanced recovery protocol as defined by the SOAP Enhanced Recovery After Cesarean (ERAC) Consensus Statement (3). A standardized enhanced recovery protocol or clinical care pathway that is utilized by the institution and all obstetric anesthesia providers is an essential element.

Surgeons and anesthesiologists utilize a standardized ERAC protocol, to optimize perioperative outcomes for our patients (Cesarean delivery ordersets and ERAC patient education material attached). We were an early adopter of ERAC, and two faculty helped create the SOAP ERAC Consensus Statement, and contributed our protocols/education material to the initiative.

Q83

*Outline your routine utilization of a pencil-point needle, 25-gauge (or smaller) for the provision of spinal and CSE anesthesia for cesarean delivery.

The standard single-shot spinal kits that we use contain a 25-gauge Pencan pencil-point needle. 25-gauge BD Whitacre needles are also available for spinal anesthesia. A 26-gauge Gertie Marx pencil-point needles are available for CSE procedures.

Q84

*Describe your approach and outline policies and/or protocols to prevent and/or treat insufficient anesthesia or intraoperative pain during cesarean delivery. Outline how neuraxial block are tested prior to incision and strategies/protocols used to ensure blocks are adequate for surgery. Outline strategies/protocols to treat intraoperative pain, and describe the follow-up for patients that experience intraoperative pain.

We routinely check the density, level and quality of neuraxial blockade using both sensation (to cold and sharp stimulus) and testing of motor blockade prior to surgical incision. A urinary catheter is inserted following neuraxial anesthesia. We counsel our patients that in the event of intraoperative breakthrough pain the following options are available: a) epidural top-up (if applicable) b) nitrous oxide, c) parenteral opioids d) general anesthesia. In the EMR there is a block ready icon that indicates surgical anesthesia has been obtained. All patients who receive an anesthesia intervention are followed-up post-delivery and counselling and debriefing are offered during follow-up consultations in the event of intraoperative pain.

Q85

*Outline your post-cesarean delivery analgesic protocol. Analgesic protocols should include low dose long-acting neuraxial opioid (such as 100-150 mcg intrathecal morphine or equivalent long-acting opioid, or 2-3 mg epidural morphine or equivalent long-acting opioid), and supplemental multimodal analgesics (ideally scheduled non-steroidal anti-inflammatory drugs and acetaminophen).

Our standard analgesic protocol for cesarean delivery is as follows: All patients receiving spinal of CSE (unless contraindicated) receive spinal fentanyl (15 mcg) and morphine (patient-centered choice of 50 mcg (low), 100 mcg (standard) or 150 mcg (high) following discussion of risks versus benefits with our patients]. Intrapartum epidural top-ups receive 3 mg epidural morphine after delivery. All patients receive acetaminophen 1g IV and ketorolac 30 mg IV intraoperatively after delivery, and postoperatively we administer scheduled ibuprofen and acetaminophen every 6 hours until discharge (if no contraindications). Additional adjuvants include: intraoperative dexamethasone if high-risk for PONV, or NSAIDs contraindicated, or high risk for postpartum pain.

Q86

Describe your ability to provide local anesthetic wound infusions or regional nerve/fascial plane blocks when appropriate. Are regional blocks performed by obstetric anesthesia providers or the acute pain/regional anesthesia service?

Wound infiltration catheters (On-Q) which are available for all patients undergoing cesarean delivery. A QI study at our institution found wound OnQ catheters provided limited benefit when given to all in the setting of multimodal analgesia, so we only offer to select patients e.g. NSAIDs or neuraxial morphine contraindicated, history of poor pain after a cesarean delivery, general anesthesia, opioid use disorder etc. Patients receive wound catheters (bupivacaine 0.5% at 4 mL/h) for 72 hours postpartum.
TAP and QLB blocks are also available for rescue analgesia postoperatively for patients with severe pain not responsive to standard analgesics/requiring high opioid doses. TAP and QLB are provided by the Obstetric Anesthesia Team or by the Regional Anesthesia Team which is available 24/7. One faculty on the OB division is part of the Regional Anesthesia team.

Q87

*Outline institutional efforts to minimize opioid usage, such as limiting rescue opioid doses (e.g. <30 mg oxycodone/24 hours), non-opioid rescue analgesic options (e.g. transversus abdominis plane blocks, gabapentin), and efforts to limit the number of opioid tablets (e.g. 10-20 tablets) prescribed on discharge.

Every effort is made to limit the dose of opioids prescribed postoperatively. We utilize a multimodal pain management strategy as outlined above. If break-through pain occurs, we offer oxycodone as our primary oral opioid, and limit intravenous opioids only to patients with severe pain not responsive to oral opioids. We start with half-dose of oxycodone: 2.5 mg (pain score 1-4 and desires pain relief) or 5 mg (pain score 5-10 and desires pain relief). Patients are reassessed after 1 hour and offered the remaining 2.5 mg or 5 mg respectively, if needed. Oral hydromorphone is an alternate opioid available if a patient is intolerant to oxycodone. Our anesthesia service is notified if patients require oxycodone doses >30 mg in a 24-hour period. The anesthesia team can also monitor pain scores and analgesic use real-time remotely via an electronic health record (EPIC) dashboard. If severe pain and excessive opioid use is noted, patients are consulted to optimize pain management. For patients with severe pain requiring escalating doses of postoperative opioids, we offer a rescue TAP/QLB block, lidocaine patches and/or gabapentin. Rarely patient-controlled intravenous analgesia and/or epidural analgesia are used as analgesic options.
We use a stratified/individualized prescription strategy to minimize opioids prescribed to patients on discharge. The number of prescribed tablets are based on opioid use in-hospital and patient preference. Patients also receive an information package to guide them through analgesic use on discharge that emphasizes acetaminophen and ibuprofen use, the importance of limiting oxycodone use, and a number to call if required. We educated OBs to inform us when refills are required or if patients are experiencing significant postpartum pain. A board-certified pain specialist (Pamela Flood) in our division follows up with patients if issues with pain/opioid requirements.

