SANTA CRUZ COUNTY HEALTHCARE COALITION (SCC HCC)

BURN SURGE ANNEX

MAY 2022

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1. Introduction

1.1 Purpose

The purpose of this annex is to provide guidance to prepare, respond and recover from a Burn Incident in which the number and severity of burn patients exceeds the capability of local area hospitals and the wider medical healthcare system. The Burn Surge Annex will identify the specialized resources and expertise available locally and regionally that must be engaged in a large-scale burn incident response, and the mechanisms/processes that will be used to determine patient disposition for care. This annex is to provide guidance; it does not replace any existing facility plans, or other legally binding authorities, nor the experience of response personnel making decisions during the incident.

1.2 Scope

This annex is intended to support local acute care facilities receiving burn patients and provide guidance to access local emergency medical services agencies, and regional burn centers. This plan also addresses operations as defined in the CDPH Emergency Operations Manual (EOM), which involve the Medical Health Operation Area Coordinator (MHOAC) and the Regional Disaster Medical Health System (RDMHS). This document highlights the Western Regional Burn Disaster Consortium recommendations and national best practices for incident management and burn care management.

1.3 Background

Burn surge incidents may occur due to multiple causes such as thermal, chemical, electrical, or radiological incidents. Local Hazard Vulnerability Assessments (HVAs) conducted by the SCC HCC have identified the greatest burn threats to be wildfires or structure fires. California receives most of its rainfall in the fall and winter, then dry arid climate embraces the state from March through October. The long dry season, warm temperatures, winds, and dry vegetation create extremely hazardous conditions for wildfires. California has recorded wildfires since 1932; in the last year, Northern California recorded the five largest wildfires in the state's history. In 2018, the Camp Fire became the deadliest wildfire in California history, causing 85 deaths. Scientists predict the changing climate will continue to lead to larger, faster burning forest fire areas for several more decades. This coupled with more than 11 million Californians living in the wildland urban interface puts many lives at risk and identifies the highest likelihood of a Burn Surge incident occurring from a wildland fire occurring in the region. Within the next 30 years, the probability of a 6.7 magnitude earthquake occurring in the San Francisco area is 72%. Fires after earthquakes commonly occur as buildings, equipment, and utilities lines are damaged from the seismic activity. This paired with uncertainty in the ability for fire suppression and limited fire responses resources means these fires can threaten lives and increase the likelihood of a Burn Surge incident. Santa Cruz County is in Region II which consists of the following counties: Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma.

Local emergency departments are the frontline facilities when a Burn Surge incident occurs. Specialized burn centers are extremely limited in Region II, located only in San Francisco and Santa Clara Counties.

Regional Burn Facilities:

- Bothin Burn Center, Saint Francis Memorial – San Francisco, CA

- San Francisco General Hospital – San Francisco, CA
- Santa Clara Valley Medical Center, Regional Burn Center – San Jose, CA

Out-of-Region Burn Facilities:

- Firefighters Burn Institute Regional UC Davis Burn Center – Sacramento, CA
- Shriners Hospitals for Children Northern California – Sacramento, CA

Western Region Burn Disaster Consortium

The Western Region Burn Disaster Consortium (WRBDC) consists of 27 American Burn Association designated burn centers across the Western United States. When a Burn Mass Casualty Incident (BMCI) occurs, the WRBDC serves as a coordination and resource center for burn patient management.

Regional Level 1 Trauma Centers:

- Highland Hospital – Oakland, CA
- San Francisco General Hospital – San Francisco, CA
- Stanford Medical Center – Palo Alto, CA
- UCSF Benioff Children's Hospital – Oakland, CA

1.4 Assumptions

- All hospitals providing emergency care may receive burn patients and should be able to provide initial assessment and stabilization
- Emergency medical services, hospitals, MHOAC and response providers within the County of Santa Cruz will have primary response responsibilities including initial casualty distribution and subsequent triage of patients for transport.
- Agencies with primary response coordination responsibilities, will coordinate transfers with the closest burn center(s) and the Western Regional Burn Coordination Center (WRBCC) in accordance with established regional protocols
- The EOM identifies burn centers and Level 1 and Level 2 trauma centers to plan for a major role in the receipt and care of burn patients
- Severe burn patients often become clinically unstable within 24 hours of injury, complicating transfer plans
- Care of critical burns is extremely resource-intensive, and requires specialized staff, expert advice, and critical care transportation assets
- Federal response resources (e.g., ambulance contracts, National Disaster Medical System teams), though potentially available to assist, cannot be relied upon to mobilize and deploy for the first 72 hours

