

Welcome to the ANTHC Burn and Soft Tissue Clinical ECHO Series

**TO PARTICIPATE BY PHONE: CALL 1 (907) 729-3900 AND ENTER PARTICIPANT CODE: 101111201#
FOR TECHNICAL ASSISTANCE: CALL 907-317-5209 OR TEXT YOUR PHONE NUMBER INTO THE CHAT**

- During the ECHO please remember the following:**

- Please do not share Protected Health Information (PHI) 
- Today's session will be recorded for educational purposes
- Please mute your microphone to minimize audio distractions unless you are talking
 - Don't place conference on hold (if you are listening by phone).
- Please identify yourself every time you speak
- Remember you are on camera 
- Please mute your camera as needed to avoid distraction to the group 



ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM



ANTHC Clinical ECHO Series

Approved Provider Statements:

ANTHC is accredited by the Washington State Medical Association to provide continuing medical education for physicians.

ANTHC is approved as a provider of continuing nursing education by the Montana Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

AKPhA is accredited by the Accreditation Council for Pharmacy Education as a provider of Continuing Pharmacy Education.

Contact Hours:

ANTHC designates this Live Activity for a maximum of **1 AMA PRA Category 1 Credit(s)™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

ANTHC designates this activity as meeting the criteria for one nursing contact hour credit for each hour of participation up to a maximum of 1 hour(s).



The Alaska Pharmacists Association (AKPhA) is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. Through a Joint Providership, ANTHC and AKPhA designates this pharmacist activity for a maximum of 1 hours(s). To receive CE credit, participants must sign the roster and complete the evaluation, if applicable. CPE credit will be posted to the online CPE Monitor System within 60 days of activity completion. CPE credit is offered at no charge to ANTHC/SCF employees and AKPhA members. Fees may apply to participants not affiliated with either organization.

Approved for 1 CHAP CE

Conflict of Interest Disclosures:

All Presenters and Conference Planners for this activity do not have any relevant relationships or conflict of interests to disclose.

Requirements for Successful Completion:

To receive CE credit please make sure you have signed in, claimed credit commensurate with your participation in this activity and completed the course evaluation form.

ANTHC Burn and Soft Tissue Clinical ECHO series

BURN THERAPY BASICS:
THERAPY CONSIDERATIONS IN RURAL BURN CARE

Warning

Some of the images shown during this presentation are graphic and may be disturbing to some people.

Scope of the problem

Limited resources in rural Alaska

A desire by the state and ANTHC to provide quality care in the state and to limit patients having to leave their state for burn care.

Aligning with ANTHC vision and mission statement “Alaska Natives are the healthiest people in the world”. Providing the highest quality health services in partnership with our people and the Alaska Tribal Health System

Scope of the problem

700,000 people a year experience burn

Camp Fire Burns

40,000 of those require hospitalization

Direct Thermal

80% of those hospitalized experience UE
(upper extremity) burns

Cold weather injuries

Burns to the UE can result in permanent
functional and esthetic deformity

Electrical burns

(Skirven, chapter 25)

Firework injuries

Remote work site injuries

ANMC Burn capabilities

Burn Fellowship trained Dr. Elisha Brownson and General Surgery Trauma and orthopedic surgery team. Plastics consult. Internal Medicine. Nephrology.

Skilled RN services

Nutrition Services

Onsite Occupational and Physical Therapy

Wound care and wound vacuum assisted closure

Dedicated wound care RN team

Behavioral health and Social Work

Child Life Specialist

The team

Physician



Ideally, the burn team approach care plan is established within the first 24 hours.

Physician- Resuscitation and management.
Determines TBSA (total body surface area)

Communicates the plan to the team
including dressing change plan.

(Skirven, chapter 25)

The team

RN



Coordinates and implements dressing changes

Family interaction

Communicates to the team regarding pain management and dressing change times.

(Skirven, chapter 25)

The team Occupational Therapy and Physical Therapy



Coordinates a plan for orthosis use and exercise
Activities of daily living participation
Interact with family
Communicate with the team
Establish home program exercises as appropriate

(Skirven, chapter 25)

The team Nutrition Dietetics



Coordinate diet to support client needs between procedures and fluid requirements or restrictions

Communicates to the team

(Skirven, chapter 25)

The team
Social Services,
Behavioral Health,
Child Life



Social Services establish benefits, insurance and work related questions
Behavioral Health aids with coping with illness, acute stress from injury event, substance abuse concerns
Child Life helps pediatric patients coping with illness and non-pharmacologic pain strategies
Discharge planning
Communication with family and the team

(Skirven, chapter 25)

What is Occupational Therapy?

Where do OTs work?

- SNF
- ALF
- hospitals and sub acute
- schools
- outpatient clinic
- long term care
- administration

First OT school established in 1915

First OT Masters Degrees in 1946

First OT journal established in 1947

The progression developed after WWII and the rehabilitation needed for wounded soldiers. VA hospitals allow the first introduction to physical disabilities.