Q88

Describe your standardized protocol or plan of action to manage patients with opioid use disorders, and/or chronic pain.

We have a board-certified pain specialist (Pamela Flood) in our obstetric anesthesia division who consults patients with ongoing issues with pain or excessive opioid requirements. In these challenging situations we review patients in the antepartum high-risk anesthesia clinic in order to develop a peripartum plan in conjunction with the pain and Obstetric teams. Patients are encouraged to continue their usual prescription opioid medications around the time of labor and delivery. Each case is discussed, and a tailored analgesia strategy is formulated depending on clinical history and examination findings. Several strategies are used in addition to neuraxial techniques including: a) higher doses of neuraxial morphine e.g. 300 mcg intrathecally, b) neuraxial clonidine, c) TAP or QLB either electively or for postoperative rescue analgesia, d) gabapentin and lidocaine patches, and e) patient-controlled intravenous analgesia. The Pain team review these patients once admitted and co-manages these patients after delivery.

Q89

*Outline strategies to prevent maternal and fetal intraoperative hypothermia, e.g. active warming, warm intravenous fluids, appropriate ambient delivery/operating room temperature. Active warming and a standardized minimum operating room temperature of at least ≥73oF (22.8oC), and/or operating room temperature based on gestational age for cesarean delivery is recommended.

All patients undergoing scheduled cesarean delivery receive in-line intravenous fluid warming. In addition, intraoperative upper body forced-air warming is provided. Postoperatively, lower body forced-air warming is utilized as needed for any patient experiencing hypothermia or excessive shivering in recovery. Operating rooms are maintained and monitored centrally at 74 degrees Fahrenheit to try and prevent maternal and neonatal hypothermia. All neonates are evaluated on a warmer immediately after delivery prior to transfer to the patient for skin-to-skin and breastfeeding.

Q90

Describe your approach to the measurement of maternal temperature during general and neuraxial anesthesia.

Patients routinely have their temperature measured non-invasively using a temporal scanner when a procedure is performed under neuraxial anesthesia. Under general anesthesia an oropharyngeal probe is routinely sited following endotracheal intubation.

Q91

*Describe your antibiotic prophylaxis protocols, specifically how the following are ensured: timely administration (prior to skin incision) of appropriate antibiotic(s); implementation of a weight-based dosing approach; implementation of an appropriate re-dosing strategy; identification of alternatives if allergies known/detected; and consideration of additional antibiotics for high-risk patients.

We have a surgical site infection prevention protocol in each operating room that outlines antibiotic prophylaxis. The protocol accounts for the patient's weight and alternative antimicrobial agents if allergies are detected. Our standard antibiotic prophylaxis is cefazolin 2 g IV (3 g IV if the patient is >120 kg) prior to skin incision with 3-4 hourly re-dosing, if needed. We also add azithromycin to cefazolin if an intrapartum cesarean delivery is performed (or if a patient has ruptured membranes). We have developed a system in our EMR that monitors antibiotic administration and reports are published quarterly to ensure compliance.

Q92

Outline which antibiotics are stored in the operating room for emergency cesarean deliveries, and describe how additional antibiotics are acquired urgently from pharmacy.

Cefazolin, azithromycin, gentamicin and clindamycin are immediately available in the operating rooms for antibiotic prophylaxis. Additional antibiotics are ordered urgently from pharmacy via a phone call or electronic request in the patient's EMR. A nurse can obtain the urgent medication in-person from pharmacy, or the medication can be transported to the labor and delivery unit via the pneumatic tube transport system.

Q93

*Outline your standardized approach to prevent and treat hypotension after spinal anesthesia. Ideally, prophylactic infusion of phenylephrine to maintain blood pressure within 10% of baseline, with boluses of phenylephrine and ephedrine as appropriate to treat hypotension, as well as intravenous fluid pre-load or co-load during spinal or CSE anesthesia should be utilized.

All providers follow a standardized protocol with the aim to prevent spinal hypotension. Patients undergoing spinal or CSE anesthesia for cesarean delivery receive an intravenous co-load of 1L Normosol solution, have lower limb sequential compression devices placed prior to block placement, and receive a prophylactic weight-adjusted variable rate infusion of phenylephrine. Pharmacy provide prefilled 50 mL phenylephrine syringes (0.1 mg/mL) and we administer an initial infusion rate of 0.5 mcg/kg/min, and titrate as necessary to maintain maternal blood pressure (at, or within 10% of baseline). Prefilled syringes of phenylephrine and ephedrine (10 mL (0.1 mg/mL) and 5 mL (5 mg/mL) syringe sizes respectively to avoid drug errors/swaps) are available to treat spinal hypotension despite the phenylephrine infusion. All patients are positioned with left uterine displacement when supine.

