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MICHIGAN DEPARTMENT OF COMMUNITY HEALTH MASS CASUALTY INCIDENT BURN PLAN



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Introduction

The following Mass Casualty Incident (MCI) Burn Plan has been developed for Michigan in an effort to expand the ability to provide burn care, and to safeguard and prioritize the utilization of limited resources. The State of Michigan recognizes that no one state has the ability to meet the identified increased capacity needs of a significant incident involving large numbers of burn patients. This plan incorporates the utilization of "adjusted environments of care," by planning for the provision of stabilizing care for burn patients in facilities that are not normally associated with providing definitive care to burn patients. The ability to standardize the care that will be provided in hospitals that do not provide definitive burn care has been agreed upon in an effort to safeguard critical resources and, ultimately, improve outcomes for patients.

This plan incorporates the use of burn stages to provide context for the scope of an incident, and should not be viewed as prescriptive. Given even the limited availability of definitive burn care at the national level, it is understood that even a "relatively minor" incident may indicate a need for accessing resources from one or more of the planning partners to ensure the best possible outcomes for patients. This document should be viewed as a guide for planning a coordinated response in a mass casualty burn environment as defined by the burn stages outlined in this text.

This plan outlines the use of a long acting silver impregnated dressing, to treat burn patients. The identification of this type of dressing is meant to serve as a guide for health care partners. It is understood that the choice of which brand of product to use should and will be based on current practices. The choice to use a silver impregnated dressing for this type of MCI is critical to this plan's success, use of this type of dressing significantly reduces the number of patient care hours needed per burn victim, and, reduces the need for specialty trained nursing care, both of which are critical elements to the success of any plan directed at increasing surge capacity. It is not the intention of the document to suggest patient care practices at Michigan recognized burn centers.

This plan develops non-traditional burn care resources to provide surge capacity during a mass casualty incident, and to protect those facilities with definitive burn care capacity from being overwhelmed through the use of offsite triage and stabilization. By developing this type of surge capacity we can maximize the use of our critical definitive care resources.

The purpose of this plan is to assist local jurisdictions and Regional Healthcare Coalitions (HCC) in planning for and providing a uniform coordinated response to a mass casualty burn incident when the incident has exceeded local resources.

This plan has been designed as an adjunct to local preparedness efforts. It defines what constitutes a mass casualty burn incident. It also provides guidance to each Regional HCC in providing a uniform assessment of their current capacity to care

for burn patients and an assessment of burn surge capabilities.

This plan applies to all levels of government to include the local, regional, state and/or multi-state level. It provides guidance for:

- Uniform triage of burn patients.
- Categorization of hospital resources.
- Critical burn surge supplies based on regional population and projected surge capacity needs.
- Staff and training readiness for patient care.
- A communication model for the management of a mass casualty burn incident.

In Michigan efforts are ongoing to coordinate the capacity to care for patients during a mass casualty burn incident. The State of Michigan participates with the Great Lakes Healthcare Partnership (GLHP) **(Appendix T – Great Lakes Healthcare Partnership.)** These FEMA V partners are also working to adopt a similar organizational approach to managing the surge of burn patients from a MCI. Currently there are recognized standards of care specific to burn patients; however it would be optimal to have states adopt response structures capable of interfacing with one another in order to provide a coordinated response in a timely fashion. Absent that coordination, states may not be able to rely on meaningful support capable of mitigating critical care issues within the 72 hours post incident.

The extent of injury seen in burn patients involved in a MCI will vary in degree and criticality and, as such, the extent and intensity of care and resources required will vary significantly. This is critical in assessing existing burn capacity as it relates to the development of resources identified by any state. Michigan utilized the planning assumption of 60% of the Health Resources and Services Administration (HRSA) benchmark of 50 patients per million populations will sustain a 30% Total Body Surface Area (TBSA) injury (on average)¹ as a planning paradigm.

It is also understood that federal assets may not be readily available, and the need for both self-reliance and the assistance of the partners developed within the GLHP to sustain the needs of patients for 72 hours. Within that timeframe, the GLHP that may be accessible, and that after 72 hours federal assistance will begin to become available.

¹ U.S. Department of Health and Human Services, Health Resources and Services Administration, Special Programs Bureau. National Bioterrorism Hospital Preparedness Program, Catalog of Federal Domestic Assistance (CFDA) 93.003; 2004.

Authority

The state and jurisdictional hospital preparedness cooperative agreement, as authorized by section 319C-1 of the Public Health Service (PHS) act, as amended by the Pandemic and All-Hazards Preparedness Act (PAHPA) (P.L. 109-417) and the Emergency Medical Services (EMS) & Trauma Systems Section under Part 209 of PA 368 of 1978. <u>Pandemic and All-Hazards Preparedness Act (PAHPA)</u>, Public Law No. 109-417. <u>http://www.phe.gov/preparedness/legal/pahpa/pages/default.aspx</u>. Accessed 7-8-2014

PAHPRA is the PandeMIc and All-Hazards Preparedness Reauthorization Act of 2013 (PAHPRA) (Public Law 113-5).1 Bill H.R. 307 was signed into law to reauthorize the Pandemic and All-Hazards Preparedness Act of 2006 (PAHPA) (Public Law 109-417) and to develop new authorities to sustain and strengthen national preparedness for public health emergencies involving CBRN agents, including emerging infectious disease threats (e.g., pandemic influenza). <u>Pandemic and All-Hazards Preparedness Reauthorization Act of 2013 (PAHPRA), Public Law 113-5.</u>

http://www.phe.gov/Preparedness/legal/pahpa/section201/Documents/section201guidance.pdf. Accessed 7-8-2014

Definition of a Mass Casualty Burn Incident

For the purposes of this plan, qualitative factors that may cause a local jurisdiction to declare an emergency or disaster may include, but are not limited to mass casualties involving:

- Inhalation injuries.
- Size, depth, and location of the burn area.
- Chemical or radiological contamination/exposure.
- Presence of other trauma related injuries which compound the intensity of care and resources required for ongoing patient care.
- Casualty transport resources.
- Co-existence of other major burn MCIs in other areas of the State or multi-state region.

Mass Casualty Incident Burn Stages

During a Burn Stage I incident, state burn centers and burn centers in neighboring states will manage as many patients who meet the Mass Casualty Burn Center Referral Criteria **(Appendix G)** as available resources permit. Once it is recognized that the potential for the event to exceed local resources exists, then the Regional Medical Control Center (MCC) and the local Emergency Operations Center (EOC), with the assistance of the State Burn Coordinating Center (SBCC), should begin to coordinate medical response efforts with the Community Health Emergency Coordination Center (CHECC) and the State Emergency Operations Center (SEOC) *(Appendix R: Medical Communications Pathway during Emergency Response)*.

BSFs will be utilized as needed to briefly care for and house other burn patients pending transfer to recognized burn centers. For Burn Stage I incidents, it is expected that all burn casualties will be transferred within 24-48 hours to burn centers in Michigan and if needed neighboring states. If the existing burn center resources are exhausted, patients will be referred utilizing the process outlined in Burn Stage II.

During a Burn Stage II incident, state Burn Centers will manage as many patients as possible given the resources available for patients meeting the Mass Casualty Burn Center Referral Criteria **(Appendix G)** When Burn Center bed capacity has been exceeded, or transport is not feasible, Regional BSFs may be utilized to provide care and to house patients. The SBCC, CHECC, and the SEOC will facilitate the coordination of other burn resources with the GLHP, as well as the American Burn Association national network of burn centers, using the BMCI Response.

During a Burn Stage III incident, state Burn Centers will provide care for as many patients as they have resources to support care that meet the Mass Casualty Burn Center Referral Criteria. When Burn Center bed capacity has been exceeded or transport is not feasible, Regional BSFs may be utilized to care for and house patients. The process for the transfer of patients out of state, utilizing our GLHP will begin, once all in state resources are exhausted. This process will be coordinated through established incident command structure.