Concept of Operations

2.1 Activation

In a disaster or mass casualty incident, hospitals within the County of Santa Cruz must be prepared to receive burn patients, as well as provide assessment and stabilization of patients. Every hospital that receives burn patients should be prepared to provide stabilizing care including airway management, initial fluid resuscitation, and pain management. If hospitals within the County of Santa Cruz become overwhelmed, the County of Santa Cruz MHOAC and EMS will coordinate transfers to regional trauma centers, regional burn facilities, and closest out General Acute Care Hospitals as needed.

2.2 Notification

SCC HCC members may be notified of a Burn Surge incident by a variety of methods including: the MHOAC, ReddiNet, CAHAN, TEAMS, email, text, telephone. When a Burn Surge incident notification is received, the HCC Burn Surge Annex may be activated by the following positions:

1. MHOAC request
2. HCC Clinical Advisor request
3. HCC member request to the above positions

Hospital Command Center should quantify transportation and referral needs early in the incident and communicate these to the EMS Agency and MHOAC

- EMS NETCOM (831) 471-1170
- MHOAC (831) 227-1231

Regional Activation and Notifications

When a Burn Surge incident exceeds local capacity, MHOAC will contact RDMHS for assistance. WRBDC Burn Mass Casualty Incident Operations Plan provides more details on the assistance that can be provided at the multi-state level.

2.3 Roles and Responsibilities

SCC HCC provides technical and resource support to impacted healthcare system facilities. Communication, intelligence sharing, situational awareness and resource requests may be facilitated by HCC members in coordination with the MHOAC and local response leads.

2.4 Legal Authorities

The response strategies and processes described herein are not legally binding, and there is no legal obligation to participate. However, participation by hospitals, healthcare systems, and their partners is encouraged to ensure the best possible patient outcomes and healthcare delivery coordination.

> NOTE: This guide does NOT replace the advice of facility Privacy Officers and/or legal counsel who should be involved in planning for information release prior to an event, developing policy before a disaster that guides staff actions during a disaster and during an emergency when contemplating disclosures.

3.0 Preparedness and Response

Region II has two American Burn Association (ABA) Verified Burn Centers concentrated in the Bay Area with the closest in Santa Clara County. In Northern California, burn specialty care is extremely limited in relation to the region's population size.

Name of Burn Care Facility	Number of ICU Acute Care Beds	Number of Non-ICU Beds (Step Down)	Surge Capacity
Santa Clara Valley Medical Center Regional Burn Center, San Jose (Adults & Pediatrics)	**8**	**0**	**12**
Bothin Burn Center at Saint Francis Memorial Hospital, San Francisco (Adults & Pediatrics)	**16**	**10**	**26**
Zuckerberg San Francisco General Hospital/Burn Unit, San Francisco (Trauma Burn Only)	**4-6**	**6**	**Not Reported**
Shriners Hospitals for Children, Sacramento (Pediatric Only)	**10**	**20**	**Not Reported**
UC Davis Regional Burn Center, Sacramento (Adults Only)	**12**	**22**	**18**
Community Regional Leon S. Peters Burn Center, Fresno (Adults & Pediatrics)	**10**	**10**	**15**

**Data accurate at the time of plan development*

3.1 Staff

A shortage of specialized burn care healthcare professionals has been a chronic condition in Northern California. Outside of burn care centers, general hospital staff have limited knowledge in the specialized burn care expertise. This poses a challenge for burn care centers needing to upstaff for surges. Consideration to use remote resources such as telehealth-based clinical support and remote training for staff functioning in critical burn roles may be necessary.

Prior to a Burn Surge incident hospitals and HCC partners should identify, train, and maintain a minimum cohort of staff to respond. Consider staff sharing of MOUs with specialty care facilities, such as trauma

centers, Radiation Injury Treatment Network (RITN) medical centers, and pediatric critical care hospitals. Prepare basic staff guidelines, training, and just-in-time training resources.

