



## Southern Minnesota Regional Trauma Advisory Committee (SMRTAC)

### Regional Practice Management Guideline

#### *Burn Surge*

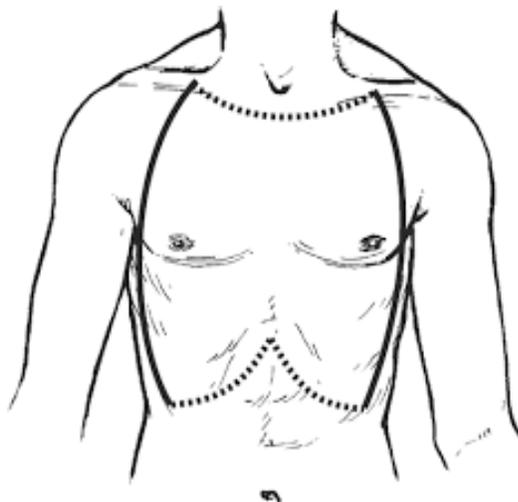
<b>Adult and Pediatric Practice Management Guideline</b>	<b>Effective: 02/2017</b>
<b>Contact: SMRTAC Coordinator</b>	<b>Last Reviewed: 2/16/17</b>

#### Purpose

To provide guidance for both EMS and hospitals on care and transfer of multiple burn patients in a mass casualty burn incident.

#### Definitions

1. Burn--any injury to tissue usually caused by heat, abnormal cold, chemicals, poison gas, electricity, or lightning
2. Burn injury degrees:
  - a. First degree burn-epidermis only, "sunburn" injury
  - b. Second degree burn- entire epidermis and part of dermis, most painful
  - c. Third degree burn-entire dermis and epidermis, white and dry appearance with minimal pain
  - d. Fourth degree burn-into underlying structures (bone and muscle), often charred appearing, no pain
3. TBSA--total body surface area. Only second, third and fourth degree burns are counted in determining TBSA.
4. TBSA is quickly estimated by using the patient's hand. 1% TBSA=size of patient's hand
5. Escharotomy—If patient unable to be ventilated, emergent incisions should be made including the entire length of both anterior axillary chest walls. A sub-costal incision and an incision across the upper chest can be done to connect with the vertical incisions if needed to provide better ventilation capability. Incision depth is to the depth of SQ fat, entirely through the burned tissue.



6. BSF--burn surge facility. These are hospitals in MN and North Dakota who have agreed to be BSFs in the event that there are no burn beds available at the 2 American Burn Association (ABA) verified burn centers-Regions in St. Paul and HCMC in Minneapolis. BSFs are equipped to care for burn patients up to 72 hours before transfer to an ABA burn facility.

Region	Burn Surge Facility
South East	Mayo Clinic Hospital – Rochester
South West	Sanford – Worthington
Central	St. Cloud Hospital
North Dakota (will cover WC and NW regions within MN)	Altru – Grand Forks
	Sanford – Fargo
	Essentia Health – Fargo
North East	Essentia Health – Duluth
Metro	Abbott Northwestern
	Children’s Hospitals & Clinics
	Mercy Hospital
	North Memorial
	UMMC – M Health

### **Policy Statements**

1. Burn patients are trauma patients. Assess for other injuries that could have immediate impact on mortality.
2. Burn Center Referral Criteria:
  - a. Partial thickness burns > 10% TBSA
  - b. Burns involving face, hands, feet, genitalia, perineum or major joints
  - c. Third degree burns in any age group
  - d. Electrical burns, including lightning injuries
  - e. Chemical burns
  - f. Inhalation injury
  - g. Burn injury in patients with pre-existing medical disorders that could complicate management, prolong recovery or affect mortality.
  - h. Any patients with burns and additional trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient’s condition may be stabilized initially in a trauma center before transfer to a burn center. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
  - i. Burned children in hospitals without qualified personnel or equipment for the care of children.
  - j. Burn injury in patients who will require special social, emotional or rehabilitative intervention.
  - k. During a disaster, some of these patients may be managed at non-burn facilities with consultation from burn unit personnel depending on the severity of the injury and capabilities of the hospital.
3. Burn Surge Facilities are expected to have both medical and staffing resources to initially treat and sustain, at minimum, one burn patient for up to 72 hours if unable to immediately transfer to a designated Burn Center.
4. All acute care hospitals providing emergency services should be capable of providing initial triage and resuscitation for burn patients for up to 6 hours.

## Procedure Statements

### EMS:

Initial care for burn patients will occur on scene and during transport by first responders and EMS providers.

