Burns
Current Awareness Newsletter

August 2015
**Outreach**

Your Outreach Librarian can help facilitate evidence-based practise for all Burns members of staff, as well as assisting with academic study and research. We can help with literature searching, obtaining journal articles and books, and setting up individual current awareness alerts.

**Literature Searching**

We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a 1 to 1 session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence.

**Critical Appraisal Training**

We also offer one-to-one or small group training in literature searching, accessing electronic journals, and critical appraisal/Statistics. These are essential courses that teach how to interpret clinical papers.

For more information, email: katie.barnard@uhbristol.nhs.uk

**Books**

Books can be searched for using SWIMS our online catalogue at www.swims.nhs.uk. Books and journals that are not available on site or electronically may be requested from other locations. Please email requests to: library@uhbristol.nhs.uk
Contents

1: Tables of Contents from August’s Burns journals

2: New NICE Guidance

3: Latest relevant Systematic Reviews from the Cochrane Library

4: Quick Exercise

5: Current Awareness database articles
Tables of Contents from Burns journals

If you require full articles please email: library@uhbristol.nhs.uk

**Burns 2015 (Elsevier)**
August 2015, Volume 41, Issue 5

**Journal of Burn Care & Research (LWW)**
July/August 2015, Volume 36, Issue 4

**Injury Prevention (BMJ)**
August 2015, Volume 21, Issue 4

**Plastic and Reconstructive Surgery (LWW)**
August 2015, Volume 136, Issue 2

**Journal of Plastic, Reconstructive & Aesthetic Surgery (Elsevier)**
July 2015, Volume 68, Issue 7

**Archives of Disease in Childhood (BMJ)**
August 2015, Volume 100, Issue 8

**Pediatrics (HighWire)**
August 2015, Volume 136, Issue 2

**Injury (Elsevier)**
August 2015, Volume 46, Issue 8

**Trauma (Sage)**
July 2015, Volume 17, Issue 3
The most comprehensive, accurate and detailed 3D models of the human body

Get access via www.anatomy.tv with your NHS Athens username and password
New NICE Guidance

NG14 Melanoma: assessment and management
QS97 Drug allergy: diagnosis and management

Latest relevant Systematic Reviews from the Cochrane Library

Oral non-steroidal anti-inflammatory drugs versus other oral analgesic agents for acute soft tissue injury
Single dose oral ibuprofen plus caffeine for acute postoperative pain in adults
Continuous intravenous perioperative lidocaine infusion for postoperative pain and recovery
Quick Exercise

Sensitivity and Specificity

**Sensitivity:**
If a person has a disease, how often will the test be positive (true positive rate)?

Put another way, if the test is highly sensitive and the test result is negative you can be nearly certain that they don’t have disease.

**Specificity:**
If a person does not have the disease how often will the test be negative (true negative rate)?

In other terms, if the test result for a highly specific test is positive you can be nearly certain that they actually have the disease.

Quick Quiz:

1. A very sensitive test, when negative, helps you:
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

2. A test which is highly specific, when positive, helps you:
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

To find out more about statistics that analyse clinical investigations and screening, sign up for one of our Medical Statistics training sessions.

For more details, email katie.barnard@uhbristol.nhs.uk.
The Library and Information Service provides free specialist information skills training for all UHBristol staff and students.

To book a place, email: library@uhbristol.nhs.uk

If you’re unable to attend we also provide one-to-one or small group sessions. Contact library@ or katie.barnard@ to arrange a session.

**Literature Searching**

An in-depth guide on how to search the evidence base, including an introduction to UpToDate and Anatomy.tv.

Useful for anybody who wants to find the best and quickest way to source articles.

**How to understand an article**

How to assess the strengths and weaknesses of published articles.

Examining bias and validity.

**Medical Statistics**

A basic introduction to the key statistics in medical articles.

Giving an overview of statistics that compare risk, test confidence, analyse clinical investigations, and test difference.

**August** (12pm)

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**September** (1pm)

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**October** (12pm)

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Title: Multicenter Assessment of Burn Team Injury Prevention Knowledge

Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/3(434-439), 1559-047X;1559-0488 (20 Jul 2015)

Author(s): Klas K.S., Smith S.J., Matherly A.F., Dillard B.D., Grant E.J., Cusick-Jost J.

Abstract: Engaging burn professionals to utilize "teachable moments" and provide accurate fire safety and burn prevention (FSBP) education is essential in reducing injury incidence. Minimal data is available regarding burn clinicians' evidence-based FSBP knowledge. A committee of prevention professionals developed, pilot-tested, and distributed a 52-question online survey assessing six major categories: demographical information (n = 7); FSBP knowledge (n = 24); home FSBP practices (n = 6); burn center FSBP education (n = 7); self-assessed competence and confidence in providing FSBP education (n = 2); and improving ABA reach (n = 6). Responses with <50% completion of FSBP knowledge section were excluded. Total group's (TG) mean FSBP score of 61.5% was used to define and compare underperformers (UP). After excluding 36 incomplete responses, test scores ranged: TG (n = 427) 21-88% and UP (n = 183) 21-58%. Ten FSBP knowledge questions covering seven topics were incorrectly answered by >50% of TG. ANOVA showed self-reported competence and confidence in providing FSBP education were not good predictors of FSBP scores, but staff with <2 years experience scored lower. Over 90% of TG wants FSBP fact sheets for patient education. Burn professionals have a responsibility to educate patients, families, and communities on FSBP. Team members report competence and confidence in their ability to provide FSBP education. However, this multicenter survey demonstrates the need for professional training on best practices in injury prevention, specifically targeting knowledge gaps on: smoke alarms, fire-safe cigarettes, children's sleepwear, burn/fire epidemiology, fireworks, bathing/scald injuries, and residential sprinklers. Based on these findings, FSBP educational materials will be created.

Title: Low Level of TSST-1 Antibody in Burn Patients with Toxic Shock Syndrome Caused by Methicillin-Resistant Staphylococcus aureus

Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/3(e120-e124), 1559-047X;1559-0488 (20 Jul 2015)

Author(s): Matsushima A., Kuroki Y., Nakajima S., Sakai T., Kojima H., Ueyama M.

Abstract: Toxic shock syndrome (TSS) caused by methicillin-resistant Staphylococcus aureus (MRSA) nosocomial infection is a growing concern in both adult and pediatric patients. The reason why TSS appears in only some patients with MRSA infection remains unclear. In this study, we analyzed serial TSS toxin-1 (TSST-1) antibody in patients with burn injury to investigate the mechanisms of TSS caused by MRSA nosocomial infection. This study comprised of patients with burn injury in our burn care unit from September, 2010 to August, 2011. Serum samples were collected serially on admission, at 48 to 72 hours after injury, on the day MRSA infection appeared, and on the day MRSA infection resolved. TSST-1 antibody was measured by enzyme-linked immunosorbent assay (ELISA). TSS was diagnosed according to the criteria of the Centers for Disease Control. Serial serum samples were collected from 24 patients and nosocomial MRSA infection was detected in 12 patients. In these 12 patients, TSS occurred in five patients (TSS+ group) but did not occur in the other seven patients (TSS- group). TSST-1 antibody level was significantly lower in the TSS+ group than TSS-group on admission and on the day MRSA infection appeared. All patients in the TSS+ group received intravenous immune globulin when TSS was diagnosed, and no patients died of TSS. Patients suffering from TSS had a lower level of TSST-1 antibody than patients not suffering from TSS. Testing for TSST-1 antibody in the clinical setting might help to predict and prevent the appearance of TSS caused by nosocomial MRSA infection.

Title: Postburn Neck Anterior Contracture Treatment in Children with Scar-Fascial Local Trapezoid Flaps: A New Approach

Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/3(e112-e119), 1559-047X;1559-0488 (20 Jul 2015)

Author(s): Grishkevich V.M., Grishkevich M., Menzul V.
Abstract: One of the dramatic consequences of burns is scar contracture and deformities of the neck. Cervical contracture in children is especially dangerous, leading to face disfigurement and kyphosis; therefore, early reconstruction is indicated. Despite the existence of many various surgical techniques, the successful neck contracture treatment in pediatric patients remains a challenge for surgeons. Eleven children (aged 5 to 14 years) with postburn neck anterior contractures were studied to develop a new approach for reconstruction that would employ the use of local scar-fascial flaps. The new approach and technique for postburn pediatric contracture treatment was developed which is especially effective in the treatment of children who cannot undergo complex and long surgical procedures that are aimed at both contracture elimination and neck skin restoration. The technique consists of two trapezoid scar-fascial flaps mobilization which includes all the anterior neck surfaces and consists of scars, fat layer, platysma, and deep cervical fascia. Counter transposition of flaps with tension elongated neck anterior surface was 100 to 200%. The contracture was fully eliminated, and neck contours, mentocervical angle, and head movement were restored. In case of severe contracture, residual wound in submandibular region and above clavicles were skin-grafted. The full range of head motion (functional results) was achieved in all the 11 patients. The flaps continued to grow and the skin grafts shrinkage was moderate. Local trapeze-flap plasty allows neck contracture elimination in children in the cases when a more complex technique is impossible or undesirable to use. Early surgical intervention prevents secondary complications, allotting enough time for patients to mature and be ready for more complex procedures.

