**Blunt Abdominal Trauma in Pregnancy**

**Background**

**Anatomy**
- **First trimester**
  - Uterus is an intrapelvic organ
  - Uterus is thick walled - providing muscular protection

- **Second trimester:**
  - Uterus rises out of the bony protection of the pelvis.
  - Small fetus protected by relative abundance of amniotic fluid.
  - Uterine wall still relatively thick

- **Third trimester**
  - Uterus large and now thin walled
  - If cephalic, then fetal head is protected – remainder of fetus exposed.
  - Maternal pelvic fractures can result in fetal skull fractures.
  - Maternal bowel is relatively well protected cephalad to the fundus.
  - Uterus and fetus become more vulnerable as they absorb more energy from trauma.
  - During the last two weeks of gestation, the fundus descends as the fetal head engages in the pelvis.
  - 25% increased risk of hepatic or splenic maternal injuries after blunt trauma

**Physiology**
- The myometrium is somewhat elastic, while the placenta is relatively inelastic.
- The relative inelasticity makes the placenta subject to shear forces, e.g. placental abruption.
- The placental vasculature is maximally dilated, yet the uterus is exquisitely sensitive to catecholamine stimulation. An abrupt decrease in maternal intravascular volume can result in a profound increase in uterine vascular resistance - reducing fetal oxygenation, despite reasonably normal maternal vital signs.
- If clinically significant placental abruption is present, it is most evident within the first 4 hrs. (Dahmus 1993, Mendez-Figueroa 2013)
- Pregnant women have higher rates of severe abdominal and extremity injuries compared to non-pregnant women.

**Maternal Changes**

**Cardiovascular**
- Cardiac output increases 40% due to an increase in HR and stroke volume.
- Blood pressure decreases in first trimester, lowest in the second trimester, and return to normal in the third trimester.
- Increase in blood volume by 30% and plasma volume by 50% - this occurs within the first trimester.
- Because of these changes, signs of hemorrhage (tachycardia, hypotension, fetal HR changes) may not occur until a 20% blood loss.
- Gravid uterus causes the heart to be shifted up and to the left, this can cause ECG changes with left axis deviation, depressed ST segments, inversion or flattening of T-waves.
- After 20 weeks, the gravid uterus can compress the inferior vena cava causing a decrease in venous return and stroke volume resulting in decreased cardiac output.
Decreased fibrinolysis with resultant increased fibrinogen, coagulation factors, and an increased risk of VTE.

Respiratory
Diaphragm is elevated up to 4cm.
Increased oropharyngeal edema and hyperemia with resultant increase in difficulty of intubation.
Decreased total lung capacity with decreased residual volume and increased minute ventilation.
Increased oxygen consumption (up to 20%)
Maternal acidosis should be avoided as a baseline respiratory alkalosis in pregnancy facilitates maternal-fetal gas exchange.

**Rh D alloimmunization**
Fetomaternal bleeding has been reported in 2.6 to 30 percent of pregnant trauma patients. It is more common in women with an anterior placenta or tender uterus. Complications associated with fetomaternal bleeding include fetal anemia, fetal death, and maternal alloimmunization.

Although the exact risk of Rh D alloimmunization is unknown, abdominal trauma is sometimes associated with fetal–maternal hemorrhage, which may lead to alloimmunization. The efficacy of anti-D immune globulin in this clinical situation has not been tested in properly designed trials. However, authorities agree that anti-D immune globulin should be administered to Rh D-negative women who have experienced abdominal trauma in the past 72 hours.

In Rh D-negative pregnant patients who have experienced abdominal trauma, quantification of fetal–maternal hemorrhage should be done to determine the need for additional doses of anti-D immune globulin.

The occurrence and quantification of fetomaternal bleeding is determined by a Kleihauer-Betke test, which measures the percent of red cells containing fetal hemoglobin in maternal blood. Please obtain a Kleihauer-Betke test in Rh(D)-negative women who have undergone significant abdominal trauma to determine whether additional doses of anti-D-immune globulin are needed due to a large fetomaternal infusion of blood (>30mL fetal blood in maternal circulation).

