

Special Populations

GERIATRIC

“Traumatic injury in the geriatric population is increasing in prevalence and is associated with higher mortality and complications rates compared with younger patients.” (TQIP 2012) Studies demonstrate that a majority of seriously injured older patients fail to return to their pre-injury functional state. Geriatric trauma patients (defined as ≥ 65 for this resource) have unique needs in the trauma bay and after admission.

As a trauma coordinator assure your facility has protocols, guidelines, and/or order sets that address the following:

Trauma evaluation in the Emergency Department:

Consider the following in the Secondary Survey:

Medications:

- Anticoagulants – have a low threshold for assessing for bleeding
- Beta blockers, ACS inhibitors – be wary of their effect on blood pressure and pulse

Medical events that may complicate patient presentation:

- Acute coronary syndrome
- Hypovolemia/dehydration
- Urinary tract infection
- Pneumonia
- Acute renal failure
- CVA
- Syncope

Laboratory Studies:

- Lactic acid or blood gas to determine base deficit
- PT/PTT/INR
- Renal function studies
- Blood alcohol
- Urine toxicology
- Electrolytes

Imaging:

- Liberal use of CT as occult injuries are common in the elderly. Bone loss makes plain film imaging less reliable

Reversal of Anti-coagulation:

- Need a guideline or protocol for anti-coagulation reversal that matches the resources available at your facility.
- A minor mechanism of injury can cause a devastating head bleed to a patient on anti-coagulation. Make certain your facility has a guideline or protocols assuring those in the ED consider this when evaluating patients with same level falls or minor “bumps” to the head.

Inpatient Care:

Mobility

- Geriatric patients are at a higher risk for complications from bedrest. Patients should be mobilized within 48 hours of admission (the sooner the better).
- Assess for fall risk

Mentation

- Geriatric trauma patients are at higher risk for delirium after trauma which is associated with increased morbidity and mortality. Monitor for reversible causes of delirium
 - Wake-sleep disturbances
 - Hypoxia
 - Infection
 - Pain
 - Renal insufficiency
 - Electrolyte disturbances

Medications

- Geriatric patients are more sensitive to certain medications. Use elderly appropriate dosages
- It is generally advised to avoid benzodiazepines in geriatric patients.
- Narcotic use for pain management increases the risk for constipation in patients already at risk for this issue. Include bowel management regimes in all trauma patients and especially those taking narcotics
- Consider early use of non-narcotics
- Assure baseline renal studies have been obtained

Nutrition

- Geriatric patients often suffer from poor nutrition which should be included in the patient's history.
- Cervical spine fractures managed with cervical orthotic devices (such as c-collars) can increase the risk of aspiration. Consider swallow studies for patients at risk.

Pulmonary Toilet

- Geriatric patients have a higher than usual morbidity and mortality from rib fractures. Aggressive pulmonary toilet is essential to prevent atelectasis and pneumonia.
 - Patients must be able to take deep breaths and cough often and effectively. Consider transfer to hospital with rib stabilization capabilities for patients who do not respond to conventional pain regimes.

Discharge Planning

- Discharge planning begins at admission. Evaluate the patient's home environment and resources that may already be in place.
- If the patient is a fall risk, have the provider weigh risk/benefit of resuming home anti-coagulation medications (if relevant).
- Assure clear discharge instructions given to someone who will be assisting the geriatric patient

Geriatric Trauma Performance Improvement:

The trauma PI program should monitor the care of geriatric patients using Geriatric Specific Performance Improvement Indicators.

Geriatric Injury Prevention: SOURCE: [HTTP://WWW.NOMOREFALLSTX.ORG/](http://www.nomorefallstx.org/)

Falls among older adults are costing the US Healthcare System over \$28.2 billion annually. And, with the growing number of seniors, the cost to treat injuries associated with falls is expected to reach \$54.9 billion annually by 2020 if something is not done to alleviate this burden on America. By 2030, one in five Americans will be 65 or older. As our country continues to age, the problem of prevention and planning become paramount in many of our minds, especially in a recession that has lasted longer than the Great Depression. Falls not only cause intense physical pain, but can be even more costly to quality of life. Complex long-term injuries from such conditions as Traumatic Brain Injury (TBI) and long-term damage to joints and excessive recovery periods.