Mass casualty Burn Stage (BS)	Definition	Plan
Stage I	Any event in which local trauma/burn resources are overwhelmed with patients (example: 10-24 patients): • Have ≥30% TBSA burn • Meet Mass Casualty Burn Center Referral Criteria. (Appendix G) • Qualitative or quantitative nature of injuries exceed local capacity to provide effective care.	 Individual health care facilities will manage the patients. Regional MCC will coordinate the medical response and communicate with MDCH OPHP who then contacts SEOC. They will also notify the SBCC, provide consultation, and coordinate bed availability. State Burn Centers and burn centers in neighboring states in close proximity to the incident will manage as many patients as resources permit. Burn patients are defined at those casualties that meet Mass Casualty Burn Center Referral Criteria. <i>(Appendix G)</i> BSFs may be utilized as needed to briefly care for patients until patients transfer to a recognized burn center.
Stage II	 Any event in which regional trauma/burn resources are overwhelmed with patients (example: 25 - 100 patients): Have ≥ 30% TBSA burn Qualitative or quantitative nature of injuries exceeds defined capacity of the region. 	 Individual health care facilities will manage patients. Regional MCC will coordinate medical response, CHECC and the SBCC activation. State Burn Centers and burn centers in neighboring states in close proximity to the incident will manage as many patients as resources permit. Burn patients are defined at those casualties that meet Mass Casualty Burn Center Referral Criteria. <i>(Appendix G)</i> BSFs may be utilized as needed to briefly care for patients until patients transfer to a recognized burn center. If existing burn center resources are exhausted, patients will be referred utilizing process outlined in Burn Stage III.
Stage III	Any event in which state trauma/burn resources are overwhelmed with patients (example: > 100 patients or the potential to have > 100 patients exists): • Have ≥ 30% TBSA burn • Qualitative or quantitative nature of injuries exceeds defined capacity of the state.	 Individual health care facilities will manage patients. Regional MCC will coordinate medical response, CHECC and the SBCC activation. CHECC in coordination with SEOC supports local MCC and EOC's, respectively. SBCC assists BSFs and works with MCCs and CHECC to facilitate coordination of other burn resources with Great Lakes Healthcare Partnership & the ABA national network of burn centers State Burn Centers will manage as many patients as resources permit who meet Mass Casualty Burn Center Referral Criteria (Appendix G) and assist near-by BSFs as able If ABA is unavailable or transport is not feasible, Regional BSF's will be utilized to house patients. BSFs will care for and house patients until transport to a more distant burn center can be achieved (preferably within 72 hours). If needed, patients may be transferred to more distant BSFs in Michigan and neighboring states.

Concept of Operations

In the event of a mass casualty burn incident, each of the eight Regional Healthcare Coalitions (HCCs) should plan to provide initial treatment and stabilization for burn victims triaged as meeting the criteria for a referral to a burn center. Planning projections should be based on a population ratio of 50 casualties per million, or a minimum of 25 patients.² This capacity planning should incorporate the development of non-traditional burn bed resources to include:

- Initial and ongoing training in burn triage.
- Categorization of injuries.
- Patient care.
- Supply caches capable of supporting patient care for at least 72 hours.

In order to successfully create an operational statewide plan, four basic premises must be uniformly understood and incorporated into each response plan for mass casualty burn incidents. The four basic concepts of operational importance are:

- 1. Regional Medical Coordination Centers (MCCs) which serves as a Multi-Agency Coordination System (MACS) within each Healthcare Coalition.
- 2. Creation of a State Burn Coordinating Center (SBCC).
- 3. Maximum utilization of the state's six burn centers.
- 4. Establishment of Regional Burn Surge Facilities (BSFs).

These defined resources will support each region's ability to coordinate regional care and movement of burn patients during a mass casualty incident. Once the RMCC has determined the scope of the Burn Incident and the needs of the patients, they will contact the Community Health Emergency Coordination Center (CHECC) to provide pertinent information and seek assistance. This may include a request for support to coordinate the care and placement of the burn patients. Essential elements of information (EEI) **(Appendix C- Essential Elements of Information)** may include:

- Number of patients impacted (may be an estimate).
- An EM Resource bed query being initiated.

² U.S. Department of Health and Human Services, Health Resources and Services Administration, Special Programs Bureau. National Bioterrorism Hospital Preparedness Program, Catalog of Federal Domestic Assistance (CFDA) 93.003; 2004.

- Status of any communications from the local EOC's about medical health needs (as available).
- The status of the RMCC activation indicating current staff and any other information which may be pertinent to the incident.

Upon notification the CHECC will evaluate incident based on information provided through local and regional partners and the potential to have statewide impact. At that time, the CHECC would most likely activate and proceed with further state level communications to the State Emergency Operations Center (SEOC). The decision to activate the burn plan will be based on multiple factors including the number of patients impacted, severity of injuries and burn center bed availability. The CHECC will be in communication with the SBCC, who will assess the status of burn bed capacity statewide. After incident data has been reviewed, the CHECC would continue communications with the RMCC to discuss activation the State of Michigan MCI Burn Plan.

With plan activation, the CHECC and the SBCC will formalize communications. The SBCC will identify stages based on:

- Burn Stage I
 - Any event in which local trauma/burn resources are overwhelmed with patients (example: 10-24 patients).
- Burn Stage II
 - Any event in which regional trauma/burn resources are overwhelmed with patients (example: 25-100 patients).
- Burn Stage III
 - Any event in which state trauma/burn resources are overwhelmed with patients (example: Exceeds 100 patients).
- Location of Incident.
- Medical Needs of the Patients.
- Bed Availability.
- Transport Time.

Once the burn plan is activated, the decision to activate a Burn Surge Facility is based on criteria outlined in this plan. Below is a summary of some of the decision making that would be utilized by the CHECC and SBCC:

During a **Burn Stage I** incident:

- State burn centers and burn centers in neighboring states will manage as many patients who meet the Mass Casualty Burn Center Referral Criteria **(Appendix G)** as available resources permit.
- BSFs will be utilized, as needed, to briefly care for and house other burn patients pending transfer to recognized burn centers.
- For **Burn Stage I** incidents, it is expected that all burn casualties will be transferred within 24-48 hours to burn centers in Michigan. If needed then, neighboring states, if available.
- If the existing burn center resources are exhausted, patients will be referred utilizing the process outlined in Burn Stage II.

During a **Burn Stage II** incident:

- State Burn Centers will manage as many patients as possible given the resources available for patients meeting the Mass Casualty Burn Center Referral Criteria **(Appendix G)**.
- When Burn center bed capacity has been exceeded, or transport is not feasible, Regional BSFs may be utilized to provide care and to house patients.
- Aside from those activities already initiated under **Burn Stage II**, the SBCC, CHECC, and the SEOC will facilitate the coordination of other burn resources with the GLHP, as well as the American Burn Association National Network of burn centers.

Once the plan has been activated, the SBCC will be responsible for:

- Activating their internal response disaster team
- Notifying and coordinating with American Burn Association to identify Burn Centers outside Michigan capable of receiving patients
- Based on communication with the CHECC, activate BSFs within Michigan.
- Coordinating the triage of all burn patients to in-state and neighboring State Burn Centers and, if necessary, to in-state and neighboring state BSFs sending and receiving
- Support BSFs in the care of burn casualties during the initial 72 hours following the initial incident
- Provide nurses and surgeons to assist in the secondary triage of burn casualties at the BSFs if necessary through telemedicine and/or on-site visits
- Coordinate, in conjunction with the MCC(s) and the CHECC, the triage, transfer, and tracking of burn casualties to out-of-state Burn Centers
- Communications to the similar entity SBCC located within the GLHP as needed when patient management requires resources outside of Michigan.

Organization & Assignment of Responsibilities

Regional Medical Coordination Centers (MCC)

A Regional MCC *(Appendix U -Regional Medical Coordination Center)* is activated when medical care coordination is needed in response to a real or potential mass casualty incident. This is outlined Tier 2 in the Medical Surge Capacity and Capability³ (MSCC) document, supported by the ASPR Healthcare Preparedness Program. The MCC functions on behalf of their regional HCC supporting Healthcare Organizations (HCO) and assists the local and state incident management system with medically related coordination and resource allocation. The core component of the MCC operation must remain consistent, recognizing regional variations exist based on resources and assets available.

The primary functions of the MCC are to support their HCO's and assist incident management officials with:

- Serving as a support to hospitals, local EOC's, other Regional MCC's and the CHECC. The SEOC is kept informed via the CHECC.
- Situational awareness of the HCO's within the HCC
- Current availability of regional medical resources
- Coordination of requests and receipt of intra and extra- regional medical resources (EEI) (Appendix C: Essential Elements of Information)
- Casualty transportation system (CTS)
- Serving as the primary mechanism for medical communications the CHECC (ESF #8) consistent with Regional Operational Guidelines⁴

State Burn Coordinating Center

MDCH OPHP has contracted with one healthcare facility to act as the SBCC. This facility is the University of Michigan Burn Center and is responsible for assisting the Regional MCC's, CHECC and the SEOC in managing mass casualty burn incident in which the resources of any given region or the state are exceeded *(Appendix O: SBCC Activation Communication Pathway)*. The SBCC must be a an American College of Surgeons (ACS) certified hospital demonstrating expertise in the care of burn patients; as well as the ability to provide staff assistance to MCC's from beyond their geographic region, the state, or other states involved with the management of a coordinated plan for mass casualty burn incidents.