Q94

Describe your approach to risk stratify patients at risk for perioperative nausea and vomiting.

The spinal hypotension protocol (see above) minimizes intraoperative nausea and vomiting. To try and prevent postoperative nausea and vomiting (PONV) we limit the dose of intrathecal and epidural morphine to 150 mcg and 3 mg respectively and administer prophylactic ondansetron to all. We have a PONV screening tool that is documented in the EMR. If patients are flagged with high risk factors for PONV, we add dexamethasone and consider decreasing the neuraxial opioid dose. Patients are risk-stratified during consultation through the following questions: a) history of PONV, b) motion sickness, c) smoking, d) morning sickness.

Q95

*Outline your perioperative antiemetic prophylaxis and treatment protocol. A standardized approach ideally involving at least one prophylactic antiemetic agent routinely administered, with an alternative class of antiemetic agent available for additional prophylaxis (in patients at higher risk for PONV) and for treatment of nausea and vomiting.

All patients are given ondansetron 4 mg IV following delivery as part of our enhanced recovery protocol in the absence of contraindications. Patients identified as high risk for PONV are also given a second anti-emetic (e.g. dexamethasone 4 mg IV). A third antiemetic (e.g. metoclopramide) is given intraoperatively if IONV is experienced.
A second dose of ondansetron, or administration of a different class of antiemetic (such as metoclopramide and diphenhydramine) are available as part of our standard order-set for additional prophylaxis and/or treatment of PONV in PACU, or on the postpartum ward. Scopolamine patches are available as needed.

Q96

Outline which medications are immediately available for treatment of intraoperative shivering and pruritus in the operating room and recovery unit.

Intraoperative shivering is treated using dexmedetomidine 4 mcg IV boluses or meperidine 12.5-25 mcg IV (preferably following delivery of the neonate). Routine upper body forced air warming helps prevent shivering.
Pruritus is treated with nalbuphine 2.5-5 mg IV. In addition, naloxone and diphenhydramine are available for unresponsive, severe pruritus.

Q97

Describe your approach to risk stratification to identify patients at increased risk for respiratory depression, and screening for obstructive sleep apnea.

We follow SOAP and ASA/ASRA guidelines for postoperative monitoring after neuraxial opioids. Patients are individually assessed for symptoms and signs of obstructive sleep apnea (OSA) using a standard screening tool embedded in the preoperative assessment in the EMR. If patients are high-risk for OSA, postoperative respiratory monitoring is adjusted accordingly, usually by adding continual oxygen pulse oximetry to the routine respiratory rate and sedation score monitoring (Q1 h for 12 h and Q2 h for 12-24 h). Capnography is available for select, high-risk cases.

Q98

*Describe your monitoring and treatment for respiratory depression after cesarean delivery. Your protocol should be consistent with the SOAP Consensus Recommendations for the Prevention and Detection of Respiratory Depression Associated with Neuraxial Morphine Administration for Cesarean Delivery Analgesia for the Prevention, Detection and Management of Respiratory Depression Associated with Neuraxial Opioids (4, 5).

All patients receive monitoring for respiratory depression. As per SOAP guidelines, we monitor hourly respiratory rates and sedation scores Q2 h for the first 12 hours postoperatively. As outlined above, we apply continuous pulse oximetry (and selective capnography) to patients whom physicians feel are at greater risk of respiratory depression, e.g. morbid obesity, obstructive sleep apnea, intraoperative/postoperative desaturation, magnesium infusion and assessments either continuously or Q1 h for 12 h then Q2 h for 12-24h.

Q99

Outline your nursing care and monitoring. Your nursing care should be consistent with the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) and ASA recommendations.

Patients who have undergone a surgical procedure with neuraxial and/or general anesthesia are assessed by the attending anesthesiologist and discharged from PACU when discharge criteria have been fulfilled. Nursing and obstetric monitoring (heart rate, blood pressure, respiratory rate, temperature and oxygen saturations if indicated) on the postpartum ward after cesarean delivery (beyond that stipulated by the anesthesia service for respiratory monitoring) is as follows: 15 and 45 min after arrival, then 1 hour later provided there are no issues, then q4 hours for 24 hours. If motor block is not fully resolved when leaving PACU, an order set with instructions ensures that postpartum nurses communicate with the anesthesiology team if block resolution has not occurred in 4 hours.

Q100

Describe how your anesthesiology service is supportive of baby-friendly breastfeeding practices (e.g. ability to safely facilitate skin-to-skin in the operating room or recovery unit, when possible).

Our hospital is breast-feeding friendly. All patients are offered skin-to-skin contact in the operating room and a neonatal nurse cares for the neonate at the patient's bedside in the operating room and in PACU. We have anesthesiologists who have a special interest in facilitating skin-to-skin contact and advise nursing staff on how best to implement the practice in the operating room. The hospital collects metrics for breastfeeding success, and provides donated milk as a non-formula option.

