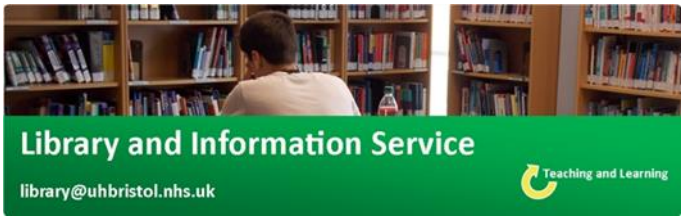
University Hospitals Bristol NHS
NHS Foundation Trust

# Burns

## Evidence Update

## February 2018 (Quarterly)


Respecting everyone
Embracing change
Recognising success
Working together
**Our hospitals.**



# Contents



## Your Outreach Librarian: Jo Hooper

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**Outreach:** Your Outreach Librarian can help facilitate evidence-based practice for all in the team, as well as assisting with academic study and research. We also offer one-to-one or small group training in **literature searching, critical appraisal and medical statistics**. Get in touch: library@uhbristol.nhs.uk

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# Training Calendar 2018

***All sessions are one hour***

**March (13.00-14.00)**

| | |
|---|---|
| 8th (Thu) | Statistics |
| 12th (Mon) | Literature Searching |
| 20th (Tue) | Critical Appraisal |
| 28th (wed) | Statistics |

**April (12.00-13.00)**

| | |
|---|---|
| 5th (Thu) | Literature Searching |
| 9th (Mon) | Critical Appraisal |
| 17th (Tue) | Statistics |
| 25th (Wed) | Literature Searching |

# Updates

NICE National Institute for Health and Care Excellence

Burns and scalds
Source: Clinical Knowledge Summaries - 31 January 2018

WHO | Burns
Source: World Health Organization - 23 January 2018

Exercise training for improving outcomes post-burns: a systematic review and meta-analysis
Source: PubMed - 01 January 2018 - Publisher: Clinical Rehabilitation

A clinical trial looking at the efficacy and optimal dose of acetic acid in burn wound infections
Source: UK Clinical Trials Gateway - UKCTG - 29 January 2018

Cochrane Library

No relevant evidence

UpToDate®

*OpenAthens login required. Register here: https://openathens.nice.org.uk/*

Overview of surgical procedures used in the management of burn injuries

**Literature review current through:** Jan 2018. | **This topic last updated:** Feb 20, 2018.

Topical agents and dressings for local burn wound care

**Literature review current through:** Jan 2018. | **This topic last updated:** Jan 29, 2018.

Hypertrophic scarring and keloids following burn injuries

**Literature review current through:** Jan 2018. | **This topic last updated:** Feb 21, 2018.

## BBA: British Burn Association

MAR 3 Sat 2018 all-day BBA Emergency Management of Seve...@ Birmingham

MAR 8 Thu 2018 all-day BBA Emergency Management of Seve...@ East Grinstead, London

# Journal Tables of Contents

**Click on the hyperlinked journal title (+Ctrl) for the most recent tables of contents. If you would like any of the papers in full text then please email the library: library@uhbristol.nhs.uk**

## Burns
February 2018, Volume 44, Issue 1

## Journal of Burn Care & Research
January/ February 2018, Volume 39, Issue 1

## Injury Prevention
February 2018, Volume 24, Issue 1

## Plastic and Reconstructive Surgery
February 2018, Volume 141, Issue 2

## Journal of Plastic, Reconstructive & Aesthetic Surgery
February 2018, Volume 71, Issue 2

## Archives of Disease in Childhood
February 2018, Volume 103, Issue 1

## Pediatrics
February 2018, Volume 141, Issue 2

## Injury
January 2018, Volume 49, Issue 1

## Trauma
February 2018, Volume 20, Issue 1

# Database Articles

## Below are a selection of articles on burns recently added to the healthcare databases. If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch:

library@uhbristol.nhs.uk

**Propranolol and Oxandrolone Therapy Accelerated Muscle Recovery in Burned Children.**

**Author(s):** CHAO, TONY; PORTER, CRAIG; HERNDON, DAVID N.; SUMAN, OSCAR E.

**Source:** Medicine & Science in Sports & Exercise; Mar 2018; vol. 50 (no. 3); p. 427-435

**Publication Type(s):** Academic Journal

**Abstract:**Introduction: Severe burns result in prolonged hypermetabolism and skeletal muscle catabolism. Rehabilitative exercise training (RET) programs improved muscle mass and strength in severely burned children. The combination of RET with A-blockade or testosterone analogs showed improved exercise-induced benefits on body composition and muscle function. However, the effect of RET combined with multiple drug therapy on muscle mass, strength, cardiorespiratory fitness, and protein turnover are unknown. In this placebo-controlled randomized trial, we hypothesize that RET combined with oxandrolone and propranolol (Oxprop) will improve muscle mass and function and protein turnover in severely burned children compared with burned children undergoing the same RET with a placebo. Methods: We studied 42 severely burned children (7-17 yr) with severe burns over 30% of the total body surface area. Patients were randomized to placebo (22 control) or to Oxprop (20) and began drug administration within 96 h of admission. All patients began RET at hospital discharge as part of their standardized care. Muscle strength (NIm), power (W), ...O2peak, body composition, and protein fractional synthetic rate and fractional breakdown rate were measured pre-RET (PRE) and post-RET (POST). Results: Muscle strength and power, lean body mass, and ...O2peak increased with RET in both groups ($P < 0.01$). The increase in strength and power was significantly greater in Oxprop versus control ($P < 0.01$), and strength and power was greater in Oxprop over control POST ($P < 0.05$). Fractional synthetic rate was significantly higher in Oxprop than control POST ($P < 0.01$), resulting in improved protein net balance POST ($P < 0.05$). Conclusions: Rehabilitative exercise training improves body composition, muscle function, and cardiorespiratory fitness in children recovering from severe burns. Oxprop therapy augments RET-mediated improvements in muscle strength, power, and protein turnover.

**A comparison of two different fluid resuscitation management protocols for pediatric burn patients: A retrospective study.**

**Author(s):** Huang, Miao; Chen, Jun-Feng; Chen, Li-ying; Pan, Li-qin; Li, Xiao-jian; Ye, Jie-yu; Tan, Hui-yi

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 82-89

**Publication Type(s):** Academic Journal

**Abstract:**Objective: Pediatric burn patients are more susceptible to burn shock than adults, and an effective fluid management protocol is critical to successful resuscitation. Our research aim was to investigate the safety and efficacy of two protocols for pediatric burn patients for use within the first 24h.Methods: A total of 113 pediatric burn patients were enrolled from January 2007 to October 2012. Of those patients, 57 received fluid titration regimens of alternating crystalloids and colloids once within 2h in the first 24h after burn (Group A), whereas the remaining patients received regimens of alternating crystalloids and colloids once within 1h in the first 24h after burn (Group B). The safety, fluid volume infused and urine output were recorded and compared.Results: All the patients survived in the first 24h after burn. There were no significant differences between Group A and Group B in lactic acid (LA) level and base excess (BE). The water infused in Group A were greater

than that of Group B in the first 24h (P=0.024). No significant differences were found in total volume intake and hourly urine output between the 2 groups in the first 24h.Conclusion: The implementation of fluid resuscitation using either protocol A or protocol B is safe and effective for pediatric burn patients in the first 24h. The total fluid infused were similar between two protocols. But using protocol A may be more convenient and labor-saving for nurses.