³ <u>http://www.phe.gov/preparedness/planning/mscc/handbook/pages/default.aspx</u>

⁴ http://www.fema.gov/media-library-data/20130726-1914-25045-3446/final_esf_8_public_health_medical_20130501.pdf

In considering a facility for selection as the SBCC the following capabilities are considered as criteria for designation:

- Around-the-clock on call coverage by a burn surgeon and burn disaster response support team
- Telemedicine capabilities
- Interoperable communications that include Michigan Public Safety Communications System (800 MHz).
- ABA verification as a Burn Center
- Michigan Health Alert Network (MIHAN) participation
- Ability to serve in the role and continue to care for their patients (under catastrophic conditions)
- Rapid Web-publication capabilities

To further support Michigan's planning for a Mass Casualty Burn Incident, the SBCC has duties outside of incident response including:

- Assist in the development of training protocols for personnel at designated BSF's and Burn Centers
- Coordinate the maintenance and updating of burn related protocols at the BSF and Regional HCC
- Develop and maintain a process for recording burn casualty reports associated with a mass casualty incident in which they are activated
- Coordinate the rotation and updating of burn supply caches located within BSF's or centrally located locations
- Coordinate the procurement of critical burn surgery supplies, such as skin Allograft and wound care products, and maintain a database of supply sources and contacts
- Working with suppliers outside the state and coordinating supply distribution to other in-state Burn Centers
- Demonstrate proficiency in the utilization of MIHAN as well as other web-based resources to facilitate distribution of documents, protocols and databases needed for Burn MCI preparedness
- Maintain documentation for potential reimbursement

- Assist with education, training and exercises as appropriate
- Act as a liaison with coordinating burn centers from other states including the GLHP, on an ongoing basis, in support of inter-state planning activities

Michigan Burn Centers

Michigan currently has six healthcare facilities recognized as burn centers (*Appendix M: Michigan Burn Centers*). They routinely accept burn referrals, and are able to provide definitive care for burn patients, as defined by the American College of Surgeons in the <u>Resources for Optimal Care of the Injured Patient: 2014</u>, Committee on Trauma Care. (<u>https://www.facs.org/quality-programs/trauma/vrc/resources</u>) These centers continue to serve their primary role during a Burn MCI, but will work in conjunction with the SBCC to manage the flow of burn surge patients to ensure the optimal use of the state's definitive burn care capacity.

Regional Burn Surge Facilities (BSFs)

The 8 Regional Healthcare Coalitions, working with MDCH has established 13 hospitals to serve as a Regional BSFs (**Appendix A**) located throughout the eight Regional Healthcare Coalitions (**Appendix S**). Each Regional Healthcare Coalition who has an ACS Verified Burn Center identified one Regional BSF (the exception being Region 2 South due to the population density has 2 BSFs in addition to the 3 Burn Centers.)The Regions without an ACS Verified Burn Center identified two Regional BSFs. The identification of these BSFs allowed for the development and education of the staff within the Healthcare Organization (HCO), which may not typically treat burn patients beyond initial stabilization and transport, to provide care for initial 24-72 hours post incident.

Regional BSFs are hospitals that can care for burn patients based on the three defined Burn Stage (BS) responses:

- Burn Stage I
 - Any event in which local trauma/burn resources are overwhelmed with patients (example: 10-24 patients)
- Burn Stage II
 - Any event in which regional trauma/burn resources are overwhelmed with patients (example: 25-100 patients)
- Burn Stage III
 - Any event in which state trauma/burn resources are overwhelmed with patients (example: Exceeds 100 patients)

Each Burn Stage has been created based on an analysis of existing burn resources either currently in existence within each healthcare preparedness region, or based on the enhancement of those resources as provided for within this plan. Given the expectation that established state Burn Centers may initially be overwhelmed and transportation limited, Regional BSFs should be responsible for the initial evaluation and stabilization of burn patients and preparation for transfer, if necessary, during the initial 72 hours. Regional BSFs should have 24-hour coverage with ABLS-trained nurses and physicians. Patients treated and discharged by regional BSFs should be referred to a Burn Center for complications and any needed long-term follow-up.

Regional BSF Basic Selection Criteria:

- BSFs are preferably Level I or II trauma centers. Telemedicine capabilities are desirable.
- In absence of a Level I or II trauma center, BSFs should, at a minimum, meet the general requirements of a Level III trauma center
- BSFs must have 24 hour nursing care for burn patients. Sufficient numbers of nurses and physicians should be ABLS-trained such that an ABLS-trained nurse or physician should (at a minimum) be able to lead the care provided to patients.
- Each BSF should have sufficient numbers of ABLS-trained physicians to be available in-house during a burn MCI.
- BSFs will function as the initial stabilization/evaluation/transport staging center with support of the region's MCC and the CHECC if a multi burn casualty incident occurs.

In Michigan, it was noted that all 8 regions have at least one ACS verified Level I or II trauma center that was not a burn center, but would be best suited to provide this level and complexity of patient care . The goal is a multilateral increase in short-term capabilities across the regions, state, and ultimately throughout the GLHP. Because it is expected that the BSFs will need to care for some burn patients during the initial 3 days while the ACS verified burn centers resources to care for all burn casualties. The BSF will receive distance consultation support from the State Burn Coordinating Center during this phase. It is expected that the SBCC will provide on-site burn consultation at the BSF for the secondary triage of burn casualties after the incident and as appropriate and able. All BSFs in the state should be prepared to receive burn casualties as triaged by the SBCC.

Patient Transport

A critical element of this, or any healthcare response plan for mass casualty incidents, is the underlying assumption of the ability and availability of resources to transport patients to facilities that are able to provide optimal care based on the nature of the injuries. When planning for patient transport, it will also be very important to assure that there is enough redundancy to cover the multiple transports that will occur during a burn MCI.

In order to maximize the ability to provide patient transfer to optimize patient care, Michigan is creating Ambulance Strike Teams and other innovative casualty transport systems (CTS) mechanisms *(Appendix V: Resource Activation/Utilization Guidelines)*. In an event that is categorized as Burn Stage I, a local Emergency Operations Centers (EOC) can request deployment of one or more regional ambulance strike teams or utilize other CTS that are available, as provided within each of the Regional Healthcare Coalitions' Operational Guidelines. If an incident is categorized as a Burn Stage II or Burn Stage III, then the coordination of a request for regional Ambulance Strike Teams should be considered through consultation between the incident's MCC, CHECC, and the SEOC.

It is anticipated that any Burn Stage III incident and many Burn Stage II incidents could warrant activation of the National Disaster Medical System (NDMS). NDMS is a federal resource involving a nationwide network of civilian and military hospitals that may be mobilized to support major disasters and mass casualty incidents. NDMS uses military aircraft to transfer patients from the affected areas to distant locations across the nation. In addition, NDMS can deploy specialized Disaster Medical Assistance Teams (DMATs) to provide basic medical care within the area impacted by the disaster. The CHECC maintains primary responsibility to collaborate with the SEOC conducting on-going assessments for the need for NDMS. In the event the SEOC activates NDMS based on a request, the CHECC and SEOC will work with the regional MCCs and local EOCs, respectively, to promote an effective and timely response.

Documentation of Casualties

To utilize resources appropriately and keep from overwhelming the Burn Surge Facilities, careful documentation of all burn casualties is a priority. The following four forms as well as the information placed on the database will be utilized throughout the incident:

- Essential Elements of Information (Appendix C)
- Initial Burn Casualty Report Form (Appendix D)
- Follow-up Burn Casualty Report Form (Appendix E)
- Burn Surge Facility Casualty Census Form (Appendix F)

The SBCC monitors all incident documentation to assist in the development of an ongoing plan of care for the casualty as well as an after action report at the conclusion of the incident for lessons learned and corrective actions.

