These Region 11 Chicago EMS System Protocols, Policies, and Procedures for EMTs and Paramedics are prehospital medical guidelines for patient assessment, treatment, and transportation within the system. They provide a framework for all patient encounters and Online Medical Control should be consulted in situations where there is not clear direction from the written documents.

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REGION 11 – CHICAGO EMS SYSTEM
EMS PROTOCOLS – BLS

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GENERAL

Adult Initial Assessment
Routine Medical Care (RMC)
ADULT INITIAL ASSESSMENT – BLS

I. SCENE SIZE-UP

A. Wear appropriate personal protective equipment (PPE)

B. Assess the scene safety
   1. Evaluate hazards to EMS personnel, patients and bystanders
   2. Determine number of patients
   3. Determine the mechanism of injury/nature of illness
   4. Request additional resources as needed, and weigh the benefits of waiting for additional resources against rapid transport to definitive care
   5. Consider declaration of mass casualty incident if needed

II. INITIAL ASSESSMENT OF ADULT PATIENT

A. Assess General Impression of the patient
   1. Evaluate patient responsiveness using the AVPU scale

B. Primary Survey - Should be Airway-Breathing-Circulation (A-B-C), unless specific circumstances such as cardiac arrest or major hemorrhage where Circulation-Airway-Breathing (C-A-B) is indicated
   1. Airway - Assess for patency
      a. Open the airway as needed using either head-tilt, chin-lift or jaw thrust while maintaining c-spine stabilization as appropriate
      b. Suction airway as needed
      c. Consider use of appropriate airway adjuncts including: oral airway (OPA), nasal airway (NPA), or supraglottic airway device (SGA), as per Advanced Airway Management procedure.
      d. For airway obstruction, see Airway Obstruction protocol.
2. **Breathing**
   a. Evaluate for rate, breath sounds, accessory muscle use, retractions, and patient positioning
   
   b. Administer oxygen as needed to maintain an oxygen saturation of >94% or at 15L by most appropriate method for any critically ill patient (respiratory distress, shock, smoke inhalation, carbon monoxide poisoning, or cardiac arrest)
   
   c. If apneic, see Advanced Airway Management procedure.

3. **Circulation**
   a. Control any major external hemorrhage
      i. Apply direct pressure to wound
      ii. For life-threatening bleeding that cannot be controlled by other means, proceed to Tourniquet Application procedure and/or apply hemostatic agent
   
   b. Assess pulse
      i. Assess rate and quality of carotid and radial pulses
      ii. If none, see Cardiac Arrest Management: Incident Command for Cardiac Arrest (ICCA) procedure.
   
   c. Assess perfusion status via skin color, temperature and capillary refill

4. **Disability**
   a. Calculate GCS as indicated
   
   b. Evaluate gross motor and sensory exam in all extremities
   
   c. Check blood glucose in any patient with altered mental status
   
   d. If acute stroke suspected, perform Cincinnati Stroke Scale and see Stroke protocol.

5. **Expose** patient as appropriate to complaint or mechanism
   a. Be considerate of patient modesty and environmental conditions
   
   b. Apply appropriate intervention to maintain normal body temperature

C. **Secondary Survey** - A full secondary assessment should be completed and documented on every patient unless a critical airway, breathing or circulation problem requires stabilization. It should not delay transport in critical patients. A secondary survey should include the following components:
1. Head
   a. Pupils
   b. Naso-oropharynx
   c. Skull and scalp

2. Neck
   a. Jugular venous distention
   b. Tracheal position
   c. Spinal tenderness

3. Chest
   a. Chest wall bruising or deformities
   b. Retractions
   c. Breath Sounds

4. Abdomen/Flank/Back/Pelvis
   a. Bruising
   b. Distention
   c. Tenderness

5. Extremities
   a. Bruising or deformities
   b. Pulse
   c. Edema

6. Neurologic
   a. Mental Status/Orientation
   b. Motor and sensory exam

D. Obtain Baseline Vital Signs

1. An initial full set of vital signs is required on every patient including: pulse, blood pressure, respiratory rate, pulse oximetry and neurologic status assessment

2. A repeat set of vital signs is required at least every 15 minutes on stable patients and at least every 5 minutes on unstable patients

3. For patients with a cardiac or respiratory complaint or in those where acute coronary syndrome is suspected, request ALS assistance
4. Blood sugar should be checked on any patients with altered mental status or with known or suspected diabetes

5. Continuous waveform capnography must be monitored on any patient with advanced airway management

6. Pain scale should be documented on any patient with a pain complaint

E. Obtain OPQRST History:
   1. **O**nset of Symptoms
   2. **P**rovocation-location, any factors that worsen or relieve symptoms
   3. **Q**uality of symptoms or pain
   4. **R**adiation of pain
   5. **S**everity of symptoms-pain scale
   6. **T**ime of onset and circumstances surrounding onset

F. Obtain SAMPLE History:
   1. **S**ymptoms
   2. **A**llergies
   3. **M**edications
   4. **P**ast Medical/Surgical History
   5. **L**ast oral intake
   6. **E**vents leading up to emergency call

G. Reassessment
   1. At least every 15 minutes in a stable patient
   2. At least every 5 minutes in an unstable patient or more often if clinically appropriate
ROUTINE MEDICAL CARE (RMC) - BLS

1. Scene Size-Up
2. Initial assessment of adult patient as per protocol
3. Patient care per appropriate protocol and policy
4. Determination of BLS vs. ALS care per Initiation of Patient Care policy
5. Contact Online Medical Control per Field to Hospital Communication policy
6. Transport patient (or appropriate disposition) as per policy
CARDIOVASCULAR

Acute Coronary Syndrome / Cardiac Chest Pain
Cardiac Arrest
Stroke
### Acute Coronary Syndrome / Cardiac Chest Pain - BLS

**RMC**

- Request ALS assistance
- 4 chewable (81 mg non-enteric coated) aspirin po

**SBP ≥ 100?**

- **NO, < 100**
  - Trendelenburg if tolerated
- **YES, ≥ 100**
  - Assist patient with prescribed 0.4 mg NTG tab
  - Repeat VS SBP ≥ 100?
    - **NO, < 100**
      - Trendelenburg if tolerated
    - **YES, ≥ 100**
      - Repeat NTG q 5 min for continued CP if SBP remains ≥ 100
      - Total 3 doses

**Contact Medical Control as appropriate and prepare for transport**

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1 – Contact Medical Control before administration of nitroglycerin in patients with recent use of erectile dysfunction medications such as sildenafil (Viagra), tadalafil (Cialis), or vardenafil (Levitra)
Confirm unresponsiveness and check CABs
Attach AED, **AND** request ALS assistance

Initiate CPR and ICCA

Machine advises shock?

YES

Deliver shock

CPR for 2 minutes

Reanalyze rhythm

Machine advises shock?

YES

Deliver shock

CPR for 2 minutes

NO

Pulse present?

NO

CPR for 2 minutes

Establish Supraglottic Airway

Reanalyze rhythm

Continue CPR

Contact Medical Control from scene

YES

Breathing normally?

NO

Assist ventilation via BVM

Consider Supraglottic Airway

Oxygen
STROKE - BLS

RMC

Request ALS assistance

Determine time of onset of stroke symptoms
Estimate time when patient was last seen as normal

Assess for physical signs of stroke
Perform Cincinnati Stroke Scale

Check Blood Sugar

BS ≤ 60
Glucopaste
1 tube PO if intact gag reflex

BS > 60

Document time of onset and signs of stroke,
include in radio report

Patients with stroke symptoms ≤ 24 hours in
duration or unknown time of last known normal and
an abnormality in one or more items of the Cincinnati
Stroke Scale (CSS) should be transported to the
closest stroke center

Patients may also be transported to the closest
stroke center if directed by the Base Station
See “Transport of Patients with Suspected Acute
Stroke” Policy

Prepare for transport and contact
Medical Control as appropriate

Cincinnati Stroke Scale (CSS):
1. **Facial droop** – have patient show teeth or smile
   Abnormal = one side does not move as the other
2. **Arm Drift** – have patient close eyes and hold arms out for 10 seconds with
   palms up
   Abnormal = one arm does not move or drifts down
3. **Abnormal speech** – have patient say, “You can’t teach an old dog new tricks”
   Abnormal = patient slurs words, uses wrong words or is unable to speak

Positive CSS = One or more of the above items are abnormal

Transport and contact Medical
Control as appropriate
RESPIRATORY

Airway Obstruction
Bronchospasm
AIRWAY OBSTRUCTION - BLS

- RMC
- Request ALS assistance
- Conscious?
  - NO: Begin CPR
    - Before ventilation, look in airway if a foreign body is seen, remove (Do not do a blind finger sweep)
    - Continue CPR until the obstruction is relieved or the patient regains consciousness
  - YES: Able to speak?
    - NO: Abdominal thrusts or chest thrusts if not effective or if victim is pregnant or obese
      - Continue until relieved
    - YES: Allow to cough

- BLS Non-Transport: Prepare for transport and contact Medical Control as appropriate
- BLS Ambulance: Transport and contact Medical Control as appropriate
BRONCHOSPASM - BLS

RMC

Secure and maintain airway

Request ALS assistance

Adequate airway/respiratory effort?

NO, RR < 10 and/or decreased LOC

Assist airway with ventilation via BVM Suction

YES, RR ≥ 10

Assess lung sounds. Wheezing?

YES

Albuterol 2.5 mg mixed with Atrovent 0.5 mg via nebulizer1 Repeat Albuterol as needed

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate

NO

Continue RMC See appropriate protocol

Note: Complete lack of breath sounds may indicate severe bronchoconstriction

1 – If available
MEDICAL

Altered Mental Status
Anaphylaxis and Allergic Reaction
Behavioral Emergency
COVID-19
Pain Management
Seizures
Shock
ALTERED MENTAL STATUS - BLS

RMC

Assess level of consciousness (GCS) and determine time of onset of altered mental status

Request ALS assistance

Spinal Motion Restriction (SMR) as indicated (See procedure)

Check Blood Sugar

BS < 60 mg/dl

Glucopaste
1 tube PO if intact gag reflex

BS > 60 mg/dl

If stroke suspected, see stroke protocol

If signs of opioid intoxication with respiratory depression administer Naloxone 2 mg IN

Blood Pressure?

< 100

Trendelenburg if tolerated

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

≥ 100

Continue RMC

BLS Ambulance

Transport and contact Medical Control as appropriate
Title: Anaphylaxis and Allergic Reaction - BLS

Section: Medical

Approved: EMS Medical Directors Consortium

Effective: April 1, 2017

ANAPHYLAXIS AND ALLERGIC REACTION - BLS

1. Secure and maintain airway
2. Request ALS assistance
3. Severity of reaction?
   - SEVERE SYMPTOMS OR > 1 MILD SYMPTOM*
   - SINGLE MILD SYMPTOM**

   **Mild symptoms of an allergic reaction may include any combination of the following:
   - NOSE – Itchy/runny nose, sneezing
   - MOUTH – Itching
   - SKIN - Few hives, mild itching
   - GI – Mild nausea/discomfort
   - NEURO – Anxiety, confusion, sense of doom

   *Severe symptoms of an allergic reaction may include any combination of the following:
   - RESPIRATORY – Shortness of breath, wheezing, repetitive coughing
   - CARDIOVASCULAR – Pale, cyanotic, low blood pressure, dizzy
   - THROAT – Tightness, hoarse, trouble breathing/swallowing
   - MOUTH – Swelling of the tongue and/or lips
   - SKIN- Diffuse hives or redness
   - GI – Repetitive vomiting, severe diarrhea
   - NEURO – Anxiety, confusion, sense of doom

   Closely monitor for any worsening of condition
   Has condition worsened?
   - YES
   - NO

   Closely monitor, if no improvement administer a second dose of Epinephrine after consultation with Medical Control

   Closely monitor, if wheezing, Albuterol 2.5 mg Repeat Albuterol as needed

   Contact Medical Control

   Prepare for transport and contact Medical Control as appropriate

   NO

   BLS Non-Transport
   BLS Ambulance

   BLS Non-Transport
   BLS Ambulance

   Prepare for transport and continue to monitor for any worsening of condition
   Discuss disposition with Medical Control

   Transport and contact Medical Control as appropriate
BEHAVIORAL EMERGENCY - BLS

RMC

- Consider safety and request assistance as needed
- Use verbal techniques to diffuse patient behavior
- Assure sufficient resources to contain and restrain patient in supine position
- Continue to monitor airway
- Assess for medical emergency and/or trauma if possible
  - See appropriate protocol
- Check Blood Sugar if possible and treat as appropriate

BLS Non-Transport BLS Ambulance

- Prepare for transport and contact Medical Control as appropriate
- Transport and contact Medical Control as appropriate
COVID-19

I. PATIENT CARE GOALS

A. To identify the proper EMS assessment, treatment, and transport for patients at risk for COVID-19 infection within the Region 11 EMS System.