**Accuracy of laser speckle contrast imaging in the assessment of pediatric scald wounds.**

**Author(s):** Mirdell, Robin; Farnebo, Simon; Sjöberg, Folke; Tesselaar, Erik

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 90-98

**Publication Type(s):** Academic Journal

**Abstract:**Background: Changes in microvascular perfusion in scalds in children during the first four days, measured with laser speckle contrast imaging (LSCI), are related to the time to healing and need for surgical intervention. The aim of this study was to determine the accuracy (sensitivity and specificity) of LSCI on different days after injury in the prediction of healing outcome and if the accuracy can be improved by combining an early and a late measurement. Also, the accuracy of LSCI was compared with that of clinical assessment.Methods: Perfusion was measured between 0-24h and between 72-96h using LSCI in 45 children with scalds. On the same occasions, burn surgeons assessed the burns as healing 14days/surgery. Receiver operating characteristic (ROC) curves were constructed for the early and late measurement and for the double measurement (DM) using two different methods.Results: Sensitivity and specificity were 92.3% (95% CI: 64.0-99.8%) and 78.3% (95% CI: 69.9-85.3%) between 0-24h, 100% (95% CI: 84.6-100%) and 90.4% (95% CI: 83.8-94.9%) between 72-96h, and was 100% (95% CI: 59.0-100%) and 100% (95% CI: 95.1-100%) when combining the two measurements into a modified perfusion trend. Clinical assessment had an accuracy of 67%, Cohen's κ=0.23.Conclusion: The perfusion in scalds between 72-96h after injury, as measured using LSCI, is highly predictive of healing outcome in scalds when measured. The predictive value can be further improved by incorporating an early perfusion measurement within 24h after injury.

**Massage has no observable effect on distress in children with burns: A randomized, observer-blinded trial.**

**Author(s):** van Dijk, Monique; O'Flaherty, Linda Anne; Hoedemaker, Tessa; van Rosmalen, Joost

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 99-107

**Publication Type(s):** Academic Journal

**Abstract:**Importance: In a previous observational study we found that massage therapy reduced anxiety and stress in pediatric burn patients. We aimed to test this effect in a randomized controlled trial.Objective: To determine whether (1) aromatherapy massage can provide relaxation to hospitalized children with burns; (2) massage with aromatherapy oil is more effective than without; and (3) massage sessions are more effective when repeated.Design, Setting, and Participants: Randomized controlled clinical trial with 3 arms conducted in a burns unit from April 2013 to December 2014 in Cape Town, South Africa.Interventions: Massage with carrier oil, massage with aromatherapy oil, and standard nursing care only.Main Outcomes and Measures: Scores on the Muscle Tension Inventory (MTI) and Behavioral Relaxation Scale (BRS) to assess level of relaxation. Scores on the COMFORT behaviour scale and Numeric Rating Scale Distress to assess level of distress. Secondary outcomes were heart rate and oxygen saturation levels. Linear mixed models were used to determine the effect of condition and session number (1 to a maximum of 5 sessions per child) correcting for baseline outcomes of COMFORT behaviour scores and heart rates after sessions. Secondary analyses included the addition of sex, age, and total body surface area (TBSA) burned as covariates.Results: We included 284 children aged 5 weeks to 13 years with TBSA burned between 10 and 45%. Two-thirds (65.5%) were under the age of 3 years. Mixed model analyses revealed no significant difference in reduction of COMFORT behavior scores (p=0.18), or heart rates (p=0.18) between the three study arms. These outcomes were also not associated with the session

number (p=0.92 and p=0.13, respectively). Level of relaxation could not be reliably assessed with the MTI and BRS because 119 patients (41.9%) had bandages covering the larger part of the face, and in 40.1% of cases the child was not in the required position.Conclusion and Relevance: Massage therapy with or without essential oil was not effective in reducing distress behavior or heart rate in hospitalized children with burns. Evaluating the effectiveness of massage in terms of relaxation proved difficult in young children.Trial Registration: The Netherlands National Trial Registry: NRT3929.

**Toxic shock syndrome in paediatric thermal injuries: A case series and systematic literature review.**

**Author(s):** Gutzler, Linda; Schiestl, Clemens; Meuli, Martin; Oliveira, Carol

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1)

**Publication Type(s):** Academic Journal

**Abstract:**Background: Toxic shock syndrome (TSS) is a rare, but potentially life-threatening complication of thermal injuries in children. The study objective was to systematically review the literature on paediatric TSS after burns or scalds, and describe our experience with this condition in Switzerland.Methods: All tertiary paediatric healthcare centres managing burns and scalds in Switzerland were inquired. A systematic literature review was performed using EMBASE (1947-2016), MEDLINE (1946-2016), Web of Science (1900-2016) and Google Scholar in October 2016. Data on patient characteristics, symptoms, laboratory parameters, management and outcome were extracted from paper and electronic patient charts. Descriptive statistics were performed.Results: The literature review revealed 25 articles describing 59 cases observed in 10 countries (UK, USA, Hungary, Austria, Sweden, Denmark, Israel, Japan, Spain, Switzerland) from 1985 to 2016. The patient age ranged from 8 months to 8 years at the time point of TSS-diagnosis. The injured total body surface area ranged from <1% to 41%. Forty-one patients suffered from scalds, 6 from burns and in 12 cases the type of injury was not specified. The TSS-diagnosis was made 1-7days after thermal injury. Nineteen children underwent admission to the Intensive Care Unit. Six children died from TSS. In Switzerland, we identified 11 consecutive cases between 07/2001 and 06/2011 (median age 15 months, range 9 months-14 years; 9 male, 2 female; 3 burns, 8 scalds; 7% median total body surface area (TBSA), range 2-30%). Diagnosis of TSS was made on day 5 after injury in median (range 3-34 days). Eight of eleven patients received intensive care. Survivors (10/11) suffered no long-term sequelae besides scars. One 13-month old boy died 3days after a 7%-TBSA scald.Conclusions: Toxic shock syndrome is an important complication of paediatric burns in Switzerland and several other countries world-wide. Diagnosis and management remain challenging. Awareness among treating clinicians is crucial for a favourable outcome.

**Extracorporeal membrane oxygenation support may be a lifesaving modality in patients with burn and severe acute respiratory distress syndrome: Experience of Formosa Water Park dust explosion disaster in Taiwan.**

**Author(s):** Chiu, Yu-Jen; Ma, Hsu; Liao, Wen-Chieh; Shih, Yu-Chung; Chen, Mei-Chun; Shih, Chun-Che

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 118-123

**Publication Type(s):** Academic Journal

**Abstract:**Background: Extracorporeal membrane oxygenation (ECMO) has been reported to improve outcomes in patients with refractory respiratory failure. These successful experiences have stimulated interest in using ECMO as a potential therapy for patients with acute pulmonary failure resulting from burn and inhalation lung injury. Current literature has supported the use of ECMO in critically-ill, pediatric burn patients. On the other hand, it is controversial to apply ECMO in adult burn patients, and the evidence is limited by the shortcomings of small sample size. We share our successful experience of ECMO treatment in the casualties of the Formosa Water Park Dust Explosion Disaster.Methods: We investigated the data from the dust explosion event, which

happened on June 27, 2015, in New Taipei, Taiwan. The medical records of five patients with severe acute respiratory distress syndrome receiving ECMO were evaluated.Results: The mean study subject age was 21.8 years, with a mean total body surface area burned of 82.9%. The average time to ECMO setup was 48.6 days. Survivors and non-survivors averaged four days and 77.7 days, respectively. The overall mortality rate was 40%. Three survivors were discharged without any ECMO-related complications or pulmonary sequelae after one year of follow up.Conclusions: ECMO may be a lifesaving modality for burn patients with severe lung injury who are nonresponsive to maximal medical management, especially for young patients with early ECMO intervention.