Patient Treatment Recommendations within the BSF

A burn MCI will tax all impacted hospitals. Care is focused on initial stabilization to include:

- Airway, Breathing, Circulation (ABCs)
- Fluid resuscitation
- Pain management
- Wound care priority is to minimize patient pain, infection potential, and to decrease time demands on health care staff until definitive burn care is available. Wound care will typically be limited to the application of silver based long acting dressings. These types of dressings can be applied to burn wounds and left on without having to change them for 3 to 5 days. Similar burn wounds as well as grossly contaminated wounds will require more frequent daily dressings with Silver Sulfadiazine cream (Silvadene) or other antimicrobial preparations. Facial burns will be treated with anti-bacterial ointment (Bacitracin/Neosporin) whichever the facility has. Burn wounds to the face will require more frequent daily dressings with Silver Sulfadiazine cream (Silvadene) or other antimicrobial preparation.

(For complete treatment recommendations, refer to *Appendix B*: *Treatment Considerations: Regional Burn Surge Facility Responsibilities during a Burn Mass Casualty Incident*)

Appendices

Region 1 *Sparrow Hospital 1215 E. Michigan Ave. Lansing, MI 48909 517-364-1000	Allegiance Healthcare 205 N. East Avenue Jackson, MI 49201 517-788-4800
Region 2N *McLaren Oakland 50 N. Perry St Pontiac, MI 48342 248-338-5000	William Beaumont 3601 W 13 Mile Rd Royal Oak, MI 48073 248-898-5000
Region 2S *Henry Ford Hospital 2799 W Grand Blvd #109 Detroit, MI 48202 313-916-2600	St Joseph Mercy Hospital 5301 E. Huron River Drive PO Box 992 Ann Arbor, MI 48106 734-712-3456
Region 3 *St. Mary's of Michigan 800 South Washington Avenue Saginaw, MI 48601-2524 989-907-8000	
Region 5 *Borgess Medical Center 1521 Gull Rd Kalamazoo, MI 49048 269-226-7000	
Region 6 *St. Mary's Health Care 200 Jefferson Street SE Grand Rapids, MI 49503 616-685-5000	
Region 7*Munson Medical Center1105 Sixth StTraverse City, MI 49684231-935-5000	*Northern Michigan Regional Hospital 416 Connable Ave Petoskey, MI 49770 800-248-6777
Region 8 *Marquette General Hospital 580 W. College Ave Marquette, MI 49855 906-228-9440	*Portage Health 500 Campus Drive Hancock, MI 49930 906-483-1000

Appendix A Michigan Burn Surge Facilities

*BSF with Supply Cache

Appendix B Regional Burn Surge Facility Treatment Considerations: Responsibilities during a Burn Mass Casualty Incident

Provide Initial First Aid:

- A. Stop the burning process
- B. Use universal precautions
- C. Remove clothing or jewelry
- D. Cool any burns that are warm to touch with tepid water and then pat dry
- E. Rinse liberally with water if chemicals suspected according to protocols, then dry.
- F. Cover with clean DRY sheet or bedding to prevent hypothermia

Perform Primary Survey

A. Airway Maintenance with Cervical Spine Protection

- 1. Chin lift/jaw thrust with cervical spine precautions as needed
- 2. Assess for signs of airway injury such as hypoxia, facial burns, carbonaceous sputum, stridor, and nasal hair singing
- 3. Assess for history of a enclosed space fire
- 4. Insert an oral pharyngeal airway or endotracheal tube (ETT) in the unconscious patient (Intubate early)

B. Breathing and Ventilation:

- 1. Assess for appropriate rate and depth of respirations with adequate air exchange.
- 2. 100% (15L) FIO2 non-rebreather face mask or endotracheal intubation until Arterial Blood Gas (ABG) result:
 - a . ABG with Carboxyhemoglobin (COHgb) level is required for suspected inhalation injury
- 3. COHgb levels are decreased by $\frac{1}{2}$ every 40 Minutes while on 100 % hiflow F_1O^2 . (COHgb level goal is <10 %)
- 4. Mechanical ventilation as needed.
- 5. If extensive facial burns **or** greater than 40% TBSA, intubation for airway protection prior to expected facial swelling is indicated.

- 6. Monitor pulse oximetry while checking COHgb level (as needed)
- 7. Head of bed (HOB) elevated

C. Circulation with Hemorrhage Control:

- 1. Vital Signs
 - a. Heart rate
 - b. Blood pressure
 - c. Capillary refill
 - d. Temperature
 - e. Skin color of unburned skin
- 2. Cardiac monitoring as needed
 - a. May be needed if there is an electrical injury, concurrent trauma or cardiac issues
- 3. Oral resuscitation can be used in the following patients:
 - a. Patient is not intubated
 - b. Injury is not an electrical injury
 - c. No other injuries
- 4. Heplock IV (as needed) if taking adequate fluids by mouth
- 5. If patient is intubated
 - a. Start maintenance fluids large bore peripheral IV in non-burned, upper extremities
 - b. Place a soft feeding tube. (preferably post-pyloric)
- 6. Initiate resuscitation fluids as soon as possible using ABA guidelines.
- 7. Pediatric patients with burns \geq 10% TBSA require resuscitative fluids and maintenance fluids
- 8. Pediatric patients less than 10 kg require D5LR at maintenance rate if not taking adequate PO or are intubated. Pediatric calculation for maintenance fluid formula:
 - a. For the first 10 kg of body weight: 4 mL per kg per hour
 - b. For the second 10 kg of body weight: 2 mL per kg per hour
 - c. For the remaining kg of body weight up to 30kg: 1ml per kg per hour.
- 9. Labs on admission and then as dictated by medical condition
 - a. Arterial blood gas (ABG)
 - b. Carboxyhemoglobin (COHb) level, <u>always</u> add this to a blood gas

- c. Electrolyte panel
- d. Complete Blood Count (CBC)
- e. Cardiac panel for electrical injuries.
- f. EKG for electrical injury or cardiac history
- g. Chest X-Ray if intubated, inhalation injury suspected or underlying pulmonary condition
- h. Tetanus prophylaxis unless given in the last 5 years

D. Disability:

- 1. Neurologic checks every 4-8 hours and prn.
 - a. Goal is an alert and oriented patient.
 - b. If altered neurological status consider the following:
 - i. Associated injury
 - ii. CO poisoning
 - iii. Substance abuse
 - iv. Hypoxia
 - v. Pre-existing medical condition
- 2. Determine level of consciousness. Consider using the "AVPU" method: a. Alert
 - b. V- Responds to verbal stimuli
 - c. P- Responds to painful stimuli
 - d. U- Unresponsive

E. Exposure

- 1. Remove all clothing and jewelry
- 2. Initially place a clean, dry sheet over the wounds until a thorough cleaning is done
- 3. Keep patient normal thermic, especially during wound care. This may be accomplished by:
 - a. Keeping patient covered
 - b. Covering the patients head
 - c. Warming the room
 - d. Warming IV fluids

Secondary Survey

A. History:

- 1. Obtain circumstances of injury
- 2. Obtain medical history.
 - A Allergies
 - M Medications
 - P Previous illness, past medical history
 - L Last meal or fluid intake
 - E Events/environment related to the injury

B. Complete Physical Examination:

- 1. Head to toe exam
 - a. If eye involvement or facial burns, consult an Ophthalmologist
- 2. Determine extent/size of the burn by calculating the TBSA burn using one of the following methods:
 - a. Rule of Nines
 - b. Lund-Browder chart
 - c. Rule of the Palm
- 3. Determine the depth of the burn
 - a. **DO NOT** include Superficial (1st degree) burns when calculating TBSA.
 - b. Superficial partial thickness (2nd degree)
 - i. Involves the epidermis and a thin layer of dermis
 - ii. Red, blistered, moist, blanches
 - c. Deep partial thickness (2nd degree)
 - i. Involves the entire epidermis and variable portion of the dermis
 - ii. Red, blistered and edematous
 - d. Full thickness (3rd degree)
 - i. Involves the destruction of the entire epidermis and dermis
 - ii. White, brown, dry, leathery with possible coagulated vessels

C. Assess Need for Escharotomies:

Monitor the following signs and symptoms in deep partial or full thickness, circumferential burn injuries which may indicate a circulation deficit requiring

decompression by incision of burn wound:

- 1. Cyanosis of distal unburned skin on a limb
- 2. Unrelenting deep tissue pain
- 3. Progressive paresthesias
- 4. Progressive decrease or absence of pulses
- 5. Inability to ventilate in patients with deep circumferential burns of the chest.

