Telemedicine for Regional Burn Care

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*No financial disclosures. No support of any product is implied



Objectives

- 1. Understand the restrictions on access to specialized burn care due to
 - A. Declining incidence of burn injury
 - B. Decreasing number of burn centers
 - C. Lack of physician training and awareness about burns
- 2. The ability of telemedicine to extend burn care expertise in both acute and followup situations
- 3. The value of portable device-based store and forward technology in consultations and other applications in burn care
- 4. The extension of these concepts to other specialties practices.



My Assumptions:

- 1. You already know a lot about telemedicine
- 2. You don't know much about burn care
- 3. You're professionals and can stand (a few) gruesome photos





There is NO team like the burn team!!

IN TES

Annual Statistics University of Utah Burn Center

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Admissions: 300-400
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Outpatient visits: 5,000 - 6,000
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Burn Size Mean: 6% TBSA
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LOS Mean: 6.0 days
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Out of State: 37%

Children (< 18): 36%

Non-burn injuries: 31%









Two Recent Referrals:

Patient One:

- * Called by an ER physician from a remote small town
- * 60 year-old man burned fighting a garage fire: face, scalp, hands.
- * Estimated 15% TBSA
- * Facial burns "extensive"; considered intubation
- * Transported to Salt Lake City



Patient One





My estimate: 3.5% TBSA



Telemedicine in Acute Burn Care

Patient ONE- Hospital Course

- 1. Dressed within 10 minutes.
- 2. 48 Hours in hospital waiting for his family to come get him.
- 3. Charges (2005):

Hospital:

Surgeon (me):

Air Transport

\$ 166

\$ 4,784

Now \$24,000+



Patient TWO

- 1. Called by an ER Physician from a remote small town.
- 2. 60 year-old man burned priming a carburetor.
- 3. Burns "all over" face- should he intubate.
- 4. Took a photo with his CELL PHONE and sent it to me.
- 5. Advice on topical care given; patient and physician reassured.



Pearl Harbor, December 7, 1941



Burns already recognized as a major new problem in warfare (Blitz in England) 2,402 deaths* 1,282 wounded 60% of casualties were burns *2,752 World Trade Center, 2001



Cocoanut Grove Fire, Boston, November 28, 1942





- 491 Deaths
- 400 + Injured
- Boston City Hospital
- MGH
- Both recipients of research awards for burns
- First burn center, first fluid resuscitation, first inhalation injury, etc.





Decreasing incidence of burn injury in the United States

10 burns/10,000 people

4.2 burns/10,000 people



* Data on fire, flame and scald/hot contact deaths by suicide, assault and undetermined intent unavailable until adoption of ICD-9 codes in 1979.

- -- Brigham and McLoughlin, J Burn Care Rehabil, 1996;17:95
- -- Burn Incidence Fact Sheet, American Burn Association

Changing Size of Admissions to US Burn Centers



VERSITY OF UTAH

EALT

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- 1. Feller et al, National Burn Information Exchange
- 2. JBCR 1995;16:219 (n=6,400)

Percent of Total Admissions

3. National Burn Repository, 2011; n > 140,000

As Survival has gotten better and burns have gotten rarer and smaller:

- 1. Focus is shifting toward <u>**QUALITY</u>** of life, and rehabilitation.</u>
- 2. Focus is shifting on <u>Cost-effectiveness</u> of care in a changing health care landscape.
- Much greater need for <u>partnerships</u> with local facilities to help optimize care for smaller burns.

Burn Centers, North America



25% Fewer Burn Centers in US/Canada in past 20 years !

-- ABA Directory of Burn Care Resources



Rotary Air Transport Service Areas for US Burn Centers



-- Klein, M. B. et al. JAMA 2009;302:1774-1781



Burn Patient Air Transports, 2000-2001



Telemedicine and Burn Care in the Intermountain West



TELEMEDICINE IN ACUTE BURN CARE, 2005-2008





Telemedicine in Acute Burn Care, 2004-2007

		TELE Patients			
Characteristic	PRE-TELE	Air	Ground	None	TOTAL
Interval	6/03-7/05				7/05-9/07
No. patients	<u>28</u>	31	9	30	<u>70</u>
Gender (M/F)	17/11	24/7	7/2	22/8	53/17
Age (years)	30 (34)	38 (24)	14 (28)	29(49)	30(33)
Burn Size (TBSA)	6.5	9.0	2.5	3.0	3.0
Range TBSA	0-86.5	2.0-30.5	0.5-6.5	0-12	0-3.05

Air Transport: Pre-Tele 28/28 (100%) vs TELE 31/70 (44%; p < 0.001)











HEALIH CARE



How can telemedicine help in Acute Burn Evaluation?

