COMPLETE

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Page 2: General InformationDirector of Obstetric Anesthesia

Q1

Name of the Director of Obstetric Anesthesia

First	**Lisa**
Last	**Corbett**

Q2

Credential/Degree

MD

Q3

Email address

corbettl@ohsu.edu

Q4

Institution SiteThis application is for a single physical site, a single labor and delivery and its supporting units, not a hospital system.

Oregon Health & Science University

Q5

Name of Anesthesia Group if applicable

N/A

Q6

Institution - Site Address

Street	**3181 Sam Jackson Park Rd.**
City	**Portland**
State	**OR**
Zip Code	**97239**
Country	**United States**

Page 3: Application and Institution Details

Q7

Please mark the application designation that is applicable to you

First time applying for COE designation

Q8

Describe the institution type for which this application is submitted (key question that will inform the review process for all questions flagged with an *)Tertiary/Referral Center (transfers “in” for specialty maternal care)

Yes

Q9

Mark all that apply to your institution*

Train/teach anesthesia residents,

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

Q10

What level of maternal care does the applying institution/site provide according to the American College of Obstetricians and Gynecologists (ACOG) level of maternal care (Level 1, 2, 3, or 4)? (https://www.acog.org/clinical/clinicalguidance/obstetric-care-consensus/articles/2019/08/levels-of-maternal-care)

Level 4

Q11

How many annual deliveries?

2868

Q12

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

0.25

Q13

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

12

Q14

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

3

Page 4: General Anesthesia Rates

Q15

What is the institution's overall general anesthesia rate (percentage) for all cesarean delivery excluding complicated surgical cases with cesarean-hysterectomies for PAS or other? (this is an essential criterion)

0.049

Q16

What is the general anesthesia rate (percentage) for scheduled (e.g. planned/elective) cesarean delivery?

0.017

Q17

What is the general anesthesia rate (percentage) for unscheduled (e.g. unplanned/urgent/intrapartum) cesarean delivery?

0.067

Q18

Is there a quality assurance review of all cases requiring general anesthesia(irrespective of your institution's general anesthesia rate)? (this is an essential criterion) Please provide (attached with the application) evidence of your quality assurance review process.

Yes

Page 5: Obstetric Anesthesia Practice

Q19

What percentage of laboring patients receive neuraxial analgesia? Please list your answer as a percentage. Do not include percentage sign in answer

0.73

Q20

What is the labor epidural analgesia replacement rate (percentage)? Recommendation: the labor epidural replacement rate should ideally be 3-6%. Please list your answer as a percentage. Do not include the percentage sign in your answer.

0.0056

Q21

What is the institution's accidental dural puncture (ADP or “wet tap”) rate (percentage) in the obstetric setting? Recommendation: the accidental dural puncture rate should ideally be ≤2%.Please list your answer as a percentage. Do not include the percentage sign in your answer.

0.008

Q22

What is your institution's post-dural puncture headache (PDPH) rate (percentage) in the obstetric setting? This should include PDPH from spinal procedures as well as ADP (wet-taps)Please list your answer as a percentage. Do not include the percentage sign in your answer.

0.0017

Q23

What is your institution's epidural blood patch (EBP) rate (percentage of PDPH that receive EBP) in the obstetric setting? Please list your answer as a percentage. Do not include the percentage sign in your answer.

0.35

Q24

A quality assurance review of all ADP and PDPH should be in place. Please describe your quality assurance review method.

Our Anesthesia QA committee reviews all notable events for the department and reports obstetric anesthesia notable events to the obstetric anesthesia medical director for further review. As of October 2023, we are implementing a process to mirror successful data capturing programs in other perioperative areas to better capture ADP and PDPH, as well as labor epidural replacement rates. We have a tab in EPIC labelled “Notable Events,” of which there are “Unintentional Dural Puncture” and “Post-Dural Puncture Headache” to click. In the past, a user had to scroll through a long list of notable events (all anesthesia notable events, not just obstetric) to find these two events. We are moving the top five obstetric anesthesia notable events that we want to track to the top of the list of notable events, so they will be readily visible to the user as a reminder to document when they happen. The medical director for obstetric anesthesia also receives a monthly data report to review from our anesthesia QI manager with ADP and PDPH incidences.

Page 6: Personnel and Staffing:

Q25

Outline the expertise and experience of the obstetric anesthesia lead. Suggested word count of 200-300 words. (this is an essential criterion)Recommendation: The obstetric anesthesia lead must be a U.S. or international 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).

The obstetric anesthesia medical director is Lisa Corbett, MD, an ABA diplomate who has the equivalent expertise of an ACGME-accredited obstetric anesthesia fellow in both training and experience. Dr. Corbett did a subspecialty track in OB anesthesia during residency, with an away rotation of three additional months of high-risk obstetric anesthesia at Ben Taub Hospital in Houston, Texas under the tutelage of Dr. Maya Suresh, a highly regarded obstetric anesthesiologist. Following residency, she was appointed medical director of OB anesthesia at Scott & White Hospital/Texas A&M HSC in Temple Texas, where she developed the obstetric anesthesia curriculum for the residency program and led the division for 10 years. Dr. Corbett has since led the obstetric anesthesia division at the University of Minnesota and now at OHSU. She has been a very active member of SOAP, serving on multiple committees to further safe obstetric anesthesia, and teaches safe obstetric anesthesia practices in the global health arena through Kybele, participating on teams since 2006, serving on the Board of Directors since 2007, and now serves as the President of Kybele.

Q26

Please indicate the total administrative/non-clinical time that the institution/department is allocating to the obstetric anesthesia lead.Recommendation: ideally, some dedicated time should be allocated to the leadPlease list your answer as a percentage. Do not include the percentage sign in your answer.

0.1

Q27

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

32

Q28

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

7 0.22

Q29

During the weekday daytime - how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service? Check and indicate the number under all that apply

*Attending physician:	**1**
Fellow:	**0**
Resident:	**1-2**
Certified Registered Nurse Anesthetists (CRNA) / Certified Anesthesiologist Assistants (CAA)	**0-1**
Other (specify):	**0**

Q30

During the weekday nighttime - how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service?

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

Q31

During the weekends/holiday daytime, how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service?Check and indicate the number under all that apply

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

Q32

During the weekends/holiday nighttime, how many staff are assigned to provide dedicated coverage for the obstetric anesthesia service?Check and indicate the number under all that apply

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

Q33

Estimate the proportion of each shift covered by attending specialists in obstetric anesthesia vs. generalists. Please list the percentage. Do not include the percentage sign in your answer.

Daytime	**1.0**
Nighttime	**.4**
Weekend/holiday daytime	**.22**
Weekend/holiday nighttime	**1.0**

Q34

Outline your supervision policy.* (this is an essential criterion) Please indicate the category of those supervised in your answer. (Anesthesia residents and fellows, CRNAs, students of other kinds)Please indicate the institutional policy for supervision in various situations, including, but not limited to induction and emergence and neuraxial blocks.Recommendation: For 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.

OHSU is an academic center with a large anesthesia residency program (16/year-in-training). The faculty anesthesiologist assigned to Labor and Delivery is expected to be present for placement and induction of neuraxial labor analgesia unless they are unavailable in the event of another emergency. In this situation, they are expected to contact their in-house back-up faculty anesthesiologist to be present for the placement and induction of neuraxial labor analgesia. The same expectation is for induction of anesthesia for cesarean sections, whether by neuraxial placement or general anesthesia. The faculty is expected to stay in the OR during cesarean sections until the baby is delivered and the uterine tone is acceptable, and the patient is deemed hemodynamically stable. The faculty anesthesiologist is also expected to be present during the emergence from general anesthesia. In the event of simultaneous needs, the in-house back-up anesthesiologist is expected to provide the necessary supervision.

We occasionally have CRNA involvement on Labor and Delivery and we practice a team-based model, with the same expectations as above when directing CRNAs for obstetric anesthesia activities. Our division has a set curriculum for our residents, separated into basic and advanced rotations and designed by our associate director for obstetric anesthesia in charge of resident education, Dr. Michael Benson. This curriculum is given by our first tier OB Anesthesia team faculty, all obstetric anesthesiologists.

Q35

Outline your coverage model.* (this is an essential criterion)Recommendation: In-house (24/7) coverage of obstetric patients, by at least one board-certified (or equivalent) physician anesthesiologist dedicated to covering 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.

Monday through Friday 0630-1700: a board-certified anesthesiologist is dedicated to the obstetric service without additional responsibilities for non-obstetric patients.

Friday, Saturday, and Sunday 1700-0630: a board-certified/eligible anesthesiologist is dedicated to the obstetric service without additional responsibilities for non-obstetric patients except in rare circumstances where the anesthesiologist on OR call needs immediate assistance prior to the home-call back-up anesthesiologist arriving from home. Home call has a 30-minute response time from call to in OR.

Monday through Thursday 1700-0630: a board-certified/eligible anesthesiologist is assigned to cover obstetric anesthesia services. Their primary role is to the obstetric service, but they may occasionally need to assist in covering a CRNA or resident in the OR for a brief period. We always have a second faculty anesthesiologist in-house 24/7, and a faculty anesthesiologist who takes call from home once all of the “late call” anesthesiologists have left for the evening.

Saturday and Sunday 0630-1700: a board-certified/eligible anesthesiologist is assigned to cover obstetric anesthesia services. Their primary role is to the obstetric service, but they may occasionally need to assist in covering a CRNA or resident in the OR for a brief period. We have a total of four in-house faculty anesthesiologists working this shift on Saturdays and three on Sundays, covering the OR + OB.

We are beginning to plan for expansion to have a board-certified anesthesiologist dedicated to the obstetric service without additional responsibilities for non-obstetric patients 24/7/365. This is anticipated to be starting by mid-2024.

Q36

Outline your backup system.* (this is an essential criterion)Recommendation: the 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.

We have an additional faculty anesthesiologist in-house at all times for obstetric emergencies or high clinical volumes. In addition, we have a faculty anesthesiologist on home-call with an expected “call-to-in OR” response time of 30 minutes. We also have a faculty anesthesiologist on home-call for cardiac anesthesia and one for liver transplant call who can be called to help cover the OR to free up OR anesthesiologists to assist in obstetric coverage or who themselves are comfortable with assisting coverage for obstetric anesthesia services, if needed.

Q37

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

We have a total of 45 certified anesthesia technicians, with approximately 20 working each day who are available to assist in L&D when the need arises. We have one certified anesthesia tech assigned each shift to cover Labor and Delivery 24/7/365. This tech is also responsible for our NORA sites, located one floor directly below Labor and Delivery, and is reachable by a Vocera communication device when not physically present on Labor and Delivery and is needed immediately. This tech keeps our anesthesia carts (labor epidural cart and OR carts) stocked, ensures maintenance and functioning of all anesthesia equipment, turns over anesthesia area after all OR cases, brings blood products from blood bank as needed, assists with a-line and central line access as needed, assists with ultrasound procedures, and provides any other support as we request on Labor and Delivery.

Q38

Provide evidence of ongoing participation in continuing medical education andprofessional practice improvement. (this is an essential criterion)Recommendation: 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/subspeciality membership – target for attending specialists being SOAP members > 80% - with 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).

The obstetric anesthesia medical director and the majority of obstetric anesthesia faculty are members of SOAP and attend the annual SOAP meeting yearly. In addition, the medical director and another obstetric anesthesia faculty are members of SMFA (Society for Maternal Fetal Anesthesia) and attend their annual meeting. Each of our first-tier obstetric anesthesia team has a specialty area of focus and keeps the rest of the anesthesia faculty updated on current practices, complex patients arriving or admitted, and new policies drafted and implemented through email communication and in our bimonthly OB anesthesia team meetings. We have an OB anesthesia faculty responsible for each of the following areas: obstetric patients with cardiac disease, patients with placenta accreta spectrum, ERAC protocol development and implementation, anesthesia for fetal surgery, PPH protocol, interdisciplinary simulation development and implementation. All first-tier obstetric anesthesia faculty cover our high-risk OB anesthesia clinic and educate the rest of the faculty regarding the complexities and anesthesia plans for these patients by email communication and in team meetings.