D. Comfort:

- 1. Frequent pain/sedation assessment
 - a. Every hour
 - b. Before and after pain/sedation medications given
- 2. Use age appropriate pain scales for pediatric patients
- 3. Give whatever pain medication is required and available (IV is the preferred route in TBSA >20%)
 - a. Narcotic/Analgesic IV/PO
 - b. Ativan/Versed IV/PO

E. Wound Care:

- 1. Assess and monitor the wound for:
 - a. Change in wound appearance
 - b. Change in size of wound
 - c. Signs or symptoms of infection
- 2. Wound care should include:
 - a. Washing the wounds with mild soap (no perfumes) and warm tap water using a wash cloth
 - b. Remove water by patting dry
- 3. Wound care related to the face and scalp should be performed every day, and use the following:
 - a. Silver sulfadiazine (SSD)cream (scalp)
 - b. Bacitracin (face)
 - c. Scalp and facial hair should be shaved daily
- 4. All blisters should be debrided, except for the following:
 - a. Intact blisters on hands and feet. The exception would be if the blister is impeding range of motion to the joints.
- 5. Ears are poorly vascularized and at risk for chondritis
 - a. Topical sulfamylon cream should be used; if unavailable, use SSD

- b. Make sure to plug the ear canal due to the toxicity of sulfamylon to the auditory canal.
- c. Avoid external pressure including pillows and constrictive dressings to ears and nose.
- 6. For extensive and severe burns to the face:
 - a. Apply a thin layer of silver sulfadiazine cream, approximately a nickels thickness or enough to cover the wound. (This is so that it doesn't dry out prior to the next dressing change.) Cover with a fine mesh gauze dressing and finish the wrap with dry gauze dressing. The purpose of the gauze dressing is to keep the cream from rubbing off before the next dressing change.
 - b. Avoid creams near the eyes.
- 7. For moderate facial burns:
 - a. Bacitracin or another antibiotic ointment without dressing can be used.
- 8. If fingers and toes are burned:
 - a. Dress and wrap separately to promote range of motion and prevent webbing of the digits.
- 9. Genitalia and perineal burns require:
 - a. A greasy gauze and/or lubricant between the labia and in the foreskin to prevent adhesions
 - b. A foley is never indicated to maintain patency.
 - c. A foley should be used to monitor urine output in the severely injured patients.
- 10. Elevate burned extremities above the level of the heart to minimize edema
- 11. If applying an Acticoat dressing:
 - a. Activate the silver ions in the dressing by submerging in water and wringing out excess moisture
 - b. Apply a single layer of the dressing over burn wounds so that all areas are covered.
 - c. Should be held in place with water-moistened gauze dressing.
 - d. Dressings should be kept damp at all times to ensure constant activation of the silver ions. Water should be used to keep the Acticoat and overlying gauze moist (DO NOT use saline because it deactivates the silver's antimicrobial ability.)
 - e. Dressing does not need to be changed for 5-7 days

- i. The overlying gauze can be changed as necessary.
- ii. If signs of infection appear, remove dressing to assess wound.
- f. Record the date of the application

F. Ongoing Resuscitation (as needed)

- 1. Insert foley to monitor urine output during resuscitation.
- 2. Monitor urine output
 - a. Adjust fluids to keep urine output between the following:
 - 1. Adults: 30-50 ml/hr.
 - 2. Pediatrics: 1- 2 ml/kg/hr.
- 3. Additional fluid needs can occur with:
 - a. Very deep burns
 - b. Inhalation injury
 - c. Associated injuries
 - d. Electrical injury
 - e. Delayed resuscitation
 - f. Prior dehydration
 - g. Alcohol or drug dependence
 - h. Small children
- 3. Children, the elderly and patients with preexisting cardiac disease are particularly sensitive to fluid management
- 4. If Myoglobin in the urine (burgundy color):
 - a. Maintain urine output of 100 ml/hour for adults and 4ml/kg/hr for pediatrics
 - b. Increase fluid rate (LR) to achieve urine output as targeted (a)
 - c. Diuretics are not indicated with myoglobinuria
 - d. Mannitol may be used as a last resort to maintain urine output.
 - e. Intravenous sodium bicarbonate may be administered to maintain an alkaline urine (pH > 6)
- 5. For circumferential burns to extremities:
 - a. Perform pulse checks every 1 hour to determine need for emergent escharotomy.

- b. Monitor by palpation or Doppler exam for:
 - i. Decreased sensation
 - ii. Severe deep tissue pain
 - iii. Diminished distal pulses
 - iv. Slowed capillary refill
 - v. After 24-48 hours, decrease frequency of pulse checks to every 2 hours if stable
 - vi. Elevate extremities above the level of the heart

G. Nutrition:

- 1. Obtain dry Weight on admission
- 2. Dietary consult, as needed
- 3. Regular high calorie, high protein diet if able to take PO (unless contraindicated related to pre-existing conditions. i.e. Renal, cardiac or diabetic conditions.)
- 4. If intubated, begin tube feeding at full strength increasing to goal rate.
 - a. Soft feeding tubes are preferred over hard nasogastric tube
 - b. Ensure stool softeners are ordered to prevent constipation due to pain medications

H. Mobility:

- 1. Physical Therapy/Occupational Therapy consult, as needed.
 - a. In a disaster, therapists may just splint patients in functional positions as needed
 - b. Encourage family participation
- 2. HOB elevated at all times
- 3. Ear burns
 - a. No external pressure should be applied
 - b. No pillows or blankets under the head
- 4. Neck burns
 - a. Maintain the head in a neutral position
 - b. No pillows or blankets under the head flexing the neck forward
- 5. Axilla burns:
 - a. Keep arms extended to decrease contractures

- 6. Elevate burned extremities above the level of the heart to decrease swelling
- If legs are burned, apply ace wraps when OOB (Out of Bed)
 a. Encourage active range of motion hourly, when awake
- 8. Encourage Activities of daily living
 - a. Patient should have enough pain control to perform these activities.
- 9. Early mobility is encouraged as patient is able

I. Infection Control:

- 1. Utilize universal precautions
- 2. If wounds are exposed:
 - a. Apply gown, mask, surgical hat and gloves to protect patient
- 3. No systemic antibiotics are required for the burn injuries

J. Psychosocial:

- 1. Explain any procedures
- 2. Involve patient and family
- 3. Consider Social Worker consultation
- 4. Offer Spiritual Care

Appendix C: Elements of Essential Information (EEI) Report Mass Casualty Incident Burn Plan (SBCC FAX # 734-232-4892) *** URGENT ***** URGENT ***** URGENT *****

Below is the information necessary to provide to the Communication Agency upon requesting assistance from the State Burn Coordination Center

gency Fax #:
Į

Essential Elements of Information Report				
 Requesting Facility/Agency Authorized Agencies : Hospitals Representative from the OPHP Regional Healthcare Coalition Coordinator Regional Healthcare Coalition Medical Director 	Name:			
 2. Physician / Officer in Charge of Medical Management at the Facility/Scene (If different from "1." above) 	Facility:			
3. Location of Incident (If applicable)	Jurisdiction Name: Deployment Location: Or Delivery Point: LZ Location: LZ Lat/Long: Frequency, PL: LZ Contact ID:			
4. Estimated Number of Casualties	Pediatric Adult			
5. Injuries of Casualties				
6. Number Intubated	Pediatric Adult			

Appendix D: Initial Casualty Report Form (SBCC FAX # 734-232-4892)

NAME:			
AGE:	GENDER:	Male	Female
DATE & TIME OF INJURY:			
INJURY MECHANISM:			
INHALATION INJURY EXPOSURE:	1		
Enclosed Space		Yes	No
Toxic Chemical Exposure		Yes	No
Facial Burns		Yes	No
 Intubation /Mechanical Ventilation 		Yes	No
Total Body Surface Area Burned:			
Partial Thickness %			
Full Thickness %			
Body regions burned:			
Circumferential torso burn		Yes	No
Circumferential extremity burn		Yes	No
 Decreased peripheral perfusion 		Yes	No
Concurrent Trauma		Yes	No
Injuries:			
Co-Morbidities/Past Medical History:			
Wound Management (Dressings):			
Institutional Location (BSF, ICU/Floor):			
Contact Information:			

Appendix E: Follow-up Casualty Report Form (SBCC FAX # 734-232-4892)