Unnecessary falls can also lead to depression, a sense of worthlessness, or an aversion to public interaction. This can also lead to long-term disability needs requiring costly healthcare or mental health services adding up into the billions of dollars.

The No More Falls Coalition Mission is to prevent falls in the home for our seniors, disabled Veterans and those with disabilities through education and awareness and simple falls prevention methods to include items such as grab bars in the bathroom.

The STRAC Injury Prevention Committee is an available resource to help you institute a fall prevention program in your community.

PREGNANCY

Trauma patients who are pregnant require different treatment. The trauma PI program should monitor the care of pregnant patients using Pregnant Specific Performance Improvement Indicators.

Important information in regards to pregnant trauma patients.

- Plasma volume increases by 40% to 50%, which imparts a natural protection against blood loss; thus, moderate maternal blood loss in trauma may be well tolerated. Loss of 2000mls of blood may not be clinically apparent.
- Maternal blood pressure drops by 20% in the second trimester and returns to baseline at the end of the third trimester.
- Oxygen consumption by the pregnant patient is higher due to increased demand, higher minute ventilation and lower tidal volume due to a gravid fetus impinging on the diaphragm. Oxygen saturations drop rapidly.
- Intubating a pregnant patient is 5 to 8 times more difficult on the term mother due to airway edema and high oxygen requirements. Careful airway decision-making is required.
- Different mechanisms of maternal injury occur in blunt trauma due to the gravid uterus and increased uterine vascularity. The uterus becomes a lower abdominal organ by the 12th week of gestation and blood flow is increased markedly throughout pregnancy. There may be appreciable hemorrhage due to uterine injury or pelvic trauma. Spleen, liver and retroperitoneal organs are injured in up to 25% of blunt trauma injuries.
- A hemodynamic effect of pregnancy is hypotension induced by aortocaval compression by the gravid uterus. Cardiac output can drop 25%. Use a right hip wedge, manual displacement of the uterus or lateral tilt of the immobilized, boarded pregnant trauma patient.

- Up to 40% of severe blunt abdominal trauma is associated with placenta abruption resulting from a rather elastic uterus with a fixed placenta. Shearing forces strip the placenta from the uterus. Instruct pregnant patients on the correct placement of seatbelts in motor vehicles. The pregnant patient should sit as far back from airbags as possible.
- Even minor trauma can result in fetal mortality of 2% to 5%. Fetal monitor the pregnant patient over 24 weeks gestation for at least 4 hours. They may be safely discharged only after a normal physical exam and no contractions or vaginal bleeding.
- Evaluate the pregnant patient like any other trauma patient. If the mother doesn't do well, the baby doesn't do well. Standard x-rays are not contraindicated; this includes CT scanning of the abdomen and pelvis.

Following is an example of how and when to perform evaluation and intervention of the pregnant trauma patient

- Within the first five minutes of Arrival to the ED
 - Notify trauma, neonatal, and C-section teams
 - Restrain/immobilize. Good lighting.
 - Avoid supine hypotension; roll patient to the left using spine board.
 - Receive report from EMS.
 - Apply 100% oxygen.
- The next five to ten minutes the Initial Survey should be performed. This includes the following
 - Airway assessment – intubation may be difficult so have a secondary airway plan.
 - Breathing assessment – 100% oxygen. Mother and fetus tolerate hypoxemia poorly. Semi-supine position minimizes fundal pressure on the diaphragm.
 - Circulation assessment – 2-large bore IVs. Replace volume & control active bleeding.
 - Disability assessment – check pupils.
 - A** – Alert
 - V** – Responds to verbal stimuli
 - P** – Responds to painful stimuli
 - U** – Unresponsive
 - Exposure – Remove all clothing and keep patient warm. Note environmental exposures such as cold, smoke, chemicals, etc.
- The next ten to thirty minutes the secondary survey should be performed and included the following
 - Head-to-toe physical examination with frequent ABCD re-evaluation
 - Obtain SAMPLE history.
 - Apply BP, Cardiac, and SaO₂ monitor.
 - Pain Management
 - Obtain obstetric history – Gravida, Parity, LMP, gestational age, EDC, previous U/S – placental location, pregnancy complications, vaginal bleeding or ruptured membranes.
 - Obtain a pregnancy test on all female trauma patients of childbearing age.
 - Obtain a blood type on all pregnant trauma patients. Women who are RH negative will require Rhogam. Use the Kleihauer Betke test to determine the amount of Rhogam needed to prevent sensitization.
- Then next 30 minutes on going care is preformed and includes the following:

