

BLASTS AND EXPLOSIONS

VA/DoD General Guidance

Pocket Guide

PROTECT YOURSELF

Do not enter unstable buildings without back-up, skilled teams, and communication equipment.

Be alert for secondary explosions (timed to go off after a first explosion to injure rescuers).

IMMEDIATE TREATMENT STRATEGIES FOR CARE PROVIDERS

Listen for breathing; look for chest movement; feel for pulse.

Establish an airway:

- Chin lift, jaw thrust, stabilize head, avoid neck movement
- Intubation--Avoid head tilt if neck injury possible
- With mass casualties, a clamp, pin, or towel may be used as an expedient with unconscious victims to keep the tongue out of the back of the throat and maintain the airway.

Perform rescue breathing and chest compression, if indicated.

Cover open chest wound, treat tension pneumothorax (i.e., needle decompression in the short term).

Manage Bleeding

- Control bleeding with pressure
- Internal bleeding should be controlled surgically
- Judicious fluid use to maintain organ perfusion while minimizing bleeding prior to surgical control
 - ✓ Goals: Maintain mentation
 - ✓ Maintain Mean Arterial Pressure 80-85 (Systolic 100, Palpable Radial Pulse of less than 120). Increase infusion rate **only** when goals not met.



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VA access to card: http://www.oqp.med.va.gov/cpg/BCR/BCR_Base.htm

VA access to Personal Emergency Preparedness: <http://www.vethealth.cio.med.va.gov/Pubs/PersPrepare.pdf>

Produced by Employee Education System for the
Office of Public Health and Environmental Hazards and Patient Care Services, Department of Veterans Affairs

Burns

- Cover large surfaces with cleanest covers available (preferably sterile)

Impaled objects

- Do not remove impaled objects
- If object prevents transport (too large, etc.), shorten (saw, cutters, etc.)

Long bone fractures

- Splint to prevent instability and worsening trauma during transport
- Splint to prevent bleeding

Primary Blast Injuries

- Examine Tympanic membrane (TM): if ruptured, consider at risk for pulmonary and hollow viscus injury.
- Pulmonary: if ruptured TM, it may signal pulmonary injury: observe for at least 8 hours for symptoms or O2 desaturation. “Blast lung” is the most common fatal primary blast injury among initial survivors. Signs of severe blast lung usually present at the time of initial evaluation, but have been reported as late as 48 hours after the explosion. The clinical triad of apnea, bradycardia, and hypotension characterizes blast lung.
- Abdominal Injuries: (Gas-containing sections of the GI tract are most vulnerable to primary blast effect.)
 - ✓ Immediate or delayed bowel perforation
 - ✓ Hemorrhage (ranging from small petechiae to large hematomas)
 - ✓ Mesenteric shear injuries
 - ✓ Solid organ lacerations
- Brain Injury (Primary blast waves cause concussion or vascular brain injury (MTBI) without a direct blow to the head.)

Emergency Management Options: Follow your hospital's and regional disaster system's plan.

| TRIAGE | |
|---|---|
| Ranking clinician to evaluate casualties and classify | |
| Categories | Description |
| Urgent | Require rapid intervention to prevent imminent death due to airway obstruction and tension pneumothorax. |
| Immediate | High likelihood of survival in these severely injured patients. They need procedures of moderately short duration. |
| Delayed | Can tolerate delay prior to operative intervention without compromising a successful outcome. |
| Minimal | Remove from triage area rapidly and assign to other staff. |
| Expectant | Treatment would cause unjustified depletion of scarce resources; survival unlikely even with adequate resources; complex or time-consuming cases; made comfortable by any reasonable means. |

RESOURCES-Emergency War Surgery Handbook:
<http://www.vnh.org/EWSurg/EWSTOC.html>

Explosive-related Injuries derived from Centers For Disease Control

| System | Injury or Condition |
|------------------|--|
| Auditory | TM rupture, ossicular disruption, cochlear damage, foreign body. If TM rupture, consider at risk for pulmonary viscus injury |
| Eye, Orbit, face | Perforated globe, foreign body, air embolism, fractures. Up to 10% of all blast survivors have significant eye injuries. |
| Respiratory | Blast lung, hemothorax, pneumothorax, pulmonary contusion and hemorrhage. |
| Digestive | Bowel perforation, hemorrhage, ruptured liver or spleen |
| Circulatory | Cardiac contusion, myocardial infarction from air embolism, shock, vasovagal hypotension, peripheral vascular injury, air embolism-induced injury |
| CNS Injury | Concussion, closed and open brain injury, stroke, spinal cord injury, air embolism-induced injury |
| Renal Injury | Renal contusion, laceration, acute renal failure |
| Extremity Injury | Traumatic amputation, fractures, crush injuries, compartment syndrome, burns, cuts, lacerations, acute arterial occlusion, air embolism-induced injury |

www.cdc.gov/masstrauma/preparedness/primer.pdf

The information in this card is not meant to be complete but to be a quick guide; please consult other references and experts.