Q39

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

Non-core faculty are kept up to date on relevant obstetric anesthesia topics and changes via regular slots in department-wide meetings, grand round lectures (weekly series for CME credit), and department-wide email communications. In addition, we hold regular obstetric anesthesia team meetings that first and second tier team members participate in to discuss issues related to patient care and resident education on Labor and Delivery.

Q40

Outline obstetric anesthesia-related staff meetings.Recommendation: 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 regular obstetric anesthesia team meetings bimonthly to discuss practice changes, clinical service updates, challenging cases, and provide ongoing education. These are opportunities for interactive discussions and exchanges of ideas for everyone on the team, both first and second tiers. Meeting minutes are distributed afterwards to all team members to keep everyone informed of the topics discussed.

Page 7: Equipment, Protocols and Policies

Q41

Outline your routine utilization of a pencil-point needle (25-gauge or smaller) for the provision of CSE or DPE labor analgesia. (this is an essential criterion)Recommendation: There are strong recommendations for using small gauge pencil-point needles for all spinal procedures in the obstetric population. Please explain if cutting-edge needles are used, and which efforts are underway to implement a change towards using pencil-point needles

We utilize 25 ga pencil point needles for the provision of CSE or DPE. We stock them in 5” and 6” for these procedures. Cutting bevel spinal needles are not allowed to be stocked in the OB anesthesia areas. If found stocked in error, the cutting needles are immediately removed, and the lead anesthesia tech notified of the error to remind the anesthesia techs to not stock cutting spinal needles in OB.

Q42

Describe your use of low-concentration local anesthetic solutionsRecommendation: ideally ≤ 0.1% bupivacaine or ≤ 0.15% ropivacaine).

Our standard solution stocked on labor and delivery for labor epidurals is bupivacaine 0.0625% + fentanyl 2 mcg/ml. For those patients who require a higher concentration of local anesthetic, we have a solution of bupivacaine 0.1% + fentanyl 2 mcg/ml that can be ordered from pharmacy.

Q43

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 standard labor epidural solution stocked on labor and delivery contains fentanyl 2 mcg/ml.

Q44

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

Our pharmacy provides pre-mixed epidural solutions that are stocked in the labor and delivery Omnicell medication dispensing unit. These are retrieved by nursing after the labor epidural orders are placed. If a special solution is ordered, this is prepared and provided by pharmacy via a Tubex system.

Q45

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

Being an academic institution, we offer a variety of neuraxial techniques including epidural, CSE, DPE, and single shot spinal, depending on each patients’ individual need, based on the progress of labor, level of pain, medical and obstetric history, and any other qualifying factors.

Q46

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

Standard epidural	**0.60**
CSE	**0.24**
DPE	**0.15**
Other (describe)	**.01**

Q47

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

Our standard for labor epidural maintenance is utilizing a PIEB program of 12 ml q45min for the background infusion, with PCEA of 5 ml q10min for the patient to use, as needed. These rates and volumes can be adjusted by the anesthesiologist, as appropriate for each patient’s individual needs.

Q48

Describe your routine utilization of flexible (flex-tipped/wire-reinforced) epidural catheters for labor epidural analgesia. (this is an essential criterion)

All of our epidural kits supplied in labor and delivery for labor epidurals contain flexible wire-reinforced epidural catheters.

Q49

Outline how you provide regular assessment of neuraxial labor analgesia effectiveness. (this is an essential criterion)Recommendation: 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).

Our labor and delivery nurses use an Obstetrical Assessment and Documentation Standards Job Aid that requires assessment and documentation of maternal vital signs and fetal heart rate, as well as uterine activity at regular intervals, depending on the stage of labor in conjunction with the risk status of patient and other factors such as cervical ripening, magnesium infusion, and antepartum or postpartum status. As a part of this Job Aid, maternal pain is assessed every 2 hours.

Once an epidural is placed, the anesthesiologist (resident and/or faculty) assesses each patient every 2-4 hours and documents visit in EPIC, depending on the demands of the unit (L&D surgical cases, labor epidural placement, etc.). For patients having difficulty with pain control, these checks occur every hour, or more frequently, until the patient has satisfactory pain relief, whether from epidural catheter replacement or other remediation strategies, depending on patient preference.

Q50

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

When notified that a patient has epidural breakthrough pain, the anesthesiologist (resident and/or faculty) assesses the pain in person by asking relevant questions to qualify and quantify the pain and checks the dermatomal level by either ice or pinprick (provider preference). Depending on the results of the questions and exam, various options are presented to the patient for improvement of their pain. If the patient has not been using the PCEA button, further education can be provided regarding use of the PCEA button. If the PCEA button has been used but is ineffective, an additional bolus with fentanyl and/or local anesthetic may be provided. If the block is one sided, the epidural catheter may be pulled back a centimeter and the catheter bolused with patient lying with painful side down. If the block has never adequately provided pain relief or if several attempts to treat pain have failed, epidural catheter replacement is offered. The method of treating the breakthrough pain is individualized to each patient with patient preferences taking priority. Our residents are taught that regular assessment and documentation of labor epidural analgesia effectiveness is a critical part of providing optimal obstetric anesthesia care to ensure catheter effectiveness in the event emergent anesthesia is required, to avoid general anesthesia.

We track epidural replacement rates through EPIC. We have a “notable event” item for “failed neuraxial” that is where these are documented. In addition, our anesthesia QA manager checks for patients that have greater than one neuraxial procedure note to cross-reference the data for accuracy.

Q51

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.

Prior to epidural placement, the RN documents baseline BP, maternal HR, FHR, and SaO2. After placement of epidural catheter and test dose given, as well as after any epidural bolus or intervention (phenylephrine or ephedrine), the patient has vital signs monitored as ordered. A strength test is done by hip flexion 3-5 minutes after test dose is given to rule out intrathecal placement of the catheter. Sensory level is checked by ice or pinprick (provider's preference) prior to starting epidural pump.
Our "epidural infusion on L&D" order set has the following orders:
No concurrent administration of CNS depressants. This includes opioids, sedatives, tranquilizers, antihistamines, hypnotics, nitrous oxide, and many antiemetics.
Upon initiation or dose adjustments, monitor BP, HR, and RR every 5 minutes for 15 minutes, then at 30 minutes and 1 hour. Following this, monitor BP, HR, and RR every hour unless more frequent vital signs are indicated by maternal or fetal status.
Continue 5 min assessment of BP, HR, and RR if not stable and notify anesthesiologist.
Pain and sedation to be documented at initiation of therapy, then hourly for 4 hours, then every 2 hours assuming the patient and fetus are stable.
Pain and sedation to be documented every 2 hours after every dose adjustment.
Nalbuphine prn for itching
Ondansetron prn for nausea/vomiting
Naloxone Protocol prn for respiratory depression
Continuous fetal monitoring for pregnant patients in labor with epidural analgesia unless otherwise ordered for fetal demise or termination of pregnancy.
Notify OB Anesthesia service if patient is difficult to arouse, if analgesia is inadequate, if the epidural catheter site is exposed, if the patient has uncomfortable motor weakness, if the patient has pruritis resistant to nalbuphine, or if there is a FHR pattern that may prompt operative delivery.
If RR < 8 and/or patient difficult to arouse OR SBP < 80 mmHg or mean BP < 55 mmHg stop epidural infusion and page OB anesthesia service and the primary obstetric service.
Have immediately available on the unit: mask, ambu bag, oxygen set up, and naloxone.

We have ephedrine ordered for the RNs to treat hypotension and phenylephrine is readily available for the anesthesiologists to administer for hypotension. Our nurses are not authorized to administer phenylephrine on our labor and delivery unit.

Q52

Outline your nursing postpartum monitoring protocolRecommendation: institutional protocol, should be consistent with the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) recommendations.

The nursing staff have an Obstetrical Assessment and Documentation Standards Job Aid they follow for the postoperative nursing care. This Job Aid was developed in accordance with AWHONN Perinatal Nursing 4th ed, AAP Committee on Fetus and Newborn and ACOG Committee on Obstetric Practice Guidelines for Perinatal Care 7th ed, and AWHONN position statement: Fetal Heart Monitoring.

These standards include postpartum care of BP, HR, and RR every 15 minutes for 1 hour, then every 30 minutes for 1 hour; BP, T, HR, RR upon transfer to MBU (mother baby unit – postpartum floor); BP, HR, and RR every 4 hours for 24 hours for C/S, BTL, C-hyst; BP, HR, RR every 4 hours until discharge for preeclampsia diagnosis or post-magnesium therapy. Pain is also assessed and documented with the VS. Additional items on the Job Aid include assess comfort measures and response; assess fundal height and uterine position, lochia, perineum, dressing; note SCD in place until ambulatory; perform perineal care/catheter care q4h if foley catheter in place; document I&O every 12 hours until adequate; assess IV and foley q shift. If the patient received neuraxial morphine, the neuraxial orders are followed, in addition to the Job Aid standards.

Q53

Describe intravenous patient-controlled opioid analgesia options offered, and outline protocol specifics including opioids available, administration settings and monitoring requirements.

Our IV PCA available to our patients is a remifentanil PCA. The dosing regimen is 20 mcg every 2 minutes, as needed.
Our protocol includes the following:
General instructions

- Remifentanil PCA restricted to patients with a contraindication to neuraxial analgesia
- Anesthesia ONLY to administer
- Anesthesia must be present for the first five administrations after the initial dose and with each dosing change
- Pediatrics must be notified of remifentanil administration and be present at delivery
- All patients must have 1:1 nursing, bedside continuous pulse oximetry monitoring, and a dedicated intravenous line
- PCA should be turned off immediately prior to delivery. Pulse oximetry must be in place for 15 minutes after the PCA is stopped

Restrictions/Contraindications

- Relative contraindications: Diagnosed OSA, Pre-E with maternal mental status involvement, BMI greater than 40, baseline oxygen saturation less than 95% on room air
- No fentanyl for one hour prior to remifentanil administration
- No hydromorphone or morphine for four hours prior to remifentanil administration
- No concurrent nitrous oxide use
- No concurrent neuraxial anesthesia

Orders for oxygen titration, continuous pulse oximetry, monitoring vital signs, RR, and sedation
Notify Anesthesia MD for hypoventilation or somnolence/difficulty arousing patient (POSS sedation score greater than 2) and turn off PCA if RR less than 8, oxygen saturation < 95%, HR < 60 bpm, pain score > 6, fetal bradycardia

Turn off PCA for POSS sedation score greater than 2
Naloxone protocol for respiratory depression

Q54

Outline the availability of nitrous oxide for labor analgesia, and if available provide protocol specifics.

Nitrous oxide is available to patients on request, ordered and maintained by the obstetric providers. Nursing has an OB Nitrous Oxide Job Aid that they follow that includes the following sections: exclusion criteria, patient education, how to set-up and inspect the Nitronox equipment, assessment and documentation, and troubleshooting and maintenance of equipment.