3.2 Supplies

SCC HCC partners are recommended to be aware of and have access to the supplies and equipment necessary for the wound care and treatment of a burn patient. Standard supply cart items and personal protective equipment may be supplemented with burn care specific supplies. See WRBDC Burn Mass Casualty Operations Plan under sections "Wound Care Supply Guideline for Burns" (p. 43) and the "Pediatric Equipment and Supplies" (p. 61).

3.3 Special Considerations

3.3.1 Behavioral Health

Disasters can have tremendous mental and behavioral health consequences that will directly impact healthcare systems in the short and long term. Disaster behavioral health is the provision of mental health, substance abuse, and stress management services to those affected by a disaster. Following an emergency, it is common for individuals and families, as well as disaster responders, to experience distress and anxiety about safety, health, and recovery. SCC HCC partners are encouraged to continue integrating Behavioral Health support to staff and patients, as well as patients and clients throughout an emergency or disaster.

3.3.2 Pediatrics

Recognition of the difference in burn care between adults and children is important to provide the best care. A standard assumption is that a minimum of 25% of victims of any mass casualty incident will be children. The below table contains recommendations from the American Burn Association and the Western Region Burn Disaster Consortia may be consulted by facilities with pediatric burn patients.

Pediatric Transport Considerations

Transport units must be properly equipped with a cache of vascular and airway supplies suitable for pediatric patients. A pediatric patient is considered a trauma patient under 12 years of age.

Healthcare facilities are responsible for patient triage and treatment but may request assistance from the County of Santa Cruz. Facilities will first and foremost follow internal policies and procedures for patient care and emergency response. This Annex is meant only as supplemental support and direction in instances where this may be helpful.

3.3.3. Transportation

A significant limiting factor in a regional response may be the availability of ambulances. Patient movement will occur in accordance with local protocols and in collaboration with appropriate state, national, and federal agencies.

Emergency Contacts
9-1-1
NetCom: 831-471-1170 (Life Flight)
MHOAC: 831-227-1231
Flight Guard: 844-264-4445

County of Santa Cruz Levels of Care for Interfacility Ambulance Transport

Type of Transport	Patient Needs	Scope of Practice	Contact
9-1-1 Advanced Life Support (Paramedic) Interfacility Emergency Transfer	Emergency intervention or evaluation not available at the sending hospital (e.g., critical trauma, STEMI, stroke, obstetric care for active labor where birth is not imminent). May include neuro and vascular patients transported directly to an OR/intervention lab.	1. Advanced airway (ETT and King); 2. Administer and adjust IV fluids including: Glucose, isotonic saline, lactated ringers, and those containing potassium; 3. ECG monitoring; 4. Defibrillation and synchronized cardioversion; 5. Monitoring of water-sealed chest tube; 6. Administration of ACLS medications	**9-1-1**
Type of Transport	**Patient Needs**	**Scope of Practice**	**Contact**
Critical Care Transport with RN	Advanced care for patients with complex medical care needs as determined by the transferring physician and the ambulance agency. May include pediatric and obstetric patients.	Critical Care RN	**Contact ambulance service directly**
Air Ambulance	RN/Paramedic level of care for patients with complex medical care needs when the receiving hospital is distant and time is a critical factor. May include pediatric and obstetric patients.	Critical Care RN/Paramedic	**Contact air ambulance service directly**

Type of Transport	Patient Needs	Scope of Practice	Contact
Non-emergency Advanced Life Support (Paramedic)	Scheduled transport of patients who require an advanced level of care. Patient does not require emergency intervention at the receiving facility.	1. Advanced airway (ETT and King); 2. Administer and adjust IV fluids including: Glucose, isotonic saline, lactated ringers, and those containing potassium; 3. ECG monitoring; 4. Defibrillation and synchronized cardioversion; 5. Monitoring of water-sealed chest tube; 6. Administration of ACLS medications	**Contact ambulance service directly**
Non-emergency Basic Life Support (EMT)	Scheduled transport of patients who require a basic level of care.	EMT	**Contact ambulance service directly**

Multi-causality Incident Transfers

- A facility may make transportation arrangements directly or request assistance from the MHOAC according to local emergency management plans and protocols.
- The County of Santa Cruz EMS and local MHOAC will utilize internal policies and procedures to solicit assistance from private sector EMS or local public safety (fire, police, etc.) for immediate help.
- The MHOAC may request assistance for EMS resources from within Region II or outside of Region II as necessary.