B. To follow current CDC, IDPH, and CDPH guidelines.

C. To minimize any possible exposure of COVID-19 to EMS providers, Emergency Department staff, or any other patients or family in the healthcare setting.

II. PATIENT MANAGEMENT

A. CASE IDENTIFICATION

1. COVID-19 identification is primarily based on fever and/or symptoms of acute respiratory illness (e.g. cough and difficulty breathing), but patients may also have other viral syndrome symptoms such as chills, myalgias (muscle aches), rhinorrhea (runny nose), sore throat, nausea, vomiting, headache, abdominal pain, and diarrhea. Atypical presentations with any of the above symptoms should be considered.

2. Higher risk patients for COVID-19 includes those with close contact with a COVID-19 positive patient, recent travel to areas with widespread COVID-19, living in close quarters, healthcare workers, chronic medical conditions or immunocompromised state.

3. Emergency Medical Dispatchers (OEMC) should screen calls for suspected COVID-19 and communicate to EMS prior to their arrival on scene to allow for use of proper PPE.

B. PPE GUIDELINES

1. EMS providers should apply proper PPE per CDC guidelines.

   a. Surgical facemasks are an acceptable alternative if N-95 or higher level respirators are in short supply.

   b. Respirators/N-95s should be prioritized for procedures that are likely to generate respiratory aerosols, which would pose the highest exposure risk to the healthcare provider.

   c. Eye protection. (i.e. goggles or disposable face shields that fully covers the front and side of face. Personal eyeglasses are not considered adequate eye protection).
d. **Gloves.** A single pair of disposable patient examination gloves that should be changed if torn or heavily contaminated.

e. **Isolation gown.** If there is a shortage of gowns it should be prioritized for aerosol generating procedures, care activities where splashes and sprays are anticipated and high contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothes of EMS providers (e.g. moving patient onto stretcher).

2. After patient handoff at the hospital, EMS providers should safely remove PPE to prevent contamination. Discard PPE in accordance with routine procedures and perform good hand hygiene.

### C. SUSPECTED COVID-19 PATIENT ASSESSMENT

1. Initial Assessment

   a. EMS providers should exercise appropriate precautions when responding to a call with signs or symptoms of a respiratory infection and apply proper PPE before entering the scene.

   b. For patients with suspected COVID-19, EMS providers should avoid exposure of multiple personnel if possible.

   c. Initial assessment should begin at a distance of at least 6 feet from the patient and a facemask should be placed on the patient for source control.

   d. Patient contact should be minimized to the extent possible until a facemask is on the patient.

2. Patient Assessment

   a. Perform Adult or Pediatric Assessment

   b. Travel history

   c. COVID-19 exposure history

   d. Past medical history

   e. Vital signs

   f. Physical examination

3. Procedures

   a. **Aerosol-Generating Procedures should be to minimized to reduce virus transmission unless exhibiting signs of severe respiratory illness.**

   b. EMS providers should exercise caution when an aerosol-generating procedure is necessary, an N-95 or higher level respirator should be used by EMS providers performing aerosol-generating procedures including bag
valve mask (BVM) ventilation, oropharyngeal suctioning, nebulizer treatment, continuous positive airway pressure (CPAP) or resuscitation involving CPR.

c. If possible, Aerosol Generating Procedures should be done with the rear doors of the ambulance open and the HVAC system active or in a negative pressure room away from patient care areas.

d. At the hospital, nebulizers and CPAP should be temporarily discontinued between the ambulance and the patient room to minimize disease transmission.

e. BVMs and other ventilator equipment should be equipped with HEPA or other viral filter to filter expired air if available.

4. Treatment

a. Oxygenation

   i. Maintain SpO2 > 90%.

   ii. Nasal cannula with surgical mask over the cannula is the preferred method of oxygenation. May use higher than normal flow rates (up to 7 liters per minute) if needed to maintain desired oxygen saturation.

   iii. If persistently hypoxic despite nasal cannula apply non-rebreather.

b. Nebulization Therapy

   i. Restrict nebulizer treatments to patients who are exhibiting signs of severe respiratory distress.

   ii. Metered dose inhaler (MDI) with a spacer, if available, is the preferred route for medication administration

      1. Consider 4-6 puffs per dose of MDI with spacer, if available, may repeat every 5 minutes as needed.

      2. Use of patient’s MDI with spacer if available is preferred.

c. Continuous Positive Airway Pressure (CPAP) should be used with caution in suspected COVID-19 patients due to increased transmission risk.

d. Endotracheal intubation should be avoided in suspected COVID-19 patients due to increased transmission risk. Supraglottic airway placement should be performed for advanced airway management during
resuscitation.

e. **Epinephrine**: For patients with severe respiratory distress and wheezing, epinephrine IM can be used for rescue therapy.

5. Transportation of Suspected COVID-19 Patients

a. Transport to the closest appropriate Emergency Department.

b. Close door/window between driver and patient compartment.

c. During transport, vehicle ventilation in both compartments should be on non-circulated mode and rear exhaust fan on.

d. If a vehicle without an isolated patient compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to create a negative patient gradient in the patient area.

e. Online Medical Control should be consulted for any questions regarding patient care and all refusals of transport.

f. Pre-notification to the receiving hospital is mandatory to allow for room and equipment preparation.

g. EMS must coordinate with receiving hospital staff prior to entering the hospital to minimize exposure.

h. Family members and contacts should not ride in the ambulance if possible, but should wear a mask if their presence is critical for patient care.

III. DOCUMENTATION


1. For CFD select “Suspected Case of Corona/COVID-19” on the Special Event/Situation tag under Incident.

B. Document all EMS and public safety providers involved in the care of a suspected COVID-19 patient, level of contact, and level of PPE worn during treatment for follow-up of testing results.

C. Positive COVID-19 tests should be reported from the hospital to local health department. The hospital should notify the EMS Agency Designated Infection Control Officer to facilitate appropriate follow-up for agency personnel.

D. EMS Agencies should develop policies for assessing exposure risk and management
of EMS providers that are exposed to and that become infected with COVID-19.

III. CLEANING

A. After patient transport, leave the rear doors of the ambulance open to remove potentially infectious particles. The time to complete patient transfer, cleaning, and documentation should provide sufficient air changes.

B. Routine cleaning and disinfectant procedures are appropriate. When cleaning the vehicle, EMS providers should wear a disposable gown and gloves. A facemask and eye protection should be used if splashes or sprays during cleaning are anticipated.

C. All surfaces that may have come in contact with the patient or materials contaminated during patient care should be thoroughly cleaned and disinfected (e.g. stretcher, rails, control panels, floors, walls, work surfaces).

D. EPA registered disinfectants for emerging viral pathogens should be used.

IV. RESTOCKING

A. EMS agencies should maintain a stock of PPE for their EMS providers as the primary means of replacement.

B. Hospitals should replace individual PPE after patient transport if the same level of PPE is available.
PAIN MANAGEMENT - BLS

1. Determine cause of patient’s pain and refer to appropriate protocol
2. Determine Patient’s Pain Score using either the Verbal Descriptor Scale or Wong-Baker FACES® Scale
3. Consider use of non-pharmacologic pain management techniques
   - Attempt to place patient in a position of comfort
   - Consider application of ice packs or splints as appropriate
4. Complete vital signs and pain scale should be assessed and documented before and after every intervention
5. Transport and contact Medical Control as appropriate
SEIZURES - BLS

RMC

Request ALS assistance

Check Blood Sugar

BS ≤ 60

Glucopaste
1 tube PO if intact gag reflex

BS > 60

Assess level of consciousness (GCS) during post-ictal period

Spinal Motion Restriction (SMR) as indicated (see procedure)

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate
SHOCK - BLS

RMC

Request ALS assistance

Place in Trendelenburg

BLS Non-Transport  BLS Ambulance

Prepare for transport and contact Medical Control as appropriate  Transport and contact Medical Control as appropriate
TOXINS AND ENVIRONMENTAL

Biological Agents
Burns
Carbon Monoxide / Smoke Inhalation
CBRNE / Hazardous Materials
Chemical Agents / Airway Respiratory Irritants
Conducted Electrical Weapon Injury (TASER)
Electrical Injuries
Frostbite
Hyperthermia / Heat Exposure
Hypothermia / Cold Exposure
Topical Chemical Burn
BIOLOGICAL AGENTS – BLS

RMC

Field or ED personnel: Note increase in patients with “similar type symptoms”

Don PPE and place surgical mask on patient
See ABT card

Notify Resource Hospital/Field Officer

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
BURNS - BLS

RMC

Assess singed facial hair, hoarseness, wheezing, cough or stridor

Airway compromise?

YES

Secure airway
Consider advanced airway
Request ALS assistance

NO

Remove clothing
Clothing should be cut, not pulled off
Smoldering clothing should be extinguished with water
Remove all accessories and jewelry
Do not attempt to cool patient

Estimate BSA

Cover with dry dressings or sheet

BLS Non-Transport BLS Ambulance

Prepare for transport and contact Medical Control as appropriate

Transport and contact Medical Control as appropriate
CARBON MONOXIDE / SMOKE INHALATION - BLS

RMC

Request ALS assistance

Obtain CO reading, if available

BLS Non-Transport

BLS Ambulance

Prepare for transport and contact Medical Control as appropriate

Transport and contact Medical Control as appropriate
CBRNE / HAZARDOUS MATERIALS - BLS

- Protect yourself, maintain a safe distance upwind of site
- Notify Fire Department Haz Mat Team of any potential biological, chemical or radiation exposure
- Do not enter area unless declared safe by Haz Mat Team
- Contact Illinois Poison Center as indicated (800)222-1222
- See appropriate protocol
- Bring container(s) of drug or substance to the ED (provided that it is not a Haz Mat substance)

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
CHEMICAL AGENTS / AIRWAY RESPIRATORY IRRITANTS - BLS

1. Notify Haz Mat Team
   Decontamination by Haz Mat Team

   RTC

   Request ALS assistance
   BLS Non-Transport  BLS Ambulance
   
   Prepare for transport and contact Medical Control as appropriate
   Transport and contact Medical Control as appropriate

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
CONDUCTED ELECTRICAL WEAPON INJURY (TASER) – BLS

Note: This protocol is to be used for patients who have been subdued by the use of any conductive electrical weapon device (e.g. TASER)

1. Request ALS assistance
2. Secure and maintain airway
3. If the patient fell, assess for head/neck/spinal injury
   Spinal Motion Restriction as indicated
4. Monitor patient for:
   - Seizure Activity
   - Chest Pain
   - Altered LOC
5. Secure Taser Barb
   DO NOT REMOVE BARB
   Stabilize with gauze/tape
   Identify location of probes on the patient’s body
6. BLS Non-Transport
   Prepare for transport and contact Medical Control as appropriate
7. BLS Ambulance
   Transport and contact Medical Control as appropriate

1 – Patient will be transported to the closest comprehensive Emergency Department.
2 – Patients who are in police custody must be accompanied to the hospital by appropriate law enforcement personnel.
ELECTRICAL INJURIES - BLS

Assure scene safety
Remove patient from source of electricity or have power service cut off

RMC

Request ALS assistance

Spinal Motion Restriction as indicated

See Burns protocol

BLS Non-Transport | BLS Ambulance
Prepare for transport and contact Medical Control as appropriate | Transport and contact Medical Control as appropriate
FROSTBITE - BLS

RMC

Prevent further injury/handle gently
Move patient to warm environment
Remove wet clothing

Protect injured part (blisters) with light sterile dressing
Avoid pressure to area
Handle as you would a burn

Prevent re-exposure to cold or refreezing of part

Do not rub part
Do not use artificial heat
Do not use tight dressing

BLS Non-Transport  BLS Ambulance

Prepare for transport and contact Medical Control as appropriate
Transport and contact Medical Control as appropriate
HYPERTHERMIA / HEAT EXPOSURE - BLS

RMC

Place in cool environment

Mental status?

