SETRAC Maternal Mortality & Morbidity Workgroup
List of Maternal QAPI Triggers based on CDC Severe Morbidity Indicators and Findings from Texas Maternal Morbidity & Mortality Review Committee (2020)

Assembled by Eugene Toy, MD, Catherine Eppes, MD, MPH, Christina Davidson, MD,
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Background: In contrast to neonatal outcome quality markers, maternal QAPI triggers have not been well studied and a consensus has not been reached. The CDC and ACOG have proposed some measures, but these have not been validated and not widely used such as by a wide variety of hospitals.

Methodology: Through discussion and consensus, the Maternal Mortality and Morbidity workgroup of SETRAC has developed a listing of maternal QAPI triggers after careful consideration from various levels of hospitals, volumes, risk, and regions. The QAPI triggers are divided into routine triggers (intended for more regular review) and diagnoses which require a sampling of cases.

- Data: Hospitals should collect data on the incidence of the following maternal complications with sufficient timeliness to allow for investigation of trends and improvements. Cases associated with severe harm or potential for severe harm (near miss) should be delineated. As actions plans and event resolution is documented, the fraction of those cases reviewed may also decrease.
- Review
    - There should be 100% review of cases associated with severe harm (maternal death and other sentinel events for example).
    - With other diagnoses, there should have a sufficient fraction of cases reviewed based on the severity of associated harm or potential harm and number of cases (is incidence outside expected).
    - The level of review should be targeted toward the severity of harm/potential harm and complexity of the case.

I. ROUTINE TRIGGERS FOR DATA COLLECTION:

A. Needing 100% review

Maternal death = death of a woman from direct or indirect obstetrical causes. Usually divided into early maternal death (pregnancy or within 42 days of delivery), and late maternal death (more than 42 days but less than one year after delivery).

Sentinel event = Patient safety event resulting in death, permanent harm, or severe temporary harm. Obstetrical examples include unanticipated death of a full term infant (intrapartum death), or unintended retention of a foreign object in a patient after an invasive procedure including surgery.

Cardiac arrest[3] = absence of cardiac pump activity necessitating initiation of chest compressions (CPR).

Urgent request unrecognized[8] = nurse or provider does not recognize the urgent clinical situation, which may lead to maternal or fetal mortality or significant morbidity. Examples may include significant hemorrhage such as exceeding 1000 mL, category 3 fetal heart rate tracing, or respiratory distress.

Uterine rupture with significant fetal or maternal complication = complete spontaneous disruption of the layers of the uterus (serosa, myometrium and endometrium) which may or may not lead to extrusion of the fetus, cord, or placenta outside of the uterine cavity associated with severe fetal/maternal complication such as fetal death or need for hysterectomy.

Peripartum hysterectomy = hysterectomy performed at the time of the delivery or any time from delivery to discharge during the same hospitalization.

Unanticipated return to operating room = any secondary procedure required as a direct complication resulting directly or indirectly from the index procedure, such as emergency laparotomy after cesarean section for suspected hemorrhage.

Any Cases in Category B with severe harm or potential harm (near miss)

B. Needing Sufficient Fraction of Cases Reviewed

Transfusion equal or exceeding 4 units during hospitalization[1] = requiring 4 or more units of packed red blood cells during single hospitalization.

Massive hemorrhage/transfusion[1] = 1500 mL blood loss or more over a 4 hour period of time, need to treat coagulopathy due to blood loss, or any blood loss seriously compromising life of the patient.

DIC[1] = Disseminated intravascular coagulopathy. Defined as systemic intravascular coagulation leading to microvascular dysfunction and organ dysfunction, depletion of platelets and coagulation factors. Diagnosed by platelet count < 100,000/mm3, prolonged INR or prolonged aPTT at least > 1.5 control, decreased fibrinogen level < 250 mg/dL, and increased fibrin degradation products.

Placenta adherent spectrum disorder (accreta) [1] = abnormally adherent placenta to or through the uterus either clinically evident or via pathology. This is not including retained placenta such as with an out of hospital birth.

Preeclampsia with severe features[2] = hypertension (pregnancy > 20 weeks or postpartum and 140 systolic or 90 diastolic accompanied by proteinuria [> 0.3 Protein-to-creatinine ratio] and evidence of severe disease [examples not all inclusive: eclampsia, pulmonary edema, elevated LFT, thrombocytopenia, fetal growth restriction, severe unremitted headache, renal insufficiency or oliguria, or BP >=160 systolic or >= 110 diastolic)

Chronic hypertension with superimposed preeclampsia with severe disease[2] = Hypertension prior to 20 weeks gestation with exacerbation of blood pressure in the severe range and/or evidence of end-organ dysfunction (definition = see preeclampisa with severe features).

HELLP syndrome[2] = constellation of hemolysis (evidence of abnormal peripheral smear or elevated LDH > 600 U/L, elevated liver enzymes (AST or ALT > 70 U/L), and low platelets (< 100,000/mm3).

Eclampsia[2] = new onset of generalized tonic-clonic seizures in a woman with preeclampsia, usually > 20 weeks gestation or postpartum.

Acute MI[3] = evidence of myocardial infarction based on ECG changes and cardiac enzymes or imaging findings.

Cardiomyopathy[3] = decreased left ventricular ejection fracture below 45%; when systolic dysfunction in the absence of other causes, is labelled peripartum cardiomyopathy.

Acute heart failure[3] = broad term which encompasses rapid worsening of symptoms from cardiac functional or structural conditions leading to the inability of the heart to deliver oxygen and/or substrates to tissue, most commonly due to cardiomyopathy but also may be due to other pathologies such as cardiac valvular or rhythm disorders.