**Retrospective analysis on thermal injuries in children-Demographic, etiological and clinical data of German and Austrian pediatric hospitals 2006-2015-Approaching the new German burn registry.**

**Author(s):** Tegtmeyer, Laura C; Herrnstadt, Georg R; Maier, Sarah L; Thamm, Oliver C

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 150-157

**Publication Type(s):** Academic Journal

**Abstract:**Objective: The purpose of this observational, multi-center study was to reveal epidemiologic, etiological and clinical aspects of hospitalized children with thermal injuries in Germany and Austria and the workup of a renewed web-based pediatric burn registry.Methods: From 2006 to 2015, comprehensive patient data of thermally injured children in Germany and Austria were collected prospectively. Retrospective analysis of age, gender, mechanism of injury, total body surface area burned, way of admission and length of stay was performed, followed by the comparative analysis between designated burn centers and other pediatric hospitals.Results: 32 hospitals participated in the study including data of 13,460 thermally injured hospitalized children. The majority was 12-<36 months of age with a share of 48%. 56.5% were boys. The most frequent cause of injury was scalding representing 74.4%. Designated pediatric burn centers treated 82.2% of all patients. In relation to non-centers, no significant differences were seen concerning the affected total body surface area and the amount of patients <1 year of age in contrast to a significant difference regarding the amount of fire injuries, all being parameters indicating the severity of thermal injuries. Overall mortality was 0.1%.Conclusion: This study extends our knowledge about population characterization of thermally injured children, highlights risk factors and serves as a basis for the renewed pediatric burn registry from 2016 on.

**Assessing and addressing the problem of pain and distress during wound care procedures in paediatric patients with burns.**

**Author(s):** van der Heijden, Marianne J.E.; de Jong, Alette; Rode, Heinz; Martinez, Roux

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 175-182

**Publication Type(s):** Academic Journal

**Abstract:**Objective: While the prevalence of burns in children is highest in low and middle-income countries, most research on burn-related pain intensity and distress is carried out in high-income countries. In this study we assessed pain intensity and distress in paediatric patients with burns undergoing wound care procedures without distraction and parental presence in a South-African children's hospital and sought to identify predictors for the outcomes.Methods: This observational study, carried out as part of a randomized controlled trial, took place at a burns unit in Cape Town, South Africa and included patients between the ages of 0 and 13 years undergoing their first or second wound care procedure. We measured pain intensity and distress using the COMFORT Behavioural scale (COMFORT-B) across four distinct phases of wound care procedures: removal of bandage; washing the wound; administering wound care; putting on new dressings. COMFORT-B scores ≥21 indicate severe pain intensity and distress.Results: 124 patients were included, median age 21.2 months (IQR 14.9-39.5 months), 90% suffered scalds, and median total body surface 8% (IQR 5-14%). Assessment scores for the majority of patients were indicative of severe pain intensity and distress during wound care procedures. Median COMFORT-B scores across the four phases were

24, 25, 25 and 22 respectively. Across the four phases respectively 76%; 89%; 81% and 62% of the patients were indicated with severe pain intensity and distress. Age was a predictor for pain intensity and distress as younger children were assigned higher scores than older children (Unstandardized B -.052; 95% CI -.071 to -.032 p<0.001).Conclusions: In this study children received wound care procedures without distraction or parental presence and were assessed to have high pain intensity and distress. There is a correlation between age and COMFORT-B scores: younger children show higher distress, indicating a great need for better pain and distress control during wound care procedures. It is difficult to identify whether pain or distress is the specific primary cause for the high COMFORT-B scores.

**The management of small area burns and unexpected illness after burn in children under five years of age - A costing study in the English healthcare setting.**

**Author(s):** Kandiyali, R.; Sarginson, J.H.; Hollén, L.I.; Spickett-Jones, F.; Young, A.E.R.

**Source:** Burns (03054179); Feb 2018; vol. 44 (no. 1); p. 188-194

**Publication Type(s):** Academic Journal

**Abstract:**The objective of this economic study was to evaluate the resource use and cost associated with the management of small area burns, including the additional costs associated with unexpected illness after burn in children of less than five years of age. This study was conducted as a secondary analysis of a multi-centre prospective observational cohort study investigating the physiological response to burns in children. 452 children were included in the economic analysis (median age=1.60years, 61.3% boys, median total burn surface area [TBSA]=1.00%) with a mean length of stay of 0.69 days. Of these children, 21.5% re-presented to medical care with an unexpected illness within fourteen days of injury. The cost of managing a burn of less than 10% TBSA in a child less than five years of age was £785. The additional cost associated with the management of illness after burn was £1381. A generalised linear regression model was used to determine the association between an unexpected illness after burn, presenting child characteristics and NHS cost. Our findings may be of value to those planning economic evaluations of novel technologies in burn care.

**An outbreak of skin infections in neonates due to a <italic>Staphylococcus aureus</italic> strain producing the exfoliative toxin A.**

**Author(s):** Pimentel de Araujo, Fernanda; Tinelli, Marco; Battisti, Antonio; Ercoli, Angela

**Source:** Infection; Feb 2018; vol. 46 (no. 1); p. 49-54

**Publication Type(s):** Academic Journal

**Abstract:**Purpose: Staphylococcus aureus is an important cause of infections in hospitalized neonates. Preterm or low birthweight infants are especially at risk to develop a S. aureus infection due to the immaturity of the immune system, length of hospital stay and invasive procedures. Exfoliative toxin (ET)-producing S. aureus is often responsible for neonatal infections, causing clinical manifestations such as staphylococcal scalded skin syndrome, characterized by both localized blisters or generalized exfoliation of the skin.Methods: We describe an outbreak due to an S. aureus strain producing ETA occurring in a local hospital in Northern Italy. Molecular typing of the isolates included spa typing and multilocus sequence typing. DNA microarray hybridization was also performed on one representative strain.Results: In the period from July 2013 to February 2014, 12 neonates presented with skin infections, mainly bullae or pustules. Cultures of skin swabs yielded methicillin-susceptible S. aureus (MSSA). By molecular typing, an epidemic strain (t1393/ST5) was identified in nine neonates; microarray analysis and PCR revealed that it contained the ETA encoding gene. Screening of staff, mothers and healthy neonates and environmental cultures did not reveal the presence of the epidemic strain. However, the father of an infected neonate was found to be a carrier of MSSA t1393 five months after the outbreak started.Conclusion: Implementation of hygiene procedures and sanitization of the ward twice terminated the outbreak. Timely surveillance of

infections, supported by molecular typing, is fundamental to prevent similar episodes among neonates.

**The Impact of Legislation on Gas Can- and Mattress-Related Burn Injuries.**

**Author(s):** Kellogg, Levi; Butcher, Brandon; Peek-Asa, Corinne; Wibbenmeyer, Lucy; Levi, Kellogg

**Source:** Journal of Burn Care & Research; Jan 2018; vol. 39 (no. 1); p. 21-29

**Publication Type(s):** Academic Journal

**Abstract:**Burn prevention program success requires thorough evaluation of intervention outcomes. The impact of 2 engineering-specific burn prevention regulations, the Children's Gasoline Burn Prevention Act, and the Standard for the Flammability of Mattress Sets will be assessed. Records from 1997 to 2015 within the Consumer Product Safety Commission's (CPSC) National Electronic Injury Surveillance System (NEISS) were reviewed. After identifying gas can- and mattress-involved burn injuries, injury incidence was estimated by utilizing survey sampling weights associated with each record. Logistic regression, incorporating estimated injury incidence and adjusting for gender and age, was performed to test for change in injury risk following these regulations. Within NEISS, there were 493 burns involving gas cans, yielding an estimated 19,339 injuries (95% confidence interval [CI], 15,781-22,896) during the 19-year study period. The odds of a gas can burn injury after legislation decreased by 67% for children younger than 5 years (odds ratio [OR], 0.33; 95% CI, 0.16-0.66; P = 0.0018). There was no significant change in risk for persons 5 years and older (OR, 1.07; 95% CI, 0.80-1.41; P = 0.66). During the same time, there were 219 NEISS burns involving mattresses, yielding an estimated 6864 injuries (95% CI, 5071-8658). The odds of a mattress burn injury following legislation enactment decreased by 31% for all ages (OR, 0.69; 95% CI, 0.51-0.94; P = 0.02). Both regulations decreased the odds of injury in their target populations. This study demonstrates that passive interventions involving engineering standards remain a powerful tool for burn prevention and should be the focus of future efforts to improve burn care.