Air Transfers

- A facility may make transportation arrangements directly or request assistance from the MHOAC according to local emergency management plans and protocols for air transfers.
- The County of Santa Cruz EMS and local MHOAC will utilize internal policies and procedures to solicit assistance from Region II or outside of Region II for air ambulance resources.

3.3.4 Combined Injury

Special considerations for cases such as act of terror, explosion, and MCI can be found here: ABA Guidelines for Burn Care Under Austere Conditions: Special Etiologies: Blast, Radiation, and Chemical Injuries.

4.0 Deactivation and Recovery

An After-Action Report (AAR) is a valuable tool to capture any post-incident lessons learned. Identified gaps, strengths, weaknesses, or other valuable information will be memorialized in an AAR. Changes to any policies, protocols, procedures, or plans (including this document) can be based on those lessons learned.

5.0 Appendices

County of Santa Cruz Hospitals

Hospital	Specialty Services	ED Phone
Sutter Maternity and Surgery Center 2900 Chanticleer Avenue, Santa Cruz, CA 95065	Maternity and Surgery	(831) 477-2200
Dominican Hospital 1555 Soquel Drive, Santa Cruz, CA 95065	General Acute Care Hospital (GACH)	(844) 471-4793

Watsonville Community Hospital 75 Nielson Street, Watsonville, CA 95076	General Acute Care Hospital (GACH)	(831) 761-5613

Burn Training Resource Table

Burn Training/Resources	Source	Target Audience	Type	Weblink
WRBDC and University of Utah Burn Center Resources	University of Utah Health	Clinical	Guidance/ Video	https://crisisstandardsofcare.utah.edu
COVID-19 Public Resources	American Burn Association	Public	Guidance	http://ameriburn.org/public-resources/covid-19-public- resources/
Burn Nurse Competencies	American Burn Association	Clinical	Guidance	http://ameriburn.org/wp-content/uploads/2017/05/bnci-competency-document-february-2017-final.pdf
It Can Happen in a Flash	National Scald Burn Campaign	Public	Guidance	http://flashsplash.org/
Burn Care for Children	American Academy of Pediatrics	Clinical	Guidance	https://pedsinreview.aappublications.org/content/39/6/273
Burn Surge Annex	Ann & Robert H Lurie Children's Hospital of Chicago	Response	Guidance	https://www.luriechildrens.org/en/emergency-medical- services-for-children/disaster/state-plans/burn-surge-annex/
96 Hour Care Guidelines for Pediatric Burns	Illinois Dept of Public Health	Clinical	Guidance	https://www.luriechildrens.org/globalassets/documents/emsc /disaster/state-plans/burncareguidelinesjune2017.pdf
Pediatric Annex for Burn Surge	State of Michigan	Response	Guidance	http://www.michiganburn.org/images/content/PedAnnexVer5 .pdf
Burn Triage and Treatment of Thermal Injuries in a Radiation Emergency	REMM	Response	Guidance	https://www.remm.nlm.gov/burns.htm
Management of Severe Thermal	Anesthesia Clinical Care &	Clinical	Guidance	https://www.sciencedirect.com/science/article/pii/S23525568 20300382

Burns in the Acute Phase in Adults and Children	Pain Medication			
Pediatric Burn Care	State of Michigan	Clinical	Video	http://www.michiganburn.org/pediatric_burn_care.html
Pain and Sedation for Pediatric Burn Care	State of Michigan	Clinical	Video	http://www.michiganburn.org/peds_pain_management.html
Pediatric Burn Resuscitation	State of Michigan	Clinical	Guidance	http://www.michiganburn.org/images/PedsGuidelinesforBurn Resuscitation.pdf
The Rule of Nines and Lund-Browder Charts	State of Michigan	Clinical	Guidance	http://www.michiganburn.org/images/Rule_9s_Lund_Browd er.jpg
Trauma and Burn Series: What Parents Need to Know	Children's National	Public	Guidance	https://childrensnational.org/news-and-events/video-gallery?series={9FDB9207-19A4-44A7-9C5C-E7DFCEB593E7}#Results
Burns 1010 Initial Management	UW Medicine	Clinical	Video	https://www.uwmedicine.org/provider-resource/videos/burns- 101-initial-management
Burn Surge Video Series	Minnesota Dept of Health	Clinical	Video	https://www.health.state.mn.us/communities/ep/surge/burn/vid eo.html
Burn Surge Module 4: Advance Special Treatment Considerations	Minnesota Dept of Health	Clinical	Video	https://www.health.state.mn.us/communities/ep/surge/burn/m odule4advanced.html
Determining Burn Depth	Minnesota Dept of Health	Clinical	Guidance	https://www.health.state.mn.us/communities/ep/surge/burn/bu rndepth.html
Determining Total Body Surface Area	Minnesota Dept of Health	Clinical	Guidance	https://www.health.state.mn.us/communities/ep/surge/burn/tbs a.html
Triage of Patients with Cutaneous Burns Only During Mass Casualty Incidents	Minnesota Dept of Health	Clinical	Guidance	https://www.health.state.mn.us/communities/ep/surge/burn/tri ageburns.html
Pediatric Response Resources for Burn Surge Facilities	Minnesota Dept of Health	Clinical	Guidance	https://www.health.state.mn.us/communities/ep/surge/burn/pe dsorders.pdf
Strategies for Scarce Resource Situations	Minnesota Dept of Health	Response	Guidance	https://www.health.state.mn.us/communities/ep/surge/burn/in dex.html