- 1. Accurate assessment of burn depth
- 2. Accurate assessment of burn extent
- 3. Accurate assessment of need for airway support
- 4. Early institution of APPROPRIATE fluid resuscitation, escharotomies
- 5. Justify necessary air transports
- 6. Obviate unnecessary air transports
- 7. Help local physicians provide appropriate care













Superficial partial-thickness burns











Deep Partial-Thickness Burns:

- * Dry Waxy-white or dull red
- * Dry skin slough
- * Blisters sometimes adhere

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* Relatively less painful







Full-Thickness Burns

- * Dry Surface
- * Often leathery
- * <u>Tight</u> swelling
- * relatively painless
- * Color is <u>unreliable</u>











Consultation

Burn Center Referral Criteria (relative!)

- 1. Patients with partial- or full-thickness burns of 10% TBSA or greater.
- 2. All full-thickness burns.
- 3. Burns of "specialty" care areas: eyes, ears, face, hands, feet, perineum, major joints.
- 4. Burns complicated by smoke inhalation.
- 5. Burns complicated by multiple trauma (in consultation with trauma center).
- 6. Burns from high-voltage electricity.
- 7. All Chemical injuries.
- 8. Burns in patients with significant co-morbid medical problems (e.g., diabetes).
- 9. Burned children who require specialized pediatric care.
- 10. Patients who will require special social or psychological support, or prolonged rehabilitation.

-- American College of Surgeons



How can telemedicine help in follow-up burn care?

- 1. Regular wound evaluations help keep patients local, support local physicians in care
- 2. Much of follow-up care is physical therapy, which is VISUAL
- 3. Because patients are spared the inconvenience and expense of travel, they can be seen more regularly and get better followup
- 4. Psychosocial support can be given
- 5. The need for reconstructive surgery can be assessed routinely
- 6. Preop and postop followup can be performed



Cassidy Poplar, MT*

*Shown with permission!

Burn Telemedicine Visits by Year (Thru August, 2012)







BURN PATIENT ROBOTIC CONSULTS



NOW AVAILABLE

In partnership with University of Utah's Burn Center

AVAILABLE 24/7

Saint Alphonsus Medical Access Center: (877) 367-8855





ARE Burn Center

Please call 208-367-7268 for questions or feedback.

TELEMEDICINE OUTREACH PROGRAM TeleBurn Consultations Enhance Patient Care

TeleBurn is now live at Saint Alphonsus! If a burn patient presents to the ED, we are now using the latest in technology – InTouch Remote Presence - to connect patients and their physicians with the University of Utah's Burn Center, in real time 24/7 for an immediate physician consultation. This exciting program provides enhanced video quality and interaction between the emergency physicians and the burn experts at University of Utah.

The Access Center (1-877-367-8855) is available to contact University of Utah and help facilitate the TeleBurn consultation. The Access Center Nurses are able to connect simultaneously with the University of Utah physician to assist as needed with using the technology and to help facilitate transport, when necessary.



Burn Center



Jeffrey R. Saffle, MD, EACS Professor of Surgery Division Chief, Burns/Transma/Critical Caro Director, Burn Center



Director, Trauma Service



Saint Alphonsus Regional Medical Center is working

with partnering hospitals in the region to extend

this service in a continued effort to Keep Care Local

Please visit the Saint Alphonsus Outreach website:

http://www.saintalphonsus.org/outreach/provider-

Thanks for your help in making Saint Alphonsus

one of the pioneers in the field of telemedicine! For

questions about TeleBurn or any other telemedicine

programs at Saint Alphonsus, please contact Tiffany

and improve access to specialty expertise.

tools.aspx, for more information.

Whitmore, at (208) 367-7268.

Amalia L. Cochran, MD, FACS Assistant Professor







How do we do it?

- 1. Our model: Access, cost savings, market share
- 2. Financial plan: we didn't have one, but it has been successful
- 3. A convenient work environment, integrated into the inpatient service
- 4. Made telemedicine MAINSTREAM
- 5. Full-time coordinator and cheerleader
- 6. Present, publish or perish
- 7. Don't forget Store and Forward!!















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It's not the technology, it's the service!

--Jonathan Linkous, CEO, American Telemedicine Association