Title: Burns in the head and neck: A national representative analysis of emergency department visits.
Citation: The Laryngoscope, Jul 2015, vol. 125, no. 7, p. 1573-1578 (July 2015)
Author(s): Heilbronn, Cameron M, Svider, Peter F, Folbe, Adam J, Shkoukani, Mahdi A, Carron, Michael A, Eloy, Jean Anderson, Zuliani, Giancarlo

Abstract: Head and neck burns (HNBs) engender serious sequelae including airway edema, speech/swallowing dysfunction, sensory deficits, and scarring/disfigurement, often requiring significant reconstructive surgery. We used a nationally representative resource to estimate the number of visits to emergency departments (EDs), analyze burn types and demographic patterns, and identify specific consumer products involved. The National Electronic Injury Surveillance System was evaluated for the most recent 5-year period available. HNB ED visits were identified, and patient records were evaluated for consumer products facilitating injury, along with other ED visit and patient characteristics. From 2009 to 2013, 6,326 cases extrapolating to 233,431 ED visits nationally were identified. Males were predominantly impacted (64.1%). Although adults overall comprised the majority of patients (59.7%), children between 1 and 2 years of age had the highest incidence (21,544 ED visits nationally). The most common consumer products facilitating HNB included welding equipment, hot water, gasoline, bleaches, and cookware. Most injuries involved the face (55%), whereas the most common etiologies included thermal (40%), chemical (23%), and scald (22%) burns. Consumer products and injury patterns varied by patient age. HNBs significantly impact healthcare delivery, as over 200,000 visits reportedly presented to EDs over the 5-year period studied. Consumer products facilitating visits and associated patient demographics described may guide history, clinical examination, and identification of secondary injuries. In particular, age-specific patterns detailed may be included in consumer education and patient counseling to facilitate injury prevention, as office visits provide an opportunity to counsel patients. 2b Laryngoscope, 125:1573-1578, 2015. © 2015 The American Laryngological, Rhinological and Otological Society, Inc.

Title: Measuring the Burden of Pediatric Burn Injury for Parents and Caregivers: Informed Burn Center Staff Can Help to Lighten the Load
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/3(421-427), 1559-047X;1559-0488 (20 Jul 2015)
Author(s): Rimmer R.B., Bay R.C., Alam N.B., Sadler I.J., Richey K.J., Foster K.N., Caruso D.M., Rosenberg D.

Abstract: This study sought to identify which commonly experienced burn-related issues parents/caregivers of burn-injured youth deemed most stressful, difficult, and disruptive during their child's initial acute burn care hospitalization, and following the child's discharge. Parents completed an 11-item survey, asking them to rate the difficulty of items regarding their child's burn injury. The scale was created by burn doctors, nurses, and psychologists with an average of 10.5 (SD +/- 4.8) years of experience. Items selected were among common parental problems reported in the burn literature. Respondents included 69 parents/caregivers of previously hospitalized, burn-injured youth. The majority were mothers, n = 51 (74%), and n = 34 (49%) were Caucasian. The most represented age group was 37 to 45 years, n = 31 (45%). Children were on average, 6.04 years out
from their initial injury. All parents reported their child's pain as the most difficult part of the injury, n = 69 (100%). The second most common issue was the child's first hospital stay. The other two items found to be "very hard" or "pretty hard" were the time spent away from their other children, and feelings of hopelessness in being unable to fix everything for their child. In this study, key parental problems occurred during the child's initial hospitalization. Burn staff cannot alleviate all problems, however, staff education regarding distressing problems faced by parents, as well as possible solutions, can be made available.

Title: Sedation and Analgesia for Critically Ill Pediatric Burn Patients: The Current State of Practice
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/3(440-445), 1559-047X;1559-0488 (20 Jul 2015)
Author(s): Singleton A., Preston R.J., Cochran A.

Abstract: The objective of this study was to assess current practice patterns and attitudes toward pediatric sedation and analgesia in United States (US) burn centers for critically ill patients. Survey-based questionnaire was sent to 119 Directors at US burn centers that care for pediatric patients. Forty-one surveys (34%) were analyzed. 48.8% of responding centers mandate pediatric consultation for pediatric burn patients based on factors such as age and burn size. The most common sedation and analgesic agents used were midazolam, fentanyl, morphine, ketamine, and diphenhydramine. Written sedation policies exist at 63.4% of centers. 90.2% of centers employ scoring systems to guide agent titration. 60.9% of respondents practice sedation holidays "always" or "usually." 90.2% of centers perceive the medications they routinely use are "always" or "often" efficacious in pediatric sedation and analgesia. 53.7% of respondents reported the presence of withdrawal signs and symptoms in their patient population. The lack of consensus guidelines for sedation and analgesia delivery to pediatric intensive care unit patients results in practice variation. The majority of centers perceive their sedation and analgesia strategies to be efficacious despite the heavy reliance on propofol and midazolam, both of which have questionable safety profiles in critically ill children.

Title: Determination of Optimal Amikacin Dosing Regimens for Pediatric Patients with Burn Wound Sepsis
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/4(e244-e252), 1559-047X;1559-0488 (21 Jul 2015)
Author(s): Yu T., Stockmann C., Healy D.P., Olson J., Wead S., Neely A.N., Kagan R.J., Spigarelli M.G., Sherwin C.M.T.

Abstract: This study aimed to develop optimal amikacin dosing regimens for the empirical treatment of Gram-negative bacterial sepsis in pediatric patients with burn injuries. A pharmacodynamic (PD) target in which the peak concentration (C<sub>max</sub>) is >8 times the minimum inhibitory concentration (MIC) (C<sub>max</sub>/MIC > 8) is reflective of optimal bactericidal activity and has been used to predict clinical outcomes. Population pharmacokinetic modeling was performed in NONMEM 7.2 for pediatric patients with and without burn injuries. Amikacin pharmacokinetic parameters were compared between the two groups and multiple dosing regimens were simulated using MATLAB to achieve the PD target in >90% of patients with burn injuries. The pharmacokinetic analysis included 282 amikacin concentrations from 70 pediatric patients with burn injuries and 99 concentrations from 32 pediatric patients without burns. A one-compartment model with first-order elimination described amikacin pharmacokinetics well for both groups. Clearance (CL) was significantly higher in patients with burn injuries than in patients without (7.22 vs 5.36 L/h, P <.001). The volume of distribution (V) was also significantly increased in patients with burn injuries (22.7 vs 18.7 L, P <.01). Weight significantly influenced amikacin CL (P <.001) and V (P <.001) for both groups. Model-based simulations showed that a higher amikacin dose (>25 mg/kg) achieved a C<sub>max</sub>/MIC > 8 in >90% of patients with assumed infections of organisms with an MIC = 8 mg/L. Amikacin pharmacokinetics are altered in patients with burn injuries, including a significant increase in CL and V. In simulations, increased doses (>25 mg/kg) led to improved PD target attainment rates. Further clinical evaluation of this proposed dosing regimen is warranted to assess clinical and microbiological outcomes in pediatric patients with burn wound sepsis.

Title: A Prospective Multi-Center Audit of Nutrition Support Parameters Following Burn Injury
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/4(471-477), 1559-047X;1559-0488 (21 Jul 2015)
Author(s): Kurmis R., Heath K., Ooi S., Munn Z., Forbes S., Young V., Rigby P., Wood K., Phillips F., Greenwood J.
**Abstract:** The importance of nutrition support delivery to the severe burn-injured patient is well recognized, however, nutrition provision to the patient may be suboptimal in practice. The aim of this study was to conduct a prospective multi-center audit across Australia and New Zealand using the Joanna Briggs Institute Burns Node Nutrition audit criteria. Thirty-four patients with severe burn injury (>20% TBSA in adults and >10% TBSA in children) were identified on admission or on referral to the Dietitian at the eight participating Burn Units between February 1, 2012 and April 30, 2012 for inclusion in the study. De-identified patient data was analyzed using the Joanna Briggs Institute, Practical Application of Clinical Evidence System. Compliance with individual audit criterion ranged from 33 to 100%. Provision of prescribed enteral feed volumes and weekly weighing of patients were highlighted as key areas for clinical improvement. Clinical audit is a valuable tool for evaluating current practice against best evidence to ensure that quality patient care is delivered. The use of the Joanna Briggs Institute Burns Node audit criteria has allowed for a standardized multi-center audit to be conducted. Improving nutrition support delivery in burn patients was identified as a key area requiring ongoing clinical improvement across Australia and New Zealand. Clinician feedback on use of the audit criteria will allow for future refinement of individual criterion, and presentation of results of this audit has resulted in a review of the Bi-National Burns Registry nutrition quality indicators.

**Title:** Influence of Burn Injury on Activity Participation of Children  
**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/3(414-420), 1559-047X;1559-0488 (20 Jul 2015)  
**Author(s):** Grice K.O., Barnes K.J., Vogel K.A.

**Abstract:** Children with physical disabilities show limitations in the frequency of participation in activities and in the range of activities, such as play and recreation, chores, and social involvement, compared to their able-bodied peers. The Children's Assessment of Participation and Enjoyment (CAPE) is a standardized assessment which evaluates a child's participation in, enjoyment of, and preferences for formal and informal activities other than school activities. In this study, the CAPE was used to evaluate activity participation of children with burns to provide an understanding of the impact of the injury on their participation in activity. The results provided preliminary information that burn injury can affect the activity participation of children. The children in this study were found to participate more in informal domain activities than formal domain, yet enjoyment scores were higher for formal domain activities. It was found that children with burn injury do not participate in social activities as much as children with other physical limitations, but they scored highest in these for enjoyment. In addition, they participate more in activities at home than outside the home. Increased awareness of activity participation of children with burns can guide healthcare professionals toward appropriate interventions and help parents increase participation in desired activities to improve the children's positive adjustment and quality of life. Intervention needs to address all aspects of activity participation, particularly for domain, types of activities, and where they are done. These considerations add another dimension to the care required for children with burn injury.

**Title:** Multiple Pyogenic Granulomas After Burns: Response to Conservative Treatment in Five Children  
**Citation:** Pediatric dermatology, Jul 2015, vol. 32, no. 4, p. e175. (July 2015)  
**Author(s):** Zhao, Hongliang, Zhao, Huanjun, Zhang, Cuiping, Fu, Xiaobing

**Abstract:** We describe five children with multiple pyogenic granulomas after burns that were healed effectively using conservative treatment consisting of 1% povidone-iodine, silver nanoparticle dressing, and antibiotics. No relapse of the lesions was observed from 6 months to 2 years later. © 2015 Wiley Periodicals, Inc.