**Mechanism(s):**  (see Appendix 1)
There are many factors to be considered:
- restrained vs unrestrained MVA.
- ejection from automobile ATV or snow machine
- pedestrian / bicyclist: distance thrown, or impact mph.
- falls - distance fallen.

In pregnancy the chest and uterine fundus should be 10 inches (25 cm) from the airbag cover. During pregnancy, the distance to the inferior aspect of the steering wheel decreases to 3.07 - 6.52 cm by 6-9 months gestation. Using these metrics, the pregnant parturient is best served in the back seat as a passenger if possible.

**20 mph airbag deployment**
Although there are various factors involved in the deployment of an airbag, it is commonly understood airbags deploy at speeds of 20 miles per hour and higher.

In a slow speed rear-end collision when airbags do not deploy, the face or abdomen can smash into the steering wheel. The force of the impact can break the nose, fracture the cheek and jawbone, and even
detach the retina. Less serious injuries are lacerations (cuts), contusions (bruises), and abrasions (scrapes) to the face and scalp.

When speeds are higher than 20 miles per hour and airbags do deploy, the impact can result in burning of the facial area and scalp.

Hence, it is important to query the CO and/or witnesses about airbag deployment, or not.

**Definitions:**

**Incidental Trauma**

**History:** Does NOT involve significant direct abdominal injury with rapid compression, deceleration, contrecoup effect, or shearing forces.

**Signs and symptoms:** Do NOT include vaginal bleeding, loss of amniotic fluid, decreased fetal motion, significant abdominal pain, or contractions ≥ 6 / hour.

**Examples:** Slips / falls from the height of a few steps and NOT landing directly on abdomen.

**Minor Trauma**

**History:** Includes any one of the following – direct or indirect abdominal injury with rapid compression, deceleration, contrecoup effect, or shearing forces.

**Signs and symptoms:** Include any one of the following - vaginal bleeding, loss of amniotic fluid, decreased fetal motion, significant abdominal pain, or contractions ≥ 6 / hour.

**Example:** Restrained motor vehicle occupant < 20 mph

**Major Trauma**

**History:** Includes any one of the following – significant direct or indirect abdominal injury with rapid compression, deceleration, contrecoup effect, or shearing forces.

**Signs and symptoms:** Include any one of the following - vaginal bleeding, loss of amniotic fluid, decreased fetal motion, significant abdominal pain, or contractions ≥ 6 / hour.

**Other:** Shock, skull fracture, cerebral contusion, intracerebral hemorrhage, spinal column fracture, chest injury necessitating thoracotomy / thoracostomy, injury of abdominal viscera / GU tract treated in the operating room, or pelvic fracture.

**Example:** Non-restrained motor vehicle occupant
Management: Clinically stable

Assumption
The following management processes assume the patient has already had a prenatal blood type and Rh factor determined. If that test has not been completed previously during this pregnancy, please obtain it as an initial step in the evaluation. (Figure 1)

First step
Please see the ANMC Trauma Service’s Activation Criteria Guideline. (See Appendix 1)

Incidental Trauma

Less than 4 hrs since event

EGA less than 23 weeks
Obtain FHTs (if greater than 12 wks EGA)
- If Rh neg, then administer 300 mcg RhoGAM, except isolated extremity injury.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.

EGA greater than or equal to 23 wks
- Obtain NST
- If Rh neg, then administer 300 mcg RhoGAM, except isolated extremity injury.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.

Greater than 4 hrs since the event

- Obtain FHTs (if greater than 12 wks EGA)
- If Rh neg, then administer 300 mcg RhoGAM, if < 72 hrs, except isolated extremity injury
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED

Minor Trauma

Less than 4 hrs since event

EGA greater than or equal to 20 weeks
Monitor for 4 hrs
PE: Abdominal exam
If ≥ 6 ctx per hr, VB, or LOF -> perform SVE when aware of placental location.