OT progressed from mental health, to physical rehab and into pediatrics. Specialty certifications: CHT, NDT, BT-C.

“The art and science of helping people do the day-to-day activities that are important and meaningful to their health and well being through engagement in valued occupations”
(Crepeau, Boyt Schell & Cohn)

Considerations for rural providers

When to call for consult at ANMC?

- Resuscitation
- Consider depth of wound
- Location of wound

We can keep burns up to 30% TBSA

Often can serve as first assessment and transfer to Harborview if needs exceed ANMC



Considerations for transfer to a higher level of care

In rural settings, identifying red flag early on for transfer include burns which span joints and burns to the hands or feet, those patients with fluid management needs, and those with limited social supports may be considered for transfer to a higher level of care.

The most common and functionally limiting sequelae are contractures of the web spaces, hands and digits (Fufa, Chuang, Yang, 2014).

Burn Center Referral Criteria

A burn center may treat adults, children, or both.

Burn injuries that should be referred to a burn center include:

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 patient 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 rehabilitative intervention.



Courtesy of the
American Burn Association
Advanced Burn Life Support (ABLS)
Learn more about the ABA and ABLS at www.ameriburn.org

Considerations for transfer to higher level of care

The management of each burn must be individualized.

A burn can occur suddenly and be quite frightening and overwhelming. Often the psychological effects are not felt until after discharge. Patient and their families must be instructed early and encouraged regularly about extensive time involved and the commitment to often unforgiving treatment regimens required for best results. Goals regarding function should be set high and should be set in conjunction with the patient . If the provider expects less then the patient will also expect less (Skirvin, p. 341)

Red Flags for consideration for transfer to higher level of care

Elbow and axillary burns

Finger burns

1st web space contractures

Dorsal hand burns, palmar hand burns

Dorsal ankle burns



(a) Edema following a full-thickness burn of the dorsum of the hand – imposed metacarpophalangeal extension and interphalangeal flexion. (b) The deformity resulting from the persistence of this position is that of a claw hand. Serghiou et al (2007).

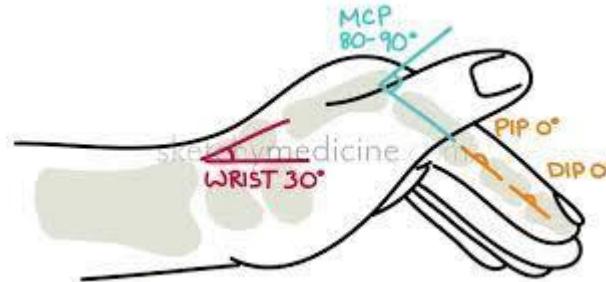
Red flags for consideration

If the wrist or Metacarpal phalangeal joints or interphalangeal joints are involved consider the immediate need of positioning in wrist extension and MCP at 90 degrees (intrinsic plus position) to protect against deformity or loss of function



Showing loss of hand and wrist function.

Fufa, D., Siow-Shuh-C., Yang. J. (2014)
Post Burn Contractures of the Hand



Anti –deformity position

TBSA

Upper extremity is 9%

Hand is 3%

TBSA+ depth = prediction of outcome



Can be used to communicate to family

1st degree, 2nd degree, 3rd degree and 4th degree

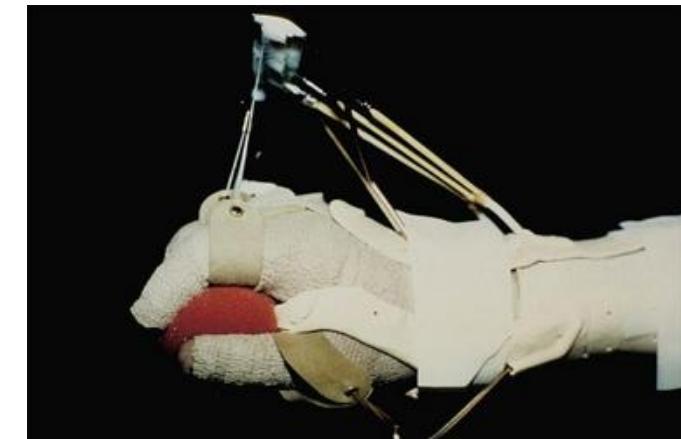
In practice depth is mixed



Assessed daily with a goal to resurface all burns that are not expected to re-epithelialize in 14-21 days

Post Burn Positioning of the hand

- A resting hand splint or anti-deformity splint (pictured to the right) . This splint is recommended for any acute and post acute burned hand which assumes the edema imposed claw hand position or has any extensor tendon involvement or dorsal hand burns
 - The lower picture to the right a an example of a dynamic digit extension orthosis used to counteract contractile forces. The therapist monitors dynamic splinting closely and makes frequent adjustments in order to provide effective tissue mobilization. Additionally, the fit of dynamic splints is checked frequently to insure that the anatomical structures remain properly aligned.
 - Casting may be required to hold a specific joint position
- Moore (2009) and Serghiou et al (2007).