See attached Job Aid

Page 8: Equipment, Protocols and Policies

Q55

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

The projected timeline for implementation of the ERAC protocol is November 2023.
To finalize this protocol there are a few goals we aim to achieve:
- Education of all staff members involved in C-sections and address any concerns or barriers to change that may occur
-Creation of patient education tools that are easy to understand while also conveying important instructions.
-Ensuring the workflow and order sets have been adapted to reflect these changes.
Preoperative
Surgeon
· Preop education handout
· Write pre-op orders (Use order set) which include:
o Acetaminophen 1000mg
o Standardized pre-op antibiotics
o Diet: Clears until 2 hours pre-procedure &45g Carbohydrate load prior to NPO (16oz apple juice or 32oz regular sports drink).
Patient
· 8 hours prior to scheduled surgery: no solid food, OK to continue clears
· 2 hours prior to scheduled surgery: 45g Carbohydrate load prior to NPO (16oz apple juice or 32oz regular sports drink). To be taken at home / prior to arrival, must be consumed 2 hours or more prior to surgery. Contraindicated in patients with Diabetes (pre-existing or gestational).
Anesthesiology
· Anticipate ERAS OB/GYN NPO status
Nursing
· In addition to standard care, anticipate pre-op orders for: Acetaminophen 1000mg po and administer PO Sodium citrate and citric acid solution: 0-15 min before walking to OR
Intraoperative
Surgeon
· Delay cord clamping for 30-60s in vigorous infants
· If feasible and blood loss is controlled, consider limiting exteriorization of the uterus to reduce IONV and improve return to bowel function.
· Consider Joel-Cohen approach, when surgically appropriate. (Available evidence suggests that the Joel-Cohen based technique has advantage over Pfannenstiel with decreased operative time, postoperative analgesia requirements, febrile morbidity, blood loss, and duration of hospital stay).
· Consider local infiltration of incision or TAP block (if neuraxial morphine is not used).
Anesthesiology
· Prevent spinal anesthesia-induced hypotension by prophylactic vasopressor infusion (e.g., phenylephrine) at time of spinal medication administration
· Maintain normothermia; use forced air warming when applicable
· Optimal uterotonic administration
Intraoperative nausea/vomiting prophylaxis:
· Dexamethasone 4mg – given after spinal is placed
· Ondansetron 4mg
· Consider Metoclopramide 10mg if others contraindicated
Multimodal Analgesia:
· Intrathecal morphine 50-150ug or epidural morphine 1-3mg
· Ketorolac 15mg IV after peritoneum is closed.
· If neuraxial morphine is unable to be administered, consider truncal blocks or local anesthetic wound infiltration

· Limit IV fluids to <3L in routine cases
Nursing
· Facilitate skin to skin
Recovery unit
Surgeon
Use order set to write post op orders including:
· Abdominal binder
· Antiemetics:
- Ondansetron IV 4mg Q12h (1st line)
- Prochlorperazine 5-10mg PO Q6h (2nd line)
- Prochlorperazine 5-10mg IV Q6h
- Promethazine 25mg PO prn (3rd line)
Patient
Advance diet and activity.
Anesthesiology
Anti-Emetic: (Patient should receive another class of antiemetic from what was administered in the OR.)
· Ondansetron 4mg for 1 dose (administer as first line if patient has not yet received ondansetron for prophylaxis or 6hrs after intraop dose for delayed emesis)
· Promethazine 6.25-12.5mg prn x1 dose
· Metoclopramide 10mg x1 dose
Analgesia: Post-operative neuraxial morphine order
Do not routinely give additional opioids by any route for at least 12 hours after epidural or intrathecal preservative-free morphine. The following rescue medications may be considered in case of continued severe pain despite neuraxial morphine. If the patient has pain despite the following orders please contact the anesthesia practitioner for additional orders.
-Oxycodone 5mg-10mg P.O. PRN for breakthrough pain
Nursing
Encourage early oral intake of water/ice chips within 60mins admission to PACU
In addition to standard care anticipate orders for:
· Manage patient’s pain without opiates whenever possible
· Acetaminophen 1000mg po 6 hours from preop dose.
· Toradol 15 – 30 mg IV if > 6 hours of preop NSAID/diclofenac dose
· Multimodal antiemetics for patients at risk for N/V and for patients who have onset of N/V.
· Lidoderm patches- cut and place around incision sites when indicated

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Q56

Outline your routine utilization of a pencil-point needle (25-gauge or smaller) for the provision of spinal and CSE anesthesia for cesarean delivery. (this is an essential criterion)Recommendation: There are strong recommendations for using small gauge pencil-point needles for all spinal procedures in the obstetric population. Please provide an explanation if cutting edge needles are used, and which efforts are underway to implement a change towards using pencil-point needles

No cutting needles are stocked in our obstetric anesthesia carts. Only pencil point spinal needles are stocked in our obstetric anesthesia carts. 25 ga pencil point spinal needles are used for most of the cesarean section anesthetics. 25 ga pencil point spinal needles come stocked in our spinal trays used in L&D. On rare occasions we use 22 ga pencil point spinal needles for challenging spinal procedures.

Q57

Describe your approach and outline policies and/or protocols to prevent and/or treat insufficient anesthesia or intraoperative pain during cesarean delivery. (this is an essential criterion)Outline how neuraxial block are tested before incision and strategies/protocols used to ensure blocks are adequate for surgery.Outline strategies/protocols to treat intraoperative pain (intravenous analgesic medication supplementation, and if known, the percentage of patients receiving IV analgesic supplementation at your institution), and describe the follow-up for patients that experience intraoperative pain.Recommendation: institutional protocols (e.g. visual aids) and written policies are preferable (please upload if applicable).

All patients have their sensory level checked frequently after the spinal is placed until we are assured the patient has an adequate level for surgery, to a minimum level of T6. The sensory level is checked by pinprick (with a blunt plastic cannula) and early placement into Trendelenburg position is done if the level appears low in an attempt to increase the level quickly. Prior to making the incision, the surgeons check for adequacy of the spinal by pinching the skin with forceps or an allis clamp. If the patient does not feel anything, the surgery proceeds. If the patient feels sharp, she is placed in Trendelenburg position and more time is allowed to raise the level. If, after an adequate time has passed, the patient still does not have an adequate level of anesthesia, general anesthesia is induced. If the patient has a labor epidural in place and local anesthetic is bolused, pinprick (with a blunt plastic cannula) sensation is used to test the sensory level bilaterally. If there is a bilateral block to at least T6, the surgery proceeds. If the level is not bilateral or if no T6 level is obtained, additional local anesthetic is administered, and additional time is allotted to achieve a surgical level of anesthesia. We set a timer as a reminder to rebolus the epidural catheter with 1/3 of the original amount needed to obtain a surgical level of anesthesia. This timing is dependent on the local anesthetic used, every 30 minutes for 3% chloroprocaine and every 45 minutes for 2% lidocaine with epinephrine.

All patients receiving a spinal anesthetic have 0.1-0.15 mg intrathecal Duramorph added for post-op analgesia. All patients receiving an epidural anesthetic have 2-3 mg epidural Duramorph added for post-op analgesia.
Once the surgery commences, if the patient is uncomfortable, different strategies are employed, depending on the amount of discomfort/pain and how far along into the surgical procedure the case is. If the patient is experiencing mild to moderate discomfort or pain, IV opioids (fentanyl 25-50 mcg), ketamine (10-20 mg), and nitrous oxide are options offered to the patient. If the patient has an epidural, additional local anesthetic is added to the epidural catheter. If the patient has severe pain and the abdomen is still open, she is offered general anesthesia or a 3% chloroprocaine intraabdominal wash, along with opioids IV and/or ketamine IV if she does not want to have general anesthesia. We make certain the patient is able to maintain her airway and is not too sedate by using small, titrated doses IV. If the surgery is nearing completion, we ask the surgeons to infiltrate with local anesthetic for the remainder of the procedure. We frequently assess the adequacy of the anesthetic and adjuvants and offer to convert to general anesthesia if the patient appears to be very uncomfortable.

For patients who experience intraoperative pain, we make sure their pain is well-controlled prior to being discharged from PACU. The faculty anesthesiologist and/or OB anesthesia resident is required to see the patient in PACU and document that her pain is well-controlled prior to discharging to the post-partum unit. The patient is seen on POD 1 by the faculty anesthesiologist and/or the OB anesthesia resident and is questioned regarding any further pain and asked if she has any questions regarding her intraoperative experience. If the patient has continued pain, a TAP or QL block is offered and is placed by our acute pain service. If the patient had a general anesthetic with no neuraxial opioids, a TAP or QL block is offered, as well as a hydromorphone PCA. All patients, regardless of anesthetic technique, are given ketorolac 15 mg IV, unless contraindicated.

Q58

Outline your post-cesarean delivery analgesic protocol. (this is an essential criterion) Recommendation: Analgesic protocols should include a low dose of 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).

All patients having a neuraxial anesthetic technique are given Duramorph for post-op analgesia: 0.1-0.15 mg intrathecal or 2-3 mg epidural, unless they have a contraindication. All patients, regardless of anesthetic technique used, are given ketorolac 15 mg IV near the end of the cesarean section, unless contraindicated. All patients are given supplemental multimodal analgesia with scheduled acetaminophen and ibuprofen post-operatively in an alternating fashion. Patients undergoing general anesthesia with no contraindications for neuraxial are offered an intrathecal injection of Duramorph 0.1-0.15 post-operatively in PACU. If they have a contraindication to a neuraxial injection or refuse a neuraxial injection, they are offered a TAP or QL block by our acute pain service team and are given IV fentanyl or hydromorphone until the block is working.

Q59

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?

Our acute pain service team is available 24/7 to provide fascial plane blocks (TAP and QL) upon request.

Q60

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. (this is an essential criterion)

Patients are given a multimodal regimen for postoperative pain management that includes acetaminophen and ibuprofen, with opioid only offered for rescue pain, as neuraxial morphine is given in neuraxial cases. If rescue TAP block is needed, it is provided by our acute pain service team. At discharge from hospital, patients are typically given a prescription for 10 tablets of oxycodone 5 mg.

Q61

Describe your standardized protocol or plan of action to manage patients with opioid use disorders, and/or chronic pain. Recommendation: institutional protocols (e.g. visual aids) and written policies are preferable (please upload if applicable).

We have a Substance Use Disorder (SUD) in pregnancy CCG document that is very comprehensive. This document was put together by a multidisciplinary group including our IMPACT (Improving Addiction Care Team) team. The IMPACT team is actively involved in helping with management strategies for our pregnant patients with SUD. Our chronic pain clinic has an anesthesiologist who has an area of interest in managing chronic pain during pregnancy. She offers clinic visits to pregnant patients with chronic pain to help manage their pain during pregnancy and come up with a strategy to best manage their pain during the labor and delivery, as well as post-delivery, process.

See attached document.

Q62

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. (this is an essential criterion)

We keep the OB OR room temperature set at 73^0 F and place warm blankets over our patients' legs and front of body and shoulders during neuraxial placement. After patient is placed supine with LUD, warm blankets are placed over her lower body, arms, and chest. If the patient states she feels cold, an upper body Bair Hugger gown (placed on all patients in the preop area) is turned on to 43^0 F and a warm blanket is placed around her head, as needed/requested. Temperature is monitored via a skin temp probe if anesthesia is neuraxial. For patients undergoing general anesthesia, an esophageal temp probe is placed and an upper body Bair Hugger blanket is placed on the patient's chest and arms and is set at 43^0 F. A Hotlne IV fluid warmer is available in every OB OR for warming IV fluids.

Q63

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

Maternal temperature is measured via a skin temperature probe, usually placed in the axilla, for patients having neuraxial anesthesia and an esophageal temperature probe for patients undergoing general anesthesia. The temperature is recorded and documented continuously in EPIC.

Q64

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 redosing strategy; identification of alternatives if allergies known/detected; and consideration of additional antibiotics if applicable for high-risk patients. (this is an essential criterion)Recommendation: institutional protocols (e.g. visual aids) and written policies are preferable (please upload if applicable).