A. < 6 ctx/hr in last hour of observation and no LOF, VB, or uterine tenderness
Discharge
- If Rh neg, then administer 300 mcg RhoGAM.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.

B. > 6 ctx/ hr in last hour of observation

24 hr observation
CBC
CBC, CMP or BMP, KB, coags, fibrinogen
Ultrasound
Consider betamethasone if EGA < 37 wks EGA.
Consider neuroprotection if EGA < 32 wks EGA.

- If Rh neg, then administer 300 mcg RhoGAM.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.

C. Rupture of membranes, persistent vaginal bleeding, abdominal pain/cramping/tenderness, or evidence of hypovolemia

Admit
Manage per clinical scenario.
- If Rh neg, then administer 300 mcg RhoGAM.
- CBC, CMP or BMP, KB, coags, fibrinogen
- Seatbelt counseling
- IPV Screening

Greater than 4 hrs since the event

EGA less than 23 weeks
Obtain FHTs (if greater than 12 wks EGA)
- If Rh neg, then administer 300 mcg RhoGAM if < 72 hrs, except isolated extremity injury.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.

EGA greater than or equal to 23 wks
- Obtain NST
- If Rh neg, then administer 300 mcg RhoGAM if < 72 hrs, except isolated extremity injury.
- Seatbelt counseling
- IPV Screening
- Refer to PCP or ED.
Management: Major Trauma or clinically unstable

- Primary Survey w/ABCDEs (Airway, Breathing, Circulation, Disability/Displacement, Exposure); this is typically performed by ED Physicians and/or Trauma Surgeons.
  - Displacement refers to displacement of uterus w/left lateral tilt or manual displacement of uterus to the left.
  - Assess for visceral injury - pregnant woman have a 25% increased risk of hepatic or splenic injuries in setting of blunt trauma; also consider uterine rupture and abruptio placenta
  - Imaging as necessary for medical management
    - If X-rays or CT are clinically necessary indications for use should be the same as for nonpregnant patients
    - FAST exam has similar sensitivity and specificity as nonpregnant patients.
    - Shield uterus when possible
  - Exploratory laparotomy as indicated – Obstetrician should be present when available.
  - Labs to include CBC, CMP or BMP, KB, coags, fibrinogen.

Special Considerations for maternal stabilization in pregnancy
- Given changes to blood volume, clinical signs of hemorrhagic shock may not be present until 20% of blood volume has been lost.
  - Provide 1L isotonic crystalloid, if response not appropriate, move to blood products
  - Consider tranexamic acid 1g IV bolus in 10min followed by 1g IV infusion over 8hrs in the setting of hemorrhagic shock if diagnosed within 3 hours of injury.
  - Vasopressors should be used only when necessary given reduction in uterine blood flow.
- If placement of chest tube is indicated, placement should be 1 to 2 intercostal spaces above typical placement (5th intercostal space) due to elevation in maternal diaphragm.
- If intubation is required, anticipate difficult intubation given increased oropharyngeal edema and hyperemia.
  - In pregnancy, the goal is to maintain respiratory alkalosis w/PaCO2 26-30mmHg in third trimester.
  - Consider AFE in the setting of otherwise unexplained hypotension and hypoxemia following trauma.
- Secondary Survey – occurs after initial maternal stabilization.
  - Complete physical exam
  - Focused history (age, parity, mode of prior deliveries, and any known pregnancy complications)
  - Continuous electronic fetal monitoring and tocometry
  - Bedside US
  - SVE and/or SSE as clinically indicated.

- Manage per clinical scenario.
  - If Rh neg, then administer 300 mcg RhoGAM.
  - Betamethasone if EGA < 37 wks EGA
  - Neuroprotection if EGA < 32 wks EGA

The complete management of major trauma in pregnancy is beyond the scope of this particular guideline but includes the precepts of Advanced Life Support in Obstetrics (ALSO), Advanced Trauma Life Support (ATLS), and Advanced Cardiac Life Support (ACLS). These include:
Modification of BLS
- Manual left uterine displacement.