ALTERED

Request ALS assistance

If blood sugar < 60, Glucopaste 1 tube PO if intact gag reflex

NORMAL

Remove all clothing and cover with wet sheets Monitor for seizure activity

BLS Non-Transport  BLS Ambulance

Prepare for transport and contact Medical Control as appropriate

Transport and contact Medical Control as appropriate
HYPOTHERMIA / COLD EXPOSURE - BLS

1 - May present with altered sensorium or unconscious. Heart more susceptible to dysrhythmias. May have apnea, dusky or cyanotic appearance, fixed and dilated pupils; may appear without signs of life.

2 – An individual in a frozen state is not considered salvageable.

3 – The suspected hypothermic patient shall never be declared dead in the field.
TOPICAL CHEMICAL BURN - BLS

Assure scene safety
Remove patient from source as necessary

Notify Fire Department Haz Mat as appropriate

RMC
See Burn protocol

Burn location?

EYE

SKIN

Substance form?

SOLID
Brush off excess chemical
Remove clothing

LIQUID
Flush with Normal Saline/water

BLS Non-Transport
BLS Ambulance

Prepare for transport and contact Medical Control as appropriate
Transport and contact Medical Control as appropriate

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
TRAUMA

General Trauma Management
Blast Injury
Crush Injury
Extremity Trauma / External Hemorrhage Management
Facial / Dental Trauma
Head Injury
High Threat Considerations
Spinal Care
Traumatic Arrest
GENERAL TRAUMA MANAGEMENT

I. PATIENT CARE GOALS

2. Safe movement of patient to prevent worsening of injury severity.
3. Rapid and safe transport to the appropriate level of trauma care.

II. PATIENT MANAGEMENT

A. Assessment and Primary Survey

1. Hemorrhage Control
   a. Assess for and stop severe hemorrhage (see Extremity Trauma/External Hemorrhage Management protocol).

2. Airway
   a. Assess airway patency by asking the patient to talk to assess stridor and ease of air movement.
   b. Look for injuries that may lead to airway obstruction including unstable facial fractures, expanding neck hematoma, blood or vomitus in the airway, facial burns/inhalation injury.
   c. Evaluate mental status for ability to protect airway (patients with a GCS less than or equal to 8 are likely to require airway support).

3. Breathing
   a. Assess respiratory rate and pattern.
   b. Assess symmetry of chest wall movement.
   c. Listen bilaterally on lateral chest wall for breath sounds.

4. Circulation
   a. Assess blood pressure and heart rate.
   b. Signs of hemorrhagic shock include: tachycardia, hypotension, pale, cool clammy skin, capillary refill greater than 2 seconds.

5. Disability
   a. Perform neurologic status assessment\(^1\).
   b. Assess gross motor movement of extremities.
   c. Evaluate for clinical signs of traumatic brain injury with herniation including:
6. Exposure

   a. Rapid evaluation of entire body to identify sites of penetrating wounds or other blunt injuries. Be sure to roll patient and examine the back.
   b. Prevent hypothermia.

B. Treatment and Interventions

1. Hemorrhage Control

   a. Stop severe hemorrhage (see Extremity Trauma/External Hemorrhage Management protocol).

2. Airway

   a. Establish patent airway with cervical spine precautions, per the Advanced Airway Management procedure and Spinal Care protocol.
   b. If respiratory efforts are inadequate, assist with bag-mask ventilation and consider airway adjuncts. If patient is unable to maintain airway, consider oral airway (nasal airway should not be used with significant facial injury or possible basilar skull fracture).
   c. If impending airway obstruction or altered mental status resulting in inability to maintain airway patency, secure definitive airway.

3. Breathing

   a. If absent or diminished breath sounds with chest trauma in a hypotensive patient with respiratory distress, consider tension pneumothorax and perform Needle (Pleural) Decompression as per procedure.
   b. For open chest wound, place semi-occlusive dressing or chest seal.
   c. Monitor oxygen saturation and, if indicated, provide supplemental oxygen.

4. Circulation

   a. If pelvis is unstable and patient is hypotensive, place pelvic binder or sheet to stabilize pelvis.
   b. Establish IV access.
   c. Fluid resuscitation:
      i. Adults
         1. If SBP greater than 90 mmHg, no IV fluids.
         2. If SBP less than 90 mmHg or HR greater than 120, administer IV fluids and reassess.
         3. Penetrating trauma: target SBP 90mmHg (or palpable radial pulse).
4. Head injury: target SBP 110-120 mmHg. Hypotension should be avoided to maintain cerebral perfusion.

   ii. Pediatrics
   1. If child demonstrates tachycardia for age with signs of poor perfusion (low BP, greater than 2-second capillary refill, altered mental status, hypoxia, weak pulses, pallor, or mottled/cool skin), give 20ml/kg crystalloid bolus and reassess.
   2. Target normal BP for age (see Pediatric Initial Assessment protocol).

5. Disability

   a. If clinical signs of traumatic brain injury, see Head Trauma protocol.

6. Exposure

   a. Avoid hypothermia:
      i. Remove wet clothing.
      ii. Cover patient to prevent further heat loss.

7. NOTE: Patients with major hemorrhage, hemodynamic instability, penetrating torso trauma, or signs of traumatic brain injury often require rapid surgical intervention. Minimize scene time (goal is under 10 minutes) and initiate rapid transport to a Level 1 Trauma Center.

8. Decisions regarding transport destination should be based on the Region 11 Trauma Field Triage Criteria policy.

C. Secondary Assessment, Treatment, and Interventions

1. Assessment

   a. Obtain medical history from patient or family including:
      i. Allergies
      ii. Medications
      iii. Past medical and surgical history
      iv. Events leading up to the injury

2. Secondary Survey: Head to toe physical exam

   a. Head
      i. Palpate head, scalp and face and evaluate for soft tissue injury or bony crepitus.
      ii. Assess pupils.

   b. Neck
      i. Check for:
1. Contusions
2. Abrasions
3. Hematomas
4. Jugular Vein Distension (JVD)
5. Tracheal deviation
   ii. Palpate for crepitus.
   iii. Spinal assessment per the Spinal Care protocol.

c. Chest
   i. Palpate for instability/crepitus.
   ii. Listen to breath sounds.
   iii. Inspect for penetrating or soft tissue injuries.

d. Abdomen
   i. Palpate for tenderness.
   ii. Inspect for penetrating or soft tissue injuries.

e. Pelvis
   i. Inspect for penetrating or soft tissue injuries.
   ii. Palpate once for instability by applying medial pressure on the iliac crests bilaterally.

f. Back
   i. Maintain spinal alignment. Refer to Spinal Care protocol.
   ii. Inspect for penetrating or soft tissue injuries.

g. Neurologic Status Assessment
   i. Serial assessment of mental status.
   ii. Gross exam of motor strength and sensation in all four extremities.

h. Extremities
   i. Assess for fracture/deformity.
   ii. Assess peripheral pulses/capillary refill.

D. Additional Treatment Considerations

1. Maintain spine precautions per the Spinal Care protocol.

2. Splint obvious extremity fractures per the Extremity Trauma/External Hemorrhage Management protocol.

3. Any intra-abdominal organs visible (evisceration) should be covered with saline soaked dressing and then covered with occlusive dry or plastic dressing.

4. Provide pain medication per the Pain Management protocol.
5. Pregnant patients at greater than 20 weeks of estimated gestational age should be placed with their right side elevated 15 degrees (left side down) to relieve pressure on the great vessels, preventing supine hypotension and subsequent significant loss of preload and cardiac output.

6. Traumatic cardiac arrest patients should be assessed for signs of life including respirations, pulse, and spontaneous movement. If there are no signs of life, the cardiac monitor should be applied. Asystolic patients may have resuscitation withheld. If there is cardiac activity or signs of life, resuscitation should be initiated with transport to the closest Level 1 Trauma Center (see Determination of Death/Withholding of Resuscitative Measures policy).

**E. Patient Safety Considerations**

1. Life-threatening injuries identified on primary survey should be managed immediately with rapid transport to a trauma center, while the secondary survey is performed enroute.

2. Monitor patient for deterioration over time with serial vital signs and repeat neurologic status assessment.
   a. Patients with compensated shock may not manifest hypotension until severe blood loss has occurred.
   b. Patients with traumatic brain injury may deteriorate as intracranial swelling and hemorrhage increase.

3. Anticipate potential for progressive airway compromise in patients with trauma to the head and neck.

**III. NOTES/EDUCATIONAL PEARLS**

A. Optimal trauma care requires a structured approach to the patient emphasizing ABCDE (Airway, Breathing, Circulation, Disability, Exposure).

B. Target scene time less than 10 minutes for unstable patients or those likely to need surgical intervention.

C. Frequent reassessment of the patient is important.

1. If patient develops difficulty with ventilation, reassess breath sounds for development of tension pneumothorax.

2. If extremity hemorrhage is controlled with pressure dressing or tourniquet, reassess for evidence of continued hemorrhage.

3. If mental status declines, reassess ABCs and repeat neurologic status assessment.
1 - Neurologic Status Assessment

Neurological status assessment involves establishing a baseline and then trending any change in patient neurological status. Glasgow Coma Scale (GCS) or AVPU may be used for this.

<table>
<thead>
<tr>
<th>Points</th>
<th>Pediatric</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No eye opening</td>
<td>No verbal response</td>
</tr>
<tr>
<td>1</td>
<td>Eye opening to pain</td>
<td>Incomprehensible sounds</td>
</tr>
<tr>
<td>2</td>
<td>Eye opening to verbal</td>
<td>Inappropriate words</td>
</tr>
<tr>
<td>3</td>
<td>Eyes open spontaneously</td>
<td>Confused</td>
</tr>
<tr>
<td>4</td>
<td>No vocalization</td>
<td>Smiles, oriented to sounds, interacts</td>
</tr>
<tr>
<td></td>
<td>Inconsolable, agitated</td>
<td>Oriented</td>
</tr>
<tr>
<td>2</td>
<td>Inconsistently consolable, moaning</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cries but consolable, inappropriate interactions</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Smiles, oriented to sounds, follows objects, interacts</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Oriented</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>No motor response</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Extension to pain</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Flexion to pain</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Withdraws from pain</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Localizes pain</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Obeys commands</td>
<td></td>
</tr>
</tbody>
</table>

**AVPU**

A: The patients is alert
V: The patient responds to verbal stimulus
P: The patient responds to painful stimulus
U: The patient is completely unresponsive
BLAST INJURY

I. PATIENT CARE GOALS

1. Maintain patient and provider safety by identifying ongoing threats at the scene of an explosion.

2. Identify multi-system injuries, which may result from a blast, including possible toxic contamination.


II. PATIENT MANAGEMENT

A. Assessment

1. Hemorrhage Control:
   a. Assess for and stop severe hemorrhage [per Extremity Trauma/External Hemorrhage Management protocol].

2. Airway:
   a. Assess airway patency.
   b. Consider possible thermal or chemical burns to airway.

3. Breathing:
   a. Evaluate adequacy of respiratory effort, oxygenation, quality of lung sounds, and chest wall integrity.
   b. Consider possible pneumothorax or tension pneumothorax (as a result of penetrating/blunt trauma or barotrauma).