**Title:** Continued Impact of SunSmart Advertising on Youth and Adults' Behaviors  
**Citation:** American journal of preventive medicine, Jul 2015, vol. 49, no. 1, p. 20-28 (July 2015)  
**Author(s):** Dobbinson, Suzanne J, Volkov, Angela, Wakefield, Melanie A

**Abstract:** Televised advertising campaigns play a central role in public education for skin cancer prevention in Australia. Continued impact on behavior is crucial to optimize these investments. This study examines whether exposure to increased intensity of summer campaigns in the past decade has continued to influence sun protection behaviors and to examine behavioral impact across age groups. Cross-sectional weekly telephone surveys of Melbourne residents were conducted over summers from 1987-1988 to 2010-2011, and analyzed in 2012-2014. Respondents' sun-related attitudes and their sun protection and sunburn on the weekend prior to interview were assessed. Population exposure to campaign TV advertising was measured as cumulated weekly...
target audience rating points (TARPs) for 4 weeks prior to interviews. Multiple logistic and linear regression models examined the relationship of campaign advertising with tanning preference and behavioral outcomes (N=11,881). Respondents' attitudes and behaviors in 1987-2011 were associated with TARPs. Increasing TARPs were related to increased preference for no tan (OR=1.12, 95% CI=1.07, 1.17); sunscreen use (OR=1.09, 95% CI=1.02, 1.17); and overall reduced mean percentage of skin exposed to the sun (B=-0.01, 95% CI=-0.01, 0.00). These effects had limited interaction with time period, age group, gender, or skin type. There was evidence of diminishing returns at the highest TARP quartile for tan preference but not for behavioral outcomes. Sustained youth-focused advertising campaigns (for adolescents and young adults), when broadcast with sufficient TARPs during the summer months, continue to provide consistent beneficial impact on sun protection behaviors population-wide. Copyright © 2015 American Journal of Preventive Medicine. Published by Elsevier Inc. All rights reserved.

Title: Effectiveness of a burn unit's fluid resuscitation protocol in severe burn wound treatment

Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S214), 1559-047X (July-August 2015)

Author(s): McMahon K., Pittinger T., Mondozi M., Sadie C.

Abstract: Introduction: Appropriate fluid resuscitation in burn injury remains challenging. Over or under resuscitation can lead to increased morbidity and mortality. There are many resuscitation regimes for treating severe burns. The purpose of this study is to examine the use of the Consensus formula at an ABA verified burn center, if it has been adhered to and resulted in appropriate fluid administration. Methods: The registry at an ABA verified Burn Center was queried from June 1, 2011 through June 1, 2014 to identify patients with total burn surface area (TBSA) greater than 10% in pediatric patients, and greater than 15% in adult patients. Only flame and scald burns were included and only those who survived at least 48 hours following injury. Seventy-four patients met the study criteria. Charts were reviewed for demographics, TBSA, inhalation injury, and input and output data. Hourly urinary output was recorded for patients with a catheter. Results: 39% of patients started and remained on the Consensus formula for the full 24 hours. Patients who remained on the Consensus formula received significantly more crystalloid fluid at both 8 and 24 hours. On average, urinary output was above goal levels. Patients who did not remain on the Consensus formula for 24 hours received less fluid, yet still had urinary outputs above the goal. Conclusions: To the extent that urinary output is considered an endpoint of adequate fluid resuscitation, the Consensus formula may prescribe too much crystalloid fluid. Deviation from the Consensus formula may have been in response to high urinary output. Adjustment of fluid administration in response to urinary output is an important component of resuscitation pathways. Applicability of Research to Practice: A formalized feedback system to decrease fluid resuscitation while maintaining appropriate tissue perfusion using urinary output as a surrogate may be a valuable routine in burn centers.

Publication Type: Journal: Conference Abstract

Title: Use of a copolymer dressing on superficial and partial-thickness burns in a paediatric population.

Citation: Journal of wound care, Jul 2015, vol. 24, no. 7 Suppl, p. S4., 0969-0700 (July 2015)

Author(s): Everett, M, Massand, S, Davis, W, Burkey, B, Glat, P M

Abstract: Despite extensive research into the treatment of partial-thickness burns, to date there has not been the emergence of a preeminent modality. This pilot study, the first such study to be performed in a burn unit in the US, was designed to evaluate the efficacy and outcomes of the application of copolymer dressing (Suprathel; PolyMedics Innovations Corporation, Stuttgart, Germany) for both superficial and deeper partial-thickness burns. The copolymer dressing was used as a primary wound dressing to treat superficial and deep partial-thickness burns (average 5% total body surface area) in paediatric patients. Burns were debrided within 24 hours, at bedside, in the burn unit or in the operating room. The copolymer dressing was then applied directly to the wound and covered with a non-adherent second layer and an absorptive outer dressing. After discharge, patients were seen every 5-7 days until healed. Parameters evaluated included average hospital length of stay, average number of intravenous doses of narcotics administered, pain score at first follow-up visit, average time to complete re epithelialisation, incidence of burn wound infection, and patient/parent satisfaction on a 4-point scale. We also evaluated our experience with the dressing. Data were evaluated retrospectively under an Investigational Review Board approved protocol. Of the 17 patients assessed the average hospital length of stay was 1.4 days during which the average number of intravenous narcotic doses administered before copolymer dressing application was 1.5 and after was 0.1 doses. At the first follow-up visit, average pain score was 1.2 on a 10-point scale and the average time to re epithelialisation was 9.5 days. There was no incidence of burn wound infection. Patient/parent satisfaction was average of 3.66 on a 4-point scale. The staff had found that the self-
mechanisms (natural and human), electricity is responsible for 63.4% of deaths. There
cause (49.5%), followed by fire (28.5%), and lightning injuries (13.9%). Adding together the two electrical
ratio of 1.6:1.among the pediatric population (p<0.00
(22.1%) with a mean age of 4.7 years (SD: 4.3 years. Median: 3 years); 61.4% were men and male to female
1.30 per 1
and the male to female ratio was 3.6:1. The crude and ajusted burn
tendency, an Average Annual Percent Change (AAPC) was calculated. Results: 5,44
mortality rates were standardized using the WHO world Average Age Weights 2000
between January 1, 2000 and
conducted an observational, analytical, population
characteristics, causes, high
Health Organization (WHO) informs that injuries
Abstract:
Citation:
Title:
Publication Type:
Applicability of Research to Practice: Decreasing CLABSI rates improves patient outcomes by decreasing
quality improvement effort resulted in a ZERO rate of CLABSI in our burn unit for greater than a year. Our
implementation, our center has not had any CLABSI for over a year (Fi
number of line days in POST also dropped (2331 vs. 1595 line days, p=0.019 ). Since POST bundle
There was a dram
patients required a central line (51 vs. 66) and less burn patients (75 vs. 56) required a central line (p=0.032).
However in the POST period more non
burn patients (19% vs. 16%, p=0.534) in the PRE vs. POST period. However in the POST period more non-burn patients required a central line (51 vs. 66) and less burn patients (75 vs. 56) required a central line (p=0.032). There was a dramatic decrease in CLABSI rate in the POST period (3.6 vs 0.0, p=0.017) compared to PRE. The number of line days in POST also dropped (2331 vs. 1595 line days, p=0.019 ). Since POST bundle implementation, our center has not had any CLABSI for over a year (Figure Presented). Conclusions: Collaborative quality improvement effort resulted in a ZERO rate of CLABSI in our burn unit for greater than a year. Applicability of Research to Practice: Decreasing CLABSI rates improves patient outcomes by decreasing infection rates. (Figure Presented).

Title: Drastic decrease in CLABSI rates: A burn unit quality improvement project
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S243), 1559-047X (July-August 2015)
Author(s): Remington L., Gray C., Faraklas I.H., Cochran A.

Abstract: Introduction: Central line associated blood stream infections (CLABSI) are associated with increased length of stay, charges, and morbidity. Burn injury is associated with increased infectious risk, putting patients requiring central access in the burn unit at higher risk for developing infections than otherwise comparable ICU patients. Our objective was to implement a multi-disciplinary quality improvement project to decrease our CLABSI rate below the CDC recommendation of <2.8 infections/1000 line days. Methods: A collaborative multi-disciplinary committee implemented a CLABSI prevention bundle in September 2013. The bundle included the following interventions: use of alcohol impregnated caps for all ports on central lines and IV tubing, development of a central line checklist for clinicians, and daily indication review for all invasive lines. With IRB approval we reviewed all patients who required central venous access in our ABA verified regional burn center from 8/1/2012-9/9/2014. Patients were divided into a (PRE) vs. (POST) bundle implementation period. Results: During this period, 248 patients required central venous access. There were 226 adult patients and 22 pediatric patients (<14 years old). Of these, 131 were burn patients and 117 were non-burn patients. Most (69%) were male with a median age of 50 years (Interquartile range 34-59). There was no significant difference between age (53 vs. 47, p=0.127), number of males (67% vs. 71%, p=0.511), or TBSA burn injury in burn patients (19% vs. 16%, p=0.534) in the PRE vs. POST period. However in the POST period more non-burn patients required a central line (51 vs. 66) and less burn patients (75 vs. 56) required a central line (p=0.032). There was a dramatic decrease in CLABSI rate in the POST period (3.6 vs 0.0, p=0.017) compared to PRE. The number of line days in POST also dropped (2331 vs. 1595 line days, p=0.019). Since POST bundle implementation, our center has not had any CLABSI for over a year (Figure). Conclusions: Collaborative quality improvement effort resulted in a ZERO rate of CLABSI in our burn unit for greater than a year.
Applicability of Research to Practice: Decreasing CLABSI rates improves patient outcomes by decreasing infection rates. (Figure Presented).