ACLS
- Use all standard medications and defibrillation.

ATLS (as above)
- Trauma Primary Survey (ABCDEs)

Resuscitative hysterotomy
As a last resort, the team should be prepared to perform a resuscitative hysterotomy (perimortem cesarean delivery) in the obviously gravid female who has not responded to ACLS after four minutes. Please see the ALSO, ATLS, and ACLS chapters on that process.

Other: Counseling

1. Intimate Partner Violence

Intimate partner violence is a major cause of injury to women during cohabitation, marriage, and pregnancy, regardless of ethnic background, cultural influences, or socioeconomic status. Seventeen percent of injured pregnant patients experience trauma inflicted by another person, and 60% of these patients experience repeated episodes of intimate partner violence.

According to estimates from the U.S. Department of Justice, 2 million to 4 million incidents of intimate partner violence occur per year, and almost one-half of all women over their lifetimes are physically and/or psychologically abused in some manner. Worldwide, 10% to 69% of women report having been assaulted by an intimate partner.

Document and report any suspicion of intimate partner violence. These attacks, which represent an increasing number of ED visits, can result in death and disability. Although most victims of intimate partner violence are women, men make up approximately 40% of all reported cases in the United States.

Indicators that suggest the presence of intimate partner violence include:
- Injuries inconsistent with the stated history
- Diminished self-image, depression, and/or suicide attempts
- Self-abuse
- Frequent ED or doctor’s office visits
- Symptoms suggestive of substance abuse
- Isolated injuries to the gravid abdomen
- Self-blame for injuries
- Partner insists on being present for interview and examination and monopolizes discussion.

These indicators raise suspicion about the potential for intimate partner violence and should serve to initiate further investigation. The screening questions, when asked in a nonjudgmental manner and without the patient’s partner being present, can identify many victims of intimate partner violence.
Suspected cases of intimate partner violence should be handled through local social service agencies or the state health and human services department. Two examples for IPV screening are below.

**Assessment of immediate safety screening questions**

1. Are you in immediate danger?
2. Is your partner at the health facility now?
3. Do you want to (or must) go home with your partner?
4. Do you have somewhere safe to go?
5. Have there been threats of direct abuse of the children (if she has children)?
6. Are you afraid your life may be in danger?
7. Has the violence gotten worse or is it getting scarier? Is it happening more often?
8. Has your partner used weapons, alcohol, or drugs?
9. Has your partner ever held you or your children against your will?
10. Does your partner ever watch you closely, follow you or stalk you?
11. Has your partner ever threatened to kill you, him/herself or your children?

**Intimate Partner Violence Screening Questions**

While providing privacy, screen for intimate partner violence during new patient visits, annual examinations, initial prenatal visits, each trimester of pregnancy, and the postpartum checkup.

**Framing Statement**

“We’ve started talking to all of our patients about safe and healthy relationships because it can have such a large impact on your health.” *

**Confidentiality**

“Before we get started, I want you to know that everything here is confidential, meaning that I won’t talk to anyone else about what is said unless you tell me that… (insert the laws in Alaska about what is necessary to disclose).” *

**Sample Questions**

“Has your current partner ever threatened you or made you feel afraid?”
(Threatened to hurt you or your children if you did or did not do something, controlled who you talked to or where you went, or gone into rages) †

“Has your partner ever hit, choked, or physically hurt you?”
(“Hurt” includes being hit, slapped, kicked, bitten, pushed, or shoved.) †

**For women of reproductive age:**

“Has your partner ever forced you to do something sexually that you did not want to do, or refused your request to use condoms?” *

“Does your partner support your decision about when or if you want to become pregnant?” *

“Has your partner ever tampered with your birth control or tried to get you pregnant when you didn’t want to be?” *