Q101

Outline how an in-house (24/7) clinician (separate from the anesthesiology service) with appropriate training to provide neonatal resuscitation is available.

A separate neonatal team consisting of a physician and neonatal nurse attends all cesarean deliveries and specified vaginal deliveries. This neonatal-specific team is available 24/7, and due to close proximity of the neonatal intensive care unit, their attendance is expedited. All obstetric anesthesia residents and fellows receive neonatal resuscitation training.

Page 8: Labor Analgesia

Q102

*Outline your routine utilization of a pencil-point needle, 25-gauge (or smaller) for the provision of CSE or DPE labor analgesia.

We use 26G pencil-point Gertie Marx needles for the provision of CSE or DPE labor analgesia.

Q103

Describe your use of low concentration local anesthetic solutions (ideally ≤0.1% bupivacaine or ≤0.15% ropivacaine).

We administer dilute concentrations of local anesthetic solutions of 0.0625% bupivacaine (with sufentanil) for maintaining epidural labor analgesia.

Q104

Outline your use of neuraxial opioids (e.g. fentanyl or sufentanil) and/or other adjuvants (e.g. clonidine) added to epidural local anesthetic solutions.

Our labor epidural infusions contain 0.4 mcg/mL sufentanil. For patients with break-through pain despite physician boluses of local anesthetic solution and evidence of sensory blockade consistent with a functioning epidural, our break-through pain management guidelines (which are distributed to all residents and attendings covering the service) recommend administration of an epidural fentanyl bolus and consideration for clonidine as an adjuvant, if needed.

Q105

Describe how standardized epidural solutions are provided and used by all providers. Ideally, pharmacy-provided pre-mixed epidural solutions.

Our CSE bolus syringe (2.5 mg bupivacaine + 5 mcg sufentanil), epidural bolus syringe (15 mL 0.125% bupivacaine + 10 mcg sufentanil) and epidural bag solutions (125 mL 0.0625% bupivacaine + 0.4 mcg/mL sufentanil) are premixed and prepared by the hospital pharmacy. Pharmacy technicians regularly stock these syringes and bags in our automated drug dispensing cabinets located on the labor and delivery unit.

Q106

Outline if and which alternative neuraxial techniques are offered in addition to standard labor epidural analgesia (e.g., CSE, DPE, single-shot spinal).

N/A.

Q107

Please provide an estimated percentage breakdown of the utilization of these techniques, with the total equaling 100%. Do not include the percentage sign in your answers. Please answer in decimal format.

Standard epidural	**33.0**
CSE	**51.0**
DPE	**15.0**
Other (describe)	**1.0**

Q108

Outline your labor epidural maintenance techniques. Patient-controlled epidural analgesia (PCEA) and ideally background programmed intermittent epidural boluses (PIEB) should be utilized for provision of neuraxial labor analgesia.

For maintenance of labor analgesia, we offer PIEB combined with PCEA. Our standard recipe, which is adjusted based on patient preferences and block density:
PIEB: 9 mL bolus, every 45 min (0.0625% bupivacaine with 0.4 mcg/mL sufentanil)
PCEA: 10 mL bolus, 10 minutes lockout

Q109

*Describe your routine utilization of flexible (flex-tipped/wire-reinforced) epidural catheters for labor epidural analgesia.

We routinely use soft (flex-tipped) wire-reinforced epidural catheters for labor epidural analgesia and surgical anesthesia.

Q110

*Outline how you provide regular assessment of neuraxial labor analgesia effectiveness. Ideally, pain scores documented by nursing staff (e.g. every 1-2 hours) supplemented with regular anesthesia provider rounds or evaluations (e.g. every 2-4 hours).

Numerical pain scores are assessed every hour by nursing staff. In addition to ad hoc assessment for breakthrough pain or excessive motor blockade reported by the bedside nurse, the anesthesia team is expected to evaluate labor epidural function and patient comfort at the bedside every 2-3 hours. The anesthesia team can monitor pain scores remotely in real-time via the EMR (EPIC) dashboard.

Q111

Describe your protocol for managing epidural breakthrough pain. Describe your system used to track labor epidural replacement rates.

Epidural breakthrough pain is managed as following:

- First, the bedside nurse ensures the patient has pressed the PCEA button at least twice (10 min apart)
- If severe pain or lack of adequate pain relief despite using the PCEA button, the anesthesia team is called
- The anesthesia resident or attending assesses the patient by checking the epidural site and pump, asking about pain intensity and location, and checking a sensory level to cold
- When appropriate, block top-off is performed with local anesthetic +/- fentanyl (or clonidine) as adjuvants
- Nonfunctional blocks or blocks that require repeated top-offs (>2) are replaced, generally with a CSE technique, in shared decision-making with the patient

Any block requiring replacement is flagged through the EMR record QI report and presented with any other complications including general anesthetics, hemorrhage requiring transfusion, intensive care unit admission, neurological complications, or interesting cases at a formal weekly obstetric anesthesia QI review, as well as a quarterly QI presentation attended by all division members. The EMR has nudge alerts when an additional neuraxial procedure is documented, to remind the provider to mark failed block in the QI report.

Q112

Describe your ongoing monitoring (e.g. blood pressure, assessment of motor/sensory levels) and protocols to manage potential side effects or complications associated with neuraxial analgesia.

