

Blast Injury / Incident

History

- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history / Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/ wheezing / Hypotension

Differential

- Superficial (1st Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2nd Degree) blistering
- Full Thickness (3rd Degree) painless/charred or leathery skin
- Thermal injury
- Chemical – Electrical injury
- Radiation injury
- Blast injury

Nature of Device: Agent / Amount. Industrial Explosion. Terrorist Incident. Improvised Explosive Device.

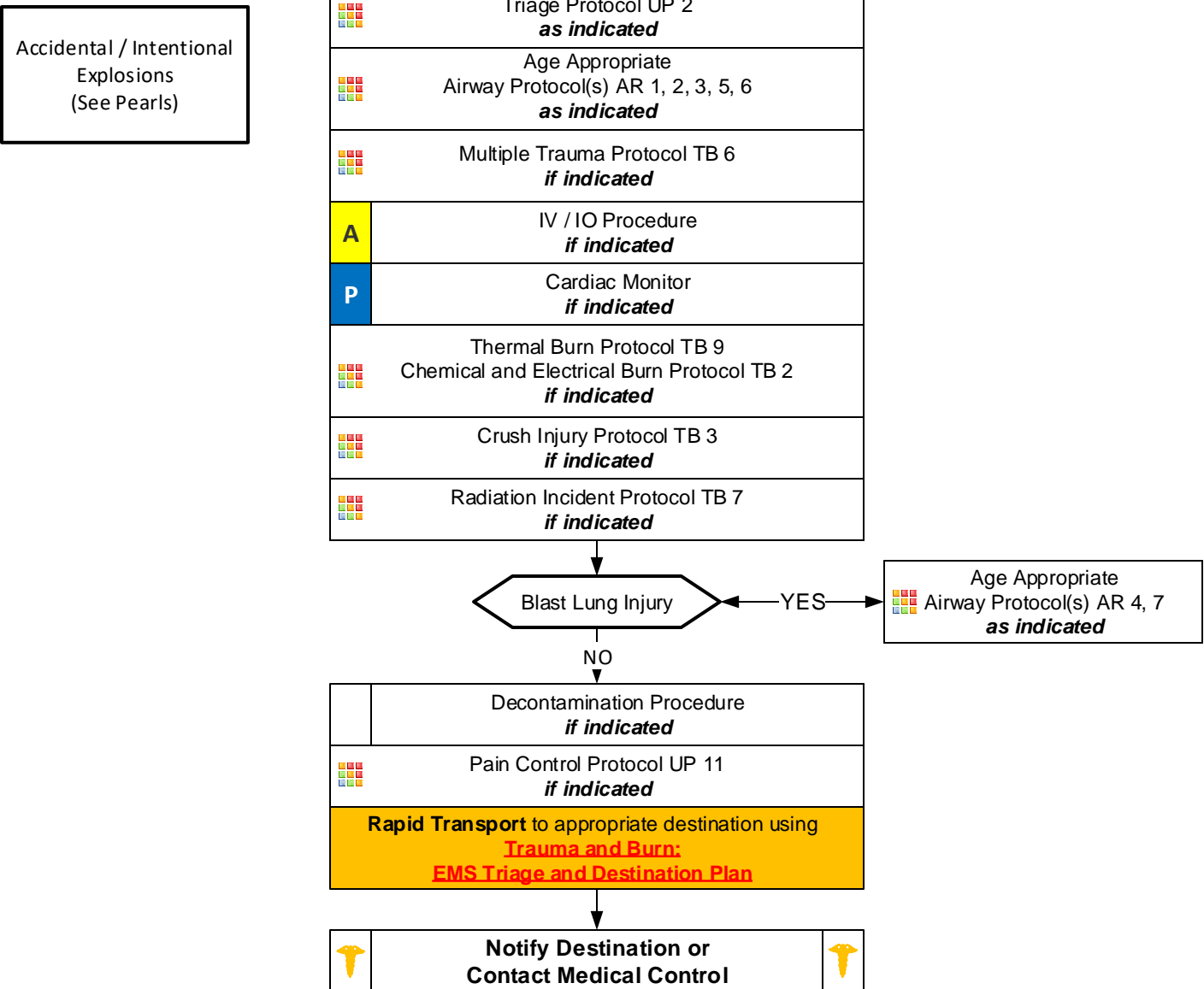
Method of Delivery: Incendiary / Explosive

Nature of Environment: Open / Closed.