**Analysis of Electrocardiograms Associated with Pediatric Electrical Burns.**

**Author(s):** McLeod, Jennifer S.; Maringo, Alison E.; Doyle, Patrick J.; Vitale, Lisa; Klein, Justin D.

**Source:** Journal of Burn Care & Research; Jan 2018; vol. 39 (no. 1); p. 65-72

**Publication Type(s):** Academic Journal

**Abstract:**The purpose of this study was to examine the utility of electrocardiograms (EKGs) for low-risk, low-voltage pediatric electrical burn victims. A retrospective chart review was conducted on 86 pediatric patients who presented to the children's hospital between 2000 and 2015 after sustaining electrical burns. Variables included source and estimated voltage, extent of injuries, length of stay, high risk factors, and EKG results. High risk factors included estimated voltage > 1000 V, lightning, tetany, symptoms, loss of consciousness, or seizures. Statistical analyses were conducted. Average age was 5 years. Of those who sustained burns, 84.5% (n = 71/84) had second-degree burns ≤ 1% TBSA or less. Eleven patients had high risk factors, 12.9% (n = 11/85) and most had length of stay 0.05). Preliminary data suggest that most pediatric electrical burns are due to low voltage (< 300 V) household sources. Few have high risk factors or arrhythmias that were transient and nonfatal. These data suggest that low-risk, asymptomatic, low-voltage pediatric electrical burns may not require an initial screening EKG.

**Cardiorespiratory Capacity and Strength Remain Attenuated in Children with Severe Burn Injuries at Over 3 Years Postburn.**

**Author(s):** Cambiaso-Daniel, Janos; Rivas, Eric; Carson, Joshua S; Hundeshagen, Gabriel

**Source:** Journal of Pediatrics; Jan 2018; vol. 192 ; p. 152-158

**Publication Type(s):** Academic Journal

**Abstract:**Objectives: To compare physical capacity and body composition between children with burn injuries at approximately 4 years postburn and healthy, fit children.Study Design: In this retrospective, case-control study, we analyzed the strength, aerobic capacity, and body composition of children with severe burn injuries (n = 40) at discharge, after completion of a 6- to 12-week rehabilitative exercise training program, and at 3-4 years postburn. Values were expressed as a relative percentage of those in age- and sex-matched children for comparison (n = 40 for discharge and postexercise; n = 40 for 3.5 years postburn).Results: At discharge, lean body mass was 89% of that in children without burn injuries, and exercise rehabilitation restored this to 94% (P < .01). At 3.5 years postburn, lean body mass (94%), bone mineral content (89%), and bone mineral density (93%; each P ≤ .02) remained reduced, whereas total body fat was increased (148%, P = .01). Cardiorespiratory fitness remained lower in children with burn injuries both after exercise training (75%; P < .0001) and 3.5 years later (87%; P < .001). Peak torque (60%; P < .0001) and average power output (58%; P < .0001) were lower after discharge. Although exercise training improved these, they failed to reach levels achieved in healthy children without burns (83-84%; P < .0001) but were maintained at 85% and 82%, respectively, 3.5 years later (P < .0001).Conclusions: Although the benefits of rehabilitative exercise training on strength and cardiorespiratory capacity are maintained at almost 4 years postburn, they are not restored fully to the levels of healthy children. Although the underlying mechanism of this phenomenon remains elusive, these findings suggest that future development of continuous exercise rehabilitation interventions after discharge may further narrow the gap in relation to healthy adolescents.

**A histological analysis of artificial skin in an extensively burned child, 14 years after application: a case report.**

**Author(s):** Zajicek, Robert; Sticova, Eva; Königova, Radana

**Source:** Journal of Wound Care; Jan 2018; vol. 27 (no. 1); p. 14-17

**Publication Type(s):** Academic Journal

**Abstract:**Introduction: Artificial skin has become the treatment of choice in extensive, full-thickness thermal injuries. The longest follow-up of the healing process in burn sites covered with the Integra Bilayer Matrix Wound Dressing onto the wound published to date was at around five years after application. In our case report, we describe the clinical and histological analysis of an extensive, full-thickness thermal injury 14 years on from treatment with the bilayer matrix wound dressing. Case study: A nine-year-old boy suffered a full-thickness skin loss over 85% of his body surface area following a fire accident. The bilayer matrix wound dressing was used on both legs and covered almost 30% of his body surface area. Cosmetic and functional results were satisfactory. Histological analysis performed nine years after the application of the bilayer matrix wound dressing onto the wound showed a double-layered skin composition with changes in the fibrous component of the dermis. Conclusion: Despite satisfactory short- and long-term clinical results from applications of the bilayer matrix wound dressing, we found important differences in microstructure when compared with the physiological condition. Declaration of interest: The authors have no conflicts to declare.

**Projector-based virtual reality dome environment for procedural pain and anxiety in young children with burn injuries: A pilot study**

**Author(s):** Khadra C.; Ballard A.; Dery J.; LeMay S.; Paquin D.; Fortin J.-S.; Perreault I.; Labbe D.R.

**Source:** Journal of Pain Research; Feb 2018; vol. 11 ; p. 343-353

**Publication Type(s):** Article

Available at Journal of Pain Research - from Europe PubMed Central - Open Access

**Abstract:**Background: Virtual reality (VR) is a non-pharmacological method to distract from pain during painful procedures. However, it was never tested in young children with burn injuries undergoing wound care. Aim: We aimed to assess the feasibility and acceptability of the study process and the use of VR for procedural pain management. Methods: From June 2016 to January 2017, we recruited children from 2 months to 10 years of age with burn injuries requiring a

hydrotherapy session in a pediatric university teaching hospital in Montreal. Each child received the projector-based VR intervention in addition to the standard pharmacological treatment. Data on intervention and study feasibility and acceptability in addition to measures on pain (Face, Legs, Activity, Cry, Consolability scale), baseline (Modified Smith Scale) and procedural (Procedure Behavior Check List) anxiety, comfort (OCCEB-BECCO [behavioral observational scale of comfort level for child burn victims]), and sedation (Ramsay Sedation Scale) were collected before, during, and after the procedure. Data analyses included descriptive and non-parametric inferential statistics. Results: We recruited 15 children with a mean age of 2.2+/-2.1 years and a mean total body surface area of 5% (+/-4). Mean pain score during the procedure was low (2.9/10, +/-3), as was the discomfort level (2.9/10, +/-2.8). Most children were cooperative, oriented, and calm. Assessing anxiety was not feasible with our sample of participants. The prototype did not interfere with the procedure and was considered useful for procedural pain management by most health care professionals. Conclusion: The projector-based VR is a feasible and acceptable intervention for procedural pain management in young children with burn injuries. A larger trial with a control group is required to assess its efficacy. 