Nursing staff follow a standard protocol for all patients receiving epidural labor analgesia including regular blood pressure measurement at minimum every 15 minutes (more frequently after block placement or bolus, for example, q2 min x8, q5 min x3, then q15 min). Motor block assessments by nurses occur at least once per hour. We administer dilute concentrations of local anesthetic solutions (0.0625% bupivacaine with 0.4 mcg/mL sufentanil) for maintaining epidural labor analgesia so motor block is rare. Any nursing concerns regarding motor block is communicated to the obstetric anesthesia team to assess the presence/degree of motor block.

Q113

Outline your nursing postpartum monitoring protocol that is consistent with AWHONN recommendations.

Following vaginal delivery, patients are discharged from the labor and delivery unit when discharge criteria are fulfilled. We have standard guidelines for postpartum monitoring which are based on AWHONN and ACOG recommendations. Nursing and obstetric monitoring (heart rate, blood pressure, respiratory rate, temperature and oxygen saturations) on the postpartum floor after vaginal delivery is as follows: 15 and 45 min after arrival, then every 8 hours for 24 hours.

Q114

Describe intravenous patient-controlled opioid analgesia options offered, and outline protocol specifics including opioids available, administration settings and monitoring requirements. Outline the availability of nitrous oxide for labor analgesia, and if available provide protocol specifics.

- Laboring patients without neuraxial anesthesia may receive up to 3 doses of fentanyl (100 mcg IV) at least 1 hour apart as part of the standard obstetric admission order set. They are monitored by the labor and delivery nurse at the bedside for at least 15 minutes after each dose and remain on continuous pulse oximetry for an hour after any fentanyl dose.
- 50% nitrous oxide is available to patients via a portable nitrous oxide administration system that requires connection to an oxygen pipeline and vacuum line for its operation. This supplies a fixed flow of 50% nitrous oxide and 50% oxygen. The facemask only delivers the gases when the patient inhales. Per institutional protocol, the OB anesthesia team prescribes the nitrous oxide, initiates it with the nurse, and assesses the patient regularly. The patient is monitored with continuous pulse oximetry while using nitrous oxide. Administration of nitrous oxide is documented by the anesthesiologist. No additional opioid administration may be administered during use of nitrous oxide without approval by an anesthesiologist.
- For patients with contraindications to neuraxial analgesia or inability by the anesthesia team to place a functional block, patients may receive a remifentanil PCA for labor.

Page 9: Recommendations and Guidelines Implementation

Q115

*At a minimum, provide evidence of implementation of the Practice Guidelines for Obstetric Anesthesia by the ASA Task Force on Obstetric Anesthesia and SOAP (6). Select key recommendations not otherwise addressed in other areas of this application: o Platelet count prior to neuraxial block placement: No requirement for routine testing in healthy patientso Appropriate liquid and diet restrictions: Intrapartum (allow clear liquids in uncomplicated patients); cesarean delivery (clear liquids up to 2 hours prior)o Timing of neuraxial analgesia: Allow neuraxial analgesia in early labor (no specific cervical dilation required)

All aspects of the ASA Obstetric Anesthesia practice guidelines are followed at our institution. Examples include:

- Our service does not require a routine platelet count prior to neuraxial block placement in healthy patients. The decision to order a platelet count is based on the patient's clinical status and possible co-existing disease (e.g. preeclampsia).
- We follow appropriate guidelines on liquid and diet restrictions. Uncomplicated intrapartum patients are permitted to drink clear liquids. All scheduled surgical patients are required to be fasting for 8 hours, with clear liquids permitted and encouraged up to 2 hours prior to the scheduled time of surgery.
- Our service provides in-house availability of labor analgesia upon patient request. We do not require an arbitrary cervical dilation prior to placement of neuraxial analgesia and will administer labor analgesia in early and late labor.

Q116

Outline evidence of implementation of the SOAP Consensus Statement on the Management of Cardiac Arrest in Pregnancy (7).

One current member of our obstetric anesthesiology team (and two prior faculty members) are authors on the SOAP Consensus Statement on the Management of Cardiac Arrest in Pregnancy, and we have adopted these guidelines in their entirety. We run regular multidisciplinary simulation-based training for the management of maternal cardiac arrest. We have the checklists contained in the SOAP consensus statement readily available on our code carts, delivery carts in each labor room, and in each operating room. Our labor and delivery unit has the ability to deliver a fetus within 4-5 minutes of a maternal cardiac arrest. Lipid emulsion is readily available for the treatment of LAST (see above).

Q117

National Partnership Maternal Safety Bundles (8): Confirm that aspects of the following Maternal Safety Bundles have been implemented. For each enter a Yes or a No.