4. Circulation:
   a. Look for evidence of external hemorrhage.
   b. Assess blood pressure, pulse, skin color/character, and distal capillary refill for signs of shock.

5. Disability:
   a. Assess patient responsiveness (AVPU) and level of consciousness (GCS).
   b. Assess pupils.
   c. Assess gross motor movement and sensation of extremities.
6. Exposure:
   a. Rapid evaluation of entire skin surface, including back (log roll), to identify blunt or penetrating injuries.

B. Treatment and Interventions

1. Hemorrhage Control:
   a. Control any severe external hemorrhage (per Extremity Trauma/External Hemorrhage Management protocol).

2. Airway:
   a. Secure airway, utilizing airway maneuvers, airway adjuncts, supraglottic device, or endotracheal tube (per Advanced Airway Management protocol).
   b. If thermal or chemical burn to airway is suspected, early airway control is vital.

3. Breathing:
   a. Administer oxygen as needed to maintain an oxygen saturation of > 94%.
   b. Assist respirations as needed.
   c. Cover any open chest wounds with semi-occlusive dressing or chest seal.
   d. If absent or diminished breath sounds with chest trauma in a hypotensive patient with respiratory distress, consider tension pneumothorax and perform pleural (needle) decompression as per procedure.

4. Circulation:
   a. Establish IV access:
      i. Administer fluid bolus, per the General Trauma Management protocol;
      ii. If patient is burned, administer fluid per the Burn protocol.

5. Disability:
   a. If evidence of head injury, treat per the Head Injury protocol.
   b. Apply spinal precautions, per the Spinal Care protocol.
   c. Monitor GCS during transport to assess for changes.

6. Exposure:
   a. Keep patient warm to prevent hypothermia.

C. Patient Safety Considerations

1. Ensuring scene safety is especially important at the scene of an explosion.
a. Consider possibility of subsequent explosions, structural safety, possible toxic chemical contamination, the presence of noxious gasses, and other hazards.
b. In a possible terrorist event, consider the possibility of secondary explosive devices.

2. Remove patient from the scene as soon as is practical and safe.

III. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. Scene safety is of paramount importance when responding to an explosion or blast injury.

2. Patients sustaining blast injury may sustain complex, multi-system injuries including: blunt and penetrating trauma, shrapnel, barotrauma, burns, and toxic chemical exposure.

3. Consideration of airway injury, particularly airway burns, should prompt early airway management.

4. Minimize IV fluid resuscitation in patients without signs of shock.

5. Consider injuries due to barotrauma:
   a. Tension pneumothorax
      i. Hypotension or other signs of shock associated with decreased or absent breath sounds, jugular venous distension, and/or tracheal deviation.
   b. Tympanic membrane perforation resulting in deafness, which may complicate the evaluation of their mental status and their ability to follow commands.
   c. Blast injuries to lung or bowel can take time to manifest, asymptomatic patients can develop symptoms with time.

6. Transport to a Level 1 Trauma Center.

B. Pertinent Assessment Findings

1. Evidence of multi-system trauma, especially:
   a. Airway injury/burn
   b. Barotrauma to lungs
   c. Toxic chemical contamination
CRUSH INJURY

I. PATIENT CARE GOALS

1. Recognizing traumatic crush injury mechanism.

2. Minimize systemic effects of the crush syndrome.

II. PATIENT MANAGEMENT

A. Assessment

1. Identify any severe hemorrhage.

2. Assess airway, breathing, and circulation.

3. Evaluate for additional injury (e.g. fractures, solid organ damage, or spinal injury).

4. Monitor for development of compartment syndrome.

B. Treatment and Interventions

1. The treatment of crushed patients should begin as soon as they are discovered.

2. If severe hemorrhage is present, manage per Extremity Trauma/External Hemorrhage Management protocol.

3. Administer oxygen as needed to maintain an oxygen saturation of > 94%.

4. Intravenous access should be established with normal saline initial bolus of 20 ml/kg (prior to extrication if possible) up to one liter.

5. For significant crush injuries or prolonged entrapment of an extremity, administer sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) slow IV push.

6. Attach cardiac monitor. Obtain/interpret 12-lead ECG, if available. Carefully monitor for dysrhythmias or signs of hyperkalemia (elevated potassium) before and immediately after release of pressure and during transport (e.g. peaked T waves, wide QRS, lengthening QT interval, loss of P wave).

7. For pain control, consider analgesics per Pain Management protocol.

8. Consider the following post extrication:
a. Continued resuscitation with normal saline (500-1000 ml/hr for adults, 10 ml/kg/hr for children).
b. If ECG suggestive of hyperkalemia, administer:
   i. Calcium chloride – 1 gm IV/IO slow IV push.
c. If not already administered, for significant crush injuries with ECG suggestive of hyperkalemia, administer sodium bicarbonate 1 mEq/kg (max dose of 50 mEq) slow IV push.
d. If ECG suggestive of hyperkalemia, consider albuterol 5 mg via nebulizer.

C. Patient Safety Considerations

1. Scene safety for both rescuers and patients is of paramount importance.

III. NOTES/EDUCATIONAL PEARLS

A. Causes of mortality in untreated Crush Syndrome:

1. Immediate:
   a. Severe head injury;
   b. Traumatic asphyxia;
   c. Torso injury with damage to intrathoracic or intra-abdominal organs.

2. Early:
   a. Hyperkalemia (potassium is released from injured muscle cells);
   b. Hypovolemia/shock.

3. Late:
   a. Renal failure (from release of toxins from injured muscle cells);
   b. Coagulopathy and hemorrhage;
   c. Sepsis

B. Key Considerations

1. Rapid extrication and evacuation to a definitive care facility (Level 1 Trauma Center).

2. A patient with a crush injury may initially present with very few signs and symptoms. Therefore, maintain a high index of suspicion for any patient with a compressive mechanism of injury.

3. A fatal medical complication of crush syndrome is hyperkalemia. Suspect hyperkalemia if Twaves become peaked, QRS becomes prolonged (greater than 0.12 seconds), absent P wave, or prolonged QTc.
4. Continue fluid resuscitation through extrication and transfer to hospital.

C. Pertinent Assessment Findings

1. Mental status/GCS.

2. Evaluation for fractures and potential compartment syndrome development (neurovascular status of injured extremity).

3. Examination of spine.

4. Evidence of additional trauma, potentially masked by with other painful injuries.
EXTREMITY TRAUMA / EXTERNAL HEMORRHAGE MANAGEMENT

I. PATIENT CARE GOALS

1. Minimize blood loss from extremity hemorrhage.

2. Avoid hemorrhagic shock as a result of extremity hemorrhage.

3. Minimize pain and further injury as a result of potential fractures or dislocations.

II. PATIENT MANAGEMENT

A. Assessment

1. Evaluate for obvious deformity, shortening, rotation, or instability.

2. Neurologic status of extremity
   a. Sensation to light touch
   b. Distal movement of extremity

3. Vascular status of extremity
   a. Pallor
   b. Pulse
   c. Capillary refill
   d. Degree of bleeding/blood loss with assessment of the color of the blood (venous or arterial) and whether it is pulsatile or not

B. Treatment and Interventions (see Prehospital External Hemorrhage Control diagram below)

1. Manage bleeding
   a. Apply direct pressure to bleeding site followed by pressure dressing.
   b. If direct pressure/pressure dressing is ineffective or impractical:
      i. If the bleeding site is amenable to tourniquet placement, apply tourniquet to extremity (see Hemorrhage Control procedure)
         1. Tourniquet should be placed 2-3 inches proximal to wound, not over a joint, and tightened until bleeding stops and distal pulse is eliminated.
         2. If bleeding continues, place a second tourniquet proximal to the first.
      ii. If the bleeding site is not amenable to tourniquet placement (i.e. junctional injury), pack wound tightly with a hemostatic gauze and apply direct pressure.
c. Groin/axillary injury:
   i. Apply direct pressure to wound.
   ii. If still bleeding, pack wound tightly with hemostatic gauze and apply direct pressure.

2. Manage pain (see Pain Management protocol)
   a. Pain management should be strongly considered for patients with suspected fractures.
   b. If tourniquet is placed, an alert patient will likely require pain medication to manage tourniquet pain.

3. Stabilize suspected fractures/dislocations
   a. Strongly consider pain management before attempting to move a suspected fracture.
   b. If distal vascular function is compromised, gently attempt to restore normal anatomic position.
   c. Use splints as appropriate to limit movement of suspected fracture.
   d. Elevate extremity fractures above heart level whenever possible to limit swelling.
   e. Apply ice/cold packs to limit swelling in suspected fractures or soft tissue injury - do not apply ice directly to skin.
   f. Reassess distal neurovascular status after any manipulation or splinting of fractures/dislocations.

4. Amputations
   a. Amputated body parts should be transported with patient for possible re-implantation.
   b. Amputated parts should be covered with dry gauze.
   c. Place the amputated part in a plastic bag.
   d. Place the bag with the amputated part on ice in a second bag.
   e. Do not let the amputated part come into direct contact with the ice.
   f. The stump should be covered with saline moistened gauze.

C. Patient Safety Considerations

1. If tourniquet is used:
   a. Ensure that it is sufficiently tight to occlude the distal pulse.
   b. Ensure that it is well marked and visible and that all subsequent providers are aware of the presence of the tourniquet.
   c. Do not cover with clothing or dressings.

3. If pressure dressing or tourniquet is used, frequently re-check to determine if bleeding has restarted. Check for blood soaking through the dressing or continued bleeding distal to the tourniquet. Do not remove tourniquet or dressing in order to assess bleeding.

III. NOTES/EDUCATIONAL PEARLS

A. Tourniquet may be placed initially to stop obvious severe hemorrhage, then replaced later with pressure dressing after stabilization of ABCs and packaging of patient. Tourniquet should not be removed if:
   1. Transport time short (less than 30 minutes)
   2. Amputation or near-amputation
   3. Unstable or complex multiple-trauma patient
   4. Unstable clinical or tactical situation

B. If tourniquet is replaced with pressure dressing, leave loose tourniquet in place so it may be retightened if bleeding resumes.

C. Survival is markedly improved when a tourniquet is placed before shock ensues.

D. Commercial/properly tested tourniquets are preferred over improvised tourniquets.

E. If hemostatic gauze is not available, plain gauze tightly packed into a wound has been shown to be effective.

F. Arterial pressure points are not effective in controlling hemorrhage.
Prehospital External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to injury

Direct pressure effective (hemorrhage controlled)  Direct pressure ineffective or impractical (hemorrhage not controlled)

Wound amenable to tourniquet placement (e.g. extremity injury)  Wound not amenable to tourniquet placement (e.g. junctional injury)

Apply a tourniquet  Apply a topical hemostatic agent with direct pressure
I. PATIENT CARE GOALS

1. Preservation of a patent airway.
2. Preservation of vision.

II. PATIENT MANAGEMENT

A. Assessment

1. Patient medications with focus on anticoagulants.
2. ABCs with particular focus on ability to keep airway patent:
   a. Stable midface;
   b. Stable mandible;
   c. Stable dentition (poorly anchored teeth require vigilance for possible aspiration).
3. Bleeding (which may be severe – epistaxis, oral trauma, facial lacerations).
4. Cervical spine pain or tenderness (see Spinal Care protocol).
5. Mental status assessment for possible traumatic brain injury (see Head Injury protocol).
7. Dental avulsions.
8. Any tissue or teeth avulsed should be collected.
9. Lost teeth not recovered on scene may be in the airway.
10. Overall trauma assessment.
11. Specific re-examination geared toward airway and ability to ventilate adequately.

B. Treatment and Interventions

1. Administer oxygen as needed to maintain an oxygen saturation of > 94%.
2. IV access, as needed, for fluid or medication administration.