Sepsis/infection[4] = infection with life-threatening condition such as organ dysfunction, hypotension (systolic BP < 90 systolic) resistant to fluid resuscitation, or lactic acid level > = 2 mmol/L.

VTE including DVT and pulmonary embolism[5] = deep venous thrombosis and/or pulmonary embolism confirmed by imaging. (NOTE: when imaging is not possible due to the patient's clinical condition, a clinical diagnosis requiring anticoagulation therapy may be used).

Amniotic fluid embolism[5] = clinical diagnosis based on acute hypotension or cardiac arrest, acute hypoxemia, coagulopathy or severe hemorrhage in the absence of other explanations, occurring during labor, cesarean, or within 30 minutes of delivery.

Severe behavioral condition[6]: Severe depression such as associated with suicidal ideation requiring in-patient psychiatric evaluation and hospitalization, psychosis. Drug

intoxication/withdrawal with sustained abnormal vital signs (HR < 120, BP > 160 systolic or < 90 systolic) or delirium or altered mental status. Quantitatively, facilities may choose to use a threshold of 19 or higher on the Edinburgh Postnatal Depression Scale.

Acute renal failure = Serum creatinine level exceeding 1.2 mg/dL without preexisting renal disease, persistent oliguria (< 20 mL/hour x more than 24 hours) or need for dialysis; for those preexisting renal disease, a decrease in calculated GFR by 50% of more or a doubling of the baseline serum creatinine.

Mechanical ventilation or positive pressure ventilation including high flow nasal CPAP. (NOTE: This does not include patients who are using their routine nasal CPAP for obstructive sleep apnea or for suspected OSA).

Acute respiratory distress syndrome = acute inflammation affecting alveo-capillary membrane causing high permeability pulmonary edema, with demonstration of persistent hypoxemia despite high concentrations of oxygen, with a PaO2 to FiO2 ratio of < 300 mm Hg, and bilateral pulmonary infiltrates on chest imaging, and respiratory failure not explained completely by cardiac failure or fluid overload.

ICU admission or to higher level (telemetry) = pregnant of postpartum patient within 6 weeks of delivery requiring admission to the intensive care unit or telemetry unit for more intensive monitoring. (exception – prolonged recovery)

Maternal transfer in or out (intrahospital)= pregnant or postpartum patient transferred to/from another facility.

Organ Space Surgical Site Infection (SSI) = infection within 30 days postoperatively in or around the surgical incision or operative region. SSI's are divided into superficial incisional, deep incisional, and organ or space SSI.

TOLAC = attempt at vaginal delivery after a prior uterine incision.

Uterine rupture without fetal or maternal complication = complete spontaneous disruption of the layers of the uterus (serosa, myometrium and endometrium) which may or may not lead to extrusion of the fetus, cord, or placenta outside of the uterine cavity. (NOTE: This does not include asymptomatic uterine dehiscence or window).

5 minute Apgar < 7, cord pH = < 7.0 and Base Excess of -12 mEq/L or worse, transfer for HIE[7] = These are parameters which correlate to fetal hypoxemia or metabolic acidemia.

Neonatal birth injury[7] = impairment of the neonatal body structure due to an adverse event during labor or delivery process. Examples include fractured clavicle or Erb palsy.

Unanticipated fetal anomaly[7] = congenital anomaly which was not diagnosed antepartum. As many as half of fetal anomalies cannot be diagnosed with antenatal ultrasound; yet many malformations are readily diagnosed such as anencephaly, most abdominal wall defects, and hypoplastic left heart. (To improve care)

Category 3 or Category 2 FHR Tracing with High Suspicion of or documented Adverse Outcome[7] = fetal heart rate tracing corresponding to likely acidosis or severe fetal derangement warranting immediate intervention, high risk of fetal death or organ dysfunction. Examples include fetal bradycardia without recovery, deep and prolonged repetitive variable decelerations with absent/minimal FHR variability and absent accelerations, sustained repetitive late decelerations with absent/minimal absent FHR variability and absent accelerations. (NOTE: Adverse neonatal outcome – see 5 minute Apgar, cord pH, transfer for HIE)

Stat Cesarean Delivery = cesarean performed in the most expeditious manner, usually requiring general anesthesia, and splash abdominal prep.

Shoulder dystocia[7] =vaginal cephalic delivery that requires additional maneuvers to deliver the fetus after the head has delivered and gentle traction has failed; some experts recommend using a head-to-body delivery time exceeding 60 seconds.

Urgent request provider/anesthesia/consultant delay to bedside upon request[8] = delay in arrival of the requested provider, anesthesia staff/provider, or consultant to the bedside for an urgent clinical request. Usually beyond 30 minutes from notification.

C. Other Considerations (hospitals may elect to review)

Mild preeclampsia: maternal patients beyond 20 weeks gestation with hypertension but not severe range blood pressures and not with end organ dysfunction.

PPH but not massive hemorrhage: vaginal delivery or cesarean with blood loss between 1000 mL and 1500 mL.

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1 Postpartum hemorrhage = #1 cause death in hospital; Other causes: 2 Hypertensive disease, 3 = Cardiovascular including heart failure/cardiomyopathy; 4 = Sepsis/infection; 5 = VTE; 6 = severe

behavioral condition (suicide and opioid overdose = #1 cause of death after 60 days); 7 = fetal/neonatal; 8 = Process trigger (urgent request)

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