**Procalcitonin: Usefulness in Acute Care Surgery and Trauma**

**Author(s):** Parli S.E.; Woodworth A.; Trivedi G.; Chang P.K.

**Source:** Surgical Infections; 2018; vol. 19 (no. 2); p. 131-136

**Publication Type(s):** Article

**Abstract:**Background: Procalcitonin (PCT) is a serum biomarker currently suggested by the Surviving Sepsis Campaign to aid in determination of the appropriate duration of therapy in sepsis patients. We review the use of procalcitonin in patients after trauma or acute care surgery. Method: A MEDLINE search via PubMed was performed using the combination of "procalcitonin" and "humans" and "injuries, trauma,""wounds and injuries," or "wounds." Studies of burn patients, children, other biomarkers, and non-acute care surgery were excluded. Results: Procalcitonin may be useful in identifying infection in trauma and post-operative acute care surgery. However, heterogenity exists among patients, and surgery and trauma alone elevate PCT even in the absence of infection. Conclusions: Although trends in PCT concentrations may offer insight, no standard approach can be recommended currently. 

**Outcomes of post burn flexion contracture release under tourniquet versus tumescent technique in children**

**Author(s):** Bashir M.M.; Sohail M.; Wahab A.; Iqbal U.; Qayyum R.; Jan S.N.

**Source:** Burns; 2018

**Publication Type(s):** Article In Press

**Abstract:**Objective: To compare the clinical outcomes of release of flexion contractures after burn of the hand in children using tourniquet or tumescent technique in terms of operative time, postoperative pain score, and percentage of graft take. Methods: Patients aged 3 to 12 years who required release of post-burn flexion contractures involving volar aspect of palm and fingers were enrolled from outpatient clinic. Patients were randomized in 1:1 ratio to the use of either tumescent technique or tourniquet during contracture release. Duration of procedure, postoperative pain score, percentage of graft take, and any complications were assessed and analyzed in both groups by a blinded observer. Results: Of the 160 patients randomized in the study (80 in each group), 84 (52.5%) were males. The mean. +/-. SD age of participants was 7.84. +/-. 3.49 years, with no statistically significant difference in gender and age distribution between the groups. Similarly, there was no statistically significant difference in duration of surgery in both groups. However, there was a statistically significant difference in percentage of graft take at the 14th postoperative day; significantly more graft take was noted in the tumescent group (8.97. +/-. 3.7. cm vs. 7.26. +/-. 2.6. cm; P = 0.001). Mean analgesia consumed in the tumescent group was significantly less than that of

the tourniquet group (6.26. +/-. 1.9. mg vs. 9.41. +/-. 2.2. mg; P. <=. 0.001). Similarly, statistically significant difference in the mean FLACC pain score was noted, with remarkably low pain score in the tumescent group. Conclusion: We found that the use of the tumescent technique for the release of flexion contracture resulted in better graft take, lower pain scores, and lesser consumption of analgesic than the use of tourniquet. Copyright © 2017 Elsevier Ltd and ISBI.

**Staphylococcal scalded skin syndrome in a 4-year-old child: A case report**

**Author(s):** Haasnoot P.J.; De Vries A.

**Source:** Journal of Medical Case Reports; Jan 2018; vol. 12 (no. 1)

**Publication Type(s):** Article

Available at Journal of medical case reports - from PubMed Central

**Abstract:**Background: Staphylococcal scalded skin syndrome is an exfoliating skin disease which primarily affects children. Differential diagnosis includes toxic epidermal necrolysis, staphylococcal scalded skin syndrome, epidermolysis bullosa, and Stevens-Johnson syndrome. Staphylococcal scalded skin syndrome primarily affects children and can cause serious morbidity. Case presentation: In this case report we highlight the case of a 4-year-old Caucasian boy. Diagnostic and therapeutic challenges are discussed. Differential diagnoses are considered and therapy is described and discussed. The latest treatment options are used and described. Successful results are achieved in this case due to timely and correct management. Conclusions: Some therapeutic options are widely used without thorough research bases. This case report highlights staphylococcal scalded skin syndrome and its treatment, and future challenges. Further research is warranted and this case report aims to further research in exfoliating skin disorders. Copyright © 2018 The Author(s).

**Pediatric Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis Halted by Etanercept**

**Author(s):** Gavigan G.M.; Kanigsberg N.D.; Ramien M.L.

**Source:** Journal of Cutaneous Medicine and Surgery; Feb 2018

**Publication Type(s):** Article In Press

**Abstract:**We report a case of an 11-year-old female with Stevens-Johnson syndrome (SJS)/toxic epidermal necrolysis (TEN) overlap, most likely triggered by sulfamethoxazole-trimethoprim, who was treated with the combination of methylprednisolone, cyclosporine, and etanercept. Her condition stabilized and her skin involvement did not progress after the addition of etanercept. To our knowledge, this is the first report of etanercept for pediatric SJS/TEN. Copyright © 2018, The Author(s) 2018.

**Physical activity and sedentary behavior following pediatric burns - a preliminary investigation using objective activity monitoring**

**Author(s):** Akkerman M.; Niemeijer A.S.; Nieuwenhuis M.K.; Mouton L.J.; Disseldorp L.M.; van der Woude L.H.V.; van Brussel M.

**Source:** Experimental Hematology and Oncology; 2018; vol. 7 (no. 1)

**Publication Type(s):** Article

Available at BMC Sports Science, Medicine and Rehabilitation - from BioMed Central

**Abstract:**Background: Adequate levels of regular physical activity (PA) are crucial for health and well-being. Pediatric burn injuries can have major physiological consequences in both the short and long term. The question is whether these consequences affect post burn PA levels. This study therefore aimed to describe PA and sedentary behavior (SB) in children and adolescents 1-5 years after burn injury. Methods: Daily PA and SB were monitored in 20 children and adolescents (12 boys and 8 girls, aged 6-17 years, with burns covering 10-37% of total body surface area, 1-5 years post burn) for 1 week using the ActiGraph GTX3+ accelerometer. Activity counts were categorized into SB, light PA, moderate PA, vigorous PA, moderate-to-vigorous PA (MVPA), and total PA. Outcomes were compared with non-burned reference values and PA levels recommended by the World Health

Organization (WHO). Results: The participants spent about 5.1 h per day on total PA and 7.4 h on SB. Most of the active time (~ 83%) was categorized as light PA. Thirty-five percent of the group, especially the young boys, spent on average >= 60 min on MVPA per day. The boys, although with large interindividual differences, spent more time on MVPA than the girls ($p < .005$). Older age was associated with less PA time, while more time was spent sedentary. No trends were found indicating an effect of burn characteristics, time post burn, or length of hospital stay, and no differences were found with non-burned peers. Conclusion: Duration and intensity of PA and SB in children and adolescents 1-5 years after burn injury were similar to non-burned peers. However, only 35% of the group met the WHO physical activity recommendation. Given the increased long term risk for physical conditions following pediatric burns, physical activity should be encouraged in this vulnerable population. Trial registration: The study is registered in the National Academic Research and Collaborations Information System of the Netherlands (OND1348800). 

**Staphylococcal scalded skin syndrome: A pediatric dermatology case report**

**Author(s):** Meshram G.G.; Kaur N.; Hura K.S.

**Source:** SAGE Open Medical Case Reports; Jan 2018; vol. 6

**Publication Type(s):** Article

Available at SAGE open medical case reports - from PubMed Central

**Abstract:**Staphylococcal scalded skin syndrome is a condition which predominantly affects children and causes a spectrum of skin lesions. We present a case of a 2-month-old infant with complaints of fever and fragile blisters over the body. The mucosal areas were spared. The diagnosis of staphylococcal scalded skin syndrome was reached on clinical grounds and culture report. The patient responded well to the treatment, which included an antibiotic (cloxacillin), an analgesic (paracetamol), and hydration with intravenous fluids. He was discharged after 8 days, with almost complete resolution of his skin lesions. Having a high clinical suspicion for staphylococcal scalded skin syndrome, early diagnosis/treatment, and following robust hygiene measures are imperative for the effective management of staphylococcal scalded skin syndrome. More efforts are needed to develop novel therapies for staphylococcal scalded skin syndrome. Copyright © The Author(s) 2018.