- Stabilize mother then move to fetal evaluation
- Fundal height – after 20 weeks, cm distance from symphysis to fundus equals weeks gestation
- Bedside ultrasound – fetal viability, number, position of fetus, fetal heart rate, placental location, amniotic fluid index.
- Preliminary impression/Working diagnosis
- Triage decision – If gestational age is less than 36 weeks anticipate neonatal resuscitation and NICU may be needed. Consider transport unless imminent delivery is likely. Consider phone consultation with appropriate specialists.
- Follow diagnostic and treatment portals – Trauma, Emergency C-section, Imminent Delivery, etc.

BARIATRIC

According to the World Health Organization (WHO) there are more than 300 million clinically obese patients (WHO, 2009). In the USA, more than 20% of the population that fit in the obese category. Trauma is the 5th leading cause of death in adults. The mortality rate for obese trauma patients is more than eight times that of victims whose weight is within normal limits (Bushard, 2002).

According to Tarnowski Goodell (1996), obese patients come with special challenges. Respiratory failure is common in obese trauma patients and carries a higher mortality rate. Wound care is challenging. Missed injuries such as chest and cardiac contusion can happen due to the difficulty in assessment. DVTs are more pronounced in the obese patients due to difficulty in mobility.

Special considerations for your trauma program related to injured bariatric patients:

- It is important that adequate resources be available to your staff
 - Know transfer services for bariatric populations (example: ambulances and what hospitals have capability for CT).
 - The ED and Hospital should inventory equipment for the Bariatric or Expanded Capacity population. It is advisable to mark each piece of equipment with the weight limit (example: EC 400—for expanded capacity 400 pounds).

Suggested equipment could include:

1. Carts—motorized, extra wide
2. Blood Pressure Cuffs—can use the thigh cuffs, or they make tapered cuffs
3. Doppler for aide in cardiovascular assessment
4. Transfer Device, example: Air Pal or Hovermat
5. Cervical Collars—No Neck Philadelphia or Stout from Miami
6. Splints—most of the time need to be made
7. Limb lifting/holding device for splinting
8. IV supplies—extra-long catheters and use of the Ultrasound Guided IV techniques for nursing
9. Appropriately sized interosseous needles
10. Difficult Airway equipment
11. Commode for bariatric patients
12. Other units outside of the ED:

- a. CT scanner limits
 - b. Which elevators to use
 - c. Availability of inpatient rooms capable of housing bariatric beds
 - d. Availability of bariatric beds (contract versus purchased)
 - e. OR tables weight limit
 - f. Physical Therapy equipment
13. Ambulance Services, including air—know their weight limits and how long to get a bariatric cart for ground. (Most air ambulances have 350 pound limits). Advanced notice is crucial.
 14. Tertiary Care Center notification is helpful before patient transport for preparation of the correct equipment.

LIMITED ENGLISH PROFICIENCY POPULATIONS IN THE ED

- When using an interpreter for a patient, make sure that the interpreter is competent.
- Consider using an interpreting service.
- Medical providers should not rely on patient's family and friends as they may offer opinions and not just the facts.
- If patient requests to use a friend/family member it would be in the best interest of the hospital to have their own interpreter present to make sure that the information is being relayed correctly. Consider having the patient sign a refusal for the interpreter that is provided.