Our antibiotic prophylaxis protocol is:
1) Scheduled C/S with intact membranes: cefazolin 2g
2) Urgent or emergent C/S in laboring patient or with ruptured membranes: cefazolin 2g + azithromycin 500 mg
3) Patient weight > 110 kg: cefazolin 3g
4) Cefazolin-allergic patients: the surgeon places an order in EPIC for the alternative antibiotic, which is verified by pharmacy for appropriate dosing, and the medication is delivered to L&D by pharmacy
5) Emergency C/S with unknown obstetric history: cefazolin weight-based 2g or 3g given prior to skin incision, assuming no known contraindications to cefazolin

The antibiotics are administered within 20-60 minutes prior to skin incision and administration is verified with drug name and dose during the surgical time-out process. The antibiotic administration is documented in EPIC and an automatic redosing time is seen in a pop-up reminder in EPIC based on the antibiotic documented.

Q65

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

Cefazolin and azithromycin are stored in our anesthesia carts in every OB OR for emergency use. If additional or alternative antibiotics are required, they are retrieved from the Omnicell unit located in the OB OR suite common area. If the antibiotic is not available in the Omnicell unit, pharmacy sends a runner to L&D with the antibiotic.

Q66

Outline your standardized approach to prevent and treat hypotension after spinal anesthesia. (this is an essential criterion)Recommendation: Ideally, prophylactic infusion of phenylephrine to maintain blood pressure within 10% of baseline, with boluses of phenylephrine and/or ephedrine and/or norepinephrine as appropriate to treat hypotension, as well as intravenous fluid pre-load or co-load during spinal or CSE anesthesia should be utilized.

Our prevention of hypotension after spinal anesthesia begins preoperatively with a 500-1000ml preload, continuing as a co-load during the spinal procedure. We also begin a phenylephrine infusion at 0.2-0.5 mcg/kg/min prior to positioning the patient for the spinal procedure. We choose our dose based on individual patient factors including medical history, obstetric concerns, and baseline BP and actively manage the infusion with the goal of maintaining maternal BP within 10% of the patient's baseline, as measured preoperatively. Left uterine displacement is accomplished with a jelly wedge and is continued until after delivery in all patients > 20 weeks EGA. We have syringes of ephedrine and phenylephrine in our OB OR anesthesia medication trays for additional boluses, as needed, and norepinephrine is readily available to us, as well. We also keep syringes of mini-dose epinephrine and vasopressin in all OB OR anesthesia carts to treat severe hypotension in case a high spinal develops. We also employ these techniques for patients undergoing epidural anesthesia and general anesthesia for their C/S. Our goal to maintain maternal BP within 10% of baseline applies to all of our OB patients.

Q67

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

All our patients are evaluated preoperatively and assessed for risk factors for PONV such as history of PONV, anxiety, motion sickness, diabetes. Those with a high risk of PONV are treated prophylactically with multiple antiemetic agents from different classes.

Q68

Outline your perioperative antiemetic prophylaxis and treatment protocol.Recommendation: 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.Institutional protocols (e.g. visual aids) and written policies are preferable (please upload if applicable).

It is routine practice for our C/S patients to receive sodium citrate 30 ml PO upon arrival to the OR, then ondansetron during the procedure. We also have metoclopramide, cimetidine, dexamethasone, and small doses of propofol (10 mg) immediately available in our anesthesia OB OR medication trays for prevention/treatment of PONV. We have multiple faculty anesthesiologists who are certified acupuncturists and provide acupuncture needle placement for those patients with elevated PONV risk.

Q69

Outline which medications are immediately available for treatment of intraoperative shivering (e.g. dexmedetomidine, clonidine, etc) and pruritus (e.g. nalbuphine) in the operating room and recovery unit.Recommendation: institutional protocols (e.g. visual aids) and written policies are preferable (please upload if applicable).

For intraoperative shivering we have dexmedetomidine and meperidine readily available in our Omnicell in the OB OR scrub area. For pruritus we have nalbuphine and ondansetron 8 mg readily available in our OB OR anesthesia carts. These medications, as well as clonidine, are readily available in the Omnicell that is just across the hall from PACU, in the OB OR scrub area. The RNs in PACU always have a second RN to serve as a runner, so the patient has continuous nursing presence in PACU while the second RN gets any needed medication from the Omnicell.

Q70

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

To identify patients at increased risk for respiratory depression, we utilize the “SOAP Task Force Recommendations for Patient Risk Stratification for Postoperative Respiratory Depression After Cesarean Delivery.” We assess all patients preoperatively and document in EPIC any risk factors such as obesity, known or suspected obstructive sleep apnea (OSA), chronic opioid use or abuse, additional sedative medications (eg, benzodiazepines, antihistamines), administration of magnesium sulfate, concomitant systemic opioid use, significant respiratory, cardiac or surgical comorbidities, and detection of an adverse respiratory event after opioid administration intraoperatively or in the postanesthesia care unit (PACU).

We have built into our EPIC preoperative evaluation charting a checklist for OSA risk factors that are documented, as applicable. Patients are also asked about any history of OSA and CPAP or BIPAP use and this is documented in their EPIC record.

Q71

Describe your monitoring and treatment for respiratory depression after cesarean delivery. (this is an essential criterion)Recommendation: the institutional 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).

Our order set titled “Cesarean Section Post-op: Neuraxial PF Morphine” is 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. This order set is used for all patients who have a C/S with neuraxial morphine. We use the low dosing regimen of 0.1-0.15 mg PF morphine intrathecal or 2-3 mg morphine epidural. Using these doses, we follow the recommendation of a nursing respiratory assessment including RR, depth, and POSS (sedation scale) every 2 hours for the first 12 hours. If the patients are at a higher risk for respiratory depression based on patient factors (OSA, obesity, etc.), concomitant sedating medications, or other risk factors, an order for telemetry continuous pulse oximetry is placed. Oxygen is available in all recovery bays and in all patient rooms. A mask, ambu bag, oxygen set-up, and naloxone are available on the unit at all times. The obstetric anesthesiologist is notified for any patient if RR < 8 or patient is difficult to arouse. A naloxone protocol is also a part of the order set. This protocol states if RR is 8-10, arouse patient and provide oxygen via mask to keep SaO2 > 94%, if RR < 8 or patient difficult to arouse assist ventilation with ambu bag and oxygen 100%, if ongoing airway management is required, notify primary service and call the Rapid Response Team.

Q72

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

The nursing staff have an Obstetrical Assessment and Documentation Standards Job Aid they follow for the postoperative nursing care. This Job Aid was developed in accordance with AWHONN Perinatal Nursing 4th ed, AAP Committee on Fetus and Newborn and ACOG Committee on Obstetric Practice Guidelines for Perinatal Care 7th ed, and AWHONN position statement: Fetal Heart Monitoring. These standards include postpartum care of BP, HR, and RR every 15 minutes for 1 hour, then every 30 minutes for 1 hour; BP, T, HR, RR upon transfer to MBU (mother baby unit – postpartum floor); BP, HR, and RR every 4 hours for 24 hours for C/S, BTL, C-hyst; BP, HR, RR every 4 hours until discharge for preeclampsia diagnosis or post-magnesium therapy. Pain is also assessed and documented with the VS. Additional items on the Job Aid include assess comfort measures and response; assess fundal height and uterine position, lochia, perineum, dressing; note SCD in place until ambulatory; perform perineal care/catheter care q4h if foley catheter in place; document I&O every 12 hours until adequate; assess IV and foley q shift. If the patient received neuraxial morphine, the neuraxial orders are followed, in addition to the Job Aid standards.

Q73

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 obstetric anesthesia service supports a baby-friendly environment for early breastfeeding practices by facilitating skin-to-skin contact, when safe to do so. For most patients, this is immediately after birth. The room lights are dimmed in our OB ORs during the C/S and music of the patient's choice is played. 1-2 support people are allowed in the OR with the patient and if the patient is unable to or does not care to do skin-to-skin right away, the support person is encouraged to provide the skin-to-skin contact. Our "baby" nurse facilitates and assists the patient and support person throughout this process by positioning the baby and ensuring proper support for breastfeeding. The nurse stays by the head of the bed to monitor/care for the infant. This nurse follows the patient to PACU to continue to support skin-to-skin and breastfeeding.

Q74

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

We have in-house neonatology ANPs and physicians in the NICU who are available to provide neonatal resuscitation 24/7 when called. We have an emergency button on the wall in each OR that directly pages for NICU emergency support. The NICU is located on the same floor as L&D, just down the hall, so response time is minimal. We have a neonatal resuscitation room that is adjacent to the OB ORs. Initial resuscitation usually occurs in a warming unit in the OR, but the infant is rapidly transported to the neonatal resuscitation room if the situation warrants.

Page 9: Equipment, Protocols and Policies

Q75

Outline your hemorrhage risk stratification algorithm and management protocol.Recommendation: 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.

Pre-delivery:
Risk assessment tool
Hemorrhage Risk Assessment
We utilize a risk assessment tool in Epic based upon the following factors. Some pull from the PPH Risk Assessment flowsheet (Charted by nursing at admission and as conditions evolve in labor), others pull directly from lab results or the delivery summary. This is a tool built in to Epic EHR, created by the Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN).

Admission	Pre-Delivery	Post-Delivery
IOL (with oxytocin) or cervical ripening	Labor greater than 18 hours	Operative vaginal delivery
Multiple Gestation	Temp > 100.4 F (38 C)	3rd & 4th degree perineal lac
More than four vag births	Augmentation of labor	Vaginal or cervical laceration and/or mediolateral episiotomy
Prior C-section or Uterine Incision	Magnesium Sulfate	Cesarean birth
Large uterine fibroids	Prolonged second stage (>2 hours)	Precipitous delivery
History of one previous PPH	Suspected or Concealed Abruption	Shoulder dystocia
Family history in 1st degree relatives with PPH		Difficult placental extraction
Chorioamnionitis		Uterine inversion
Fetal Demise		Post Birth Active bleeding
Polyhydramnios		
Active bleeding more than "bloody show"		
Suspected placenta accreta or percreta		
Placenta previa or low-lying placenta		
Known coagulopathy		
Hematocrit <30		
Platelet count <100,000		
Pre-eclampsia or HELLP Syndrome		

Risk Assessment: At admission and with changes in condition
PPH risk score is calculated and is documented in EPIC and is visible on the Status Board under a "PPH risk" column. The status board is visible to all nurses and physicians and is a fluid score with real-time visibility of score for all in the unit.

Admission/ Intrapartum huddle & preparation according to risk score:
Any patient with positive antibodies receives T&C
Low Risk (0-3): T&S, IV access, baseline CBC; AMTSL
Medium Risk (4-9): Above PLUS huddle to plan for uterotonics; provider document PPH risk level; FYI to anesthesia; consider 2nd IV if difficult access
High Risk (10-20+): Above PLUS Consider: T&C, Anesthesia Consult, 2nd IV, prophylactic TXA, Uterotonics and PPH cart to room during delivery

Second Stage huddle: RN & Practitioner communication to address changes in PPH risk factors, timing of prophylactic oxytocin

After delivery:
Prophylactic Oxytocin
Vaginal birth: 10U IV bolus over 15 minutes or 10U IM
Cesarean birth: Per Anesthesia Protocol (Oxytocin IV Push as follows: 1u if CS without labor; 2u if CS after labor; consider 3u if high risk)
QBL for all Births

Please see attached documents for our obstetric hemorrhage management protocols.

Q76

Describe your massive transfusion protocol. (this is an essential criterion)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.