**Ocular Injury due to Potassium Permanganate Granules**

**Author(s):** Chirapapaisan C.; Prabhasawat P.; Srivannaboon S.; Roongpoovapatr V.

**Source:** Case Reports in Ophthalmology; Feb 2018 ; p. 132-137

**Publication Type(s):** Article In Press

Available at Case Reports in Ophthalmology - from Europe PubMed Central - Open Access

**Abstract:**Purpose: We report a rare case of ocular injury due to potassium permanganate ($KMnO_4$) granules in a child. Methods: This is a retrospective case report. Results: A 2-year-old boy was transferred to our emergency room with severe pain in his right eye, inflamed eyelids, and brownish stains on his fingers. Chemical injury was suspected. Copious eye irrigation was immediately performed. Diffuse brownish splotches were then observed at the inferior bulbar conjunctiva. Otherwise, systemic organs were intact. Complete eye exam under general anesthesia revealed a 5-mm epithelial defect at the central cornea, along with generalized conjunctival injection and limbal ischemia, inferiorly. Multiple semi-dissolved granules of $KMnO_4$ trapped in the inferior fornix were identified. The chemical particles were gradually washed out and removed; however, the brownish stains remained. The patient received preservative-free steroid, antibiotic eye drops, and lubricants as regular management for mild to moderate degree of ocular burn. Pseudomembrane developed early and transformed into symblepharon within a few days after the injury. Membrane adhesion was lysed, and more aggressive medications were then substituted. Commercial amniotic membrane (PROKERA) was also applied to promote wound healing and to prevent recurrence of symblepharon.

The ocular surface was eventually restored, and corneal transparency was preserved. Conclusion: Ocular injury with the granular form of KMnO4 is rare. Its toxicity is comparable to concentrated KMnO4 solution. However, the dissolved particles that had been absorbed in the stained conjunctiva were continuously released and damaged the ocular surface more than we primarily anticipated. Awareness of this condition and prompt management yield a good treatment outcome. 

**Children with severe burns display no sex differences in exercise capacity at hospital discharge or adaptation after exercise rehabilitation training**

**Author(s):** Rivas E.; Herndon D.N.; Chapa M.L.; Cambiaso-Daniel J.; Rontoyanni V.G.; Gutierrez I.L.; Sanchez K.; Glover S.; Suman O.E.

**Publication Date:** 2018

**Publication Type(s):** Article In Press

**Abstract:**Background and objective: Females have a 50% increased risk of death from burn injury compared to males. However, whether exercise capacity and exercise induced training adaptations differ between burned boys and girls is unknown. This project tested the hypothesis that girls with burns have lower exercise capacity and different exercise induced training adaptations. Methods: Twenty-five girls were matched to 26 boys (mean, 95%CI; years 13 [12,14], cm 151 [143,161], kg 54 [45,63]; each P> 0.05) for burn injury (% total body surface area burn, 54 [45,62]; P =0.82). Lean body mass (LBM), strength (peak torque) and cardiorespiratory fitness (peak VO2) were normalized to kg LBM and compared as a percentage of age-sex matched non-burned children (n=26 boys, years 13 [12,14]; n=25 girls, years 13 [12,14]) at discharge (DC) and after aerobic and resistance rehabilitation exercise training (RET). Results: Using a 2-way factorial ANOVA (groupxtime), we found both groups had similar 11% change in LBM (87.3% of non-burned values [82.2,92.3]) and after the RET (92.8% [87.2,98.3]; main effect, time P< 0.0001). Peak torque increased similarly by 16% in both groups (% of age-sex matched non-burned DC, 55.9 [51.3,60.5]; after RET, 77.5 [72.1,82.9]; main effect, time P< 0.0001). Likewise, peak VO2 increased in both groups by 15% (% of age-sex matched non-burned DC, 56.8 [52.4,61.2] to RET, 72.2 [67.6,76.8]; main effect, time; P <0.0001). Burned children exercise at greater percentage of their peak VO2 and peak HR compared to non-burned children (Interaction, groupxtime, P <0.0001). Conclusion: The burn injury does not have sex-dependent effects on LBM or exercise capacity in severely burn injured children. Differences in relative peak VO2 and peak HR suggest the need for burn specific exercise programs for improving the efficacy of a rehabilitation program. Copyright © 2018 Elsevier Ltd and ISBI.

**Therapeutic effects of simvastatin combined with kallistatin treatment for pediatric burn patients with sepsis**

**Author(s):** Dai Y.; Zhao X.

**Source:** Experimental and Therapeutic Medicine; Mar 2018; vol. 15 (no. 3); p. 3080-3087

**Publication Type(s):** Article

**Abstract:**The aim of the present study was to examine the combined efficacy of simvastatin and kallistatin treatment for pediatric burn sepsis. A total of 72 pediatric patients with burn sepsis were recruited and randomly divided into 3 groups, receiving simvastatin (40 mg/day), kallistatin (20 mg/day) or combined treatment. ELISA, reverse transcription-quantitative polymerase chain reaction, western blotting and flow cytometry were used to analyze the therapeutic effects of simvastatin and kallistatin. The results revealed that combined treatment in pediatric burn sepsis patients decreased the inflammatory cytokine tumor necrosis factor alpha and interleukin (IL)-1beta serum levels, whereas it increased IL-10 and human leukocyte antigen-D related levels. In addition, administration of combined simvastatin and kallistatin decreased the blood urea nitrogen and serum creatinine levels in the patients. It was also demonstrated that Toll-like receptor 4 expression on the surface of monocytes was markedly decreased, while suppressor of cytokine signaling-3 expression

was increased in the combined treatment group as compared with the kallistatin or simvastatin treatment alone. Combined treatment also promoted human endothelial cell (HEC) growth compared with the single treatment groups and inhibited the high mobility group box-1 (HMGB1) levels, HMGB1-induced nuclear factor-kappaB activation and inflammatory gene expression levels in these cells. The study further demonstrated that combined treatment significantly decreased HEC apoptosis through the upregulation of B-cell lymphoma 2 (Bcl-2) and P53 expression levels, as well as downregulation of Bcl-2-associated X protein and caspase-3 levels. In conclusion, these observations indicated that combined treatment with simvastatin and kallistatin inhibited HEC apoptosis, which may be a potential therapeutic strategy for the treatment of pediatric burn sepsis patients. 