**For women with disabilities:**

“Has your partner prevented you from using a wheelchair, cane, respirator, or other assistive device?” ‡

“Has your partner refused to help you with an important personal need such as taking your medicine, getting to the bathroom, getting out of bed, bathing, getting dressed, or getting food or drink or threatened not to help you with these personal needs?” ‡
2. Use of seat belts and air bags and placement of steering wheel.
Pregnant women should continue wearing three-point seat belts during pregnancy. The lap belt is placed across the hips and below the uterus; the shoulder belt goes between the breasts and lateral to the uterus with shoulder harness over the mid-portion of the clavicle. Although there are case reports of maternal and fetal injuries resulting from seat belt use, the overall effect is that seat belts provide significantly more benefit than risk to the mother and fetus in the event of collision.

Pregnant women should adjust the steering wheel upwards towards the face and chest.

The American College of Obstetricians and Gynecologists (ACOG) recommends that pregnant occupants of motor vehicles wear lap and shoulder seatbelts and should not turn off air bags.
References:

Alaska Native Medical Center Trauma Program (Accessed 7/28/19)
http://share.home.anthc.org/anmc/trauma/SitePages/Home.aspx

ANMC Trauma Center Activation Criteria Figure (Accessed 7/28/19)


Alaska Native Medical Center

Trauma Team Activation Procedure #500-09
Reference: Provision of Care, Treatment and Services Policy #500

1. **Policy:**

   The trauma team will be mobilized to provide efficient diagnosis and treatment of patients with major and multiple system injuries.

   A general trauma surgeon and/or an emergency department (ED) physician shall determine the need to mobilize the Alaska Native Medical Center (ANMC) Trauma Team.

2. **Purpose:**

   2.1. To provide a designated team of skilled individuals responding immediately to an acutely injured patient in the emergency department

   2.2. To identify roles and responsibilities of the trauma team personnel at the Alaska Native Medical Center

   2.3. To promote the team concept and provide expedient, quality care for the acutely injured patient

3. **Procedure:**

   3.1. Only the trauma surgeon or ED physician at Alaska Native Medical Center may initiate the trauma team activation process and specify what level of trauma alert to announce. Pre-hospital field triage may trigger activation in accordance with “ANMC Trauma Activation Criteria.” A call will be placed to the ANMC Security Dispatch to announce “Trauma Alert Status One” or “Trauma Alert Status Two” to the Emergency Department with an ETA, if known. After this announcement, designated members of the trauma team will be activated utilizing established hospital communication processes (ex. overhead paging, encrypted texting, etc.).

   3.1.1. The only place a trauma activation can occur is in the emergency department.

   3.1.2. Pediatric Trauma alerts will be activated for patients less than 18 years of age.

   3.1.3. Obstetrics Trauma alerts will be activated for a patient known to be pregnant on arrival of any gestational age.

   3.1.4. Members of a Trauma Team:

       3.1.4.1. Trauma Surgeon
       3.1.4.2. Emergency Department Physician
Alaska Native Medical Center

Trauma Team Activation Procedure #500-09
Reference: Provision of Care, Treatment and Services Policy #500

3.1.4.3. Surgical Resident
3.1.4.4. Pediatric Intensivist – Only Trauma Alert Status One
3.1.4.5. Pediatrician – Only Trauma Alert Status Two
3.1.4.6. Obstetrician
3.1.4.7. ED Charge RN
3.1.4.8. Primary ED RN
3.1.4.9. Secondary ED RN
3.1.4.10. Adult Critical Care RN
3.1.4.11. Pediatric Critical Care RN
3.1.4.12. Obstetrics RN
3.1.4.13. ED Technician
3.1.4.14. Anesthesia – Only Trauma Alert Status One
3.1.4.15. Respiratory Therapist – Only Trauma Alert Status One
3.1.4.16. Radiology Technician
3.1.4.17. Operating Room RN or Technician – Only Trauma Alert Status One
3.1.4.18. House Supervisor or Designee
3.1.4.19. Pharmacist – Only Trauma Alert Status One
3.1.4.20. Emergency Department Clerk
3.1.4.21. Security Officer

3.2. The basic roles and responsibilities of the Trauma Team members are as follows:

3.2.1. Trauma Surgeon

3.2.1.1. team leader for the trauma patient;
3.2.1.2. directs trauma resuscitation;
3.2.1.3. communicates with family on a regular basis as needed; and
3.2.1.4. releases trauma team members when appropriate.