The massive transfusion protocol facilitates the timely delivery of blood products during massive blood loss. Standard pretransfusion testing including compatibility testing may be bypassed or truncated as needed to ensure timely blood delivery of necessary blood products for patients that are experiencing massive hemorrhage. The use of Low titer group O whole blood (LTOWB) or a standardized blood ratio (e.g. 6 red blood cells (RBCs): 6 plasma: 1 apheresis platelet) is recommended when circumstances require empiric transfusion therapy. MTP options available: Adult, Pediatric.
Order Massive Transfusion Protocol (MTP) if:

- QBL ≥1000 ml + signs/symptoms hypovolemia + ongoing blood loss
- QBL ≥ 1500ml + ongoing loss
- Or any other scenario of rapid blood loss at the discretion of the clinical team

Rapid transfuser (Belmont) present on OB floor at all times
MTP initial order includes 5 units of Low Titer Group O Whole Blood (LTOWB) or 4X4 (4 PRBC'S AND 4 FFP). 1st box is delivered by transportation within 10 minutes; we then communicate with the Blood Bank when next box is needed. 6X6 (6 PRBC'S, 6 FFP, 1 platelet) is our usual second box. L&D sends runner for 2nd box and subsequent boxes. Call blood bank right before each 6X6 is needed.
Cryoprecipitate ordered separately (Fibrinogen <200).
We repeat coags & ABGs.
A-line usually placed, we consider Central line
Transfuse aggressively: Near 1:1 PRBC: FFP + 1 PLT pack per 4-6 units PRBCs or whole blood

We administer calcium replacement therapy during an MTP as clinically indicated by ionized calcium levels or by empiric therapy based on number of units received. We ensure that blood in a cooler/pack at the bedside is communicated during change of shift. After the transfusion of 50 units of blood in adults and every 50 units thereafter, the clinical team will pause to discuss patient management, including whether LTOWB should continue and determination of the futility of care prior to proceeding with the MTP
Family support is ongoing by L&D nursing
Team Debrief

Q77

Describe your type and number of rapid-infuser devices to assist with massive resuscitation (e.g. Belmont® Rapid Infuser, Level 1® Fast Flow Fluid Warmer). (this is an essential criterion)Recommendation: These devices are preferably stored on the unit, especially in high volume centers and tertiary/referral centers. Describe where yours are stored and accessibility to the L & D unit.

We have a Belmont rapid infuser fluid management system that is warmed to physiological temperature at flows at rates from 10 - 1000 ml/min. This dedicated device remains on our OB floor in a dedicated OB OR, available for immediate use at all times. In addition, we have two hot line IV warming systems in each OB OR for additional use in transfusing blood when the rapid rate of infusion is not required.

Q78

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

QBL is measured for all births, with updates every 5-15 minutes in settings of continued blood loss.

For Vaginal deliveries – our nurses use a QBL Calculator located in our EMR. They check Amniotic Fluid volume prior to placenta delivery and this is entered into the calculator. The “Under Buttocks Drape” is weighed and entered into the calculator along with all Lap sponges and pads. All of our RNs can View/edit the QBL calculator and enter additional blood loss calculations – Delivery QBL will add up for 24 hours after birth and total is reflected in the Delivery Summary Report for the patient.

For Cesarean deliveries - Amniotic Fluid volume is noted and communicated with surgical team and based on canister volume. Lap sponges are weighed, usually after the final count. Time is noted when filing Surgical calculator. The total is communicated to surgeons and anesthesia team with post-procedure pause. Cesarean Delivery QBL will add up for 24 hours after birth and total is reflected in the Delivery Summary Report.

Q79

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

For difficult peripheral IV access we have an ultrasound machine dedicated to anesthesia available at all times on L&D. If an anesthesiologist is unavailable due to clinical duties, an IV Therapy Team is called to obtain IV access. We have an Interosseous access kit available on L&D and an anesthesia Hemorrhage cart available with the following accessories: Arterial line supplies and kits, multiple central line kits, cordis introducers, transducers, RICs (rapid infusion catheters) and associated supplies, gowns and sterile gloves.

Q80

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. *Recommendation: Point of care equipment is preferred. If your facility does not have this please provide information on how quickly HCT and coagulation labs are turned around and mechanism in place to facilitate rapid turnaround in obstetric hemorrhage emergencies.

We have an extensive team of 42 anesthesia techs, with a dedicated tech always available to the OB anesthesia team and others readily available to assist. These techs will collect our ABG/VBGs and run them for us on a blood gas machine (ABL90 FLEX) located on the 11th floor (one floor below OB). We also have three additional blood gas machines in our main OR core. We can order and run TEGs, that are performed in our ER by our trauma team. We have handheld Roche Coagucheks for time critical PT/INR results.

Q81

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, counseled regarding blood product options, and prepared or optimized for delivery? If appropriate for your facility, please describe criteria which would prompt transfer of these patients to a facility with a higher level of care. For example, indicate if cell salvage is readily available 24/7, or if available but only for scheduled cases, and if applicable where it is located. (this is an essential criterion)

Our anesthesia department has a total of 7 cell saver machines that are set up and operated by our own anesthesia techs and are readily available 24/7 for our main OR and L&D. We often perform bloodless surgery and are adept at caring for this patient population. Patients who refuse banked blood are identified in EPIC by a bloodless surgery icon, readily visible when their record is opened. Patients who state they refuse blood products are counseled regarding options and documentation is made of any products they are willing to accept.

Q82

Describe your hemorrhage quality assurance review process.Recommendation: 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.

PPH debrief is done following any case with a MTP (massive transfusion protocol) or incident with QBL > 2000mL
This discussion is peer-review privileged and confidential, and what is discussed during debrief should not be disclosed to others outside of the peer review process or documented in the patient’s chart. The following is asked of all members in the discussion:
Please Review the hemorrhage Clinical Consensus Guideline algorithm (see reverse) as you answer:
What did we do well?
What could we do better?
What did we learn?
Did we work well together as a whole team?
Blood Transfusion – was it indicated? Was it given? # units?
Do any team members request further debriefing (RCA or facilitated case review)?

Our Perinatal Quality Improvement Committee also reviews all cases with PPH and QBL > 2000 ml, reviewing the patient’s record and the debrief notes to look for areas to improve upon and to prevent future occurrences. There are members on this committee from obstetrics, nursing, and anesthesia.

Q83

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

Our obstetric hemorrhage toolkit includes the OHSU OB Clinical Consensus Guidelines (CCG) for Prevention and Management of Postpartum Hemorrhage. This is a tool that is designed to support PPH recognition and response and is in keeping with evidence-based QI safety recommendations. There is a CCG algorithm to follow in managing PPH and an educational powerpoint presentation available and mandated for all L&D staff to view. In addition, we have a PPH Debrief Form that is to be used with all deliveries with QBL > 2,000 ml.

Please see attached documents.

Q84

Outline your policies/procedures for suspected abnormal placentation (e.g. placenta accreta/percreta) cases. * (this is an essential criterion)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.If appropriate for your facility, please describe criteria which would prompt transfer of these patients to a facility with a higher level of care. (this is an essential criterion)

There is a placenta accreta team led by maternal-fetal medicine, which includes an obstetric fellowship-trained anesthesiologist, radiologist, gynecology oncologist, general obstetrician, and depending upon the case there may be representation from the neonatal intensive care team, adult intensive care team, and interventional radiology. Concerning ultrasound findings are escalated to this team. Magnetic resonance imaging is utilized to assess hemorrhage risk. We have monthly team meetings. All these patients are seen 2 to 8 weeks prior to the scheduled procedure date by the obstetric anesthesia attending. These procedures typically are performed in the high-risk operating suite. The general plan is admission to labor and delivery the night before for blood draws and fetal monitoring the morning of surgery. The patient is taken to the block bay where the primary anesthesia team places a low thoracic epidural, this facilitates ambulation on postoperative day 1. The patient is then taken to the operating room for sedation with dexmedetomidine followed by ultrasound-guided radial arterial line and large bore (14 G) peripheral intravenous line placement. With the obstetric team in the operating room the patient is positioned into Trendelenburg position for ultrasound guided right internal jugular 7 French sheath introducer placement. The patient is then positioned supine again with left uterine displacement and the sedation is turned off. A cooler of blood is checked and the cell saver is set up with leukocyte reduction filter. Cystoscopy and ureteral stent placement is performed under epidural anesthesia followed by cesarean delivery. Tranexamic acid is administered after delivery. After the patient has an opportunity to view the infant, general anesthesia is induced and the patient is intubated with a videolaryngoscope. We typically do not administer oxytocin. Most patients are extubated at the end of procedure and recover on labor and delivery overnight prior to discharge to the postpartum unit. Postpartum analgesia is administered through the epidural for the first postpartum night after which the patient is transitioned to oral multimodal analgesia.
These cases are performed in main OR with 1:1 staffing ratio of OB anesthesiologist and senior resident. Difficult airway cart present, vascular access cart present, blood products available in operating room prior to case start or immediately upon recognition of abnormal placentation. Trauma surgeons on call, always in house 24/7. IR on call 24/7.

Q85

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

Our difficult airway management supplies in L&D include a difficult airway cart located in the common area in the OB OR suite, containing the following: DL with blades in multiple sizes and including a “stubby” handle, a fiberoptic bronchoscope and all supplies that are necessary for FOB intubation, ETTs in multiple sizes, various sizes of LMAs, cricothyrotomy kit.
We have one videolaryngoscope dedicated to L&D that is kept in the common area in the OB OR suite.
Our labor epidural cart is stocked with emergency airway equipment including DL, ETT and LMA in multiple sizes, and an ambu bag.
High flow nasal cannula is available in the main OR and can be quickly brought to L&D by our anesthesia techs.

Q86

Describe if you have an obstetric-specific difficult airway protocol on the difficult airway cart and in obstetric operating rooms. (this is an essential criterion)

We have an obstetric-specific difficult airway protocol that is laminated and attached to the difficult airway cart and is in the top drawer of each anesthesia machine in the OB ORs. This protocol follows the algorithm the Unanticipated Difficult Airway Management in Obstetrics published in Anesthesiology 2012; 117:883–97.

Q87

Describe the availability of suction devices.Recommendation: 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, including labor rooms where epidurals are administered.

Full suction is available in all OB ORs on the anesthesia machine and is available at the head of the bed in all labor rooms. Oxygen is available on the anesthesia machine and free-standing tanks are stored in the OR suite. The anesthesia machine allows positive pressure ventilation and an Ambu bag is stored on every anesthesia cart in all OB ORs. Oxygen is wall-mounted in all labor rooms at the head of the bed and an Ambu bag for positive pressure ventilation is immediately available in every labor room.

Q88

Describe your in-house backup plan to provide personnel with surgical airway access skills if needed 24/7. *What is the plan for a cannot ventilate/cannot intubate scenario at your facility? Do you have personnel in-house or on call who can provide a surgical airway? Please provide specifics.

We have a cricothyrotomy kit in our difficult airway cart and our anesthesiologists have had basic training in obtaining a surgical airway via cricothyrotomy. In addition, we have in-house trauma surgeons 24/7 and ENT specialists on-call, in the event a surgical airway is needed. Our plan for a cannot ventilate/cannot intubate scenario follows the recommended algorithm in the Unanticipated Difficult Airway Management in Obstetrics published in Anesthesiology 2012; 117:883–97 and cricothyrotomy performed, followed by C/S in most cases.

Q89

Outline your lipid emulsion availability, appropriate supplies, and protocols that allow a timely response to local anesthetic systemic toxicity. (this is an essential criterion)

We have 20% lipid emulsion and emergency supplies for treating LAST in our labor epidural cart and in all OB ORs in our anesthesia carts. The LAST treatment protocol is laminated and is kept in all of these locations with the lipid emulsion and supplies, allowing a timely response to early symptoms of LAST from all locations where neuraxial blocks are placed.

Q90

Outline your malignant hyperthermia protocol. (this is an essential criterion)Recommendation: Dantrolene formulations and sterile water vials, along with other supplies must be available to allow a timely response to malignant hyperthermia.