NAME:				
AGE:	GENDE	E R: Male Fem	ale	
DATE & TIME OF INJURY:				
DATE & TIME OF CURRENT REPORT:				
INJURY MECHANISM:				
Total Body Surface Area Burned:	T			
Partial Thickness %				
Full Thickness %				
Circumferential torso burn		Yes	Νο	
Circumferential extremity burn		Yes	Νο	
 Decreased peripheral perfusion 		Yes	Νο	
Date & Time of most recent wound evaluation:				
Current burn wound dressing/management				
Date & Time of last burn dressing change:				
Procedures performed? (Escharotomies, other eme	rgent pr	rocedures)?		
RESUSCITATION RESPONSE:				
Total fluid volume received since initial injury:				
Total fluids over last 24 hours:				
Current fluid administration rate:				
Urine output over last 24 hours?		Last 4 hours?		
Current V/S: HRB/PRR	Temp C			
PULMONARY STATUS				
Current SaO2:		Current FiO2:		
Intubated:		Yes	No	
Ventilator Settings:				
COMPLICATIONS:				
Number of Casualties at your Location?				
Priority for transfer among your current Burn casualties?				
Institutional Location (BSF, ICU/FIOOF):				
Contact Information:				

Appendix F: Burn Surge Facility Casualty Census Form (SBCC FAX # 734-232-4892)

(Please complete this form in addition to report form for each individual casualty)

Facility: _____

Contact Information:

Date: _____

Time: _____

Date of Mass Casualty Incident: _____

	Name	Age	TBSA	Intubated (Y/N)	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Continued on/from additional form? Y / N

Appendix G: Michigan Mass Casualty Burn Center Referral Criteria

The criteria listed below should be viewed as providing guidance to medical staff in determining which patients should be considered for the cohort for transfer to a recognized burn center during a mass casualty burn incident. It should be noted that these criteria represent a departure from recommended considerations for situations which do not involve a mass casualty incident. *It should be noted that these criteria represent a departure from recommended considerations for situations which do not involve a mass casualty incident. It should be noted that these criteria represent a departure from recommended considerations for situations which do not involve a mass casualty incident.*

BURN CENTER REFERRAL CRITERIA (Stage II/III Mass casualty)

1. Partial thickness burns greater than 40% total body surface area (TBSA)

- 2. Circumferential full-thickness burns involving an extremity
- 3. Full-thickness burns greater than 5% TBSA
- 4. High voltage (>1000 volt) electrical burns

5. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality

Based on Excerpted from <u>Guidelines for the Operations of Burn Centers</u> (Chapter 14), pp.1-2 Resources for Optimal Care of the Injured Patient: 2014, Committee on Trauma, American College of Surgeons. **(Appendix H - ACS Burn Unit Referral Criteria)**. (<u>https://www.facs.org/quality-programs/trauma/vrc/resources</u>)

Note Regarding Inhalation Injury: It is expected during Stage III (and possibly stage II) incidents that ICU bed capacity at burn centers and Burn Surge Facilities will be overwhelmed during the initial period. In the absence of cutaneous burns meeting referral criteria, casualties with only smoke inhalation can be managed at any ICU-equipped and ventilator capable medical facility.

Appendix H: ACS Burn Unit Referral Criteria

Note: these criteria should be applied in situations where the incident does not result in a sufficient number of patients, based on either quantitative or qualitative measures, to be considered a mass casualty burn incident.

BURN UNIT REFERRAL CRITERIA

- **1.** Partial thickness burns greater than 10% total body surface area (TBSA)
- 2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
- **3.** Third-degree burns in any age group
- **4.** Electrical burns, including lightning injury
- **5.** Chemical burns
- **6.** Inhalation injury
- **7.** Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
- 8. Any patients with burns and concomitant 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 may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
- **9.** Burned children in hospitals without qualified personnel or equipment for the care of children
- **10.** Burn injury in patients who will require special social, emotional, or long-term rehabilitative intervention

Based on Excerpted from <u>Guidelines for the Operations of Burn Centers</u> (Chapter 14), pp.1-2

Resources for Optimal Care of the Injured Patient: 2014, Committee on Trauma, American College of Surgeons. **(Appendix H - ACS Burn Unit Referral Criteria)**. (https://www.facs.org/quality-programs/trauma/vrc/resources)

Appendix I: Triage Decision Table Michigan Burn Mass Casualty – Tiered Triage⁵

<u>AGE</u>	% Total Body Surface Area Burn + 10 for Inhalation Injury									
	0 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61 - 70	71 - 80	81 - 90	91 +
<2	Very High	Very High	Very High	High	Medium	Medium	Medium	Low	Low	Very Low
2 - 5	Survivable	Very High	Very High	High	High	High	Medium	Medium	Low	Low
5 - 19.9	Survivable	Very High	Very High	High	High	High	Medium	Medium	Low	Low
20 - 29.9	Survivable	Very High	Very High	High	High	Medium	Medium	Low	Low	Very Low
30 - 39.9	Survivable	Very High	Very High	High	Medium	Medium	Medium	Low	Very Low	Very Low
40 - 49.9	Survivable	Very High	Very High	Medium	Medium	Medium	Low	Very Low	Very Low	Expectant
50 - 59.9	Survivable	Very High	Very High	Medium	Medium	Low	Very Low	Very Low	Expectant	Expectant
60 - 69.9	Very High	Very High	Medium	Medium	Low	Very Low	Very Low	Expectant	Expectant	Expectant
70+	Very High	Medium	Medium	Low	Very Low	Expectant	Expectant	Expectant	Expectant	Expectant

Definitions:

Survivable: Survival and good outcome expected without requiring initial admission. **Very High:** Survival with good outcome highly expected.

<u>High:</u> Survival and good outcome expected with limited/short term initial admission and resource allocation (LOS less than or equal to 14 days, 1-2 surgical procedures) **<u>Medium:</u>** Survival and good outcome expected with aggressive care and

comprehensive resource allocation, including initial admission (greater than/equal to 14 days), resuscitation, and multiple surgeries.

Low: Survival and good outcome low even with long-term, aggressive treatment and resource allocation.

Very Low: Survival and outcome poor even with unlimited resources.

Expectant: Survival less than 10% even with unlimited, aggressive treatment

⁵ ABA Chart 2011 modified to fit Michigan Plan 2014

Appendix J:

Supplies and Exercising

To determine supply caches, assumptions were made regarding the MCI patient population. Projections were calculated based on an average sized adult, with 60% of the MCI patient population sustaining a 30% Total Burn Surface Area (TBSA) burn injury. The total number of estimated patients is 30 patients per million populations (i.e. 60% of the federal benchmark 50 patients per million populations). The supplies per patient have been determined based on the number injured as well as the hospitals already having a surplus on hand.

Silver based long acting dressing (Burn/3) – three 16" x 16" sheets per patient

Silver Sulfadiazine (Silvadene) Dressing (SSD) - one jar per patient

Regional Supply Caches

Recommendations regarding the purchase and stockpiling of burn supplies for the treatment of burn patients in the mass casualty environment are predicated on:

- There will be limited availability of essential supplies and bed space in burn centers
- There will be constraints on human resources
- The need for short term care to be managed by medical staff not traditionally trained in specialized burn wound care
- Adjusted standards of care will be provided during surge and crisis situations

As a consequence, a conscious decision is being made to utilize supplies that will simplify patient care provided in a mass casualty environment, thus minimizing the staff training needed to care for burn injuries. This is especially critical in an environment where staff resources will already be stretched beyond capacity.

Supply Staging

Based on this model using a silver based long acting dressing and silver sulfadiazine cream, Michigan will need to maintain a stock of 132 cases (3168) (16X16) of the silver based long acting dressing, and 474 jars of silver sulfadiazine cream. In order to maintain a balance between ensuring that supplies will be readily available in case of a MCI, and being able to rotate stock into normal use to avoid losses due to product expiration:

- 30% of the total stock will be deployed to Regional BSFs
- 10% will be staged at University of Michigan Survival Flight
- 10% at Aero Med Flight Service
- 50% will be maintained through the SBCC.

Once a year, the supplies stored at the Regional BSFs, Survival Flight and Aero Med will be rotated through coordination by the SBCC. The use of this product rotation schedule is intended to make the purchase of a silver based long acting dressing and silver sulfadiazine cream, a one-time cost, by avoiding product loss due to expiration.