**Molecular characterization of carbapenem-resistant acinetobacter baumannii isolated from pediatric burns patients in an Iranian hospital**

**Author(s):** Pournajaf A.; Razavi S.; Solgi S.; Irajian G.; Rajabnia R.; Yahyapour Y.; Ardebili A.;

**Source:** Tropical Journal of Pharmaceutical Research; Jan 2018; vol. 17 (no. 1); p. 135-141

**Publication Type(s):** Article

**Abstract:**Purpose: To survey the molecular characteristics of imipenem-resistant Acinetobacter baumannii obtained from pediatric burns patients in a teaching hospital in Tehran, Iran. Methods: Over a 10-month period, 73 non-duplicate A. baumannii strains were collected from pediatric burns patients admitted to Motahari Burn and Reconstruction Center, Tehran, Iran. The resistance profile of several antimicrobials was determined. Metallo-beta-lactamase (MBL)-producing isolates were identified using double-disk synergy and an MBL E-test. Polymerase chain reaction (PCR) was carried out to detect the following beta-lactamase-encoding elements: blaVIM, blaIMP, blaSIM, blaSPM, blaGIM, blaNDM, blaAIM, blaDIM, blaKPC, blaOXA-23/24/51, and blaOXA-58. The types of integrons were also identified using PCR. Results: Out of the 73 collected strains, 92.4 and 38.3 % of the isolates were multidrug-resistant (MDR) and extensively drug-resistant (XDR), respectively. Colistin was the most effective antibiotic. It was found that 94.5 % of the strains were resistant to imipenem, as determined both by disk agar diffusion and MIC E-test methods. Based on double disk synergy and E-test, 78.1 and 83.5 % of the isolates, respectively, were MBL producers. The prevalence of blaOXA-23 and blaOXA-24 were 75.4 and 39.1 %, respectively. The results also indicate that 62.3, 30.4, and 4.3 % of the isolates were positive for blaVIM, blaIMP and blaNDM genes, respectively. Furthermore, 16.4, 76.1, and 7.5 % of the isolates carried intI, intII, and intIII genes, respectively. Conclusion: The increased frequency of carbapenem-resistant A. baumannii in burns cases underlines the importance of choosing an appropriate antibacterial regimen based on antibiotic susceptibility profile. Rapid identification of carbapenemase-producing strains would be helpful for selecting suitable antimicrobial therapy and preventing further spread of their encoding genes. Copyright © Pharmacotherapy Group, Faculty of Pharmacy, University of Benin, Benin City, 300001 Nigeria.

**Cutaneous Scarring: Basic Science, Current Treatments, and Future Directions**

**Author(s):** Marshall C.D.; Hu M.S.; Leavitt T.; Barnes L.A.; Lorenz H.P.; Longaker M.T.

**Source:** Advances in Wound Care; Feb 2018; vol. 7 (no. 2); p. 29-45

**Publication Type(s):** Review

Available at Advances in wound care - from PubMed Central

**Abstract:**Significance: Scarring of the skin from burns, surgery, and injury constitutes a major burden on the healthcare system. Patients affected by major scars, particularly children, suffer from long-term functional and psychological problems. Recent Advances: Scarring in humans is the end result of the wound healing process, which has evolved to rapidly repair injuries. Wound healing and scar formation are well described on the cellular and molecular levels, but truly effective molecular or cell-based antiscarring treatments still do not exist. Recent discoveries have clarified the role of skin

stem cells and fibroblasts in the regeneration of injuries and formation of scar. Critical Issues: It will be important to show that new advances in the stem cell and fibroblast biology of scarring can be translated into therapies that prevent and reduce scarring in humans without major side effects. Future Directions: Novel therapies involving the use of purified human cells as well as agents that target specific cells and modulate the immune response to injury are currently undergoing testing. In the basic science realm, researchers continue to refine our understanding of the role that particular cell types play in the development of scar. 

**An outbreak of skin infections in neonates due to a Staphylococcus aureus strain producing the exfoliative toxin A**

**Author(s):** Pimentel de Araujo F.; Pantosti A.; Monaco M.; Tinelli M.; Battisti A.; Ercoli A.; Anesi A.

**Source:** Infection; Feb 2018; vol. 46 (no. 1); p. 49-54

**Publication Type(s):** Article

**Abstract:**Purpose: Staphylococcus aureus is an important cause of infections in hospitalized neonates. Preterm or low birthweight infants are especially at risk to develop a S. aureus infection due to the immaturity of the immune system, length of hospital stay and invasive procedures. Exfoliative toxin (ET)-producing S. aureus is often responsible for neonatal infections, causing clinical manifestations such as staphylococcal scalded skin syndrome, characterized by both localized blisters or generalized exfoliation of the skin. Methods: We describe an outbreak due to an S. aureus strain producing ETA occurring in a local hospital in Northern Italy. Molecular typing of the isolates included spa typing and multilocus sequence typing. DNA microarray hybridization was also performed on one representative strain. Results: In the period from July 2013 to February 2014, 12 neonates presented with skin infections, mainly bullae or pustules. Cultures of skin swabs yielded methicillin-susceptible S. aureus (MSSA). By molecular typing, an epidemic strain (t1393/ST5) was identified in nine neonates; microarray analysis and PCR revealed that it contained the ETA encoding gene. Screening of staff, mothers and healthy neonates and environmental cultures did not reveal the presence of the epidemic strain. However, the father of an infected neonate was found to be a carrier of MSSA t1393 five months after the outbreak started. Conclusion: Implementation of hygiene procedures and sanitization of the ward twice terminated the outbreak. Timely surveillance of infections, supported by molecular typing, is fundamental to prevent similar episodes among neonates. Copyright © 2017, Springer-Verlag GmbH Germany.

**Can live music therapy reduce distress and pain in children with burns after wound care procedures? A randomized controlled trial**

**Author(s):** van der Heijden M.J.E.; Jeekel J.; Rode H.; Cox S.; van Dijk M.; van Rosmalen J.; Hunink M.G.M.

**Publication Type(s):** Article In Press

**Abstract:**Objective: Burn wound care procedures are very painful and lead to distress. Live music therapy has shown beneficial effects on distress and pain in specific pediatric patient populations. In this study we measured whether live music therapy has beneficial effects in terms of less distress and pain in children with burns after wound care procedures. Methods: This randomized assessor-blinded controlled trial (RCT) took place at the burns unit of the Red Cross War Memorial Children's Hospital, Cape Town, South Africa. It included newly admitted inpatients between the ages of 0 and 13 years undergoing their first or second wound care procedures. Excluded were children with a hearing impairment or low level of consciousness. The intervention group received one live music therapy session directly after wound care in addition to standard care. The control group received standard care only. The primary outcome was distress measured with the Observational Scale of Behavioral Distress-revised (OSBD-r). The secondary outcome was pain measured with the COMFORT-behavioral scale (COMFORT-B). In addition, in children older than 5 years self-reported distress with the validated Wong-Baker scale (FACES) and pain with the Faces Pain Scale-Revised

(FPS-R) were measured. Patients in both groups were videotaped for three minutes before wound care; during the music therapy or the control condition; and for two minutes thereafter. Two researchers, blinded to the study condition, independently scored the OSBD-r and the COMFORT-B from the video footage before and after music therapy. Results: We included 135 patients, median age 22.6 months (IQR 15.4-40.7 months). Change scores did not significantly differ between the intervention and the control groups for either distress (p = 0.53; d = 0.11; 95% CI -0.23 to 0.45) or pain (p = 0.99; d = 0.04; 95% CI -0.30 to 0.38). Self-reported distress in a small group of children (n = 18) older than 5 years indicated a significant reduction in distress after live music therapy (p = 0.05). Conclusions: Live music therapy was not found effective in reducing distress and pain in young children after burn wound care. Older children might be more responsive to this intervention. 

**Matrix metalloproteinase-2 and its correlation with basal membrane components laminin-5 and collagen type IV in paediatric burn patients measured with Surface Plasmon Resonance Imaging (SPRI) biosensors**

**Author(s):** Weremijewicz A.; Matuszczak E.; Komarowska M.; Debek W.; Hermanowicz A.; Sankiewicz A.; Tokarzewicz A.; Gorodkiewicz E.; Tylicka M.