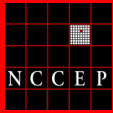
Distance from Device: Intervening protective barrier. Other environmental hazards,

Evaluate for: Blunt Trauma / Crush Injury / Compartment Syndrome / Traumatic Brain Injury / Concussion / Tympanic Membrane Rupture / Abdominal hemorrhage or Evisceration, Blast Lung Injury and Penetrating Trauma.

Scene Safety / Quantify and Triage Patients / Load and Go with Assessment / Treatment Enroute



Trauma and Burn Protocol Section



Blast Injury / Incident

Pearls

• **Types of Blast Injury:**

- Primary Blast Injury: From pressure wave.
- Secondary Blast Injury: Impaled objects. Debris which becomes missiles / shrapnel.
- Tertiary Blast Injury: Patient falling or being thrown / pinned by debris.
- Most Common Cause of Death: Secondary Blast Injuries.

• **Triage of Blast Injury patients:**

- Blast Injury Patients with Burn Injuries Must be Triageed using the Thermal / Chemical / Electrical Burn Destination Guidelines for Critical / Serious / Minor Trauma and Burns
- Patients may be hard of hearing due to tympanic membrane rupture.

• **Care of Blast Injury Patients:**

- Patients may suffer multi-system injuries including blunt and penetrating trauma, shrapnel, barotrauma, burns, and toxic chemical exposure.
- Consider airway burns which should prompt early and aggressive airway management.
- Cover open chest wounds with semi-occlusive dressing.
- Use Lactated Ringers (if available) for all Critical or Serious Burns.
- Minimize IV fluids resuscitation in patients with no sign of shock or poor perfusion.

• **Blast Lung Injury:**

- Blast Lung Injury is characterized by respiratory difficulty and hypoxia. Can occur (rarely) in patients without external thoracic trauma. More likely in enclosed space or in close proximity to explosion.
- Symptoms: Dyspnea, hemoptysis, cough, chest pain, wheezing and hemodynamic instability.
- Signs: Apnea, tachypnea, hypopnea, hypoxia, cyanosis and diminished breath sounds.
- Air embolism should be considered and patient transported prone and in slight left-lateral decubitus position.
- Blast Lung Injury patients may require early intubation but positive pressure ventilation may exacerbate the injury, avoid hyperventilation.
- Air transport may worsen lung injury as well and close observation is mandated. Tension pneumothorax may occur requiring chest decompression. Be judicious with fluids as volume overload may worsen lung injury.

• **Accidental Explosions or Intentional Explosions:**

- All explosions or blasts should be considered intentional until determined otherwise.**
- Attempt to determine source of the blast to include any potential threat for aerosolization of hazardous materials.
- Evaluate scene safety to include the source of the blast that may continue to spill explosive liquids or gases.
- Consider structural collapse / Environmental hazards / Fire.
- Conditions that led to the initial explosion may be returning and lead to a second explosion.
- Greatest concern is potential threat for a secondary device.
- Patients who can, typically will attempt to move as far away from the explosive source as they safely can.
- Evaluate surroundings for suspicious items; unattended back packs or packages, or unattended vehicles.
- If patient is unconscious or there is(are) fatality(fatalities) and you are evaluating patient(s) for signs of life: Before moving note if there are wires coming from the patient(s), or it appears the patient(s) is(are) lying on a package/pack, or bulky item, do not move the patient(s), quickly back away and immediately notify a law enforcement officer.**
- If there are no indications the patient is connected to a triggering mechanism for a secondary device, expeditiously remove the patient(s) from the scene and begin transport to the hospital.
- Protect the airway and cervical spine, however, beyond the primary survey, care and a more detailed assessment should be deferred until the patient is in the ambulance.
- If there are signs the patient was carrying the source of the blast, notify law enforcement immediately and most likely, a law enforcement officer will accompany your patient to the hospital.