Regional Burn Surge Facility (BSF) Training

It is essential to the success of this plan that nurses and physicians staffing BSFs are trained in basic burn care. At a minimum, it is expected that each BSF will have at least 15 nurses and 5 physicians on staff that have successfully completed the ABA on-line ABLS Course. This course covers essential fundamentals of emergency burn care and is felt to be an efficient and effective educational program.

In addition to the on-line ABLS Course, BSFs will have the opportunity to send their personnel to a state supported ABLS hands-on training as available.

Other opportunities for training could include rotating BSF nurses through regional burn centers to gather actual clinical experience in dealing with severe burns.

Multi Burn Casualty Kits

Inventory and Stock Check

- The supplies in the Burn Mass Casualty kits are intended only for use during a mass casualty event, and not for day-to-day clinical operations.
- Acticoat must be kept in its original boxes and packaging. An expired package has been provided to each facility for an example of what the product looks like. These examples are clearly marked "Expired."
- A stock check is taken in the 1st week of every month and recorded on the Supply Checklist form **(Appendix K)**.
- Any anomalies in stock volume should be reported to the SBCC for resolution and replacement.

Receipt and Storage of Stock Orders

- All deliveries must be acknowledged on the Stock Checklist.
- All stock received should be placed into the Burn Mass Casualty kit, and managed as defined above.
- Good housekeeping principles must be applied to stock management so that items are kept in an orderly manner.

Product recalls

- The MDCH and SBCC must be notified immediately (if they are not already aware) of product recalls. An assessment will be made of the criticality of the recall and appropriate action taken.
- For Stock Management purposes all recalled products are removed from all areas and disposed of or returned to the manufacturer as instructed. Document on the Stock Management Worksheet the disposition of this product as 'recalled product'.

Exercising

This plan will be exercised at a variety of levels and in various ways. At least every 2 years, MDCH OPHP and the EMS and Trauma Systems Office will plan to conduct a tabletop exercise dealing with a multi burn scenario. It is anticipated that this exercise will include representatives from the CHECC, each emergency preparedness region, the SBCC, Michigan State Police Emergency Management & Homeland Security Division (EMHSD), and others.

Each region will be expected to participate in the tabletop exercise as identified above involving a multi burn scenario. It is anticipated that regional participation should include the Regional Medical Director, Regional Healthcare Coordinator, Regional Epidemiologist, Michigan State Police EMHSD District Coordinator, and representatives from regional hospitals (especially burn centers and BSFs), EMS, and local emergency management coordinators.

Multi-regional/Multi-state tabletop and functional exercises as well as full scale exercises will be considered as resources permit.

Date		Checked by	y			
		Institution	•			
ltem	Supplied by	Expiration Date	Quantity	Date Ordered	Date Received	
Silver Sulfadiazine • 2 boxes (12 jars)	SBCC					
Acticoat • 5 cases (60 sheets)	Smith & Nephew					
Book of Contacts	SBCC					
Training CDs (10)	SBCC					
Printed Training Manual	SBCC					
Fluid cards (20)	SBCC					
Triage Charts LaMInated (1) Non-Lam. (10) 	SBCC					
MI. Regions Map (1)	SBCC					
Jump Drive (1)	SBCC					
Kit Management Protocol paper	SBCC					
SMIth & Nephew Insert	SBCC					
Patient Management Worksheet (2)	SBCC					
Database Tutorial (1)	SBCC					
BSF Casualty Census Form (2)	SBCC					
Initial Burn Casualty Report Form (2)	SBCC					
Follow up Burn Casualty Report Form (2)	SBCC					
Copy of Michigan Burn Plan Version # 21	SBCC					

Appendix: K State of Michigan Burn Mass Casualty Supply Kit

Please complete the first week of each month and return to:

Anne Fast: <u>afast@umich.edu</u> or mail to: Fax: 734-232-4892

Anne Fast State of Michigan Burn Coordinating Center 1B404 University Hospital 1500 E. Medical Center Dr. Ann Arbor, MI 48109-5033

Supply Re-order Sheet

ate
equisitioned by:
ame:
ospital or Facility:
ddress 1:
ddress 2:
ity, State, Zip code:
hone:
mail:

To re-order stock, please complete this sheet and return it to Sarah Parviz in the SBCC via fax (734.232-4892) or email (separviz@med.umich.edu).

			SBCC USE ONLY		
Code/Ref No.	Description	Qty. Required	Qty. Issued	Issued By	

Order Filled by: _____ Date: _____

Facility Name	City	Region	Normal Capacity	Surge Capacity
University of Michigan Health Systems	Ann Arbor	25	Adult/Pediatric 16 beds	35 Flex
Children's Hospital of Michigan	Detroit	25	Pediatric 10 beds	5 ICU 10 Floor
Detroit Receiving Hospital	Detroit	25	Adult 12 beds	12 ICU 18 Floor
Hurley Medical Center	Flint	3	Adult 13 beds	13 Flex
Bronson Methodist Hospital	Kalamazoo	5	Adult 8 beds	12 Flex
Spectrum Health System	Grand Rapids	6	Adult/Pediatric 8 beds	12 Flex

Appendix M: Michigan Burn Centers



Appendix N: Michigan ACS Verified Trauma Centers

ACS VERIFIED HOSPITAL	СІТҮ	LEVEL	REGION
Sparrow Hospital	Lansing	Level I Trauma Center	1
Botsford General Hospital	Farmington Hills	Level II Trauma Center	2N
Henry Ford – Macomb	Clinton Twp.	Level II Trauma Center	2N
McLaren Macomb Hospital	Mt. Clemens	Level II Trauma Center	2N
McLaren Oakland	Pontiac	Level II Trauma Center	2N
St. Joseph Mercy Oakland	Pontiac	Level II Trauma Center	2N
William Beaumont Hospital	Royal Oak	Level I Trauma Center	2N
C. S. Mott Children's Hospital	Ann Arbor	Level I Pediatric Trauma Center	25
St. Joseph Mercy Hospital	Ann Arbor	Level II Trauma Center	25
University of Michigan Hospital	Ann Arbor	Level I Trauma Center	25
Children's Hospital of Michigan	Detroit	Level I Pediatric Trauma Center	25
Detroit Receiving Hospital	Detroit	Level I Trauma Center	25
Henry Ford Hospital	Detroit	Level I Trauma Center	25
Sinai-Grace Hospital	Detroit	Level II Trauma Center	25
St. John Hospital & Medical Center	Detroit	Level II Trauma Center	25
St. John Hospital & Medical Center	Detroit	Level II Pediatric Trauma Center	25
Oakwood Hospital and Medical Center	Dearborn	Level II Trauma Center 2S	
Oakwood Southshore Medical Center	Trenton	Level II Trauma Center 2S	

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10/9/2014

ACS VERIFIED HOSPITAL	CITY	LEVEL	REGION
Covenant Healthcare	Saginaw	Level II Trauma Center	3
Covenant Healthcare	Saginaw	Level II Pediatric Trauma Center	3
Hurley Medical Center	Flint	Level I Trauma Center	3
Hurley Medical Center	Flint	Level II Pediatric Trauma Center	3
St. Mary's of Michigan	Saginaw	Level II Trauma Center	3
Genesys Regional Medical Center	Grand Blanc	Level II	3
Borgess Medical Center	Kalamazoo	Level II Adult	5
Bronson Methodist Hospital	Kalamazoo	Level I Trauma Center	5
Saint Mary's Mercy Medical Center	Grand Rapids	Level II Trauma Center	6
Spectrum Health-Butterworth Campus	Grand Rapids	Level I Trauma Center	6
Spectrum Health- Helen DeVos Children's Hospital	Grand Rapids	Level I Pediatric Trauma Center	6
Munson Medical Center	Traverse City	Level II Trauma Center	7
Marquette General Health System	Marquette	Level II Adult	8
Portage Health	Hancock	Level III	8

Up-dated: 5/9/2014





BSF – Burn Surge Facility
CHECC – Community Health Emergency Coordination Center
MCC – Medical Coordination Center
SBCC – State Burn Coordinating Center
SEOC – State Emergency Operations Center





- CHECC Community Health Emergency Coordination Center
- **EM** Emergency Manager
- **EOC** Emergency Operations Center
- MCC Medical Coordination Center
- SBCC State Burn Coordinating Center
- SEOC State Emergency Operations Center



Appendix Q: Communication Pathway Out of State When Burn Capacity Exceeds Michigan Resource



Appendix R: Medical Communications Pathway During Emergency Response



Region 1:

Matt Price Region 1 HCC Coordinator Office: 517-324-4404 <u>d1rmrc-mattt@sbcglobal.net</u>

Region 2N:

Richard Drummer Region 2N HCC Coordinator Office: 248-759-4748 rdrummer@region2north.com

Region 2S:

Amy Shehu Region 2S HCC Coordinator Office: 734-728-7674 <u>ashehu@2south.org</u>

Region 3:

Rob Kelly Region 3 HCC Coordinator Office: 989-758-3712 <u>Rob.kelly@cmich.edu</u>

Region 5:

Dena Smith Region 5 HCC Coordinator Office: 269-337-6600 <u>dena.smith@med.wmIch.edu</u>

Region 6:

Michael Gregg Region 6 HCC Coordinator Office: 231-728-1967 <u>Mgregg@mcmca.org</u>

Region 7:

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Appendix T: Great Lakes Healthcare Partnership

The Great Lakes Partnership represents a coalition of healthcare preparedness planners from the FEMA Region V jurisdictions of: The City of Chicago, Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin, who are responsible for the Healthcare Preparedness Program under the Assistant Secretary for Preparedness and Response within DHHS. This group works together to develop a series of initiatives aimed at promoting multi-state and intra-regional cooperation in planning for disasters requiring a healthcare response.