Obstetric Hemorrhage	**Yes**
Severe Hypertension in Pregnancy	**Yes**
Maternal Venous Thromboembolism	**Yes**
Cardiac Conditions in Obstetrical Care	**Yes**
Care for Pregnant and Postpartum People with Substance Use Disorder	**Yes**

Q118

Provide examples of implementation of key aspects of National Partnership Maternal Safety Bundles; outline at least one example of an item that has been implemented to address each domain (Readiness, Recognition and Prevention, Response, and Reporting and System Learning) for the following:

Obstetric Hemorrhage	**Readiness 1. We have a fully stocked maternal hemorrhage cart. 2. We have immediate access to refrigerated postpartum hemorrhage kits (which contain methergine, hemabate, misoprostol and lomotil) as well as synthetic fibrinogen concentrate stocked on labor and delivery. 3. We have a team response to postpartum hemorrhage including notification of the anesthesiology service with an automated message alert whenever a second-line uterotonic medication is administered. We also have a full-page and badge-sized L&D Emergency Contact List to facilitate easy contact of resources including Gynecology-Oncology, Trauma Surgery, Blood Bank, Interventional Radiology, Laboratory, additional Anesthesiology, and more help. 4. We have emergency release red blood cells stocked in the unit immediately adjacent to labor and delivery as well as full massive transfusion protocol blood products available with standardized order set and runner system. We also have two rapid infusion machines and a cell saver machine on labor and delivery. 5. Our unit has regular education on our maternal hemorrhage protocol/checklist, including regular multidisciplinary in situ simulations with debriefs. Recognition & Prevention 6. We have a robust system for identification of patients at risk for hemorrhage using a risk stratification system implemented in our EMR system that is updated each shift by nursing staff. We also collaborate with obstetricians to implement strategies to treat anemia prior to delivery. 7. Our labor and delivery and postpartum units have implemented the use of an electronic quantitative blood loss device for every patient. 8. There is a department-wide protocol for active management of the third stage of labor. Response 9. We have a standardized, stage-based postpartum hemorrhage checklist available in each labor room and operating room 10. We have support programs for patients and families (e.g. Patient Experience, Social Work, Chaplain, etc.) and staff (e.g. Physician Resource Network peer support, Help Center complimentary counseling, confidential mental health care, physician coaching, etc.) Reporting & System Learning 11. We are growing a culture of huddles, recaps, and post-event debriefs to explore team and system successes and opportunities for improvement. 12. We have multiple established avenues for multidisciplinary review of postpartum hemorrhage cases and protocols including The Joint Commission PPH/HTN Chart Audit Committee, Perinatal Care Committee, Obstetric Safety Committee, and our Professional Performance Evaluation Committee. 13. The committees above, especially The**

Joint Commission PPH/HTN Chart Audit Committee monitor outcomes and process metrics for postpartum hemorrhage.

Severe Hypertension in Pregnancy	**Readiness 1. We have standards for diagnosis and treatment of severe hypertension in pregnancy or eclampsia which include order sets, algorithms, and multidisciplinary care 2. Our staff receive regular training on the available resources, protocols and checklists, including multidisciplinary in situ simulations and debriefs. 3. We have processes for timely identification and treatment of patients in outpatient, emergency room, and postpartum settings that mirror our processes for labor and delivery. 4. We have a hypertension “tackle box” which is portable and can be taken to the bedside for immediate treatment of severe hypertension. We also have antihypertensive drugs stored in automated drug dispensing cabinets in the labor and delivery unit and in the antepartum and postpartum units. 5. We have resources for escalation of care as needed (e.g. transfer to Intensive Care Unit). Recognition & Prevention 6. Our unit has standard protocols for measurement of blood pressure and urine protein. 7. Our unit has standards for eliciting symptoms from patients and assessing appropriate laboratory tests including liver function, platelet count, kidney function, magnesium levels 8. Prenatal and postpartum education of patients about the signs and symptoms of preeclampsia is not limited to labor and delivery (e.g. Obstetric clinics, antepartum and postpartum units, etc.) Response 9. We have facility-wide protocols and escalation policies for severe hypertension, eclampsia, seizure prophylaxis, magnesium monitoring and treatment of overdose, and postpartum presentation of disease. 10. Our protocol meets the minimum requirements including physician notification, treatment after repeat elevated reading, initiation of standard load and infusion of magnesium, notification of the anesthesiology service if refractory to treatment and needing escalation, postpartum education. 11. We have support programs for patients and families (e.g. Patient Experience, Social Work, Chaplain, etc.) and staff (e.g. Physician Resource Network peer support, Help Center complimentary counseling, confidential mental health care, physician coaching, etc.) Reporting & System Learning 12. We are growing a culture of huddles, recaps, and post-event debriefs to explore team and system successes and opportunities for improvement 13. We have multiple established avenues for multidisciplinary review of postpartum hemorrhage cases and protocols including The Joint Commission PPH/HTN Chart Audit Committee, Perinatal Care Committee, Obstetric Safety Committee, and our Professional Performance Evaluation**

Committee. 14. The committees above, especially The Joint Commission PPH/HTN Chart Audit Committee monitor outcomes and process metrics for severe hypertension during pregnancy.

Q119

Outline your approach to coordinate care for patients receiving ante- and postpartum thromboprophylaxis as outlined by the SOAP Consensus Statement on Neuraxial Anesthesia in Obstetric Patients Receiving Thromboprophylaxis (9). Describe a process by which obstetric anesthesia providers are informed about patients receiving thromboprophylaxis.