Title: Epidemiologic characteristics of death by burn injury from 2000 to 2009. Population-based study in a middle-income country
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S242), 1559-047X (July-August 2015)
Author(s): Navarrete-Aldana N., Rodriguez N.

Abstract: Introduction: Burns are one of the most severe traumas an individual can suffer at any age. The World Health Organization (WHO) informs that injuries related to burns are a global public health problem mainly in low and middle-income countries. The first step towards reducing any preventable injury is based on accurate information. An academic initiative was created with the purpose of establishing the epidemiological characteristics, causes, high-risk populations, mortality rate and tendencies of burn deaths. Methods: We conducted an observational, analytical, population-based study based on official death certificate occurred between January 1, 2000 and December 31, 2009. All codes of ICD-10 relate to burns were included. The mortality rates were standardized using the WHO world Average Age Weights 2000-2025. To determine the tendency, an Average Annual Percent Change (AAPC) was calculated. Results: 5,448 deaths were identified. Ages ranged from 3 days of life to 95 years old (mean +/- SD: 31.1 +/- 20.8). 78.4% of the patients were male and the male to female ratio was 3.6:1. The crude and adjusted burn-mortality rate in our country was 1.278 and 1.30 per 100,000 respectively. The AAPC was -5.25% during the study. 1,197 children under 15 years old died (22.1%) with a mean age of 4.7 years (SD: 4.3 years. Median: 3 years); 61.4% were men and male to female ratio of 1.6:1 among the pediatric population (p<0.001). According to the causal agent, electricity is the leading cause (49.5%), followed by fire (28.5%), and lightning injuries (13.9%). Adding together the two electrical mechanisms (natural and human), electricity is responsible for 63.4% of deaths. There are differences according
to the age. In the underaged, the most common cause is fire (44.1%), followed by electricity and hot liquids. In adults, the most common cause is electricity (55.1%), followed by fire and lightning. Regarding to the site of death, we found that, 38.4% deaths occurred in health institutions. From the deaths outside health institutions, electricity remain being the main cause. Conclusions: This study is a first step in identifying the main causes of death from burns and groups with higher mortality rates. Children under 5 years of age were the most affected group. Although, the mortality rate tended to decrease, our study identifies risk at all ages from different causes. Electricity is the main cause and occurred mainly outside health institutions Applicability of Research to Practice: A few specific recommendations can be given based on these epidemiologic features, that will allow for the design of prevention strategies regarding electrical injuries in young people, fire burn injuries in children and first aid measures such as cardiopulmonary resuscitation.

Publication Type: Journal: Conference Abstract

Title: Scald burns from hair braiding: A case series
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S245), 1559-047X (July-August 2015)

Abstract: Introduction: Burn injury accounts for approximately 40,000 hospitalizations per year, with scald burns comprising about 30% of these admissions. The circumstances surrounding scald burns are varied, but most commonly include cooking oil, hot soup, and boiling water. Only one previous case report described scald burns secondary to hair braiding in a pediatric patient. The present report is the largest case series to date of scald burns as a result of hair braiding. Methods: This is a retrospective review of all female patients seen in the outpatient clinic of a single American Burn Association verified burn center during a seven year period. All clinic notes written by the attending burn surgeons were reviewed to identify patients with scald burns attributed to hair braiding. Demographics, injury severity, injury patterns, and complications were analyzed. Results: One thousand six hundred nine female patients were evaluated at the burn center during the study period. Twenty-six patients (1.6%) seen in the Burn Clinic from 2008 - 2014 suffered scald burns secondary to hair braiding with average total body surface area (TBSA) burn 4+/- 3%. Eighty-five percent of patients were pediatric with average age of 11 years. The distribution of burns by body area were as follows: back (62%), shoulder (31%), chest (15%), buttocks (15%), abdomen (12%), arms (12%), neck (12%), and legs (4%). No patients required operative intervention. Complications included extremity range of motion limitations (n=2), hypertrophic scar formation (n=1), cellulitis requiring antibiotic therapy (n=1), and anxiety requiring medical or psychological therapy (n=2). Three patients were admitted to the hospital with an average length of stay of 2.7 days: pediatric patients admitted for pain control (n=2) and one 38-weeks pregnant woman with a 9% TBSA burn admitted for observation. Two patients required time off from school for 6 and 10 days post-burn for recovery. Conclusions: This is the first reported case series of scald burns from hair braiding. This interesting mechanism of injury not only carries inherent morbidity that includes the risks of functional limitations, infection requiring antibiotic usage, and psychologic repercussions, but also increases usage of resources through hospital admissions and multiple clinic visits. Applicability of Research to Practice: Hair braiding is a common practice that increases the risk of scald burn and associated morbidity. The present study highlights the importance of burn prevention education to potentially decrease the incidence and complications of this unique mechanism of injury.

Publication Type: Journal: Conference Abstract

Title: Impact of transfer status on mortality rates for pediatric burn patients
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S245), 1559-047X (July-August 2015)
Author(s): Myers J., Lehna C.

Abstract: Introduction: Hospitals vary widely in the services they offer to care for pediatric burn patients. When a hospital does not have the ability/capacity to handle a pediatric burn, the decision often is made to transfer the patient to another short-term hospital. The impact these transfers have on mortality for pediatric burn patients is not well established. In the current study we examine if transfer status independently impacts mortality rates for pediatric burn patients. Methods: We examined inpatient admissions for pediatric burn patients in 2003, 2006, 2009 and 2012 using the Kids' Inpatient Database (KID), which is part of the Healthcare Cost and Utilization Project (HCUP). ICD-9-CM codes 940-947 were used to define burn injury. We used generalized linear mixed-effects modeling to test if transfer status was associated with mortality, while adjusting for traditional risk factors (e.g., age, total burn surface area, inhalation injury, type of hospital [pediatric vs. adult; teaching vs. non-teaching]). Results: A total of n=38,906 children had a burn injury. Unadjusted, those we were transferred were
nearly five times more likely to die (OR=4.98, 95% CI 3.42-6.09, p<0.001). After adjustment, transfer status remained significant (p=0.034), but the relationship was moderated by total burn surface area (p=0.001), inhalation injury (p<0.001), and age (p<0.001), which were also independently associated with mortality. In addition, the data suggests that the more severely injured pediatric burn patients (e.g., larger total burn surface area burns, inhalation injury) and younger patients are being transferred, which may attribute to the higher mortality rates. Conclusions: Transfers between short-term hospitals have a dramatic effect on mortality rates for pediatric burn patients, from an unadjusted perspective. This result held consistent after adjustment, but it was moderated by age and severity of injury. An exploration of which additional individual-level characteristics that both impacts mortality and is associated with being transferred is warranted and needed. Applicability of Research to Practice: The results of this study suggest that transfer status is independently associated with increased mortality for pediatric burn patients.

**Publication Type:** Journal: Conference Abstract

**Title:** Urban city burn prevention program effective in rural community

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S244), 1559-047X (July-August 2015)

**Author(s):** Radics J., Zaragoza M., Lau K., Reeser Jr. G., Eckerdt D.

**Abstract:** Introduction: Research indicates that students retain more safety knowledge when they receive burn prevention education multiple times during grade school. Based on this model, a statewide burn foundation and an urban fire department have delivered the Firefighters in Safety Education (FISE) program to more than 120,000 children since 2001. The goal of this current study is to evaluate the effectiveness of this urban burn prevention program in a rural community. Methods: FISE teaches key skills including: Stop, Drop, & Roll; Cool-A-Burn; Toys vs. Tools and How to Dial 911. Students complete five-question multiple choice tests before (pre-test) and after a 30-minute FISE presentation (post-test). Three different age-appropriate tests (Kindergarten, Grades 1-3, and Grades 4-5) were administered by teachers in the classroom. In Spring 2014, trained firefighters from a rural community administered the FISE program with pre and post testing to 1,411 grade school students in 4 elementary schools with take-home information for students and their families in their primary language. Mean (SE) for the pre, post and (postpre) test scores were calculated for the students who completed both pre and post tests. One-sided paired t-test was used to test whether post-test score was higher than pre-test score at a significance level of 0.001. Results: There were 298 matched and completed pre- and posttests received out of 1,411 students. Results are summarized in Table 1. Kindergarteners (n=117) had a mean (SE) score increase of 29.1% (2.4%) (p = 2.3E-22). Grades 1-3 (n=111) had a score increase of 21.1% (2.1%) (p=4.2E-17). Grades 4-5 (n=70) had a score increase of 13.4% (2.1%) (p=8.6E-09). Conclusions: FISE proved effective in a rural community. Students at schools from a rural community had an increase in knowledge of fire safety and burn prevention after one FISE presentation developed for an urban city. Repeated dissemination of the FISE program to the same children in this study is required to determine the effectiveness and levels of retention of burn prevention education. Applicability of Research to Practice: Partnerships among nonprofits, schools and fire departments are essential in the efficient and effective dissemination of burn prevention education to children. (Table Presented).