3. Pain medication per the Pain Management protocol.

4. Avulsed tooth:
   a. Avoid touching the root of the avulsed tooth. Do not wipe off tooth.
   b. Pick up at crown end. If dirty, rinse off under cold water for 10 seconds.
   c. Place in milk or saline as the storage medium.

5. Eye trauma:
   a. Place eye shield if available for any significant eye trauma.
   b. If globe is avulsed, do not put back into socket. Cover with moist saline dressings and then protect from further injury.

6. Mandible (lower jaw) unstable:
   a. Expect patient cannot spit/swallow effectively and have suction readily available.
   b. Preferentially transport sitting up with emesis basin/suction available (in the absence of a suspected spinal injury, see Spinal Care protocol).

7. Epistaxis (nosebleed) - Squeeze nose (or have patient do so) for 10-15 minutes continuously.

8. Nose/ear avulsion:
   a. Recover tissue if it does not waste scene time.
   b. Transport with avulsed tissue wrapped in dry sterile gauze in a plastic bag placed on ice.
   c. Severe ear and nose lacerations can be addressed with a protective moist sterile dressing.

C. Patient Safety Considerations

1. Frequent reassessment of airway.

2. Maintenance of a patent airway is the highest priority; therefore, conduct cervical spine assessment (per Spinal Care protocol) to enable transport sitting up for difficulty with bleeding, swallowing, or handling secretions.

III. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. Airway may be compromised because of fractures or bleeding.
2. After nasal fractures, epistaxis may be posterior and may not respond to direct pressure over the nares with bleeding running down posterior pharynx, potentially compromising airway.

3. Protect avulsed tissue and teeth:
   a. Transport avulsed or broken teeth with the patient;
   b. Use sterile dressing for ear and nose cartilage.

B. Pertinent Assessment Findings

1. Unstable facial fractures that can abruptly compromise airway.

2. Loose teeth and retro-pharynx bleeding.
HEAD INJURY

I. PATIENT CARE GOALS

1. Limit disability and mortality from head injury by:

   a. Promoting adequate oxygenation;
   b. Promoting adequate cerebral perfusion;
   c. Limiting development of increased intracranial pressure;
   d. Limiting secondary brain injury.

II. PATIENT MANAGEMENT

A. Assessment

1. Maintain cervical stabilization (see Spinal Care protocol).

2. Primary survey per the General Trauma Management protocol.

3. Monitoring:

   a. Continuous pulse oximetry
   b. Frequent systolic and diastolic blood pressure measurement
   c. Initial neurologic status assessment and reassessment with any change in mentation;
   d. Moderate/severe head injury: Apply continuous waveform ETCO2, if advanced airway placed.

4. Secondary survey pertinent to isolated head injury:

   a. Head: Gently palpate skull to evaluate for depressed or open skull fracture.
   b. Eyes:
      i. Evaluate pupil size and reaction to light to establish baseline;
      ii. Reassess pupils if decrease in mentation.
   c. Nose/Mouth/Ears: Evaluate for blood/fluid drainage.
   d. Face: Evaluate for bony stability.
   e. Neck: Palpate for cervical spine tenderness or deformity
   f. Neurologic:
      i. Perform neurologic status assessment (GCS or AVPU);
      ii. Evaluate for focal neurologic deficit: motor and sensory.

5. Head injury severity guideline:

   a. Mild: GCS 13-15 / AVPU = (A)
   b. Moderate: GCS 9-12 / AVPU = (V)
B. Treatment and Interventions

1. Airway:
   a. Administer oxygen as needed to maintain an oxygen saturation of > 94%.
   b. If patient unable to maintain airway, consider oral airway (nasal airway should not be used with significant facial injury or possible basilar skull fracture).
   c. Oral endotracheal intubation or supraglottic airway insertion can be used if BVM ventilation ineffective in maintaining oxygenation or if airway is continually compromised.

2. Breathing:
   a. For patients with a moderate or/severe head injury who are unable to maintain their airway or are hypoxic despite basic airway interventions, initiate BVM ventilation.
   b. Supraglottic airway placement or/endotracheal intubation should only be performed if BVM ventilation is inadequate to maintain adequate oxygenation.
   c. For patients with a severe head injury with signs of herniation: Hyperventilate to a target ETCO2 of 30-35 mmHg as a short-term option, and only for severe head injury with signs of herniation and an advanced airway.
      i. Signs of herniation:
         1. Decreasing mental status
         2. Abnormal respiratory pattern
         3. Asymmetric/unreactive pupils
         4. Decorticate posturing
         5. Cushing’s response (bradycardia and hypertension)
         6. Decerebrate posturing

3. Circulation:
   a. Wound care:
      i. Control bleeding with direct pressure if no suspected open skull injury.
      ii. Moist sterile dressing to any potential open skull wound.
      iii. Cover an injured eye with moist saline dressing and eye shield if available to protect from further injury.
   b. Moderate/severe closed head injury:
      i. Blood pressure: Administer fluid bolus for hypotension
         1. Adult: Target SBP 110-120 mmHg. Hypotension should be avoided to maintain cerebral perfusion
         2. Pediatric: Maintain SBP:
            a. Less than 1 month: Greater than 60 mmHg
            b. 1-12 months: Greater than 70 mmHg
            c. 1-10 y/o: Greater than 70 + 2x age in years
c. Mild closed head injury:
   i. Consider administering fluid bolus to maintain blood pressure to above numbers and maintain cerebral perfusion.

   d. Do not delay transport to initiate IV access.

4. Disability:
   a. Evaluate for other causes of altered mental status - check blood glucose.
   b. Spinal assessment and management, per Spinal Care protocol.
   c. Perform and trend neurologic status assessment:
      i. Early signs of deterioration:
         1. Confusion
         2. Agitation
         3. Drowsiness
         4. Vomiting
         5. Severe headache
      ii. Monitor for signs of herniation
   d. Severe head injury – Elevate head of bed 30 degrees.

5. Transport according to Region 11 Trauma Field Triage Criteria:
   a. Preferential transport to Level 1 Trauma Center:
      i. GCS 3-13, P (pain) or U (unresponsive) on AVPU scale;
      ii. Penetrating head trauma;
      iii. Open or depressed skull fracture.

C. Patient Safety Considerations

1. Do not hyperventilate patient unless signs of herniation.


3. Geriatric Consideration: Elderly patients with ankylosing spondylitis or severe kyphosis should be padded and immobilized in a position of comfort and may not tolerate a cervical collar.

III. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. Hypoxia and hypotension are especially dangerous in severe head injury patients.

2. Important that providers be specifically trained in accurate neurologic status assessment.
3. If endotracheal intubation or supraglottic airways are used, continuous waveform capnography is required to document proper tube placement and assure proper ventilation rate.

B. Pertinent Assessment Findings

1. Neurologic status assessment findings
2. Pupils
3. Trauma findings on physical exam
I. DEFINITIONS

1. **Hot Zone/Direct Threat Zone**: An area where active threat and active hazards exist.

2. **Warm Zone/Indirect Threat Zone**: An area where security and safety measures are in place. This zone may have potential hazards, but no active danger exists.

3. **Cold Zone/Evacuation Zone**: An area where no significant threat is reasonably anticipated.

II. PATIENT CARE GOALS

1. Assess scene for safety and number of patients.

2. Mitigating further harm.

3. Treat immediate and urgent medical conditions.

4. Assist evacuation.

5. Accomplish goal with minimal additional injuries.

III. PATIENT MANAGEMENT

A. Assessment, Treatment and Interventions

1. **Hot Zone/Direct Threat Care Considerations**:

   a. Defer in depth medical interventions if engaged in ongoing direct threat (e.g. active shooter, unstable building collapse, improvised explosive device, hazardous material threat).

   b. Threat mitigation techniques will minimize risk to patients and providers.

   c. Rapid primary triage as required

   d. Prioritization for extraction is based on resources available and the situation.

   e. Minimal interventions are warranted.

   f. Encourage patients to provide self-first aid or instruct aid from uninjured bystander.

   g. Consider hemorrhage control:

      i. Tourniquet application is the primary “medical” intervention to be considered in Hot Zone/Direct Threat.

      ii. Consider instructing patient to apply direct pressure to the wound if no tourniquet available (or application is not feasible).
h. Consider quickly placing or directing patient to be placed in position to protect airway, if not immediately moving patient.

2. Warm Zone/Indirect Threat Care Considerations:
   a. Maintain situational awareness
   b. Ensure safety of both responders and patients by rendering environment safe
   c. Conduct primary survey, per the General Trauma Management protocol, and initiate appropriate life saving interventions:
      i. Hemorrhage control:
         1. Tourniquet;
         2. Wound packing if feasible.
      ii. Maintain airway and support ventilation per Advanced Airway Management procedure.
   d. Do not delay patient extraction and evacuation for non-life-saving interventions.
   e. Consider establishing a casualty collection point (CCP) if multiple patients are encountered.
   f. Unless in a fixed casualty collection point, triage in this phase of care should be limited to the following categories:
      i. Uninjured and/or capable of self-extraction;
      ii. Deceased/expectant;
      iii. All others.

3. Cold Zone/Evacuation Zone:
   a. Reassess all interventions applied in previous phases of care
   b. Additional trauma treatment and transport per Region 11 EMS Protocols and Policies.
   c. Additional medical or transport resources may be staged in this area.

C. Patient Safety Considerations

1. Anticipate unique threats based on situation.

2. During high threat situations, provider safety should be considered in balancing the risks and benefits of patient treatment.

IV. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. In high threat situations, risk assessment should be performed and regularly re-evaluated. Provider and patient safety will need to be simultaneously considered.

2. During high threat situations, an integrated response with other public safety entities may be warranted.
3. During these situations, maintaining communications and incident management concepts may be crucial to maximizing efficiency and mitigating dangers.
SPINAL CARE

I. PATIENT CARE GOALS

1. Select patients for whom spinal motion restriction (SMR) is indicated.

2. Minimize secondary injury to spine in patients who have, or may have, an unstable spinal injury.

3. Minimize patient morbidity from the use of immobilization devices.

4. Spinal Motion Restriction (SMR) is defined as attempting to maintain the head, neck, and torso in anatomic alignment and independent from device use.

II. PATIENT MANAGEMENT

A. Assessment

1. Assess the scene to determine the mechanism of injury.

   a. High risk mechanisms:
      i. Motor vehicle crashes (including automobiles, all-terrain vehicles, and snowmobiles)
      ii. Axial loading injuries to the spine (large load falls vertically on the head or a patient lands on top of their head)
      iii. Falls greater than 10 feet

2. Assess the patient in the position found for findings associated with spine injury:

   a. Altered Mental Status
   b. Neurologic deficits
   c. Neck or back pain or tenderness
   d. Any evidence of intoxication
   e. Other severe injuries, particularly associated torso injuries

B. Treatment and Interventions

1. Place patient in cervical collar and initiate Spinal Motion Restriction (SMR) if there are any of the following:

   a. Patient complains of midline neck or spine pain
   b. Any midline neck or spine tenderness with palpation
   c. Any abnormal mental status (including extreme agitation)
   d. Focal or neurologic deficit
   e. Any evidence of alcohol or drug intoxication
   f. Another severe or painful distracting injury is present
g. Torticollis in children
h. A communication barrier that prevents accurate assessment
i. If none of the above apply, patient may be managed without a cervical collar and SMR

2. Patients with penetrating injury to the neck should not be placed in a cervical collar or other spinal precautions regardless of whether they are exhibiting neurologic symptoms or not. Doing so can lead to delayed identification of injury or airway compromise, and has been associated with increased mortality.

3. If extrication is required:
   a. From a vehicle: After placing a cervical collar, if indicated, children in a booster seat and adults should be allowed to self-extricate. For infants and toddlers already strapped in a car seat with a built-in harness, extricate the child while strapped in his/her car seat.
   b. Other situations requiring extrication: A padded long board may be used for extrication, using the lift and slide (rather than a logroll) technique.