This MCI Burn Plan represents an acknowledgement by the Great Lakes Healthcare Partnership membership, that a response to a major multi- casualty situation, especially one involving the need for the provision of highly specialized burn related care, redefines the concept of local preparedness in a disaster environment. While there is little argument against the conceptual case for all disasters being "local", the context of what "local" really means in today's environment is being challenged and redefined.

In more general terms, disaster responses occur when the available resources of a locality are, or have the potential to be, overwhelmed. By definition, specialized medical care such as burn care, involves a finite capacity for delivery. Therefore, the availability and provisions for delivering that care can easily be jeopardized due to limited resources.

The Great Lakes Healthcare Partnership gives the opportunity to draw from out-state resources when in-state resources have been exhausted.



FEMA Region V

Great Lakes Healthcare Partnership Resources

<u>IL</u>	Loyola University Medical Center	Maywood	10 ICU 11 Step Down
	Sumner L Koch Burn Center	Chicago	6 ICU 12 Step Down
IL	University of Chicago Burn Center-Electrical Trauma Center	Chicago	8 ICU
IL	Memorial Medical Center Regional Burn Center	Springfield	10 Beds
IN	St. Joseph Medical Center Regional Burn Center	Fort Wayne	10 Beds
IN	Indiana University Medical Center – Burn Center- Wishard Memorial Hospital	Indianapolis	11 Beds
IN	Riley Children's Hospital	Indianapolis	7 Beds
MN	Hennepin County Medical Center	Minneapolis	18 Beds
MN	Regions Hospital Burn Center	St. Paul	18 Beds
MN	Miller-Dwan Medical Center	Duluth	8 Beds
<u>ОН</u>	Miami Valley Hospital Regional Adult Burn Unit	Dayton	10 Beds
<u>ОН</u>	Ohio State University Medical Center	Columbus	19 Beds
<u>ОН</u>	Children's Hospital	Columbus	8 Beds
<u>WI</u>	University of Wisconsin Hospitals and Clinics	Madison	7 beds
<u>WI</u>	St. Mary's	Milwaukee	12 Beds

Appendix U: Regional Medical Coordination Centers (MCC)

Region 1: (T) 517-324-4404 (F) 517-324-4406 D1rmrc@sbcglobal.net

Region 2N: (T) 248-267-0535 (F) 248-759-4748 ŘMCC@region2north.com

Region 2S: (T) 734-727-7289 (F) 734-727-7281

Region 3:

(T) 989-732-5141 (F) 989-758-3714

Region 5: (T) 269-337-2500 (F) 269-337-2509 communication@aircare.org

Region 6: (T) 855-734-6622 (F) 231-728-1644

Region 7: (T) 989-732-5141

(F) 989-705-2440 rc@mir7hcc.com

Region 8:

(T) 866-276-4443 (24/7 answering service) (O) 906-273-2125 (F) 906-273-2126 R8mcc@8hcc.org

Appendix V: Michigan Mass Casualty Burn Plan Resource Activation / Utilization Guidelines

Probable = Prepare for Activation Possible = It could happen Red = Definite Yellow = Probable Green = Possible White = Unlikely

Agency / Entity	Burn Stage I (10-24 Casualties)	Burn Stage II (25-100 Casualties)	Burn Stage III (>100 Casualties)
Burn Centers			
Burn Centers within incident region.	Utilization definite	Utilization definite	Utilization definite
Burn centers in neighboring MI regions	Utilization probable	Utilization definite	Utilization definite
Burn centers in distant MI regions	Utilization possible	Utilization probable	Utilization definite
Burn centers in neighboring states within 150 Miles	Utilization unlikely	Utilization probable	Utilization definite
Burn Centers in neighboring states beyond 150 Miles	Utilization unlikely	Utilization possible	Utilization probable
Burn Centers in non-FEMA V states	Utilization unlikely	Utilization unlikely	Utilization possible

Agency / Entity	Burn Stage I (10-24 Casualties)	Burn Stage II (25-100 Casualties)	Burn Stage III (>100 Casualties)
Burn Surge Facilities (BSF)			
BSF in neighboring MI regions	Brief utilization possible	Utilization probable	Utilization definite
BSF in distant MI regions	Utilization unlikely	Utilization unlikely	Utilization possible
BSF (or equivalent) in neighboring states within 150 Miles	Brief utilization possible	Utilization probable	Utilization probable
BSF (or equivalent) in neighboring states beyond 150 Miles	Utilization unlikely	Utilization unlikely	Utilization possible
BSF (or equivalent) in non-FEMA 5 states	Utilization unlikely	Utilization unlikely	Utilization unlikely
Community Hospitals			
Hospitals within 25 Miles	Utilization definite	Utilization definite	Utilization definite
Hospitals within 25- 50 Miles	Utilization probable	Utilization probable	Utilization probable
Hospitals beyond 50 Miles	Utilization unlikely	Utilization unlikely	Utilization unlikely

Agency / Entity	Burn Stage I (10-24 Casualties)	Burn Stage II (25-100 Casualties)	Burn Stage III (>100 Casualties)
Multi-Agency Coordination Entities			
MI State Burn Coordination Center	Activation probable	Activation definite	Activation definite
SEOC	Activation possible	Activation definite	Activation definite
CHECC	Activation probable	Activation definite	Activation definite
Regional MCC serving incident	Activation definite	Activation definite	Activation definite
Neighboring MCC	Activation probable	Activation definite	Activation definite
Distant MCC	Activation possible	Activation possible	Activation probable
Local EOC serving incident	Activation definite	Activation definite	Activation definite
EOC in neighboring counties	Activation possible	Activation probable	Activation definite
EOC in distant counties	Activation unlikely	Activation possible	Activation possible

<u>Acronyms</u>

ABA- American Burn Association **ABG-** Arterial Blood Gas ABLS- American Burn Life Support **ACS- American College of Surgeons BMCI- Burn Mass Casualty Incident BSF-** Burn Surge Facility **CHECC-Community Health Emergency Coordination Center COHb-** Carboxyhemoglobin DHHS- Department of Health and Human Services **DMAT-** Disaster Medical Assistance Teams **EKG-** Electrocardiogram **EMHSD- Emergency Management & Homeland Security Division EMS- Emergency Medical Services EOC- Emergency Operations Center** ESF#8 - Emergency Support Function as defined in the National Response Plan ETT- Endo-tracheal tube **FEMA-** Federal Emergency Management Association Fi02- Fractional Inspired Oxygen **ICS- Incident Command System ICU-** Intensive Care Unit **IV-** Intravenous MALPH- Michigan Association of Local Public Health MCA- Medical Control Authority **MCC-** Medical Coordination Center **MCI- Mass Casualty Incident** MDCH- Michigan Department of Community Health MHA- Michigan Health & Hospital Association MSCC- Medical Surge Capacity and Capability **MSP-** Michigan State Police NDMS- National Disaster Medical System NIMS- National Incident Management System **OPHP-** Office of Public Health Preparedness PO – by mouth **RBSF-** Regional Burn Surge Facility SBCC- State Burn Coordinating Center **SEOC- State Emergency Operation Center** SSD- Silver Sulfadiazine **TBSA-** Total Body Surface Area

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