Burn E-Learning	OPEN Pediatrics	Clinical	Video	https://learn.openpediatrics.org/learn/global-search/burns
Pre-Hospital Care for Burn Patients	Integris Paul Silverstein Burn Center	Prehospital	Guidance	https://integrisok.com/locations/specialty-clinic/integris-burn- center/patients-and-visitors/pre-hospital-care-for-burn-patients
Pre-Hospital Management of Burns	DSHS Texas	Prehospital	Guidance	https://www.dshs.texas.gov/emstraumasystems/JA10CEArticl e.pdf
Topic Collection: Burns	ASPR TRACIE	Clinical	Guidance	https://asprtracie.hhs.gov/MasterSearch?qt=burns&limit=20&p age=1
Healthcare Coalition Burn Surge Annex Template	ASPR TRACIE	Response	Guidance	https://files.asprtracie.hhs.gov/documents/aspr-tracie-hcc- burn-surge-annex-template-final.pdf
Burn Prevention	CDC	Public	Guidance	https://www.cdc.gov/safechild/burns/index.html
Burns	World Health Organization	Response	Guidance	https://www.who.int/news-room/fact-sheets/detail/burns
Fire & Burn Safety	Children's Safety Network	Public	Guidance	https://www.childrenssafetynetwork.org/injury-topics/fire-burn- safety

Burn Care Public-Facing Resources

Western Region Burn Disaster Consortium

Plans, training modules and guidelines, including Initial Management Guidelines for the Pediatric Burn Patient, Prolonged Care of the Burn Patient in a Non-Burn Facility Following a Mass Casualty Incident (96 Hour Plan), Burn Crisis Standard of Care Guidelines: **Western Region Burn Mass Casualty Operations Plan.**

Burn CSC App

Crisis Triage Officer and Triage Officer Team Training, and more can be found online and on smart phones and other devices: http://crisisstandardsofcare.utah.edu

Federal Resources

- **American Burn Association resources**: guidelines for burn care under austere conditions, mass casualty, and triage decision tables
- **ASPR TRACIE Healthcare Emergency Preparedness Information Gateway**
- **Resources for the Optimal Care of the Burn Patient, and Clarification Document**

- **WRBDC Resources,** including the prolonged care of a burn patient in a non-burn facility (96-Hour Plan)
- **WRBDC Burn Mass Casualty Operations Plan:** page 76, list of all Regional Burn Center Telehealth programs (for Burn Physician consult)

Guidelines for Care in Austere Conditions

- Austere Guidelines: Just-in-Time Training Summary Sheet
- Letter to the JBCR Editor: *These 4 articles specifically address how to carry on effective burn care in a post-apocalyptic environment.*
- **Introduction to Burn Disaster, Airway and Ventilator Management, and Fluid Resuscitation - -** Article | Slides
- **Special Care Topics - -** Article | Slides
- **Special Etiologies: Blast, Radiation, and Chemical Injuries - -** Article | Slides
- **Surgical and Nonsurgical Wound Management - -** Article | Slides

Additional Resources

- Healthcare Emergency Preparedness Information (TRACIE)
- ABLS-Live-course
- Radiation Emergency Medical Management (REMM)

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