**Publication Type:** Journal: Conference Abstract

**Title:** Development and validation of an improved algorithm for predicting length of stay for pediatric burn patients

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S244), 1559-047X (July-August 2015)

**Author(s):** Myers J., Lehna C.

**Abstract:** Introduction: Despite improved understanding of burn injuries, current methods are inadequate for predicting length of stay in the hospital (LOS) for pediatric burn patients. We developed and validated a novel algorithm to estimate LOS based on a large panel of traditional risk factors. Methods: Thirty-one factors were assessed among 38,906 children who had a burn injury in the 2003, 2006, 2009 or 2012 Kids Inpatient Database, which is part of the Healthcare Cost and Utilization Project (HCUP). ICD-9-CM codes 940-947 were used to define burn injury (e.g., illustrations of some types of burns). We used data among a random two-thirds (derivation cohort, n=25,950) to develop the new risk algorithm that was then tested to compare observed and predicted LOS in the remaining one-third (validation cohort, n=12,956). Minimization of the Bayes Information Criterion (BIC) was used in the derivation cohort to develop the bestfitting parsimonious prediction model. In the validation cohort, we compared predicted and actual LOS when the new algorithm was compared to the traditional one-day per 1% TBSA model. Results: In the derivation cohort, the best-fitting model had a lower BIC score (p<0.01) than the model based on the traditional one-day per 1% TBSA model. The best-fitting
model only incorporated three variables (age, TBSA and inhalation injury). In the validation cohort, all measures of fit, discrimination, and calibration were improved using our new algorithm. For example, our model’s prediction was an extremely better fit for those with a TBSA less than 10% or greater than 40%; representing a large proportion of burn victims. Conclusions: We developed, validated, and demonstrated the highly improved accuracy of a clinical algorithm for LOS in pediatric burn patients. Applicability of Research to Practice: Our novel algorithm can easily be used to estimate LOS for pediatric burn patients.

**Publication Type:** Journal: Conference Abstract

**Title:** Indirect calorimetry: Essential to optimize nutrition in children with burns

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S234), 1559-047X (July-August 2015)

**Author(s):** Skillman H.E., Schwartz A.K., Banks A., Moulton S.L.

**Abstract:** Introduction: Severe burn injury induces a hypermetabolic response. Indirect calorimetry (IC) is the gold standard to measure energy requirements at the bedside, as equations are inaccurate. In March, 2014 we obtained IC at our institution. IC was used to optimize nutrition for children with burns. Methods: Children with burn injuries requiring mechanical ventilation were candidates for weekly IC measurements. Patients received opioid and benzodiazepine sedation, and neuromuscular blockade if needed. IC tests were conducted no sooner than 2 hours from ventilator changes or physical activity, and at least 12-24 hours after operating room procedures. Equipment was calibrated prior to each test, and a 5 minute steady state was required during measurements to assure validity. Basal metabolic rate (BMR) was calculated using the World Health Organization equation for 0-3 years and Schofield for 4-18 years. Patients were deemed hypermetabolic when IC was greater than 110% BMR, hypometabolic at less than 90%, and normal metabolism at 90-110%. Enteral nutrition was tailored to provide 120% of caloric needs per IC to account for procedural fasting. Results: From March 1 to August 1, 2014, 43 patients with burn injuries were admitted. Four of five intubated patients had 10 IC measurements: 3 with burns and 1 with toxic epidermal necrolysis (TEN, Table 1). Two of the 10 measurements (20%) did not reach steady state due to agitation. Two of 8 (25%) successful IC tests revealed normal metabolism, 4/8 (50%) were hypometabolic, and 2/8 (25%) were hypermetabolic (Figure 1). Enteral nutrition was decreased by 13-36% (mean 25%) in response to hypometabolism, and increased 11-16% (mean 13.5%) for hypermetabolism to prevent underfeeding or overfeeding. Conclusions: Children with burn injuries and TEN requiring mechanical ventilation demonstrate variability in metabolic rate. IC is essential to optimize nutritional intake according to individual requirements. Applicability of Research to Practice: IC will be used to determine energy requirements. (Table Presented).

**Publication Type:** Journal: Conference Abstract

**Title:** A 35 year experience of epidemiology and outcomes in pediatric burns at a regional burn center

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S234), 1559-047X (July-August 2015)

**Author(s):** Saeman M.R., Hodgman E.I., Burris A., Wolf S.E., Arnoldo B.D., Kowalske K.J., Phelan H.A.

**Abstract:** Introduction: Measuring the presentation and outcomes of pediatric burn patients over time is important to improve the prevention and care of burned children. The aim of our study was to retrospectively analyze the characteristics and outcomes of pediatric burns at our regional burn center over the course of 35 years. Methods: The prospectively maintained institutional burn database was retrospectively reviewed from January 1974 until August 2010. Any patients without burn or greater than 18 years of age were excluded. The patient age, cause of burn, total body surface area (TBSA) and depth of burn, as well as patient outcomes were collected. Demographics were compared with the regional census data. Statistical analysis was performed with multiple linear and logistic regressions using Sigma plot and SPSS. Results: Our regional burn unit admitted 17,070 patients from January 1974 until August 2010. Of these patients, 5860 (34%) were 18 years or younger and admitted with an external thermal injury. Among these pediatric patients 66% were male and the predominantly documented race/ethnicities were White (44%), Black (27%), and Hispanic (26%). We found little variation in these patient demographics over time. We did however; note the regional demographics had an increase in the Hispanic population over the last 10 years. The median TBSA burn reported was 8% (4, 16% [IQR]), and 30% of burns were recorded as full thickness. A documented inhalational injury was found in 3%, and 63% of patients had multiple body regions burned. The predominant causes of burn were scalds (43%) and flame (30%). The maximum length of stay documented was 236 days with a median of 5 days (1, 13 [IQR]). The overall mortality rate was 3%. When grouped by half decades there is a significant decrease in percentage of admissions with greater than 20% TBSA burn (r<sup>sup</sup><sub>sup</sub>&lt;0.9). When similarly grouped, there is a negative correlation with mortality over time (r<sup>sup</sup>&lt;0.76). This relationship was confirmed with logistic regression identifying a 1.6 OR of mortality for patients treated before 2000 (p<0.05). TBSA burn over
20% had an OR of 19.7 and inhalational injury had an OR of 15.5 for mortality (p<0.001). Length of stay was found to be negatively correlated with year of burn, TBSA and mortality (p<0.001). Conclusions: The temporal trend in outcomes of pediatric burn patients suggests that there is a decrease in the size of TBSA burn which correlates with decreased mortality and shorter length of stay. Applicability of Research to Practice: Description of epidemiology and outcomes in pediatric burn care.

**Publication Type:** Journal: Conference Abstract

**Title:** Assessing burn care advanced practice provider’s educational needs

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S226), 1559-047X (July-August 2015)

**Author(s):** Edkins R.E.

**Abstract:** Introduction: As resident physicians hours have decreased in response to mandates of the Accreditation Council for Graduate Medical Education, labor intensive areas such as critical care units and burn centers have been particularly impacted. A viable solution to this manpower shortage has been the incorporation of Advanced Practice Providers (APP); Advance Practice Nurses and Physician Assistants. As a specialized field of practice, burn care requires specialized education. Conducting a needs assessment utilizing a national survey was undertaken to explore burn APPs' perceived educational needs. This information can provide guidance in the creation of a burn care fellowship in a similar fashion of APPs working in the areas of Emergency Medicine, Trauma and Oncology. Methods: This study employed an exploratory descriptive design using an anonymous online survey made available to APPs through the American Burn Associations website. Demographic information was obtained and a Likert scale was used to define participants perceptions of their educational preparation to accomplish a list of skills and knowledge related to burn care. Results: A total of 41 participants completed the survey. The majority of respondents were Advance Practice Nurses (68%) with the remainder being Physician Assistants. Information was obtained to describe patient care areas in which these providers practiced as well as all burn centers and pediatric versus adult. Overall respondents were educated at the graduate level. While 51% of respondents practiced in their role for less than five years, 60% had worked in the area of burns for a similar amount of time. Respondents expressed a high degree of overall confidence in their ability to care for burn patients, but indicated varying perceived need for education in the areas of burn care, pharmacologic agents such as anticoagulants, nutrition, surgical and technical skills. A majority endorsed a desire to pursue burn care certification if available. Conclusions: It is important to have an understanding of the make-up of APPs in burn care and the areas in which they work. This information in addition to perceived educational needs can be utilized to construct continuing education programs as well as a fellowship specific to the acquisition of more technically advanced skills. Applicability of Research to Practice: As APPs assume a greater presence caring for burn patients it will be critical to understand their responsibilities and provide education geared at both entry level and experienced providers. Developing educational programs for APPs will improve employee satisfaction, strengthen the burn care workforce and most importantly improve patient care.

**Publication Type:** Journal: Conference Abstract

**Title:** Similarities and differences for burn nursing needs at three burn care facilities

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S228), 1559-047X (July-August 2015)