3.2.2. Emergency Department Physician

3.2.2.1. directs trauma resuscitation until surgeon arrives;
3.2.2.2. assists in continued management under the direction of the Trauma Surgeon;
3.2.2.3. manages airway;
3.2.2.4. performs FAST examination; and
3.2.2.5. assumes ACLS leadership role during a cardiopulmonary resuscitation of the trauma patient.

3.2.3. Surgical Resident
3.2.3.1. Assist Trauma Surgeon as directed.

3.2.4. ED Charge RN

3.2.4.1. acts as traffic control for the room;
3.2.4.2. ensures equipment readily available in trauma room;
3.2.4.3. runner for supplies outside of trauma room;
3.2.4.4. delivers lab results to team; and
3.2.4.5. assists with order entry into EHR as needed.

3.2.5. ED Primary RN (recorder)

3.2.5.1. delegation of roles and responsibilities for team members in trauma room;
3.2.5.2. functions as recorder during a trauma alert activation;
3.2.5.3. assures blood and blood products/components are available as needed;
3.2.5.4. activates massive blood transfusion protocol (MBTP) if ordered and ensures lab is notified timely when MBTP is ended (with each pack delivered, ask surgeon if MBTP appropriate to discontinue);
3.2.5.5. documents all verbal orders on the trauma ED order sheet;
3.2.5.6. maintains care of patient after acute resuscitation phase;
3.2.5.7. maintains documentation standards as outlined in ED Documentation Guidelines and/or Trauma Program Requirements; and
3.2.5.8. assigns Licensed personnel to secure patient belongings per Patient Property Procedure #101-05.

3.2.6. ED Secondary RN (patient’s right side)

3.2.6.1. obtain manual blood pressure;
3.2.6.2. inserts IVs on right side and draws blood for lab as needed;
3.2.6.3. obtains labs;
3.2.6.4. administers medications
3.2.6.5. assist airway management as needed;
3.2.6.6. assists surgeons/physicians with right-sided procedures;
Alaska Native Medical Center

Trauma Team Activation Procedure #500-09
Reference: Provision of Care, Treatment and Services Policy #500

3.2.6.7. inserts Foley catheter and obtains urine sample
3.2.6.8. inserts Gastric tube;
3.2.6.9. accompanies patient to radiology as needed; and
3.2.6.10. verifies resuscitation documentation with the trauma recorder

3.2.7. Adult Critical Care RN or Pediatric Critical Care RN (patient’s left side)

3.2.7.1. vital signs (including temperature);
3.2.7.2. place patient on cardiac monitor;
3.2.7.3. administers blood products;
3.2.7.4. inserts IVs on left side and draws blood for lab as needed;
3.2.7.5. assists surgeons/physicians with left-sided procedures; and
3.2.7.6. operates the rapid infuser.

3.2.8. ED Technician (patient’s left side) Completes the following tasks when delegated or directed by Primary ED RN

3.2.8.1. draws blood for labs as requested, labels and sends blood to lab;
3.2.8.2. obtains portable ultrasound machine;
3.2.8.3. obtains height and weight;
3.2.8.4. labels urine sample as requested and sends to lab;
3.2.8.5. runner for supplies, equipment;
3.2.8.6. Completes procedural set up;
3.2.8.7. Starts and stops Video recording as per ANMC Policy; and
3.2.8.8. assists with restocking trauma room after patient disposition.