We have a Malignant Hyperthermia cart, fully stocked with Dantrolene and sterile water as well as syringes, needles, and resuscitative supplies, readily available in our cath lab, one floor directly below the OB OR suite that can be in the OB OR in less than four minutes. Our OB anesthesia tech brings the cart to L&D when requested for either treatment of MH or in the event an MH-susceptible patient is admitted to L&D. When an MH-susceptible patient is admitted to L&D, one of the OB ORs is designated for that patient in the event of an emergency, the anesthesia machine is flushed and MH filters placed and volatile agents are removed from the machine, and the OR is saved as a “clean” OR until the patient has delivered and been transferred to our post-partum unit. Our Malignant Hyperthermia protocol is laminated and kept in our Emergency Protocol Manual in our anesthesia machines in each OB OR and includes Dantrolene administration. Our protocol aligns with MHAUS recommendations.

Q91

Outline cognitive aids and training resources.Recommendation: cognitive aids and clinician awareness of resources to manage emergencies should be available, and training to facilitate team member awareness of the location and means to retrieve resources to better manage emergencies.

We have cognitive aids in the form of an Emergency Protocol Manual laminated and kept in every anesthesia machine in our OB ORs. This manual contains protocols for the majority of potential emergencies that we would encounter on OB, including asystole/PEA, Bradycardia, SVT, VFIB/TACH, anaphylaxis, bronchospasm, delayed emergence, difficult airway/cric, PE, airway fire, non-airway fire, hemorrhage, high airway pressure, high spinal, hypertension, hypotension, hypoxemia, local anesthetic toxicity, malignant hyperthermia, myocardial ischemia, oxygen failure, pneumothorax, power failure, right heart failure, transfusion reaction, trauma, crisis resource management, and an infusion list. All new hires in our department, plus on the first day of the OB Anesthesia rotation for residents, an orientation is completed that includes the location of our Emergency Protocol Manual and instructions on how to retrieve online resources as well as EPIC resources for better managing emergency situations.

Q92

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).*

We have one dedicated anesthesia ultrasound machine, a GE Venue Go with both linear and curvilinear probes, for use on L&D that is kept in the OB OR suite common area. Other probes are readily available and brought to L&D by our anesthesia tech, as requested. This ultrasound machine is available for peripheral IV access, when needed; central line access and arterial line access; difficult neuraxial blocks, when needed; regional blocks; and point-of-care evaluations, when needed. Our residents and many of our faculty carry a personal Butterfly ultrasound probe on them at all times for emergency POCUS assessment.

Q93

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. (this is an essential criterion)

Each day begins with a multidisciplinary board sign-out at 7:00 AM with anesthesia, MFM, obstetrics, midwifery, and family practice faculty, residents, and medical students in attendance. Each patient in antepartum, L&D, and post-partum is reviewed and individualized patient plans are discussed. This is an interactive sign-out with everyone encouraged to provide input. At approximately 10:30 AM, a safety huddle is run by nursing with OB, nursing, anesthesia in attendance to review each patient on L&D and discuss their labor progress and anticipated labor course and go over the list of admissions for induction of labor for the rest of the day. At 5:30 PM, an evening shift multidisciplinary board sign-out is done with the same members as the morning board sign-out with all outgoing and incoming team members present, as clinical duties allow. This sign-out reviews all antepartum patients, patients on L&D, and postpartum patients. At approximately 9:00 PM, an evening safety huddle is run by nursing and performed with OB, nursing, anesthesia in attendance to review each patient on L&D and discuss any patients admitted for induction of labor. At the 10:30 AM and 9:00 PM huddles, effort is made to have a 5-10 minute educational talk on a relevant topic for the team by one of the team members.

Pre-procedural timeouts are performed prior to any neuraxial procedure, whether labor epidurals or neuraxial for C/S, and are done prior to skin incision for any surgical procedure with all surgical staff present and participating by completing their part of the script posted in each OB OR on a large, laminated poster. They are also performed prior to any regional blocks placed.
Post-procedural debriefings are performed with all team members present during the procedure encouraged to participate for fetal surgery cases, cases where MTP was used, cases where QBL > 2000 ml, and any cases where unanticipated events occurred. Any staff or faculty may call for a debrief after a procedure if they desire one.

Please see the attached photo of our timeout poster.

Q94

Outline how timeouts are performed prior to all anesthetic interventions.

Time-outs are performed prior to any anesthetic intervention by stopping all activity in the room and verifying the patient name, date of birth, allergies, procedure to be performed verified with signed consent, and asking if patient agrees and has any questions.
Surgical time-outs are performed with all team members present, all activity in the OR is halted, and a script mounted on the wall as a poster is used to guide the statements from each of the team members, beginning with introducing themselves and their role and followed with statements guided by the script.

Q95

Outline evaluations by the anesthesiology service of patients (1) undergoing scheduled cesarean delivery and other obstetric-related surgeries, and (2) the majority of patients presenting to labor and delivery. Please describe the process for “high-risk” patients being brought to the attention of the anesthesia service and evaluated (triage or consultation).

Patients admitted to L&D are evaluated by an anesthesiologist and a preoperative anesthesia evaluation is placed in EPIC in case emergency anesthesia services are required. This evaluation includes a ROS noting any significant medical or obstetric conditions and a physical exam including heart and lung exam and an airway exam. If the patient is interested in a labor epidural, the risks and benefits are explained and written informed consent is obtained.
Patients presenting for a scheduled surgical procedure (C/S, cervical cerclage, fetal surgery, etc.) have their medical charts reviewed the day prior in preparation and are seen by an anesthesiologist the day of the procedure after arrival in our triage area for the preoperative anesthesia evaluation that is placed in EPIC. This evaluation includes a ROS noting any significant medical or obstetric conditions and a physical exam including heart and lung exam and an airway exam, as well as a review of any pertinent labwork.

For high-risk patients seen in the MFM or OB clinic, an OB anesthesia consult is placed and a virtual consultation appointment is made with one of our OB anesthesiologists. We have a dedicated admin who handles assigning these consults with the MFM or OB office schedulers. These consults take place during non-clinical time so as not to interfere with clinical duties on L&D. Each month the OB anesthesiologists give the admin their availability during non-clinical days to allow for flexibility for scheduling the patient. The information obtained during the consult and all contingency plans discussed with the patient are shared with all anesthesiologists covering L&D for their awareness in case the patient arrives in labor during their shift. We keep a printed copy of the consults in a secure locked file in the OB Anesthesia office for quick reference, if necessary.

For patients who arrive in triage and are noted to be high-risk, the faculty obstetrician notifies the faculty anesthesiologist, and a conversation is had to discuss the obstetric plan and any anesthesia concerns. The OB anesthesiologist faculty and resident then perform a preoperative evaluation, discussing plans for the various delivery scenarios, to be ready for possible emergency situations.

Q96

Outline the system in place to screen and identify all high-risk patients prior to admission (in the antenatal period). 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).

For high-risk patients identified in the MFM, OB, FP, or midwifery clinic, based on a list of co-morbid conditions that strongly recommend an OB anesthesia consult, an OB anesthesia consult is placed and a virtual consultation appointment is made with one of our OB anesthesiologists. We have a dedicated admin who handles assigning these consults with the MFM, OB, FP, or midwifery office schedulers. These consults take place during non-clinical time so as not to interfere with clinical duties on L&D. Each month the OB anesthesiologists give the admin their availability during non-clinical days the following month to allow for flexibility in scheduling the patient. Each OB anesthesiologist is expected to provide 4-8 hours of time for virtual consults to be scheduled monthly. When scheduled, the OB anesthesiologist reviews the patient's chart, reason for consult, and researches any necessary topics to enable a thorough discussion with the patient at the time of the appointment. The consult takes place in a virtual format for patient convenience. The anesthesia plans are discussed with each patient, individualized based on the reason for their consult and with plans discussed covering all possible presenting scenarios. The information obtained during the consult and all contingency plans discussed with the patient are documented in a consult note placed in EPIC and are shared by secure email with all anesthesiologists covering L&D for their awareness in case the patient arrives in labor during their shift. We keep a printed copy of the consults in a secure locked file in the OB Anesthesia office for quick reference, if necessary.

Patients with cardiac conditions are referred to our obstetric cardiac program and a multidisciplinary approach is used involving care conferences and delivery planning as early as possible in the pregnancy. This program involves an obstetric anesthesiologist present for the care conferences and delivery planning discussions.

Patients with PAS are followed with multidisciplinary care conferences for delivery planning. These care conferences include a fellowship trained obstetric anesthesiologist.

Q97

Describe the availability of surgical backup.* Please describe the availability and time to mobilize general surgeons, gyn-onc surgeons, trauma surgeons as needed 24/7. In house? On call??

OHSU is a level 1 trauma center and, as such, we have 24/7 surgical backup by in-house trauma surgeons. In addition, we have general surgeons and gyn-onc surgeons available on-call 24/7. IR faculty are on-call 24/7 for emergent IR services.

Q98

Outline your protocol or pathway to activate interventional radiology.*

When Interventional Radiology services are needed, the L&D charge RN pages the interventional radiologist on call and coordinates the necessary IR services. The obstetrician faculty and IR faculty communicate directly and determine the best course for the patient. The IR suite is located one floor directly below the L&D unit. The anesthesiologist and obstetrician accompany the patient to the IR suite with transport monitoring. If needed, the anesthesiologist continues providing anesthesia care to the patient throughout the procedure in IR and transfers the patient to the appropriate area for post-operative care (PACU vs. ICU).

Q99

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

OHSU has multiple ICUs, each specialized for specific care: CVICU, Neuro ICU, trauma ICU, SICU, MICU. There are a total of 80 adult ICU beds in the hospital. The majority of our pregnant patients requiring ICU care are roomed in the CVICU, where the ICU RNs are comfortable caring for pregnant patients. In addition to the ICU RN, a L&D RN is assigned to the patient if they are laboring or are immediate post-delivery. The CVICU is in an adjoining tower on the same level as L&D. Our medical, neurosurgical, and trauma ICUs are located in the same tower as L&D, on different floors.

Q100

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.

Our L&D PACU is covered by the L&D RNs, who are in the process of becoming ACLS certified, for all neuraxial and general anesthetics. For patients who receive general anesthesia, an additional PACU RN from our main OR comes to L&D to assist the L&D RN for the Phase 1 recovery or the patient is taken to the main OR PACU with an L&D RN assisting the PACU RN for the Phase 1 recovery. The majority of the time the main OR PACU RN comes to L&D, but if the main OR PACU cannot accommodate sending an RN to L&D, we bring the patient to them.

Q101

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 nonreassuring fetal heart rate.

We have two emergency notification systems in place. The first is a wall panel in every labor room that has buttons to press to activate various emergency scenarios. There are "red C/S," "orange C/S," "yellow C/S," and "anesthesia needed" buttons on the screen. The button automatically pages a paging group corresponding with the situation pressed.

The second is an emergency paging group. When called, all team members carrying a L&D emergency pager are notified simultaneously. Team members who carry the emergency pager 24/7 include in-house OB faculty, OB resident, OB anesthesia faculty, OB anesthesia resident, NICU faculty, NICU fellow L&D charge RN, L&D OR tech

There is a whiteboard at the RN charge desk that is kept current with the names and pager numbers of all personnel covering L&D at any given time, including OB faculty and residents, OB anesthesia faculty and residents, midwife, RNs, OR techs, family practice faculty and residents, MFM faculty and fellow.