**Author(s):** Baldwin-Rodriguez B., Ildefonso D., Tran N.

**Abstract:** Introduction: Nurses in burn units often solve clinical problems and workflow issues related to burn specific practices using trial and error. The process of trial and error arises out of the lack of comparative practice and paucity of evidence-based standards that are easily applicable in the clinical setting. The purpose of this project is to identify similarities and differences in practice issues and burn nursing needs at three different burn centers. Methods: Collaborators included burn nurses, information technology specialists, translational scientists, and unit managers from three academic regional burn centers (Burn Center A, B, and C). Burn Center A cares for adult patients and Burn Centers B and C care for both pediatric and adult patients. Communication between these three institutions was facilitated by monthly conference calls starting December 2013. An in-person meeting was conducted during the 2014 American Burn Association (ABA) National Meeting. Meetings were goal-driven with earliest sessions focusing on the evaluation of the similarities and differences between the three burn centers. Results: Consensus meetings revealed differing wound terminology, electronic health record (EHR) functionality, methods for wound photography, and application of National Health and Safety Network guidelines between the three burn centers. Conversely, we also identified similar needs for standardizing terminology, improving communications between clinicians, and burn-centric EHR functionality. Through ranking of these characteristics, standardization of wound terminology was found to be the first priority of the
Introduction: Unintentional burn injury is the third most common cause of death in the US for children age 5-9, and accounts for major morbidity in the pediatric population. Pediatric burn admission data from US institutions has not been reported recently. This study assesses all pediatric burn admissions to a State wide Certified Burn Treatment Center in order to evaluate trends in demographics, burn incidence, and etiology across different age groups. Methods: Demographic and clinical data was collected on 2,273 pediatric burn patients over an 18 year period (1995-2013). Pediatric patients were stratified by age into ‘Age 0-6’, ‘Age 7-12’ and ‘Age 13-18’. Data was obtained from the National Trauma Registry of the American College of Surgeons (NTRACS) and analyzed using standard statistical methodology. Results: Data was collected on 2,273 burn patients under age 18 treated between 1995 and 2013. There were 1,663 (73.2%) patients ages 0-6, 294 (12.9%) ages 7-12, and 316 (13.9%) ages 13-18. Male to female ratio was 1.6:1, p<0.005, where 1400 (61.6%) were male and 873 (38.4%) female. Caucasians had the highest burn incidence across all age groups (40.9%), followed by African Americans (AA) (33.6%), p<0.001. Caucasian teenagers formed 62.1% of patients age 13-18, p<0.001. 66.3% of all pediatric burns occurred at home (p<0.001). Mean total body surface area (TBSA) burned was 8.9%, with lower extremity being the most common site (38.5%). Scald burns constituted the majority of cases (71.1%, n=1,617), with 53% of scalds attributable to hot liquids related to cooking, including coffee or tea (p<0.001). In the teenage group flame burns were the dominant etiology (53.8%). Overall mean length of stay (LOS) was 10.5+/−10.8 days for all patients, and 15.5+/−12 for those admitted to the intensive care unit (ICU), p<0.005. One hundred (4.4%) patients required ventilator support (p=0.02), and average duration of mechanical ventilation was 11.9+/−14.5 days. Skin grafting was performed for 520 (22.9%) patients, p<0.001. Overall mortality was 0.9% (n=20), with mean TBSA 61.5% for children that died. Conclusions: The majority of pediatric burn injuries are scald burns that occur at home and primarily affect the lower extremities in Caucasian and AA males. Among Caucasian teenagers flame burns predominate. Mean LOS was 10 days, 23% of patients required skin grafting surgery, and mortality was 0.9%. The results of this study highlight the need for primary prevention programs focusing on avoiding home scald injuries in the very young, as well as fire safety training for teenagers. Applicability of Research to Practice: Clarify recent trends in pediatric burns and aid in developing preventative programs.

**Publication Type:** Journal: Conference Abstract

**Title:** Pediatric burns: A single institution retrospective review of incidence, etiology and outcomes in 2,273 burn patients (1995-2013)

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S237), 1559-047X (July-August 2015)

**Author(s):** Lee C.J., Mahendaraj K., Marano M.A., Petrone S.J., Houng A.P., Lee R.A., Chamberlain R.S.

**Abstract:** Introduction: Burn injuries remain a leading cause of fatal home injuries amongst the pediatric population. A better understanding of pediatric burn epidemiology is crucial for improved care and prevention. Kids’ Inpatient Database (KID) and National Burn Repository (NBR) are two large-scale national databases used to evaluate epidemiology and outcomes to support quality improvement in burn care. Differences in design of the KID and NBR could lead to varied results which may affect the resultant quality improvement programs. This study was designed to compare the KID and NBR epidemiology and outcomes in the pediatric population. Methods: Using the KID 2003-2009, a total of 17,300 burn patients less than 20 years old were identified by...
Introduction: Pediatric scald burns are one of the most common injury of children accident. Comparing to adults scald burns, children scald burns will be more serious and higher abnormality. The difference prognosis between adults and children may be result from the characteristic of children skin which has thinner thickness and layer of the stratum corneum. Because of the often deep of pediatric scald burns, the early tangential excision will always be essential so that the severe infection can be prevented as effectively as possible. For the thinner skin of children, the adequate depth of tangential excision is very significant. This paper will research the difference between the electric dermatome and the hand knife when perform the tangential excision Methods: In this prospective trial, we set a series of entry and exclusion criteria. The entry criteria: (1) age<3 years old. (2) the scald burns will be estimated to be the deep dermal injury. (3) TBSA>5%. (4) the area of scald burns mainly distribute in trunk, arms and legs. (5) the percent of melted crust is less than 5%. The exclusion criteria: (1) age>3 years old. (2) the scald burns will be estimated to be the deep dermal injury. (3) TBSA>5%. (4) the percent of melted crust is greater than 5%. (5) the children's skin thickness is thicker than normal. (6) the children's skin was thinner than normal. (7) the percent of melted crust is less than 5%.

Abstract: Introduction: Burn wound pH affects a number of important factors in wound healing. It is known that the pH of the skin surface of healthy adults and children is 4.2 to 5.6 and that it decreases with the lapse of epithelialization. Methods: We measured the pH of the exudates from second degree burns using pH indicator strips. Results: Among these, local burn wound infection developed in 26% of burn wound. The causative organisms were Staphylococcus aureus and Staphylococcus epidermidis. The maximum pH value measured was 10.0 and the minimum was 5.0 for all samples. There were no differences in the initial measurements of pH between the non-infected cases and the local-infected cases. In cases of local infection, the pH rose prior to the onset of clinical signs of local burn infection. Conclusions: Consecutive pH measurement of exudates is considered to be a useful indicator in the treatment of second degree burns. Applicability of Research to Practice: Using pH indicator strips, early detection of local wound infection can be achieved and this is very beneficial in clinical practice. Moreover, measurement is very easy and results are available immediately. (Figure Presented).

Abstract: Introduction: The more favorable outcome in burn centers, despite comparable clinical settings and higher rate of inhalation injury, indicates the important role of specialized burn facilities in burn care and management. Applicability of Research to Practice: The more favorable outcome in burn centers, despite comparable clinical settings and higher rate of inhalation injury, indicates the important role of specialized burn facilities in burn care and management.

Publication Type: Journal: Conference Abstract

Title: Increased pH of exudate precedes local wound infection in second degree burns; very simple and easy method
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S271), 1559-047X (July-August 2015)
Author(s): Ono S., Imai R., Ida Y., Shibata D., Matsumura H.

Abstract: Introduction: Burn wound pH affects a number of important factors in wound healing. It is known that the pH of the skin surface of healthy adults and children is 4.2 to 5.6 and that it decreases with the lapse of epithelialization. Methods: We measured the pH of the exudates from second degree burns using pH indicator strips. Results: Among these, local burn wound infection developed in 26% of burn wound. The causative organisms were Staphylococcus aureus and Staphylococcus epidermidis. The maximum pH value measured was 10.0 and the minimum was 5.0 for all samples. There were no differences in the initial measurements of pH between the non-infected cases and the local-infected cases. In cases of local infection, the pH rose prior to the onset of clinical signs of local burn infection. Conclusions: Consecutive pH measurement of exudates is considered to be a useful indicator in the treatment of second degree burns. Applicability of Research to Practice: Using pH indicator strips, early detection of local wound infection can be achieved and this is very beneficial in clinical practice. Moreover, measurement is very easy and results are available immediately. (Figure Presented).

Publication Type: Journal: Conference Abstract

Title: A prospective trial of early excision by electric dermatome for pediatric scald burns
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S266), 1559-047X (July-August 2015)
Author(s): Gao X., Yu J., Jin Z., Chen X., Zhou X.

Abstract: Introduction: Pediatric scald burns are one of the most common injury of children accident. Comparing to adults scald burns, children scald burns will be more serious and higher abnormality. The difference prognosis between adults and children may be result from the characteristic of children skin which has thinner thickness and layer of the stratum corneum. Because of the often deep of pediatric scald burns, the early tangential excision will always be essential so that the severe infection can be prevented as effectively as possible. For the thinner skin of children, the adequate depth of tangential excision is very significant. This paper will research the difference between the electric dermatome and the hand knife when perform the tangential excision Methods: In this prospective trial, we set a series of entry and exclusion criteria. The entry criteria: (1) age<3 years old. (2) the scald burns will be estimated to be the deep dermal injury. (3) TBSA>5%. (4) the area of scald burns mainly distribute in trunk, arms and legs. (5) the percent of melted crust is less than 5%. The exclusion criteria: (1) age>3 years old. (2) the scald burns will be estimated to be self healing and the prognosis will have no obvious difference comparing to surgical treatment. (3) the area of scald burns distribute in fingers, toes, perineum and gluteal sulcus. (4) the percent of melted crust is greater than 5%. (5) the children
have definite family medical history of cicatricial diathesis. We will analyze following parameters to evaluate the result of the trial: (1) the duration of per surface area excision, (2) the blood loss of per surface area excision, (3) the photograph of the HE stain of the excised tissue, (4) the incidence of old granulation tissue. Results: The result is: comparing to the hand knife, the duration of per surface area excision apparently decrease ; the blood loss does't have statistical significance; the incidence of old granulation tissue has decreased 22.6% and the length of healing is shorten 3.5days in average at the same time; the photograph of the HE stain showed that there are fewer health tissue in the excised tissue by using of electric dermatome than the hand knife. Conclusions: The electric dermatome can decrease the duration of tangential excision and the blood loss. The electric dermatome also can grasp the adequate depth of the injury tissue comparing to the hand knife and have the better uniformity. At the same time, the electric dermatome have better controllability than the hand knife so that it can effectively remedy the defect of inexperience to make sure the accuracy of tangential excision. Applicability of Research to Practice: Electric dermatome for the early tangential excision of pediatric scald burns should be popularized for the better accuracy of gasped depth ,the shorter excised time , the less blood loss and the better controllability.