Our service has a very robust system to coordinate care for patients receiving thromboprophylaxis. We have a high-risk obstetric anesthesiology clinic where our obstetric colleagues are encouraged to refer patients early for pre-planning and management decisions (see above). All elective cesarean delivery patients are evaluated in the preoperative period and screened for anticoagulation medications. Our obstetric anesthesiology team coordinates with our obstetric and maternal fetal medicine colleagues to make recommendations for discontinuation of long-acting medications and conversion to heparin, if necessary. When the patient is admitted to the labor and delivery unit, we have multidisciplinary rounds twice daily and discussions with our obstetrical colleagues regarding medication management, neuraxial anesthesia/analgesia timing, hemorrhage risk, and other considerations. We perform daily postpartum rounds and consult on the timing for the resumption of longer-acting thromboprophylaxis, if necessary. Our electronic time-outs include alerts for patients on heparin/LMWH and show the platelet count.

Q120

Outline your implementation of recommendations from SOAP Interdisciplinary Consensus Statement on Neuraxial Procedures in Obstetric Patients with Thrombocytopenia.

We encourage our obstetric colleagues to refer patients with thrombocytopenia to our high-risk obstetric anesthesiology clinic for bleeding history assessment, discussion/investigation of the etiology of thrombocytopenia, and patient education prior to delivery. We regularly discuss thrombocytopenia patients amongst our obstetric anesthesiology trained faculty to gain multiple opinions and considerations given clinical context of a patient’s comorbidities, risk factors, and preferences. Our division follows platelet thresholds outlined in the SOAP consensus document. When patients are admitted to antepartum or labor and delivery they are discussed in twice daily multidisciplinary rounds and platelet counts are rechecked if trending is appropriate. We also consult our Hematology colleagues for additional expertise when appropriate. Our anesthesiology team also has two state-of-the-art ultrasound machines for neuraxial ultrasound on labor and delivery.

Page 10: Quality Assurance and Patient Follow-up

Q121

*Describe how an anesthesiologist serves as a member of the team that develops and implements multidisciplinary clinical policies, e.g. quality improvement committee, patient safety committee. Outline current quality assurance and other patient care initiatives that the obstetric anesthesia division is leading, and/or involved in.

Our labor and delivery unit has a multidisciplinary patient safety committee, which meet on a monthly basis. Three obstetric anesthesiologists in our group are members of the committee, and one attends each month. All policies and policy revisions are reviewed and edited by the obstetric anesthesia division.
We hold a weekly QI conference with the anesthesia residents who are currently rotating through obstetric anesthesiology, 1-2 obstetric anesthesiology attendings, and any of the on-call staff who would like to attend. All cases flagged as QI during the prior week are presented and discussed, and one resident chooses a related topic to present in depth. Faculty review our QI data every quarter at the obstetric anesthesia divisional grand rounds meeting, additionally 2-3 cases of interest are presented. Three times per year we have a combined obstetric/obstetric anesthesia M&M meeting and presentation. One faculty in our obstetric anesthesia division attends the Professional Practice Evaluation Committee review meetings held every other month. A faculty in the OB anesthesia division (Naola Austin) helps with the multidisciplinary reviews of select hemorrhage and preeclampsia cases as per The Joint Commission review recommendation. Feedback from these reviews are given quarterly to members of the obstetric anesthesia division.

Q122

Outline involvement of obstetric anesthesia staff in hospital committees. Describe committees (e.g. peer review, blood management) that the obstetric anesthesia staff are involved in, and their role in these committees.

Our labor and delivery unit is situated in a children's hospital that is physically connected to an adult hospital. Our division members have privileges at both sites, and therefore sit on committees that represent both the children's and adult hospitals. Unless the role is otherwise specified, the role of our team is typically "anesthesiology representative":

- OB Safety Committee
- Perinatal Care Committee
- Stanford Anesthesiology Quality, Effectiveness, and Patient Safety Committee
- Stanford Anesthesiology Quality, Safety, Improvement Program
- Controlled substances diversion prevention oversight committee
- Multidisciplinary COVID-19 obstetric task force
- Obstetric disaster preparedness committee
- Perinatal Joint Commission Committee
- Labor and delivery local improvement team
- Maternal sepsis committee
- Professional practice evaluation committee
- LPCH (Lucille Packard Children's Health) Transfusion Committee - Member Co-Chairs
- Lactation Multidisciplinary Committee
- Multidisciplinary Cardiac Disease Obstetric Patients Monthly Meeting
- Academic Promotion Committee
- Clinical Champions Committee, Atropos Health - Stanford Healthcare / LPCH
- Community Support Initiative through the Office of Faculty Development and Diversity (OFDD), School of Medicine
- Labor and Delivery Planning Committee
- Stanford Anesthesiology Quality Improvement Audit Review Committee
- Quality Assurance Residency Rotation Director Search Committee

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Q123

*Describe how patients receive follow-up with structured interview/consultation who received either labor neuraxial analgesia, cesarean anesthesia, or anesthesia for other procedures (e.g. postpartum tubal ligation, cerclage). Patients should be reviewed, or protocol criteria fulfilled prior to discharge or transfer from labor and delivery. All patients who received an anesthetic procedure should be reviewed by the anesthesia service on the postpartum floor prior to hospital discharge.