- a. Stopping the burn process is the highest priority. Once the burn process has been stopped (under 5 minutes typically) and the burn has been cooled, remove wet clothing/dressings, cover patient with dry sheet or dressings to prevent hypothermia.
- b. Assess ABC's and provide airway support
- c. Start IV/IO with Normal Saline. IV access may need to be done through burns if no other option exists. Do NOT run IV wide open unless patient has other trauma with hypotension. Contact receiving hospital for guidance regarding rate.
- d. Provide IV pain medication, if have capability to do so.
- e. Be prepared to intubate or provide airway assistance.
- f. Consider escharotomy for significant third degree burns of chest if unable to ventilate patient and your agency protocols/medical control allow this.
- g. Transport patient to most appropriate hospital for care.
- h. During a large event, may need to transport patient(s) to the closest hospital for stabilization.
- i. If local resources are overwhelmed, local responders should activate Mutual Aid Agreements.

### First Receiving Hospital:

Community or first receiving hospitals provide initial stabilization and treatment to burned patients for up to 6 hours as directed by their ED providers, medical directors or will seek guidance from burn medical advisers from a Burn Center if patients cannot be immediately transferred to a verified Burn Center or BSF.

- a. Stop the burning process (under 5 minutes typically). Remove wet clothing/dressings and cover with clean/sterile sheet. Use additional methods to prevent hypothermia.
- b. Assess ABC's and provides airway support.
- c. If unable to adequately ventilate patient with significant third degree burns to chest wall, perform escharotomy to improve ventilation support. Dissect entirely through burned tissue to be effective. Bleeding is usually seen from viable tissue.
- d. Assess for any traumatic injuries and stabilize.
- e. Place IV/IO if not already done. May start IV/IO through burns, if necessary.
- f. Change IV solution to Lactated Ringer's, if available, to avoid causing hyperchloremic metabolic acidosis.
- g. Determine TBSA burned as defined above.
- h. Uses Parkland formula for IV fluids: 2-4ml/kg/%TBSA over 24 hours with first ½ of fluid amount to be given in first 8 hours **since time of initial burn.**  
**Caveat:** If patient has traumatic injuries and hypotension, run IV fluids to sustain blood pressure to acceptable levels.
- i. For all patients, check glucose level and treat with glucose if low reading or insulin for high reading.
- j. Provide IV pain medication to keep comfortable.
- k. Contact Burn Center to seek advice and assistance remotely
- l. Will follow their usual transfer patterns.
- m. If unable to transfer immediately, may contact Mayo Clinic Emergency Communications Center (ECC) at 855-606-5458 and request activation of the Healthcare Multi-Agency Coordination Center (H-MACC) to coordinate transfer of patients to a Regional BSF.

**Burn Surge Facility:**

In the SMRTAC region, Mayo Clinic Hospital – Rochester is the Regional Burn Surge Facility. They are able to surge to care for both adult and pediatric burn patients in the event that there are no Burn Center beds available for initial hospital transfer. Mayo has plans to care for burn patients up to 72 hours, as necessary.

Mayo Clinic Hospital-Rochester will coordinate with the lead MN Burn Center (to be identified in the Metro/State Burn Surge Plan) to move, as appropriate, the patient(s) to an ABA verified Burn Center.

**ABA verified Burn Center:**

Both MN Burn Centers will be able to surge to a total capacity of 25 burn patients each.

MN Burn Centers will coordinate burn patient movement and care during an incident.

Burn Center will maintain adequate supplies to provide care for up to 25 severely burned victims from a mass burn event.

Burn Center will provide remote assistance to facilities who request that when transfer cannot occur quickly.

Burn Center will act as a liaison with coordinating burn centers from other states when additional burn beds need to be obtained.

**Resources/Links**

MN State Burn Surge Plan -Version October 2016

<http://www.health.state.mn.us/oep/healthcare/burn/burnsurgeplan2016.pdf>

Southern Minnesota Regional Trauma Advisory Committee: Regional Mass Casualty Incident Plan, Appendix 6: Burn Surge Annex - October 2016

Burn Center Referral Criteria Source: American College of Surgeons: [Resources for Optimal Care of the Injured Patient, 2014](#) – See Pages 100-101.

Mayo Clinic Medical Transport Patient Care Guidelines K.19 Escharotomy, December, 2016

<b>Prepared by: SMRTAC leadership</b>
<b>Approvals: SMRTAC Members 2/16/2017</b>

Disclaimer: This is a general guideline and is not intended as a substitute for clinical judgment or as a protocol for the management of all trauma patients.