**Publication Type:** Journal: Conference Abstract

**Title:** Preliminary results in reconstruction of full-thickness facial burns in children by using the collagen-elastin matrix

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S267), 1559-047X (July-August 2015)

**Author(s):** Demircan M., Cicek T., Yetis M.I.

**Abstract:** Introduction: Management of full-thickness facial burns remains one of the greatest challenges. Controversy exists among surgeons regarding the use of early excision for facial burns. Unfortunately, delayed excision of deeper burn injuries often results in more scarring and subsequently increases the burden of secondary reconstruction. The collagen-elastin matrix have been developed in order to improve the quality of the reconstructed skin, to reduce scarring and to prevent wound contraction; they serve as a foundation for split thickness skin graft, thus enhancing short and long-term results. We reported the collagen-elastin matrix usage during singlestep reconstruction of severe full-thickness facial burns in 15 children with large burned body surface area, and also we reviewed literature about pediatric facial burns. Methods: Fifteen pediatric patients with full thickness facial burns were treated by the simultaneous application of the collagen-elastin matrix and an unmeshed split-thickness skin graft at Turgut Ozal Medical Center, Pediatric Burn Center, Malatya, Turkey. Results: Eight girls and 7 boys (mean age 7,6 years-old, range 10 months to 12 years) with full thickness facial burns have got 100% facial burn surface area (FBSA) in 7, 75% FBSA in 5 and 50% FBSA in 3 patients. They were treated by the simultaneous application of the collagen-elastin matrix and an unmeshed split-thickness skin graft. Total body surface area burned (TBSA) in patients was over 50% and the average TBSA of patients was 72%, ranging 50-90%. Their admissions were late (>4 days after burns) in 5, and acute (first 4 days after burns) in 10 patients. Burns caused by flame (n=8), bomb blast (n=4) and scald (n=3). In all patients, total body surface area burned (TBSA) was over 50% and the average TBSA of patients was 60%, ranging 50-90%. Only two patients needed 2nd operation for revision of the grafts. All grafts implanted on face were alive. The average Vancouver scar scales (VSS) were 2.55 +/- 1.42 (ranging from 1 to 6) in the first 10 patients except last 5 at the end of postoperative 6 months. Conclusions: In regard to early results, graft quality was close to normal skin in terms of vascularity, elasticity, pliability, texture and color. Aesthetic and functional results have been encouraging. This study shows us that the collagen-elastin matrix as a dermal substitute is a useful adjunct, may permit to obtain a quick healing with satisfying aesthetic and functional results and may enhance short and long-term results in post burn facial reconstruction in children. Applicability of Research to Practice: We use routinely it in our clinical practice.

**Publication Type:** Journal: Conference Abstract

**Title:** Toxic epidermal necrolysis

**Citation:** Anaesthesiology Intensive Therapy, July 2015, vol./is. 47/3(257-262), 1642-5758;1731-2531 (10 Jul 2015)

**Author(s):** Hinc-Kasprzyk J., Polak-Krzeminska A., Ozog-Zabolska I.

**Abstract:** Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN), also known as Lyell's syndrome, are rare, life-threatening diseases that are characterised by extensive epidermal detachment, erosion of mucous membranes and severe systemic symptoms. In the majority of cases, the development of symptoms can be attributed to the use of drugs; therefore, the disease pathology is thought to be caused by a severe adverse reaction to drugs. The high mortality rate results primarily from the development of complications in the form of
systemic infections and multiple organ failure. TEN and SJS affect all age groups, including newborns, infants and older children. The rarity of these syndromes has not permitted large, randomised studies, which has resulted in numerous difficulties in their diagnosis and management. Because the pathogenesis has not yet been established, the management and systemic treatment of these syndromes have not been standardised. The efficacy of the treatment options suggested has not been confirmed by clinical studies involving suitably large groups of patients, especially children.

Title: Imparting low-adherence to commercial antibacterial burn dressings
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S280), 1559-047X (July-August 2015)
Author(s): Asghari S., Logsetty S., Liu S.

Abstract: Introduction: Burn wound infection remains the main reason for death following burn injury. The main defense in preventing wound infections is antimicrobial dressings. A recent survey of front line burn care providers and burn survivors conducted by our team found the most desired properties of an ideal burn dressing were reduced adherence and antimicrobial activity. While some dressings fight infection and others are easy to remove from the wound there are none that do both well. Current effective antimicrobial dressings are painful to remove, causing distress that leads to post injury depression and posttraumatic stress disorder. The objective of our study was to decrease the wound adherence of existing Ag based wound dressings by depositing a nonadherent layer (NAL). Our hypothesis was the NAL will impart the commercial antimicrobial dressing with low-adherence to burn wounds without compromising the antimicrobial activity or increasing the cytotoxicity.
Methods: A NAL was grafted on two commercial silver antibacterial dressings (silver nanocrystal dressing (NC) and silver plated dressing (SP)) using a proprietary technique. Dressing adherence was measured with a previously published in vitro gelatin model using an Instron mechanical force testing instrument. The dressings were challenged with two clinically retrieved bacterial strains (MRSA and multi-drug resistant P. aeruginosa) in an antimicrobial disk susceptibility test using Zone of Inhibition (ZOI). The cytotoxicity of samples to human neonatal fibroblasts cells was evaluated using MTT assay. Results: Both untreated dressings showed high peeling energy: 2070+/−453 J/m2 (NC) and 669+/−68 J/m2, (SP) that decreased to 158+/−119 J/m2 (NC) and 155+/−138 J/m2 (SP) with the NAL. In the agar diffusion test, addition of the NAL caused a marginal increase of the ZOI (p>0.05) in NC against both bacteria, and no significant different ZOI in SP. Cytotoxicity was reduced by the NAL from fibroblast cells 47.6+/−5.1% viable cells to 60.3+/−2.6% viable cell, P<0.01 in NC. Conclusions: The NAL can significantly decrease the adherence of these two commercial antimicrobial dressings in an in vitro gelatin model while preserving their antibacterial efficacy, and reducing the cytotoxicity. Applicability of Research to Practice: This research is of high industrial importance to reduce the adherence profile of existing antibacterial burn wound dressings, improving patient care.

Publication Type: Journal: Conference Abstract

Title: Eye examination and treatment in the burn unit
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S262), 1559-047X (July-August 2015)
Author(s): Capek K.D., Muthayya P., Song C., Lee J.O., Trocme S., Herndon D.N.

Abstract: Introduction: Ophthalmic examination is an important adjunct to the care of burn patients, whom frequently have vision-threatening pathology. However, certain aspects of both the examination and differential diagnosis seem esoteric to many providers. This presentation presents recent eye problems encountered in a busy pediatric burn center. It aims to provide a framework for a structured eye exam in burn ICU patients, and describe commonly-encountered eye diagnostic findings. When vision threatening diagnoses are encountered, non-ophthalmologist providers are encouraged to consult appropriately. The examination and differential diagnoses presented here should facilitate accurate and efficient communication with ophthalmology consultants. Methods: Of patients admitted to our facility in the last year, the most frequently encountered ocular pathologies included exposure keratopathy, corneal epithelial defects, corneal ulcers, acid/alkali corneal burns, herpetic keratopathy, and acute and chronic ocular surface failure due to Toxic Epidermal Necrolysis. Eye examination in these patients was conducted with equipment available at bedside, including penlight, 20-diopter lens or equivalent, fluorescein test strips, cottontipped applicators, and pocket eye chart. Useful adjuncts used in many cases included portable slit lamp bimicroscope, and close-up photography. Results: Multiple significant, vision-threatening, eye findings were noted in our patients in the last year. Many of these responded to early institution of topical therapy, while surgical intervention was of benefit in several patients. The most frequently performed procedures were temporary tarsorrhaphy/ upper lid blepharoplasty with split-thickness skin graft, and amnmonic membrane grafting of the ocular surface and palpebral conjunctiva. Compared with historical data, a focus on eye examination and early, closely-monitored multimodality treatment seems to have qualitatively reduced the incidence of visual loss in our patients. Conclusions: Significant, vision-threatening,
eye diseases not infrequently complicate the course of burn patients. Organized, careful, and timely diagnosis, coupled with appropriate treatment in collaboration with ophthalmologists may reduce the associated incidence of visual loss. Applicability of Research to Practice: Prevention of devastating ocular complications in the burn unit is possible with careful examination and prompt treatment.

**Publication Type:** Journal: Conference Abstract

**Title:** Assessment of ketamine safety in the pediatric burn population

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S252), 1559-047X (July-August 2015)

**Author(s):** Collins C., Hutson M., Mlcak R.P., Merrick A., Woodson L., Herndon D.N.

**Abstract:** Introduction: Ketamine is an anesthetic agent commonly prescribed for pediatric burn patients to achieve moderate sedation for painful or stressful procedures. Complications associated with ketamine usage were reviewed retrospectively in an effort to determine medication safety and effective patient care. In our institution, practitioners administering ketamine undergo competency-based credentialing for sedation privileges annually, and follow hospital policy for sedation privileging and management of pain/discomfort. The purpose of this project was to determine the frequency and nature of complications associated with the use of ketamine for procedural sedation in the pediatric burn population. Methods: As a part of performance improvement, a retrospective chart review was conducted for all patients who received ketamine in our facility between August 2013 and August 2014. Adverse events were verified as a significant complication by conducting a thorough examination of each patient's electronic medical record; interventions to alleviate the complication were also collected for review. There was a subsequent assessment of commonalities amongst the patients who experienced complications. Results: Ketamine was administered for the induction and maintenance of procedural sedation 742 times to a total of 286 patients; 15 patients experienced 17 respiratory complications. There were 13 occurrences of oxygen saturation level below 90%, 2 complications of airway obstruction requiring the insertion of an airway device, and 2 complications of apnea requiring assisted ventilation. Of the patients who experienced complications, 12 had a Total Burn Surface Area of 25% or higher and their age ranged from 1 to 16 years; 1 had a Total Burn Surface Area of 5% and was 33 days old. This yields a respiratory complication rate of 2.29%, demonstrating an overall low rate of respiratory complications associated with the use of ketamine for procedural sedation with pediatric burn patients. All of these patients were successfully recovered by airway credentialed personnel. Conclusions: Ketamine is safe to administer for procedural sedation in the pediatric burn patient as there is a low risk of complication. Potential risk factors for complication when administering Ketamine include the size of the patient's burn injury and their age. For Performance Improvement, staff will be re-educated regarding vigilant patient monitoring, effective airway management, and appropriate documentation. This will be an ongoing project to monitor medication safety, risk of complication, and improved patient care. Applicability of Research to Practice: Safe usage of ketamine for procedural sedation in the pediatric burn patient.