Q102

Outline your simulation drills and training.* (this is an essential criterion)

We have multiple formal simulation events. We have multidisciplinary in-situ simulations 8 times per year. These simulations take place on the OB floor and include at least 1 attending OB anesthesiologist, 1 OB resident anesthesiologist, 1 OB attending faculty, 1 OB resident, 4 OB nurses, and 1 nurse midwife. In addition, there are 2 multidisciplinary simulations that formally take place at the OHSU School of Medicine simulation center annually that include a similar makeup of participants. Topics covered include: maternal cardiac arrest, operative vaginal delivery, pre-eclampsia, and PPH. These are preceded with an educational didactic lecture and proceeded with debrief sessions focused on medical management and crisis resource management skills such as teamwork, communication, resource allocation, anticipation and planning, etc. Each anesthesia resident has at least one, but more often two to three opportunities to participate in these OB-specific simulations during their training.

Q103

Outline the percentage of anesthesiology faculty/Anesthesia Physician (MD) (who cover obstetric anesthesia call), obstetricians, nurses, and other personnel who have participated in obstetric simulation (or inter-professional team training) in the last 5 years, or if more frequent please indicate if yearly _____%. Please indicate number and describe.

Obstetric Anesthesia faculty 1.0
Obstetricians 1.0
Nurses 1.0

Q104

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-formaternal-safety/#.YofbDHbML-g)Recommendation: 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.

We have multiple formal simulation events. We have multidisciplinary in-situ simulations 8 times per year. These simulations take place on the OB floor and include at least 1 attending OB anesthesiologist, 1 OB resident anesthesiologist, 1 OB attending faculty, 1 OB resident, 4 OB nurses, and 1 nurse midwife. In addition, there are 2 multidisciplinary simulations that formally take place at the OHSU School of Medicine simulation center that include a similar makeup of participants. Topics covered include: maternal cardiac arrest, operative vaginal delivery, pre-eclampsia, and PPH. These are preceded with an educational didactic lecture and proceeded with debrief sessions focused on medical management and crisis resource management skills such as teamwork, communication, resource allocation, anticipation and planning, etc. Each anesthesia resident has at least one, but more often two to three opportunities to participate in these OB-specific simulations during their training.

Q105

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-topostpartum-sterilization)

PPTL and cervical cerclage procedures are performed in L&D when scheduled after the appropriate NPO time has occurred. The OB anesthesia service provides anesthesia to all scheduled cases in L&D unless extenuating circumstances exist. If patients have a labor epidural in place after delivery, priority is given to getting their PPTL done quickly, as long as the patient is adequately NPO, so the epidural will be functional to use for anesthesia for the PPTL. We routinely perform PPTLs within the 24-hour window after delivery and perform urgent cervical cerclage placement within 12 hours of surgical request, sooner if more urgent.

Q106

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).*

If all OB ORs are occupied or unavailable, the main OR is able to act as an overflow space to perform obstetric procedures. The main OR is staffed with in-house personnel, RNs and OR techs, 24/7, with backup staff on call from home. There is an in-house backup faculty obstetrician to cover additional cases simultaneously, as well as a MFM fellow on call. For additional anesthesia needs outside of our 2 in-house faculty anesthesiologists and 3 in-house anesthesia residents overnight, we have an additional faculty anesthesiologist on home call and 2 residents on home call, all with a 30 minute required response time from call to in-OR. We have an additional two faculty anesthesiologists on home call for covering cardiac cases and liver transplants who can be used for covering additional emergency cases in the main OR and L&D, if all other anesthesia personnel are in cases. The main OR RNs and techs occasionally cross-cover L&D, so are able to fill in if there is overflow from L&D.

Q107

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

Equipment to place and monitor arterial lines, central lines, and pulmonary artery catheters is available in the OB ORs. Monitoring arterial lines, central lines, and pulmonary artery catheters pre- and post-operatively is done in an ICU setting, usually in the CVICU. Point of care ultrasound is available by our trained anesthesiologists in L&D and TEE is available by either cardiology or ICU faculty. All of our anesthesia residents go through annual point of care ultrasound training. We have an anesthesia-dedicated ultrasound machine in L&D in the OB OR suite common area for POCUS exams and TTE. Patients requiring invasive monitoring are transferred to the ICU and are able to labor and deliver in our CVICU.

Q108

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). *Describe your ability to provide invasive monitoring including arterial lines, central lines, cardiac output monitoring, echocardiography, vasoactive drug infusions, intensive care, cardiac care, and other advanced management techniques. What can be accommodated in your obstetric unit? Describe what requires transfer to another unit? Describe what requires transfer to another hospital?

Patients who require vasoactive drug infusions such as phenylephrine or norepinephrine are either monitored by an anesthesiologist or CRNA until the infusion is weaned off (used when felt to be temporary) or they are transferred to the ICU for monitoring. Patients requiring ICU or cardiac care are admitted to the CVICU and have both an ICU RN and a L&D RN for their care. Some patients with controlled stable cardiac conditions are cared for on L&D. We have one labor room with telemetry capabilities for cardiac monitoring, allowing remote monitoring by ICU staff. A patient requiring a vasoactive drug infusion must, by protocol, be transferred to the ICU unless it is thought to be very temporary, for which an anesthesiologist or CRNA can monitor the patient until the infusion is stopped. Since OHSU provides Level 4 maternal care, we do not transfer patients to another hospital unless the patient requests a transfer (very rare) as we are capable of managing any parturient that presents to our hospital.

Q109

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

Patients are provided with educational pamphlets in the obstetrician/family practice/midwife offices. After admission to L&D, patients are seen by an anesthesiologist faculty and/or resident or CRNA and are educated about analgesia/anesthesia options for labor and delivery, specific to their needs based on their medical and obstetric history and delivery plan. Patients and their support people are given ample opportunity to ask questions. Anesthesiologists are available throughout the patient's stay to answer additional questions as they come up. Prepared childbirth classes are available in the community and doula support is widely available and utilized frequently in our pregnant population.

Q110

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

We have a formal joint journal club with OB anesthesia faculty/residents and OB faculty/residents approximately 1 x per month, discussing relevant journal articles such as: anticoagulation in pregnancy, epidural anesthesia, etc.

The OB anesthesia faculty participate in the education of OB attendings, residents, and fellows by giving multiple formal lectures in both the OB resident and fellow didactic series and departmental grand rounds. These topics vary each year and are aligned with the CREOG learning objectives. Recently they have focused on: hemorrhage, blood product replacement, ABG assessment, local anesthetics, epidural anesthesia, maternal cardiac disease, etc.

Additionally, significant informal education to these providers takes place during simulation sessions above and during the daily sign out, when we discuss the obstetric and anesthetic implications of the peripartum state and co-morbidities of our patients.

The obstetric anesthesia medical director provides the formal didactic obstetric anesthesia education to the student nurse midwives.

Q111

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

The anesthesia resident education curriculum is as follows:
2 months of dedicated OB anesthesia, one "OB Basic" Month and one "OB Advanced" Month. In addition, residents take 24-hour weekend OB call shifts approximately once every 2 months after completing their "OB Basic" month. Our residents, during their training, accumulate, on average, over 150 epidurals and over 100 spinal anesthetics.

OB Basic Rotation:
Residents have 3 weeks of daytime anesthesia coverage and 1 week of night-time coverage. During their day-time shifts they have a dedicated OB anesthesiologist attending coverage. During their evening coverage, they have direct supervision by the in-house attending anesthesiologist Monday - Thursday and a dedicated OB anesthesiologist faculty on Fri - Sun. This will be changing to 24/7 coverage by an OB anesthesiologist faculty in 2024.

OB Advanced Rotation:
2 weeks of night-time coverage with direct supervision by the in-house attending anesthesiologist and 2 weeks of day-time coverage with the "OB Basic resident" where they help to facilitate the "Basic" resident's education, coordinate care, and continue to perform the duties of an OB anesthesiologist. The advanced resident helps with the daily discussions on educational topics.

Residents are required to read OB introduction Chapter: Miller's Basics of Anesthesia. Chapter 33: Obstetrics. It is recommended they continue reading Chestnut's Obstetric Anesthesia to supplement their formal curriculum outline below.

They have 14 assigned formal educational topics that have been aligned with the ABA content outline. These topics are covered with a required reading consisting of journal article(s) and/or book chapter(s) and are followed up with a formal didactic lecture. The topics are:
Anesthesia for C-section
Physiologic changes of pregnancy
Labor Analgesia
Hypertensive Disorders of Pregnancy
Uterotonics/Tocolytics
Fetal monitoring
Peripartum Hemorrhage
Fetal well-being and monitoring
Neurologic disease in the parturient
Cardiac disease in the parturient
Drug transfer to fetal circulation
Non-obstetric surgery in the parturient
Neurologic complications
Post-dural puncture Headache

After their 2-month experience they have a simulated oral boards final exam that covers multiple common obstetric anesthesia topics such as: epidural troubleshooting, epidural complications, pre-eclampsia, ASRA anticoagulation guidelines, difficult airway, uterotonic medications, maternal hemorrhage, etc. They are formally graded, and this is taken into account for their final formal evaluation.

We do not train CAAs or SRNAs.

Q112

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). * (this is an essential criterion)

Implicit bias training is required annually for all healthcare workers at OHSU. Our anesthesia department has a strong DEI division and keeps our staff and faculty updated with educational opportunities through faculty development and resident lecture series.

In order to help meet the needs of racial and ethnic minority groups at our facility, resources are available for non-English speakers including in-person interpreters for the most common languages in our community including Spanish and Russian, video interpreters for other languages, and phone interpreters available over Vocera speakers. We have written anesthesia consent forms and informational packets available for printing in multiple languages.

To further support our racial and ethnic minority groups, we employ doulas from a diverse background. These doulas are approved and sanctioned by our facility for labor support for any patient who asks for them.

Our entire OB unit and all OB staff are required to 16 hours of Trauma-Informed Care training.

Q113

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). (this is an essential criterion)

The following are parts of our Anesthesia and Perioperative Medicine activities and initiatives to promote DEI actions:

- Diversity Action Council – group of residents, fellows, and attendings who are from underrepresented backgrounds that foster community and provide mentorship
- APOM Anti-Racism Task Force – group of folks from all of APOM (faculty, staff, researchers, admin, etc.) who work to promote DEI practices and promote an antiracist department
- Women in Anesthesia group - this group focuses on the empowerment of female/woman identifying individuals in APOM and has recently opened up to include gender diverse individuals as well
- Participation in Building Blocks 2 Success – an ASA grant to assist with teaching local high school students about STEM to promote their interest in careers in STEM or medicine
- Sponsorship for health equity interns – OHSU has a program for underrepresented students interested in careers in medicine every summer and APOM often hosts 1-2 of these students in their labs and provides shadowing opportunities for them
- Unconscious bias training – most recently we had over 50% of our department members complete this training; all hiring managers and folks involved with learner interviews and hiring interviews are required to complete this training
- Bystander training – working on a grand round lecture for this in the academic year
- Microaggressions – sessions done for junior faculty development course; lecture given to residents earlier this year
- Residency – we have four sessions throughout the year called Anti-Discrimination Round Table where we bring up topics surrounding DEI issues, such as identity formation, allyship, importance of names, microaggressions, health equity, the minority tax, etc.
- Creation of a Senior Director of DEI who oversees missions of the department regarding DEI and alignment with the school of medicine
- Participation in the GME Faculty Diversity Advancement Pathway – two branches exist, one for junior faculty (we have one person from APOM doing that this year), and one for residents (we have 5 residents participating in these sessions throughout the year)

Our L&D staff, nurses and techs, are offered bystander response training and de-escalation training.