Major considerations for therapy

- Chronic edema
- ROM/strength
- Skin integrity
- Scar characteristics
- Orthosis intervention
- Physical agents
- Deformity and contractures
- Return to work/school
- Functional use
- ADL participation and modifications.



Therapy considerations

After medical team resuscitate, or medically stabilize the patient, and determine TBSA (Total Body Surface Area) therapy can begin assessment of:

- Positioning need to help promote edema management, wound care, participation in range of motion and as much ADL activity is safe and deemed appropriate (sitting up to eat, getting to toilet, finding comfortable sleep position).
- Begin building rapport with patients and escorts or direct caregivers to help with communication, and follow through of MD and RN instructions.
- When appropriate begin active and passive range of motion to avoid fibrosis and loss of range of motion

Critical points for burn care

((temperature +source + time of contact) +(depth))quality of tissue and location = prediction of functional outcome

The goal of burn care is to maximize restoration of functional with stable soft tissue coverage in the earliest time frame

The quality of the healed burn scar heavily influences the degree of functional return

(Skirven, chapter 25)

Phases of Burn Rehab

Once medically stabilized or during the process of medical stabilization: **Inflammation 0-5 days.** Goals are to reduce edema, and prevent infection or disruption of the wound.

Proliferation: Day 3-6 weeks. Goals are focused on positioning and immobilization and later gentle stress and splinting. Prevent contracture.

Remodeling: 6 weeks to 2 years. Goal of therapy is to optimize function and manage scars



Therapy considerations

A burn wound heals by epithelization if the depth of injury is confined to the dermis or epidermis. The concentration of uninjured hair follicles, neural elements, and sweat glands at the depth of the unburned dermis determines the rate of epithelization (Skirven, chapter 25). Complete loss of the dermis as occurs in full thickness burns requires skin resurfacing and possibly grafting.

If grafting is involved immediate phase after surgery is immobilization until graft healing approved by surgeon. Immobilize to allow for graft healing then begin the therapy process again.

Indications for early motion

Fibrosis and small joint inflammation is a cause of post burn stiffness and joint deformity. The longer the wound remains open the longer the inflammation around fine joints continues. This inflammation is the source of progressive scar formation and restriction of motion.

Therapy is encouraged daily, and during the acute period sometimes 2-3x per day.

Pain, high levels of sedation and significant swelling may preclude full active and passive joint ROM.

(Skirven, chapter 25)

Common deformities of the Burned Hand

Boutonniere and pseudo boutonniere deformity - Often managed with surgical intervention

Proximal Interphalangeal Joint contractures



Common deformities

Claw hand

Can occur early post injury as a
Result of edema, tendon injury,
Or scar contraction



Tucker (2011)

Key Questions

What support system or resources does the patient have to help support through the rehabilitation process? Family, food insecurity, housing instability, concurrent substance abuse.

What are the local resources to fill the rehabilitation gap when services are minimal?

Where can I look for education about burn care?

References

- Fufa. D., Shiow-Shuh, C., & Yang. J. (2014). Postburn contracture of the Hand. *Journal of Hand surgery.*39,1869-1876.
- Rehabilitation of the Hand and Upper Extremity, 2-Volume Set: Expert Consult: Online and Print, 6e
- Brown, M. & Chung, K. (2017) Postburn contractures of the hand. *Hand Clinics.* 33(2), 317-331
- Crepeau,E., Cohn, E., & Boyt Schell. B (2003) *Willard and Spackman's occupational therapy* (11th edition). Philadelphia: Lippincot Williams & Wilkins
- Tucker, S.C (2011). Reconstruction of severe hand contracture: An Illustrative series. *Indian Journal of Plastic Surgery.* January-April.44(1),59-67.
- Moore, M. Dewey, W., Richard, R. (2009) Rehabilitation of the burned hand.*Hand clinics.* 529-541
- Hurlin Foley K, Doyle B, Paradise P, Parry I, Palmieri T, Greenhalgh DG. Use of an improved Watusi collar to manage pediatric neck burn contractures. *J Burn Care Rehabil.* 2002;23(3):221-226. doi:10.1097/00004630-200205000-00014
- Nosanov, L., Alley, R., Beyene, R., Walters, S., & Shupp, J. (2017) *Burns Open*,1(1), 9-15.
- Serghiou, M., Ott, S., Whitehead, C., Cowen,A., McEntire, S., Suman, O. (2007) *Total Burn Care*. Saunders Philadelphia. Chapter 47