All patients who received anesthesia or anesthesiology-managed analgesia undergo a postpartum evaluation prior to discharge from the labor and delivery unit. Patients are also evaluated 12-36 hours postpartum. Any patient identified as sustaining a complication (e.g. unintentional dural puncture or a patient admitted to the ICU) are evaluated daily by our anesthesia team. Our team takes an active role in pain management, and via an EMR (Epic) dashboard that tracks real-time individual patient's pain scores and analgesic/opioid consumption. Any patient identified as having severe pain, and/or patients requiring high doses of postpartum opioids are individually reviewed and alternative management plans are created.

Q124

Outline your system to follow-up on all patients with anesthesia-related complications.

All patients who received anesthesia or anesthesiology-managed analgesia are evaluated postpartum. The follow-up process is automated from the EMR and a printout is generated each day. If a complication has occurred, patients are evaluated and treated accordingly. Details of patients who have experienced a complication or require further follow-up are placed on a white board and reviewed at each handover. Attendings and fellows coordinate ongoing and consultant care when necessary. Patients are contacted at home to ensure proper follow-up and to help with any outpatient consultations.

Q125

*Describe your system to evaluate and treat (with an EBP, if necessary) a PDPH in a timely fashion. Are EBPs generally performed early (within 12-48 hours) or delayed? Who performs the EBP and which location(s) are EBPs performed in prior to and after discharge? Optimally, outpatient PDPH should be evaluated and treated on the obstetric unit and not in the emergency department.

All patients who present with a post-dural puncture headache (PDPH) are carefully evaluated, monitored and treated until the headache has resolved. All patient at risk of developing a PDPH (e.g. confirmed or suspected unintentional dural puncture) are counselled by a member of the anesthesia team and receive a PDPH informational leaflet (attached). Patients are then evaluated at 12 and 24 hours unless the team is notified at other time points. If the patient reports a headache, the differential diagnosis of post-anesthesia or postpartum headache is considered. If the headache is determined to be a PDPH, the patient is offered an epidural blood patch (EBP), preferably within 24-48 hours postpartum and prior to discharge. Patients discharged from the hospital are carefully followed-up with daily personal phone calls from either the obstetric anesthesia attending or fellow. If a PDPH develops after discharge or a repeat EBP is required, patients are advised to come to the labor and delivery unit for evaluation and treatment. All patients are followed-up until the headache has resolved. All patients who receive an EBP or are diagnosed with a PDPH are referred to pain management colleagues who specialize in complex headache management and have expertise in managing CSF leaks. Postpartum patients who have sequelae from an unintentional dural puncture, including those whose symptoms are refractory to multiple EBPs, are also referred to this service for specialized care.

Q126

Outline if the anesthesiologist is an active participant in multidisciplinary root cause analysis, maternal case conferences, or equivalent program to evaluate maternal and/or fetal adverse events. Provide examples of effective implementation of identified system solutions.

The obstetric anesthesiology team is regularly involved in multidisciplinary discussions, conferences, and M&M meetings. After any adverse events, all team members debrief to discuss the case. If there are further meetings or conferences about the event, a member of the anesthesiology team is present at the discussion. A recent example is a multidisciplinary root cause analysis (RCA) that one of our division members took part in after a complex hemorrhage in a critically ill postpartum patient. Several panels of laboratory samples were sent, including and not limited to CBC, coagulation parameters, TEG and fibrinogen. Despite our unit having tightly monitored turnaround times for laboratory results delivery, there was a prolonged time to receive any results in this very ill patient. This greatly impacted the care of the patient, and when laboratory results suggestive of DIC were finally received, the course of the resuscitation was greatly changed, and a good patient outcome was achieved. The multidisciplinary RCA determined that a protocol in the laboratory required “re-running” of extremely abnormal lab results before delivery to the care team as a means of quality assurance. After a thorough process map and evaluation of current practice was performed, lab protocols were changed to mandate communication with the care team if samples were being “re-run” due to extremely abnormal values.
One obstetric anesthesiology faculty member sits on the Committee for Professional Practice Evaluation at Stanford. This is a multidisciplinary committee that meets every other monthly to confidentially review cases of potential substandard care and address systems. Recommendations from this committee have resulted in improvements in quality of care on the labor and delivery unit, e.g. improvement in staff handovers and lines of communication for patients requiring urgent cesarean delivery.

Q127

Describe your approach to routinely collecting patient feedback on maternal experience of care, with a specific focus on anesthetic and analgesic care.

All patients receiving any type of anesthesia care are followed-up with a post-anesthesia visit from a member of the obstetric anesthesia team. Standardized questions are asked to evaluate pain, side effects, and complications are documented in the EMR follow-up section.

Page 11: Supplemental Documentation

Q128

Please upload supplemental documentation #1.

QA Review Process - Stanford.pdf (434.7KB)

Q129

Please upload supplemental documentation #2.

CV_Carvalho - Stanford.pdf (316KB)

Q130

Please upload supplemental documentation #3.

PPH Documents - Stanford.pdf (1.6MB)

Q131

Please upload supplemental documentation #4.

ERAC_Ordersets and Patient Education - Stanford.pdf (3MB)

Q132

Please upload supplemental documentation #5.

PDPH Patient Handout - Stanford.pdf (144.5KB)

Q133 **Respondent skipped this question**

Please upload supplemental documentation #6.

Q134 **Respondent skipped this question**

Please upload supplemental documentation #7.

Q135 **Respondent skipped this question**

Please upload supplemental documentation #8.