4. Helmet removal
   a. If a football helmet needs to be removed, it is recommended to remove the face mask followed by manual removal (rather than the use of automated devices) of the helmet while keeping the neck manually immobilized - occipital and shoulder padding should be applied, as needed, with the patient in a supine position, in order to maintain neutral cervical spine positioning.
   b. Evidence is lacking to provide guidance about other types of helmet removal.

5. Patients requiring spinal motion restriction should be secured to and transported on ambulance stretcher with cervical collar in place. Do not transport patients on rigid long boards, unless the clinical situation warrants longboard use. An example of this may be facilitation of immobilization of multiple extremity injuries or an unstable patient where removal of a board will delay transport and/or other treatment priorities. In these situations, long boards should ideally be padded or have a vacuum mattress applied to minimize secondary injury to the patient.

6. Patients should be transported to the nearest appropriate facility, in accordance with the Region 11 Trauma Field Triage Criteria policy.

7. Patients with severe kyphosis or ankylosing spondylitis may not tolerate a cervical collar. These patients should be immobilized in a position of comfort using towel rolls.
C. Patient Safety Considerations

1. Be aware of potential airway compromise or aspiration in immobilized patients with nausea/vomiting or with facial/oral bleeding.

2. Excessively tight immobilization straps can limit chest excursion and cause hypoventilation.

3. Prolonged immobilization on spine board can lead to ischemic pressure injuries to skin.

4. Prolonged immobilization on spine board can be very uncomfortable for the patient.

5. Children are abdominal breathers, so immobilization straps should go across chest and pelvis and not across the abdomen, when possible.

6. Children have disproportionately larger heads. When securing pediatric patients to a spine board, the board should have a recess for the head, or the body should be elevated approximately 1-2 cm to accommodate the larger head size and avoid neck flexion when immobilized.

7. In an uncooperative patient, avoid interventions that may promote increased spinal movement.

8. The preferred position for all patients with spine management is flat and supine. There are three circumstances under which raising the head of the bed to 30 degrees should be considered:
   a. Respiratory distress
   b. Suspected severe head trauma
   c. Promotion of patient compliance

III. NOTES/EDUCATIONAL PEARLS

A. Evidence is lacking to support or refute the use of manual stabilization prior to spinal assessment in the setting of a possible traumatic injury when the patient is alert with spontaneous head/neck movement.

   1. Providers should not manually stabilize these alert and spontaneously moving patients, since patients with pain will self-limit movement and forcing immobilization in this scenario may unnecessarily increase discomfort and anxiety.

B. Ambulatory patients may be safely immobilized on gurney with cervical collar and straps and will not generally require a spine board.
C. Reserve long spine board use for the movement of patients whose injuries limit ambulation and who meet criteria for the use of spinal precautions. Remove from the long board as soon as is practical.
TRAUMATIC ARREST

I. PATIENT CARE GOALS

A. Rapid evaluation and treatment of traumatic arrest patients as per the General Trauma Management protocol to improve outcomes.

B. Assessment for signs of life to determine if resuscitation is indicated.

C. Transport of traumatic arrest patients that meet criteria for resuscitation to the closest, appropriate Level 1 Trauma Center.

   1. Age 15 years or less: Pediatric Level 1 Trauma Center
   2. Age 16 years and older: Level 1 Trauma Center

II. PATIENT MANAGEMENT

A. Assessment

   1. Perform a thorough patient assessment and evaluate for signs of life which include:

      a. Respiration
      b. Pulse
      c. Spontaneous movement

   2. Patients with traumatic injury and signs of life should have resuscitation initiated with transport to the closest appropriate Level 1 Trauma Center.

   3. Resuscitation should be withheld in the following circumstances with no signs of life present (per Determination of Death/Withholding of Resuscitative Measures policy).

      a. Decapitation
      b. Transection of the torso
      c. Incineration (90% of body surface area with full thickness burns)

   4. For adult patients with traumatic injury and no signs of life, assess cardiac rhythm to determine if resuscitation should be initiated.

   5. If cardiac rhythm is Pulseless Electrical Activity (PEA), resuscitation should be initiated with transport to the closest, appropriate Level 1 Trauma Center.

   6. If cardiac rhythm is asystole in multiple leads and no signs of life are present, resuscitation may be withheld and Online Medical Control should be contacted.
a. The following conditions are excluded and should be resuscitated:
   i. Drowning or strangulation
   ii. Lightning strike or electrocution
   iii. Situations involving hypothermia
   iv. Patients with visible pregnancy
   v. The mechanism of injury does not correlate with the clinical condition suggesting a non-traumatic cardiac arrest

B. Treatment and Interventions

   1. Resuscitation includes control of external hemorrhage, airway management, pelvic stabilization if indicated, chest compressions, and rapid transport.

   2. Pleural (needle) decompression is indicated for traumatic arrest with thoracic trauma.

   3. Epinephrine is not recommended for traumatic arrest.

C. Patient Safety Considerations

   1. When the traumatic mechanism does not correlate with the clinical condition, suggesting a non-traumatic cause of cardiac arrest, Incident Command for Cardiac Arrest (ICCA) should be followed.

III. NOTES/EDUCATIONAL PEARLS

   A. Resuscitative efforts should not prolong scene time.

   B. When resuscitation is indicated, traumatic arrest patients should be transported to the closest appropriate Level 1 Trauma Center.

   C. Situations where resuscitation is withheld should be managed with law enforcement.

   D. Patient care is the responsibility of EMS. For scenes managed with law enforcement, a full patient assessment is still required to determine need for resuscitative efforts.
OBSTETRICS

Childbirth and Post-Delivery Care
Neonatal Resuscitation
Obstetrical Complications / Bleeding in Pregnancy
Obstetrical Complications / Breech Birth
Obstetrical Complications / Nuchal Cord
Obstetrical Complications / Pre-Eclampsia or Eclampsia
Obstetrical Complications / Prolapsed Cord
CHILDBIRTH - BLS

Obtain patient history and document any of the following:
1. Rectal pressure
2. Contractions less than or equal to 2 minutes apart
3. Uncomfortable and unable to ambulate
4. Vaginal bleeding
5. Ruptured membranes
6. Uncontrollable urge to push

Any of the above present?

YES

Request ALS assistance
Check for crowning
Crowning present?

YES

Prepare for birth
Control delivery of head with palm of hand so it does not emerge too quickly
Check for cord around the neck
If present, refer to Nuchal Cord protocol
Guide head and neck as upper shoulders are delivered
Support baby as body delivers
See Post-Delivery Care protocol on the next page

NO

NO

Monitor for above
Time contractions

Place patient on left side
Time contractions

BLS Non-Transport
BLS Ambulance

Prepare for transport and contact Medical Control as appropriate
Contact Medical Control and transport to ED with an approved OB facility
POST-DELIVERY CARE - BLS

BABY

1. Note time of delivery
2. PRMC
3. Keep newborn level with mother’s vagina until cord clamped
4. Wipe face
5. Dry and wrap warmly in blanket
6. Clamp umbilical cord securely in two places about 6-8” from baby and cut between 2 clamps
7. If non-vigorous or in respiratory distress proceed to Neonatal Resuscitation protocol
8. Request ALS assistance
9. Assess APGAR score at 1 and 5 minutes after birth
   - Request ALS assistance if APGAR ≤ 6

MOTHER

1. RMC
2. Place in Trendelenburg if BP<90
   - Request ALS assistance
3. If placenta delivers, note time of delivery
   - Put it in a plastic bag
   - Do not delay transport waiting for placenta
   - Do NOT pull on cord to facilitate placenta delivery
4. If heavy vaginal bleeding, gently massage uterus with your hand on abdomen
5. If perineum is torn or bleeding, apply direct pressure with trauma dressing

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Contact Medical Control and transport to ED with an approved OB facility
### Apgar Scoring

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>1 Min</th>
<th>5 Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>A=Appearance (color)</td>
<td>Blue, pale</td>
<td>Blue hands and feet</td>
<td>Entirely pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P=Pulse (heart rate)</td>
<td>Absent</td>
<td>&lt;100/min</td>
<td>&gt;100/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G=Grimace (reflex irritability)</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough or sneeze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A=Activity (muscle tone)</td>
<td>Limp</td>
<td>Some flexion of extremities</td>
<td>Active motion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R=Respiratory effort</td>
<td>Absent</td>
<td>Weak cry, hypoventilation</td>
<td>Good, strong cry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS =**
NEONATAL RESUSCITATION - BLS

1. PRMC

2. Request ALS assistance

3. Deliver head and body
   Clamp/cut cord

4. Dry
   Clear Airway
   Warm
   Position and stimulate

5. Check respirations, heart rate, and color

   - Apneic, HR < 100, Baby not vigorous
     - If indicated, gently suction mouth and nose of infant with bulb syringe
     - BVM at 40-60 breathes per minute with supplemental oxygen at 5-10 L
     - Check heart rate after 30 seconds of positive pressure ventilation

   - HR < 60
     - Support ABCs
     - Keep warm
     - Continue ventilation

   - HR ≥ 60
     - Support ABCs
     - Keep warm
     - Continue ventilation

6. Cyanotic and Breathing
   - Supplemental Oxygen at 5-10 L

7. Pink and Breathing, HR > 100
   - Support ABCs
   - Keep warm

8. BLS Non-Transport
   - Prepare for transport and contact Medical Control as appropriate

9. BLS Ambulance
   - Contact Medical Control and transport to ED with an approved OB facility

1 – Corrective action steps to improve positive pressure ventilation:

- M: Mask Adjustment
- R: Reposition Airway
- S: Suction Mouth & Nose
- O: Open Mouth
- P: Pressure Increase
- A: Airway Alternative
Obstetrical Complications / Bleeding in Pregnancy - BLS

RMC

Request ALS assistance

Place mother on left side if ≥ 20 weeks gestation

Note type and amount of external bleeding and/or discharge

Prepare for transport and contact Medical Control as appropriate

Alert Medical Control of OB complications
Transport to ED with an approved OB facility
if ≥ 20 weeks gestation
OBSTETRICAL COMPLICATIONS / BREECH BIRTH - BLS

- If head has not delivered in 30 seconds with the next contraction, continue supporting the body and reach 2 sterile gloved fingers into vagina to locate infant's mouth. Press vaginal wall away from baby's mouth to form an airway. Until head delivers, keep your hand in position.
- After shoulders are delivered, gently elevate trunk and legs to aid in delivery of head (if face down).
- As soon as legs are delivered, support baby's body and wrap in towel.
- Never attempt to pull the baby from the vagina by the legs or trunk.
- Request ALS assistance.

BLS Ambulance
- Alert Medical Control of OB complications
- Transport to ED with an approved OB facility

BLS Non-Transport
- Prepare for transport and contact Medical Control as appropriate

RMC
- Request ALS assistance
OBSTETRICAL COMPLICATIONS /NUCHAL CORD - BLS

RMC

Request ALS assistance

Slip two fingers under the cord and lift over baby’s head

Successful?

NO

Double clamp cord, cut cord between clamps to allow for release of cord from neck

YES

Follow normal delivery procedures

BLS Non-Transport  BLS Ambulance

Prepare for transport and contact Medical Control as appropriate

Alert Medical Control of OB complications. Transport to ED with an approved OB facility
OBSTETRICAL COMPLICATIONS / PRE-ECLAMPSIA or ECLAMPSIA - BLS

RMC

Request ALS assistance

Place mother on left side

Minimal central nervous system stimulation

Seizure precautions

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Alert Medical Control of OB complications. Transport to ED with an approved OB facility

Approved: EMS Medical Directors Consortium
Effective: January 1, 2011
OBSTETRICAL COMPLICATIONS / PROLAPSED CORD - BLS

RMC

Request ALS assistance

Elevate mother’s hips, knee-chest position, or left side down, Trendelenberg position.