3.2.9. Anesthesia Personnel

3.2.9.1. available to assist team leader with securing airway as needed;
3.2.9.2. assists with IVs as needed; and
3.2.9.3. completes a pre-operative assessment.

3.2.10. House Supervisor

3.2.10.1. assures all members of the team have arrived;
3.2.10.2. assists with traffic control and ensures ancillary departments have available access to the patient as appropriate;
3.2.10.3. obtains additional personnel as needed;
3.2.10.4. assures proper notification in case of patient demise; and
3.2.10.5. coordinates admission process.

3.2.11. Respiratory Therapist

3.2.11.1. assures availability and function of all respiratory supplies;
3.2.11.2. assists with airway management;
3.2.11.3. draws ABGs; and
3.2.11.4. assists with transport of ventilated patients to radiology and/or disposition unit.

3.2.12. Radiology Technician

3.2.12.1. brings portable x-ray machine to the emergency department;
3.2.12.2. obtains x-rays per physician orders;
3.2.12.3. facilitates transfer of tele-radiology; and
3.2.12.4. prepares for CT scans as applicable

3.2.13. Operating Room RN or Technician

3.2.13.1. completes a pre-operative assessment of the patient;
3.2.13.2. returns to the operating room to prepare the operating room; and
3.2.13.3. assists in transporting the patient from the emergency department to the operating room

3.2.14. Pediatric Intensivist or Pediatrician

3.2.14.1. consults on patients < 18 years of age;
3.2.14.2. assists with the clinical management and assessment of the pediatric trauma patient;
3.2.14.3. collaborate with trauma team leader to determine appropriate radiographic imaging;
3.2.14.4. assumes PALS leadership role during a cardiopulmonary resuscitation of the pediatric trauma patient; and
3.2.14.5. serves as liaison with parent or guardian of the injured child.
Alaska Native Medical Center

Trauma Team Activation Procedure #500-09
Reference: Provision of Care, Treatment and Services Policy #500

3.2.15. Obstetrician

3.2.15.1. consults on a patient known to be pregnant on arrival of any gestational age;
3.2.15.2. assists with the clinical management and assessment of the pregnant trauma patient of any gestational age; and
3.2.15.3. collaborates with trauma team leader to determine appropriate radiographic imaging.

3.2.16. Pharmacist

3.2.16.1. assist with the medication management;
3.2.16.2. obtains medications; and
3.2.16.3. assumes ACLS/PALS medication role during a cardiopulmonary resuscitation of the trauma patient.

3.2.17. ED Clerk

3.2.17.1. prepares trauma packet with patient labels and delivers them to the recorder;
3.2.17.2. responds to emergency department trauma room after patient arrival to obtain patient name;
3.2.17.3. enters “scanned” orders into the electronic health record system; and
3.2.17.4. scans trauma flow sheet into the electronic health record system prior to discharge from the ED.

3.2.18. Security Officer

3.2.18.1. available outside room to assist with traffic control;
3.2.18.2. ensure patient and/or scene safety;
3.2.18.3. aid in compressions (BLS) when delegated by Primary ED RN;
3.2.18.4. assist with patient transfer; and
3.2.18.5. inventory belongings and stores non-evidentiary items when instructed by Primary ED RN.

4. Additional Information

4.1.1. Trauma team personnel will identify their name and designated role upon arrival to the trauma room.
4.1.2. Conversation in the room must be limited to patient care and volume-controlled so accurate documentation occurs. The ability to receive and interpret verbal orders is a priority during the assessment and care of the acutely injured patient. Closed-loop communication is strongly encouraged.

4.1.3. The Trauma Team Leader may identify specific individuals by name to carry out tasks or orders not previously listed in the above procedure, but within individual’s scope of practice.

4.1.4. Learning opportunities are important in Trauma responses, however they should be closely monitored to ensure appropriate and coordinated patient care. At no time should there be more than one individual in a student role at a time. Licensed individuals who are on orientation are not included in this description.