Page 10: Recommendations and Guidelines Implementation

Q114

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:● Platelet count prior to neuraxial block placement: No requirement for routine testing in healthy patients● Appropriate liquid and diet restrictions: Intrapartum (allow clear liquids in uncomplicated patients); cesarean delivery (clear liquids up to 2 hours prior)● Timing of neuraxial analgesia: Allow neuraxial analgesia in early labor (no specific cervical dilation required)

Our anesthesia department strives to practice in accordance with the ASA Practice Guidelines for Obstetric Anesthesia with the following practices:
No requirement for routine platelet counts in healthy parturients prior to neuraxial placement.
We allow clear liquids in uncomplicated laboring patients.
We allow clear liquids up to two hours prior to cesarean section.
We allow labor epidurals to be placed in early labor and encourage early epidurals in high-risk patients.
We have a robust communication system for early and ongoing contact between the obstetricians, anesthesiologists, and nursing staff, with work spaces situated in close proximity to each other.
We do not routinely order a blood type and crossmatch for uncomplicated patients.
Fetal heart rate patterns are monitored and documented by an RN before, during (when possible), and after neuraxial placement for labor.
Patients undergoing elective surgery do not have solids for 6-8 hours prior to their surgery, depending on the type of solid ingested.
Early epidurals are offered to our patients attempting TOLAC.
We use a dilute solution of local anesthetics in our labor epidural solutions (0.0625% bupivacaine).
We add opioids (fentanyl 2 mcg/ml) to our labor epidural solution.
Only pencil point spinal needles are available in L&D for neuraxial use.
CSE and DPE techniques are offered to appropriate candidates for labor analgesia.
PIEB with PCEA is utilized for most patients.
Nitroglycerin SL is available in all OB ORs in our anesthesia medication trays.
Anesthesia for retained placenta is performed under epidural anesthesia is the patient has a working epidural and is hemodynamically stable, spinal anesthesia if no epidural catheter in place and patient is hemodynamically stable, or general anesthesia with ETT is used if patient is hemodynamically unstable.
We have equipment, facilities, and support personnel in L&D comparable to that in the main OR.
We have equipment and supplies to treat complications of anesthesia readily available in L&D.
We primarily provide neuraxial anesthesia for C/S unless medically contraindicated or patient refuses.
Left uterine displacement is placed and maintained once a neuraxial block is placed until after delivery.
We utilize a combination of preloading and coloading to prevent hypotension prior to and during neuraxial placement.
We start prophylactic phenylephrine infusion at time of spinal placement for C/S and have bolus phenylephrine and ephedrine immediately available.
We perform most PPTLs with neuraxial anesthesia unless medically contraindicated or patient refuses.
We have blood available through a massive transfusion protocol and cell salvage capability readily available, when the situation requires.
We have a difficult airway cart stocked with appropriate emergency airway equipment located in the OB OR suite common area.
Basic and advanced life support equipment is available in the OB OR suite common area including a fully stocked crash cart.

Q115

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

Our maternal cardiac arrest protocol follows the AHA 2010 maternal cardiac arrest algorithm. We have laminated copies of this algorithm in each OB OR, on the labor epidural cart, and posted in our OB anesthesia office. Manual uterine displacement is maintained while CPR is in progress. A perimortem cesarean delivery is started if no return of spontaneous circulation has occurred within four minutes after CPR started.

Q116

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

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

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Q117

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● Severe Hypertension in PregnancyRecommendation: institutions should consider implementation of all available safety bundles.

Obstetric Hemorrhage
Readiness: We have a fully stocked hemorrhage cart that we place outside a patient's room if they are deemed to be a high risk for PPH. This cart includes a Bakri balloon and sutures and contains a checklist and PPH treatment instructions on top of the cart.
Recognition and Prevention: All patients are assessed on admission using a PPH risk tool and that score is visible on the EPIC board for all patients. Patients are reassessed if their condition changes and the risk score is updated in real-time for all staff and faculty to see.
Response: We have a checklist that is followed for all patients experiencing a PPH. This is standardized to our unit and is stage-based to appropriately treat patients depending on what stage hemorrhage they are having.
Reporting and System Learning: We have huddles for patients at high-risk for obstetric hemorrhage that include nursing, obstetricians, and anesthesiologists and debrief all cases of hemorrhage > 1500 mls. All patients with QBL > 2000 mls have their care reviewed by our Perinatal QI Committee and feedback is provided.

Severe Hypertension in Pregnancy
Readiness: We perform unit-based drills with debriefs that include nursing, obstetricians, anesthesiologists, and midwives.
Recognition and Prevention: All women presenting to L&D triage have their BP assessed and labs are sent, including urine protein. BP is regularly taken throughout their stay, including postpartum.
Response: We have standard protocols for treating severe hypertension, eclampsia, and postpartum presentation of severe hypertension. These protocols include notifying the physician if sustained SBP > 160 or DBP > 110 for greater than 15 minutes and treating quickly with escalating doses of antihypertensives per the protocol.
Reporting and System Learning: We hold a multidisciplinary huddle with nursing, obstetricians, and anesthesiologists for high-risk patients and debrief after sentinel events. Patients who are admitted to the ICU are reported to our Perinatal QI Committee for review and feedback.

Q118

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.

At our multidisciplinary Board Signouts at 0700 and 1730, all patients on L&D and antepartum are reviewed. Patients who are receiving thromboprophylaxis are identified by the obstetricians and their thromboprophylaxis regimen is stated with medication, dose, and timing of last dose of medication. The anesthesiologist states whether neuraxial anesthesia/analgesia would be an option, based on the medication administration time and discusses alternative options or adjustments such as holding medication if the patient's situation warrants this in order to be able to have neuraxial anesthesia, if C/S or labor epidural is desired in order to avoid GA for C/S or to allow labor epidural to be placed, if patient wishes.

Q119

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

For patients who have thrombocytopenia and the absence of other risk factors for bleeding, we place neuraxial anesthesia/analgesia with platelet counts of 70,000 or higher.

Page 11: Quality Assurance and Patient Follow-up

Q120

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.

We have an obstetric anesthesiologist who is on the ERAC development team and has been actively involved in developing the ERAC protocol that is planned to roll out in November 2023. An obstetric anesthesiologist leads our anesthesia Quality Improvement committee, and our OB Anesthesia medical director helps to choose patient care initiatives to focus on during monthly meetings. Current areas of focus for patient care initiatives on our OB Quality Dashboard include prevention of hypotension during cesarean section, general anesthesia for cesarean section, OB dural puncture complications, and time from epidural request to epidural placement.

Q121

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.

Obstetric Anesthesia Medical Director - serves on Perinatal Best Practice Group, serving on the Design Development Team for the new Labor and Delivery Unit hospital addition, Perinatal Case and Peer Review Committee, Complex Fetal Care Patient Case Planning Team, Fetal Surgery Committee, APOM Clinical Leadership Team, Fetal Surgery SIM group.

Other members of the obstetric anesthesia team serve on the following institutional and departmental committees:
Institutional Review Board, Continuous Quality Improvement Committee, Resident Education Curriculum Committee, Medical Student Admissions Committee, Clinical Competency Committee, Anesthesia and Perioperative Medicine Education Committee, Anesthesia and Perioperative Medicine Admissions Committee, APOM Research Day Abstract Review Committee-Chair clinical research, APOM Oregon Scholars Program Committee, Resident Scholarship Oversight Committee, APOM Clinical Research Oversight Committee, Morbidly Adherent Placenta Team, Residency Program Evaluation Committee, OHSU CCG Clinical Care Guidelines Committee on Postpartum Hemorrhage.

Q122

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).*Recommendation: 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 have a surgical procedure in L&D are seen prior to PACU discharge by an anesthesiologist and evaluated to ensure they meet discharge criteria from PACU. When patients on L&D have an anesthesia procedure, they are placed in an "obstetric anesthesia" list in EPIC. Each day, an OB anesthesia resident and/or faculty anesthesiologist or CRNA visits the post-procedure or post-surgical patients and evaluates them for any complications and for satisfaction of their anesthesia experience. A post-operative anesthesia evaluation is documented in EPIC. If the patient is doing well and has no concerns and doesn't require further follow-up, their name is removed from the list.

Q123

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

When patients have an anesthesia-related complication, their name and complication are retained on our "obstetric anesthesia" list in EPIC and they are rounded on daily, or more frequently if the situation requires, until discharged or until the symptoms resolve. A progress note is added in EPIC with each patient visit. Phone calls after discharge are done for those patients whose symptoms did not fully resolve prior to discharge. Complications are discussed with the obstetricians so the patient will not be discharged prior to appropriate treatment or follow-up arranged for management of the complication. If the patient has concerning symptoms such as lower extremity weakness, sensory deficits, incontinence, we obtain appropriate testing/consults prior to the patient being discharged to ensure no serious complications such as epidural abscess or hematoma are present.

Q124

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?* Recommendation: outpatient PDPH should be evaluated and treated on the obstetric unit and not in the emergency department.

Patients who complain of a postural headache post-neuraxial procedure are evaluated by an anesthesiologist resident and faculty. Depending on the severity of the headache and the symptoms (consistent with PDPH or not), the patient may be offered conservative management (if mild), may be offered an epidural blood patch (if symptoms consistent with PDPH and moderate to severe headache), or imaging may be recommended (if symptoms are severe but not consistent with a PDPH). If the patient has a known dural puncture with a large Tuohy needle and complains of a postural headache, a blood patch is offered early. All EBPs in obstetric patients are performed by an anesthesiologist, usually a resident on their OB anesthesia rotation along with the obstetric anesthesia faculty. All obstetric EBPs are performed in L&D, in the patient room if they are an inpatient and in a L&D triage room if they are coming in from home. If a postpartum patient calls to say they are coming in from home for evaluation of a headache, they are instructed to report to L&D triage, not to present to the ED. The obstetric anesthesiologist covering L&D is notified and will then evaluate the patient upon arrival and manage appropriately based on the presenting signs and symptoms and physical examination findings.

Q125

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.

Several members of our OB anesthesia team are active participants in multidisciplinary root cause analysis, including the medical director. Maternal case conferences include the OB anesthesiologist involved in the case plus the medical director. Our Anesthesia QI director is a member of our OB team and is present for most of these activities.

Recently, through a maternal case conference, we established that there was a breakdown in communication that led to a patient being rushed from the CVICU to the OR for a STAT C/S and circumstances led to less-than-optimal conditions. The subsequent case conference uncovered a lapse in communication due to systemic factors requiring multiple people to be paged individually from the ICU in the event of an emergency C/S. From this case, a new paging group was developed that requires the ICU nurse to only call one number to mobilize OB, ICU, anesthesia, OR, L&D nursing, NICU personnel needed for the case. This new paging group has subsequently been successfully used for emergent situations for pregnant patients in the ICU.

Q126

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

With our post-operative rounds, we ask about the patient's experience with her anesthesia care, specifically asking about satisfaction with the experience and if she has any concerns. If there are patient concerns reported in daily safety rounds or directly by a nurse or other provider, when patients are inpatients, a member of the OB anesthesia team sees the patient to address her concerns. All patients are sent a survey by the hospital after discharge requesting feedback on their birthing experience.

Page 12: Supplemental Documentation

Q127

Please upload the CV of the lead Obstetric Anesthesia #1

OHSU%20CV.docx (75.1KB)

Q128

Please upload supplemental documentation #2.

Job%20Aide%20OB%20Doc%20and%20assesment%20standards.docx (44.2KB)

Q129

Please upload supplemental documentation #3.

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emergency%20CS%20protocol.jpg (1.7MB)

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uterotonic%20protocol.jpg (1.6MB)

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OB%20nitrous%20oxide%20job%20aie.pdf (58.1KB)

Q134

Please upload supplemental documentation #8.

Postpartum%20Hemorrahge%20Updates%20May%202023%20(1).pdf (1MB)

Q135

Please upload supplemental documentation #9.

Postpartum%20Hemorrhage%20CCG%20.%20docx%20(2).docx (75KB)

Q136

Please upload supplemental documentation #10.

SUD%20in%20pregnancy%20CCG.pdf (543.1KB)