Palpate cord for pulsations

Protect cord from being compressed by placing a sterile gloved hand in vagina and supporting the presenting part until transfer of patient care

Keep exposed cord moist and warm (may use sterile NS)

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Alert Medical Control of OB complications

Transport to ED with an approved OB facility
PEDIATRICS

Pediatric Initial Assessment
Pediatric Routine Medical Care (PRMC)
Pediatric Routine Trauma Care (PRTC)
   Pediatric Airway Obstruction
   Pediatric Altered Mental Status
   Pediatric Anaphylaxis and Allergic Reaction
      Pediatric Bronchospasm
      Pediatric Burns
   Pediatric Cardiac Arrest
Pediatric Chemical Agents / Airway Respiratory Irritants / Nerve Agents
   Pediatric Croup or Epiglottitis
   Pediatric Drowning
   Pediatric Hyperthermia / Heat Exposure
   Pediatric Hypothermia / Cold Exposure
   Pediatric Pain Management
      Pediatric Seizures
      Pediatric Shock
   Pediatric Topical Chemical Burn
   Pediatric Tracheostomy with Respiratory Distress
PEDIATRIC INITIAL ASSESSMENT

I. SCENE SIZE-UP

A. Protect from body substance through isolation (glasses, gloves, gown and mask).

B. Assess the scene for safety and take appropriate steps.

C. Determine the mechanism of injury/nature of illness.
   1. Note the number of patients.
   2. Initiate Mass Casualty Plan, if necessary.
      a. Call for additional personnel and equipment.
      b. Begin triage.
   3. Assess for any indication of abuse or neglect of the patient (see Reporting Abused and/or Neglected Patients policy).

II. INITIAL ASSESSMENT OF PEDIATRIC PATIENT

A. Assess general impression of child and environment with initial assessment of wellness and general appearance (conduct from a distance). Complete assessment while protecting the cervical spine, if necessary.
   1. Determine nature of illness or mechanism of injury.
   2. Is child in a life threatening condition? Treat immediately. Refer to Broselow tape if needed.
   3. Obtain SAMPLE history and identify any caregivers at scene.

B. Assess child's mental status.
   1. Identify yourself and your purpose using age appropriate terms.
   2. Initially approach child in non-threatening manner, on their level when appropriate. Initiate touch in a non-threatening manner before examining child, when appropriate.
3. Evaluate child's mental status utilizing Pediatric Coma Scale.

C. Assess airway

1. Responsive Child
   a. If child is talking or crying, then assess for adequacy of breathing.
   b. If child is not talking or crying, open airway using modified jaw thrust maneuver.

2. Unresponsive Child
   a. Open the airway using modified jaw thrust maneuver.
   b. Consider use of oral airway.

D. Assess Breathing

1. Non-breathing child
   a. Maintain open airway and assist breathing utilizing ventilatory adjuncts and oxygen at the appropriate rate.
   b. Suction if necessary.
   c. Pulse oximeter

2. Breathing child
   a. Look for rise and fall of chest and feel for rate and depth of breathing.
   b. Look for use of accessory muscles, nasal flaring, grunting and retractions.
   c. Determine adequacy of breathing for age (either too fast or too slow).
   d. If breathing is inadequate, assist breathing utilizing ventilatory adjuncts and oxygen at the appropriate rate.
   e. Suction if necessary.
   f. Pulse oximeter (if indicated)

### PEDIATRIC VITAL SIGNS

Weight in kg = (2 x age in years) + 10

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Systolic Blood Pressure</th>
<th>Respiratory Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate (0-30 days)</td>
<td>100-180</td>
<td>&gt; 60</td>
<td>30-60</td>
</tr>
<tr>
<td>Infant (31 days - &lt; 1yr)</td>
<td>100-160</td>
<td>&gt; 60</td>
<td>30-60</td>
</tr>
<tr>
<td>Toddler (1 yr - &lt; 3 yrs)</td>
<td>90-150</td>
<td>&gt; 70</td>
<td>24-40</td>
</tr>
<tr>
<td>Pre-School (3 yrs - &lt; 5 yrs)</td>
<td>80-140</td>
<td>&gt; 75</td>
<td>22-34</td>
</tr>
<tr>
<td>School Age (5 yrs – 12 yrs)</td>
<td>70-120</td>
<td>&gt; 80</td>
<td>18-30</td>
</tr>
<tr>
<td>Adolescent ( &gt; 12 yrs)</td>
<td>60-100</td>
<td>&gt; 90</td>
<td>12-16</td>
</tr>
</tbody>
</table>
E. Assess Circulation

INDICATORS OF HYPOPERFUSION IN CHILDREN
• Cyanosis despite administration of oxygen
• Truncal pallor/cyanosis and coolness
• Hypotension (late sign)
• Bradycardia (ominous sign)
• Weak, thready, or absent peripheral pulses
• No palpable blood pressure
• Decreasing level of consciousness

1. Check brachial or femoral pulse for rate and quality.

2. If none found, check for carotid pulse. If pulseless, start CPR and see appropriate protocol.

3. Assess for central capillary refill.


5. Assess and control severe bleeding.

F. Identify priority pediatric patients for immediate transport and initiate interventions as per protocols.

G. Repeat initial assessment.

1. Every 15 minutes in a stable child.

2. Every 5 minutes in an unstable child.

3. Repeat before beginning detailed physical examination.

H. Initiate measures to prevent heat loss to keep the child from becoming hypothermic.

I. For children with special healthcare needs (CSHN), refer as needed to child’s emergency care plan. Understanding the child’s baseline will assist in determining the significance of altered physical findings.
# Pediatric Initial Assessment

**Title:** Pediatric Initial Assessment  
**Section:** Pediatrics  
**Approved:** EMS Medical Directors Consortium  
**Effective:** March 1, 2016

## Pediatric Glasgow Coma Scale (PGCS)

<table>
<thead>
<tr>
<th>EYE OPENING</th>
<th>&gt; 1 Year</th>
<th>&lt; 1 Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneously</td>
<td>Spontaneously</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>To verbal command</td>
<td>To shout</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>To pain</td>
<td>To pain</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>No response</td>
<td>No response</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### MOTOR RESPONSE

<table>
<thead>
<tr>
<th>&gt; 5 years</th>
<th>2-5 Years</th>
<th>0-23 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys</td>
<td>Spontaneous</td>
<td></td>
</tr>
<tr>
<td>Localizes pain</td>
<td>Localizes pain</td>
<td></td>
</tr>
<tr>
<td>Flexion-withdrawal</td>
<td>Flexion-withdrawal</td>
<td></td>
</tr>
<tr>
<td>Flexion-abnormal (decorticate rigidity)</td>
<td>Flexion-abnormal (decorticate rigidity)</td>
<td></td>
</tr>
<tr>
<td>Extension (decerebrate rigidity)</td>
<td>Extension (decerebrate rigidity)</td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>No response</td>
<td>No response</td>
</tr>
</tbody>
</table>

### VERBAL RESPONSE

<table>
<thead>
<tr>
<th>&gt; 5 years</th>
<th>2-5 Years</th>
<th>0-23 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented</td>
<td>Appropriate words/phrases</td>
<td>Smiles/coos appropriately</td>
</tr>
<tr>
<td>Disoriented/confused</td>
<td>Inappropriate words</td>
<td>Cries and is consolable</td>
</tr>
<tr>
<td>Inappropriate words</td>
<td>Persistent cries and screams</td>
<td>Persistent inappropriate crying and/or screaming</td>
</tr>
<tr>
<td>Incomprehensible sounds</td>
<td>Grunts</td>
<td>Grunts, agitated, and restless</td>
</tr>
<tr>
<td>No response</td>
<td>No response</td>
<td>No response</td>
</tr>
</tbody>
</table>

**TOTAL PEDIATRIC GLASGOW COMA SCORE:** (3-15)
PEDIATRIC PAIN SCALE

0  No Hurt
1  Hurts Little Bit
2  Hurts Little More
3  Hurts Even More
4  Hurts Whole Lot
5  Hurts Worst
PEDIATRIC ROUTINE MEDICAL CARE (PRMC) - BLS
(Age Newborn – 15 yrs.)

Scene Safety & Universal Precautions (BSI)

Assess level of consciousness (PGCS)¹

Secure and maintain airway

Administer oxygen per appropriate method
to maintain oxygen saturation ≥ 94%
For patients with respiratory distress, shock, smoke
inhalation, carbon monoxide delivery, or cardiac arrest,
administer high flow oxygen 15 L
by most appropriate method
(See Appendix for Oxygen Delivery Methods)

Obtain vital signs¹

Assess for hypoperfusion¹

Prevent heat loss/decreased body temperature

Assess for pain using pain scale³

Obtain history

See appropriate protocol

Initiate patient care per Initiation of Patient Care policy

BLS Non-Transport | BLS Ambulance

Prepare for transport and contact
Medical Control as appropriate

Transport and contact Medical Control as appropriate

¹ – See Pediatric Initial Assessment
PEDIATRIC ROUTINE TRAUMA CARE (PRTC) - BLS
(Age Newborn – 15 yrs.)

1. Scene Safety & Universal Precautions (BSI)
2. Assess level of consciousness (PGCS)
3. Secure and maintain airway
   C-spine stabilization as appropriate
4. Administer oxygen per appropriate method
   to maintain oxygen saturation ≥ 94%
   For patients with respiratory distress, shock, smoke
   inhalation, carbon monoxide poisoning or cardiac
   arrest, administer high flow oxygen 15 L
   by most appropriate method
   (See Appendix for Oxygen Delivery Methods)
5. Assess and control bleeding
6. Obtain vital signs
7. Assess for hypoperfusion
8. Prevent heat loss/decreased body temperature
9. Assess for pain using pain scale
10. Obtain history
11. See appropriate protocol
12. Initiate patient care per Initiation of Patient Care policy
13. Apply Trauma Field Triage Criteria decision scheme
    to determine appropriate transport destination
    (see Trauma Patient Triage and Transport policy)

BLS Non-Transport
Prepare for transport and contact
Medical Control as appropriate

BLS Ambulance
Transport and contact Medical
Control as appropriate

1 – See Pediatric Initial Assessment
PEDIATRIC AIRWAY OBSTRUCTION - BLS

PRMC

Request ALS assistance

Conscious?

NO

YES

Able to speak or make sounds?

NO

YES

Start CPR¹

Before ventilation, look in airway if a foreign body is seen, remove (Do not use a blind finger sweep)

Continue CPR until the obstruction is relieved or the child regains consciousness

< 1 year: 5 back slaps and 5 chest thrusts
≥ 1 year: abdominal thrusts

Continue until relieved

If patient becomes unconscious begin CPR¹

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate

1 – Pediatric CPR rates:
1 rescuer = 30 compressions: 2 ventilations
2 rescuers = 15 compressions: 2 ventilations
Pediatric Altered Mental Status - BLS

Special Considerations:

Consider causes:
- A Alcohol, abuse
- E Epilepsy, electrolytes, encephalopathy
- I Insulin
- O Opiates, overdose
- U Uremia
- T Trauma, temperature
- I Infection, intussusception, inborn errors
- P Psychogenic
- P Poison
- S Shock, seizures, stroke, space-occupying lesion, subarachnoid hemorrhage, shunt

**Pediatric Altered Mental Status - BLS**

1. PRMC
2. Request ALS assistance
3. Spinal Motion Restriction as indicated
4. Check Blood Sugar
   - BS > 60 mg/dl
   - BS ≤ 60 mg/dl
     - Oral Glucose (if gag reflex is intact):
       - 1 mo – 4 years: ¼ tube
       - 4-8 years: ½ tube
       - >8 years: 1 tube
     - Assess for respiratory effort
   - If signs of opioid intoxication with respiratory depression administer Naloxone
     - 0 – 4 years: 1 mg/IN
     - > 4 years: 2 mg/IN
5. Consider other causes of altered mental status
6. BLS Non-Transport
   - Prepare for transport and contact Medical Control as appropriate
7. BLS Ambulance
   - Transport and contact Medical Control as appropriate
**PEDIATRIC ANAPHYLAXIS and ALLERGIC REACTION - BLS**