Responsibility: Trauma Committee
Approval: Multidisciplinary Trauma Peer QAI Review Committee; CQC
Written: 1997 (Trauma Response Activation Plan); 7/2020 first time in full ANMC Procedure format
Date last reviewed: August 2017, May 2019, 10/10/2019; 7/2020
Date last revised: August 2017, May 2019, October 2019; 7/2020
Supersedes: 12/01; 12/04; 07/06; 06/09; 05/13; 01/14; 06/14; 03/15; 8/15; 10/19
Clinically Stable

Blunt Abdominal Trauma

Clinically Unstable

Incidental >4hrs from event
- Any EGA: FHR
- RhoGam if RH neg & <7hrs
- Seatbelt/IPV counseling
- Refer ED/PCC

Incidental <4hrs from event
- <23 wks: FHR
- > 23 wks NST
- RhoGam if RH neg
- Seatbelt/IPV counseling
- Refer ED/PCC

Minor, mechanism and no signs/sx
- >4 hrs from event
- <23 wks: FHR
- >23 wks NST
- RhoGam if RH neg & <72 hrs
- Seatbelt/IPV counseling
- Refer ED/PCC

Minor, Mechanism or any sign/sx
- <4 hrs from event
- >20 wks
- Monitor 4 hrs
- PE: Abdominal exam
- If VB, LOF: SVE

<6 ctx in last hr
- no ROM, VB
- NRFHT
- Discharge
- RhoGam if RH neg
- Seatbelt/IPV counseling
- Refer PCC/ED

>6 ctx in last hr
- 24 hr observation
- CBC
- Ultrasound Consider
- BMZ < 37 wks
- Consider KM, Fivrinogen

ROM, VB
- NRFHT’s

Abd pain, cramping, uterine tenderness, hypoovolemia
- Admit, manage per clinical scenario

See Figure 2 Greco 2019
**Trauma Roles**

**Respiratory Therapy**
- Assists with establishing airway
- Prepares and manages ventilator
- Performs ABGs
- Provides O2 for transport

**Trauma Surgeon/Surgery Resident**
- Directs Trauma Team
- Establishes definitive airway
- Directs sequence of diagnostic studies, evaluation and resuscitation
- Provides surgical intervention as indicated

**ED Secondary RN**
- Obtain manual blood pressure
- Insert/assess IV and draw labs
- Pulls and gives meds
- Assist airway management
- Assist surgeons/physicians with right-sided procedures
- Inserts Foley catheter and obtains urine sample
- Inserts NG/OG

**ED Primary RN**
- Delegation of roles and responsibilities for team members
- Recorder of trauma
- Assures blood products are available/MBTP activation
- Documents all verbal orders
- Maintains care of patient after resuscitation

**ED Technician**
- Obtain height/weight
- Labels and sends blood/urine to lab
- Obtains portable ultrasound
- Initiates/stops video recording
- Runner for supplies, equipment
- Completes procedural set ups
- Assists with restocking room after patient disposition
- Assists with application of splints, bandages, and skeletal traction

**Specialty Personnel**
- Anesthesia
- Pediatrician
- Pediatric Intensivist
- Obstetrician

**House Supervisor/Trauma Coordinator**
- Coordinate disposition

**ED Charge RN**
- Acts as traffic control for room

**Obstetrics RN**

**Lab Tech**
- Obtain blood specimen for trauma panel

**Pharmacist**
- Assist with medication management and procurement

**Radiology Tech**
- Waits outside room for portable radiology orders

**CCU/PICU RN**
- Vital signs including temperature
- Place patient on cardiac monitor
- Administers, monitors blood products
- IV insert/assess
- Assist surgeon/physicians with left-sided procedures
- Level 1 fluid warmer/assist with MTP

**ED Physician**
- Secondary non-surgical airway management/resuscitation
- Assist or Performs FAST exam using US

**Communication plan**