**Publication Type:** Journal: Conference Abstract

**Title:** Pediatric toxic epidermal necrolysis: A 30-year experience institutional experience

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S247), 1559-047X (July-August 2015)

**Author(s):** Carson J., Crites N., Grogans R.A., Capek K.D., Finnerty C.C., Lee J.O., Herndon D.N.

**Abstract:** Introduction: Toxic Epidermal Necrolysis Syndrome (TENS) is a rare, extremely severe exfoliating drug rash infamous for its extremely morbid, occasionally fatal clinical course. Current understandings of the disease’s typical presentation are limited by the paucity of published clinical data-most of which comes from extremely low-volume case series. Here, we report our experience in treating over 30 cases of pediatric TENS. Methods: We performed a retrospective chart review of patients admitted to our institution from 1982 to 2014 with a diagnosis of TENS, EM, SJS, exfoliative dermatitis, or drug reaction. Patients were included if they carried a final diagnosis of TENS, and were excluded if the clinical team and/or retrospective reviewers determined that the clinico-pathologic findings suggested an alternative diagnosis to be more likely. Results: We identified 35 patients admitted for TENS. These included 23 males (66%) and 12 females (33%). The mean age at presentation was 9 years (8mo to 18yrs). The mean TBSA involvement was 70% (30%-99%), and the mean length of hospital stay was 17days (3-14days). We identified oral mucosal involvement in 33 patients, ophthalmic involvement in 30 patients, and genital involvement in 26 patients (94%, 86%, and 74%). Ten patients manifested gastroenteritis. Thirty-four of 35 patients reported starting a new medication within the two weeks preceding rash onset. Sixteen patients were exposed to a new antibiotic in this time period, and 18 were exposed to a new antiepileptic. Specific agents most frequently found to have started in this pre-eruption window were trimethoprim/ sulfamethoxazole, amoxicillin, phenobarbital and lamotrigine (10, 5, 5 and 5
**Abstract:** Introduction: Children with burn injuries face many challenges due to altered appearance, which may change their behavior in social settings, inhibit their interactions with peers and affect their overall quality of life (QOL). Corrective cosmetics (CC) have been used to conceal visible scarring and facilitate community reintegration. The purpose of this study was to describe characteristics of burned children receiving CC and determine the impact of CC on QOL and self-perception. Methods: Children 5-21 years old with burn injuries referred to or who independently expressed an interest in having CC consultation were approached for enrollment. Demographic, injury and referral data were collected. Baseline and follow up assessments included the Pediatric Quality of Life Inventory (PedsQL), Canadian Occupational Performance Measure (COPM), Patient and Observer Scar Assessment Scale (POSAS), photographs, and a satisfaction questionnaire. After baseline testing was complete, patients underwent make-up consultation including: color matching, education in makeup application and use, and return demonstration to ensure competence/comfort with use. Post-intervention assessments were conducted 3-12 months later. Results: A total of 16 patients enrolled and 11 completed follow up testing. The average age of patients was 16.9 (11-21) years 90% were female, CC consult was 7.03 years (SD +/- 5.33) from initial injury, and primarily involved the face (73%). Patients were Hispanic (67%), African American (19%), Caucasian (13%), and Asian (1%). Most referrals were initiated in outpatient clinic (55%) and OT/PT therapists most often were the ones to refer patients (45%); however, 27% of patients self-referred. Post intervention, patients showed improved scores in all PedsQL domains, with statistically significant improvement in the health and activity domain (p=.03). Self-ratings of their scars (sans makeup) using the POSAS (pre=6.5 (SD +/- 2.75), post=3.3 (SD +/- 2.57); p=.02) showed significant improvement. Satisfaction and performances scores on patient relevant tasks (COPM) increased post intervention but the change did not reach significance. The average cost for makeup over the 3.4 months was $26/patient. Most patients (90%) requested more makeup at post consultation appointment, indicating their desire to continue CC. Conclusions: Children of both genders and from a variety of age and ethnic backgrounds demonstrated positive changes in QOL and scar perception after CC. Opportunity for CC referral may occur as early as inpatient hospitalization and up to several years after injury. CC is an affordable intervention and should be offered to a wide array of patients as an integral part of long-term follow up visits. Applicability of Research to Practice: CC as a therapeutic intervention.

**Publication Type:** Journal: Conference Abstract

**Title:** Impact of corrective cosmetics on quality of life and self-perception in children with burn scars

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S260), 1559-047X (July-August 2015)

**Author(s):** Bui T., Parry I.S., Sen S., Greenhalgh D.G., Palmieri T.L.

**Abstract:** Introduction: Previous studies in the pediatric burn population have shown that etiology of burn injuries in children vary with age and ethnicity which has implications for population specific prevention and outreach strategies. Additionally, studies have shown that burn patients can have increased difficulty with community re-integration and satisfaction with life and/or appearance. However, to our knowledge no studies have examined the effect of age (at time of injury) and ethnicity on the pediatric burn patient’s ability for community re-integration and satisfaction with life and/or appearance. Methods: We used National Burn Repository Data from 1993 to 2014 to analyze children less than 15 years of age at the time of burn (n=1722) with significant burn injuries. The following age groups were used: 0 to <5, 5 to <10, and 10 to <15 years of age. 28% (n=478) were White, 55% (n=935) were Hispanic, and 13% were (n=227) Black, with 4 % (n=69) being other. Chi-square and ANOVA tests were used to compare groups for significant differences at 6 months...

**Publication Type:** Journal: Conference Abstract

**Title:** Burn injuries in pediatric population: Are age and ethnicity associated with different functional outcomes?

**Citation:** Journal of Burn Care and Research, July 2015, vol./is. 36/(S261), 1559-047X (July-August 2015)

**Author(s):** West J.N., Gibran N.S., Herndon D.N., Holavanahalli R.K., Hynan L.S., Ryan C.M., Kowalske K.J.
from burn injury. Results: Our results indicate that burn injury etiologies among children differ between age groups confirming work from previous studies. We found that scald injury was more common in the 0 to <5 age group (48%) whereas Fire/Flame injury was more common in the 5 to <10 and 10 to <15 age group (75%). The ANOVA tests showed that there was a significant difference in the Satisfaction with Appearance (SWAP) score between age groups with the 0 to <5 group being significantly lower than the other age groups (p <0.001 and p=0.006). There were no statistically significant differences between age groups for the Community Integration Questionnaire (CIQ) or the Satisfaction with Life Measure (SWL) (p=0.0504 and p=0.116 respectively). When comparing White to all other ethnicities there was a significant statistical difference for both the CIQ (White group scoring higher; p=.011) and SWAP (Non-White group scoring higher; p=0.000). There was no statistically significant difference for the SWL score (p=0.073). Conclusions: From this study we conclude that there are differences between age groups (at time of injury) and ethnic groups in regards to community integration and satisfaction with life and/or appearance. Interestingly, the satisfaction with appearance for those children less than 5 was completed by the parents which brings into question whether concerns over appearance are a greater issue for parents than children. Applicability of Research to Practice: Help design more specific and targeted plans for rehabilitation, psychological therapy, and patient/family education in the pediatric burn population.

Publication Type: Journal: Conference Abstract

Title: Non-accidental pediatric burns: A model to improve detection and patient safety
Citation: Journal of Burn Care and Research, July 2015, vol./is. 36/(S254), 1559-047X (July-August 2015)
Author(s): Nigro L.C., Feldman M.J., Foster R.

Abstract: Introduction: Non-accidental burns in children are a significant problem that may cause life-threatening injuries. Coordination of care and screening for abuse and neglect of pediatric trauma patients is essential to minimize the risk of recurrent injury, maximize opportunity for recovery, and ensure return to a safe environment. We developed a unique, multidisciplinary method for identifying and caring for suspected non-accidental pediatric burns based on national statistics on incidence and age range that may improve patient safety after discharge. Methods: We reviewed the literature surrounding pediatric burns and abuse as well as our experience with an internal Child Protection Team (CPT) at our level I trauma and burn center. We collected and evaluated demographic data over a five year period for pediatric burn patients evaluated by the CPT after admission to our center. Results: Our model is centered on early involvement of the CPT, a hospital-based child abuse team comprised of: a medical director who is board-certified in child abuse and neglect, three nurse practitioners who are certified in family medicine or pediatrics, forensic nursing staff, and a coordinator. The team provides inpatient consult services, on-call coverage for the ED 24/7, and sees outpatient clinic referrals from physicians, CPS and law enforcement agencies. Each case is discussed in a monthly, team meeting to promote appropriate tracking and follow-up in the community. Relationships with community partners allow the CPT to effectively communicate concerns to local agencies about patients who are believed to be at significant risk in the home environment. On average, the CPT evaluates 850 cases per year from over 30 jurisdictions in the state, including every pediatric burn under the age of five admitted to our center or seen in the ED. Between January 2010 and July 2014, we cared for 343 children five years of age or younger at our center, each of which was evaluated by the CPT. The average age was 2 years. Most injuries occurred in the home, presenting as scald burns to the extremities and trunk. Total body surface area burned was 0 to 40.7%. Hospital length of stay was one to 51 days (average: five days). One patient expired. Two were discharged to foster care. Since this model has been in effect, we have not had a readmission that was due to a repeat non-accidental burn injury. Conclusions: Our multidisciplinary method for identifying and caring for suspected non-accidental pediatric burns provides a consistent, reliable method for dealing with these often complex situations. Our internal CPT may also provide a method for reducing repeat injury. Applicability of Research to Practice: We encourage trauma and burn centers nationwide to consider this model to reduce the burden of non-accidental pediatric burns.

Publication Type: Journal: Conference Abstract
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