1. **RMC**
   - Secure and maintain airway
   - Request ALS assistance

2. **Severity of reaction?**
   - SEVERE SYMPTOMS OR > 1 MILD SYMPTOM*
   - SINGLE MILD SYMPTOM**

3. **Administer Epinephrine**
   - Length < 48 inches = Epinephrine 0.15 mg IM
   - Length ≥ 48 inches = Epinephrine 0.3 mg IM
   - OR
   - Assist patient with prescribed EpiPen

4. **Contact Medical Control**
   - If wheezing, Albuterol 2.5 mg
   - Repeat Albuterol as needed

5. **Closely monitor, if no improvement administer a second dose of Epinephrine after consultation with Medical Control**

6. **Prepare for transport and continue to monitor for any worsening of condition**

7. **Discuss disposition with Medical Control**

---

**Severe symptoms of an allergic reaction may include any combination of the following:**

- **RESPIRATORY** – Shortness of breath, wheezing, repetitive coughing
- **CARDIOVASCULAR** – Pale, cyanotic, low blood pressure, dizzy
- **THROAT** – Tightness, hoarse, trouble breathing/swallowing
- **MOUTH** – Swelling of the tongue and/or lips
- **SKIN** – Diffuse hives or redness
- **GI** – Repetitive vomiting, severe diarrhea
- **NEURO** – Anxiety, confusion, sense of doom

**Mild symptoms of an allergic reaction may include any combination of the following:**

- **NOSE** – Itchy/runny nose, sneezing
- **MOUTH** – Itching
- **SKIN** – Few hives, mild itching
- **GI** – Mild nausea/discomfort
PEDIATRIC BRONCHOSPASM - BLS

If available
NOTE: If patient has an established tracheostomy, see Pediatric Tracheostomy with Respiratory Distress protocol
NOTE: Complete lack of breath sounds may indicate severe bronchoconstriction

1 – If available

TITLE: Pediatric Bronchospasm - BLS
SECTION: Pediatrics
APPROVED: EMS Medical Directors Consortium
EFFECTIVE: March 1, 2016
PEDIATRIC BURNS - BLS

<table>
<thead>
<tr>
<th>PRMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request ALS assistance</td>
</tr>
<tr>
<td>Assess singed facial hair, hoarseness, wheezing, cough or stridor</td>
</tr>
<tr>
<td>Remove clothing</td>
</tr>
<tr>
<td>Remove all accessories and jewelry</td>
</tr>
<tr>
<td>Do not attempt to cool patient</td>
</tr>
<tr>
<td>Estimate extent and depth of burn¹</td>
</tr>
<tr>
<td>Cover with dry dressings or sheet</td>
</tr>
</tbody>
</table>

BLS Non-Transport

Prepare for transport and contact Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate

¹ – See next page for Pediatric Burns % Body Surface Area
% Body Surface Area

Palm of hand (including fingers) of infant or child = 1% of the total body surface

Any patient with a life threatening condition should be treated until stable at the nearest appropriate facility before being transferred to a burn center.
PEDIATRIC CARDIAC ARREST - BLS

Confirm unresponsiveness and check ABCs
If pulseless begin CPR

Attach AED

Check rhythm
Follow AED instructions

Shock advised?

YES

Resume CPR (x2 minutes)
Check rhythm

BLS Non-Transport
Prepare for transport and contact Medical Control as appropriate

NO

Continue CPR

BLS Ambulance
Transport and contact Medical Control as appropriate

Pediatric CPR rates:
1 rescuer = 30 compressions: 2 ventilations
2 rescuers = 15 compressions: 2 ventilations
Notify Haz Mat Team
Decontamination by Haz Mat Team

PRTC

Request ALS assistance

BLS Non-Transport  BLS Ambulance

Prepare for transport and contact Medical Control as appropriate  Transport and contact Medical Control as appropriate

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
PEDIATRIC CROUP OR EPIGLOTTITIS - BLS

PRMC

Request ALS assistance

Do not agitate child
Keep patient calm and upright

Attempt to administer oxygen with mask held by parent or guardian 4 inches in front of child’s face only if well tolerated by child

See Pediatric Bronchospasm protocol

BLS Non-Transport BLS Ambulance

Prepare for transport and contact Medical Control as appropriate Transport and contact Medical Control as appropriate
**Title:** Pediatric Drowning - BLS  
**Section:** Pediatrics  
**Approved:** EMS Medical Directors Consortium  
**Effective:** March 1, 2016

### PEDIATRIC DROWNING - BLS

1. **PRMC**
2. **Request ALS assistance**
   - Assess ABCs
   - Start CPR if necessary
3. **Spinal Motion Restriction as indicated**
4. **Remove wet clothing**  
   - Warm patient
5. **BLS Non-Transport**  
   - Prepare for transport and contact Medical Control as appropriate
6. **BLS Ambulance**  
   - Transport and contact Medical Control as appropriate

---

1 – Pediatric CPR rates:  
1 rescuer = 30 compressions: 2 ventilations  
2 rescuers = 15 compressions: 2 ventilations
PEDIATRIC HYPERTHERMIA / HEAT EXPOSURE - BLS

1. Request ALS assistance
2. Place in cool environment
   - Remove clothing as appropriate
3. Monitor mental status
   - Monitor nausea/vomiting

BLS Non-Transport
- Prepare for transport and contact Medical Control as appropriate

BLS Ambulance
- Transport and contact Medical Control as appropriate
**PEDIATRIC HYPOTHERMIA / COLD EXPOSURE - BLS**

**NOTES:**
- May present with altered sensorium or as unconscious. Heart more susceptible to dysrhythmias. May have apnea, dusky or cyanotic appearance, fixed and dilated pupils; may appear without signs of life.
- An individual in a frozen state is not considered salvageable.
- The suspected hypothermic patient shall never be declared dead in the field.

1 - Pediatric CPR rates: 1 rescuer = 30 compressions: 2 ventilations
2 rescuers = 15 compressions: 2 ventilations
PEDIATRIC PAIN MANAGEMENT - BLS

PRMC

Determine cause of patient’s pain and refer to appropriate protocol

Determine Patient’s Pain Score using either the Verbal Descriptor Scale or Wong-Baker FACES® Scale

Consider use of non-pharmacologic pain management techniques
Consider application of ice packs or splints as appropriate

Complete vital signs and pain scale should be assessed and documented before and after every intervention

Transport and contact Medical Control as appropriate

Universal Pain Assessment Tool

<table>
<thead>
<tr>
<th>Verbal Descriptor Scale</th>
<th>0</th>
<th>1</th>
<th>2</th>
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<td>Excruciating Pain</td>
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<thead>
<tr>
<th>Wong-Baker FACES®</th>
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<td>Happy Face</td>
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<td>Neutral Face</td>
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<td>Frowning Face</td>
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<td>Grimacing Face</td>
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<td>Screaming Face</td>
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</tbody>
</table>
**PEDIATRIC SEIZURES - BLS**

1. Request ALS assistance
2. Protect from injury
   - Aspiration precautions
3. Assess level of consciousness (PGCS) during post-ictal period
4. Support ABCs
5. Check Blood Sugar
   - If BS ≤ 60 mg/dl:
     - Oral Glucose (if gag reflex is intact):
       - 1 mo – 4 years: ¼ tube
       - 4-8 years: ½ tube
       - >8 years: 1 tube
   - If BS > 60 mg/dl
6. BLS Non-Transport: Prepare for transport and contact Medical Control as appropriate
7. BLS Ambulance: Transport and contact Medical Control as appropriate
PEDIATRIC SHOCK - BLS

1. Request ALS assistance
2. Secure airway as appropriate
   Supine or shock position
3. Determine etiology of shock
4. If suspected allergic reaction, see Anaphylaxis and Allergic Reaction protocol
5. Support ABCs
   Observe
   Keep warm

Prepare for transport and contact Medical Control as appropriate
Transport and contact Medical Control as appropriate
PEDIATRIC TOPICAL CHEMICAL BURN - BLS

1. Assure scene safety
   Remove patient from source as necessary

2. Notify fire department Haz Mat as appropriate

3. PRMC

4. Request ALS assistance

5. Burn location?
   
   - EYE
     - Flush eyes continuously with Normal Saline throughout transport
   
   - SKIN
     - Substance form?
       - SOLID
         - Brush off excess chemical
           - Remove clothing

       - LIQUID
         - Remove clothing
         - Flush with Normal Saline/water

6. BLS Non-Transport
   
   - Prepare for transport and contact Medical Control as appropriate

7. BLS Ambulance
   
   - Transport and contact Medical Control as appropriate

* All efforts should be made to decontaminate the patient prior to transport, as appropriate per HazMat team.
Title: Pediatric Tracheostomy with Respiratory Distress - BLS

Section: Pediatrics

Approved: EMS Medical Directors Consortium

Effective: March 1, 2016

Pediatric Tracheostomy with Respiratory Distress - BLS

PRMC

Request ALS assistance

Suction as indicated

Is airway patent?

NO, Obstructed

Repeat suction after removing inner cannula if present

Have caregiver change trach tube

Is airway patent?

NO, Obstructed

Ventilate with mask to mouth
  If no chest rise, ventilate with
  infant mask to stoma

       CPR if heart rate ≤ 60'

YES, Clear

BLS Non-Transport

Prepare for transport and contact
  Medical Control as appropriate

BLS Ambulance

Transport and contact Medical Control as appropriate

YES, Clear

Monitor for the following:
  Retractions
  Grunting/wheezing/stridor
  Tachypnea
  Decreasing Consciousness
  Apnea
  Cyanosis

  If wheezing, Albuterol 2.5 mg via nebulizer
  Repeat Albuterol as needed

Prepare for transport and contact
  Medical Control as appropriate

Transport and contact Medical Control as appropriate

1 – Pediatric CPR rates:
  1 rescuer = 30 compressions: 2 ventilations
  2 rescuers = 15 compressions: 2 ventilations
APPENDIX

Oxygen Delivery Methods
Latex Allergy
LATEX ALLERGY

**INDICATIONS**

- Patients with known sensitivity to latex
- Patients with onset of respiratory or dermatological signs and symptoms

**CONTRAINdications**

- None

**EQUIPMENT**

*Latex free* products for:

1. **Airway:**
   - Oral/Nasal airways
   - Suction catheters
   - Bag valve masks
   - Oxygen tubing
   - Endotracheal tubes
   - Stylets

2. **IV:**
   - Tourniquets
   - Gloves
   - Tape

When utilizing other medical equipment such as stethoscopes or blood pressure cuffs, provide a barrier between the patient and the device (i.e. Kerlix, 4 x 4’s, cloth, etc).

**PROCEDURE**

1. Utilize latex free products whenever possible.

2. If a patient experiences an onset of symptoms (i.e. respiratory and/or dermatological signs and symptoms) and routine, latex gloves have been utilized:
   a. *Do not remove gloves*
   b. *Place latex free gloves over latex gloves, as a second pair.*

3. Medication should not be drawn from a multi-dose vial, if possible. Medication drawn up in a syringe must be given immediately after withdrawing the medication.

4. Secure bandaged sites with cloth or silk tape.

5. See **Anaphylaxis and Allergic Reaction** protocol for treatment of a latex reaction.
<table>
<thead>
<tr>
<th>Delivery Method</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal Cannula</td>
<td>1 – 6L / min.</td>
</tr>
<tr>
<td>Non-rebreather Mask (NRB)</td>
<td>10 -15L / min.</td>
</tr>
<tr>
<td>Bag Valve Mask (BVM)</td>
<td>15L / min.</td>
</tr>
<tr>
<td>Endotracheal Intubation</td>
<td>15L / min.</td>
</tr>
<tr>
<td>I-gel Supraglottic Airway</td>
<td>15L / min.</td>
</tr>
<tr>
<td>King LT Supraglottic Airway</td>
<td>15L / min.</td>
</tr>
<tr>
<td>Blow-by (for children who do not tolerate a NRB)</td>
<td>10 – 15L / min.</td>
</tr>
</tbody>
</table>