**Source:** Burns; 2018

**Publication Type(s):** Article In Press

**Abstract:**The purpose of this study was the determination of matrix metalloproteinase-2 and its correlation with basal membrane components laminin-5 and collagen type IV in the blood plasma of burn patients measured with Surface Plasmon Resonance Imaging (SPRI) biosensors. Material and methods: 31 children scalded by hot water who were managed at the Department of Paediatric Surgery between 2014-2015, after primarily presenting with burns in 4-20% TBSA were included into the study (age 9 months up to 14 years, mean age 2,5 + 1 years). There were 10 girls and 21 boys. Venous blood samples were drawn 2-6. h, and 12-16. h after the thermal injury, and on the subsequent days 3, 5 and 7. The matrix metalloproteinase-2, collagen type IV and laminin-5 concentrations were assessed using Surface Plasmon Resonance Imaging by the investigators blinded to the other data. Results: The MMP-2, laminin-5 and collagen type IV concentrations in the blood plasma of patients with burns, were highest 12-16. h after thermal injury, the difference was statistically significant. The MMP-2, laminin-5 and collagen type IV concentrations measured 3 days, 5 days and 7 days after the thermal injury, slowly decreased over time, and on the 7th day reached the normal range, when compared with the concentration measured in controls. Conclusion: Current work is the first follow-up study regarding MMP-2 in burns. MMP-2, laminin-5 and collagen type IV levels were elevated early after burn injury in the plasma of studied patients, and were highest 12-16. h after the injury. MMP-2, laminin-5 and collagen type IV levels were not proportional to the severity of the burn. We believe in the possibility that the gradual decrease of MMP-2, collagen type IV and laminin-5 concentrations could be connected with the process of healing, but to prove it, more investigation is needed in this area. The SPR imaging biosensor is a good diagnostic tool for determination of MMP-2, laminin-5 and collagen type IV in blood plasma of patients with burns. 

**Intranasal fentanyl. An effective analgesic for minor burns dressing change/ debridement in children**

**Author(s):** Duraisamy K.; Eden-Green B.; Pickles E.; Milne L.

**Source:** Anaesthesia; Jan 2018; vol. 73 ; p. 18

**Publication Type(s):** Conference Abstract

**Abstract:**Every year in England and Wales around 3750 under 15s are admitted to hospital with burn and scald injuries*. These are extremely painful, made worse by the need to change dressings frequently to prevent infection and aid healing. Intranasal fentanyl has been shown to be equivalent

to oral morphine in the provision of analgesia for burn wound dressing changes in children [1, 2]. Fentanyl is a potent opioid, with rapid onset and shorter duration of action and minimal side-effects which allow rapid resumption of activities and oral intake Methods All children with minor burns (> 1%) undergoing burns dressing change outside the operating room were considered for the study. This included children who needed minor debridement of the burn wound along with dressing change. Children who had known hypersensitivity to fentanyl, altered consciousness/decreased GCS, < 1 year of age or weighing less than 10 kg, epistaxis/bilateral occluded nasal passage and those who had any form of opioid in the last 2 h were excluded. Ethics committee approval was obtained. Verbal consent from parents/guardian was obtained. Baseline pulse rate, SpO2, respiratory rate, and pain score were monitored and documented. Pain score was evaluated using a visual analogue pain scale/Wong-Baker FACES pain scale. Intranasal fentanyl 1.5 mcg.kg was administered using a syringe and mucosal atomiser device (maximum dose 75 mcg - all children 50 kg and above). Visual analogue pain scores/FACES scale were assessed 5 and 30 min following procedure. Respiratory rate, SpO2, and pulse rate were monitored intermittently for 30 min following the procedure. Level of parental and nursing satisfaction was evaluated 1 h following the procedure. Results Twenty-one children were initially included in the study. One child was very anxious and did not tolerate the mode of fentanyl delivery and was thus excluded. Age group ranged between 15 months to 16 years, and children weighing 10.6 kg to 48 kg. Of the parents and nurses (who did the burns dressing change/debridement), 85% and 80% were very satisfied, respectively. None of the children had desaturation or decreased respiratory rate of clinical relevance. One child had nausea which settled spontaneously. Discussion Intranasal fentanyl has been proved to be an effective alternative to oral morphine for burns dressing change. Quicker onset and potent analgesia made its use an attractive alternative among parents and nurses in our study.

**The value of WhatsApp communication in paediatric burn care**

**Author(s):** Martinez R.; Numanoglu A.; Rode H.; Rogers A.D.

**Source:** Burns; 2018

**Publication Type(s):** Article In Press

**Abstract:**Background: Telemedicine is increasingly applied in developed settings to facilitate transfer of information to and from burn surgeons across vast geographic areas. WhatsApp is a widely available and extremely user-friendly encrypted smartphone application that does not require the expensive physical and personnel infrastructure that characterizes many of these telemedicine systems. The aim of this study was to review the use of WhatsApp to facilitate paediatric burn injury consultations to a regional burn centre in a developing country, where burn care continues to be thwarted by administrative apathy, poor resource allocation and lack of attention to medical and nursing education at all levels. Methods: A retrospective review was undertaken of all consultations using WhatsApp over an 18-month period, received by the burn centre's two senior medical practitioners. The specific origin and nature of the telemedicine requests for advice, transfer or follow-up were collected, as were data relating to the demographics of the patients, the aetiology, mechanism and extent of the burn injury. The impact of the system of communication in terms of reductions in admissions and clinic visits was assessed, and a cost analysis was undertaken. Feedback was also obtained from those health practitioners regularly using the service. Results: 838 communications occurred during the study period, which included 1562 distinct clinical queries. 486 interactions (58%) originated from within the hospital, the majority of which were initiated by surgeons in training or burn nurse practitioners. 352 (42%) consultations were from outside the hospital. Queries related to the full spectrum of burn care, including emergency management and stabilization, triage and transfer, the need for escharotomy, fluid resuscitation, wound care, the timing and nature of surgical intervention, as well as follow-up and rehabilitation.While no significant changes in the number of surgical interventions or admissions were observed when compared to the five years prior to the intervention, outpatient visits reduced significantly during the study period. It was estimated that over 150 unnecessary admissions were also avoided as a result of the triage made possible by WhatsApp, which translated into considerable cost saving for

the institution. Discussion: Incorporating WhatsApp technology into the daily processes of burn care has significantly improved the quality of paediatric burn care referrals to specialist burn services. Specifically, WhatsApp has contributed to reductions in unnecessary referrals and outpatient visits, facilitated opportunities for continuing medical education, improved the care of major burn injuries through more effective prehospital communication, and enabled greater allocation of scarce specialist resources at the burn centre. This study motivates for the wider application of WhatsApp for burn care referrals, especially in developing countries. 

**Clinical and molecular epidemiology of staphylococcal toxic shock syndrome in the United Kingdom**

**Author(s):** Sharma H.; Smith D.; Turner C.E.; Sriskandan S.; Game L.; Pichon B.; Hope R.; Hill R.

**Source:** Emerging Infectious Diseases; Feb 2018; vol. 24 (no. 2); p. 258-266

**Publication Type(s):** Article



**Abstract:**Staphylococcal toxic shock syndrome (TSS) was originally described in menstruating women and linked to TSS toxin 1 (TSST-1)-producing Staphylococcus aureus. Using UK national surveillance data, we ascertained clinical, molecular and superantigenic characteristics of TSS cases. Average annual TSS incidence was 0.07/100,000 population. Patients with nonmenstrual TSS were younger than those with menstrual cases but had the same mortality rate. Children <=16 years of age accounted for 39% of TSS cases, most caused by burns and skin and soft tissue infections. Nonmenstrual TSS is now more common than menstrual TSS in the UK, although both types are strongly associated with the tst+clonal complex (CC) 30 methicillin-sensitive S. aureus lineage, which accounted for 49.4% of all TSS and produced more TSST-1 and superantigen bioactivity than did tst+ CC30 methicillin-resistant S. aureus strains. Better understanding of this MSSA lineage and infections in children could focus interventions to prevent TSS in the future. 

**Epidemiology of staphylococcal scalded skin syndrome in U.S. children**

**Author(s):** Staiman A.; Hsu D.Y.; Silverberg J.I.

**Source:** British Journal of Dermatology; 2018

**Publication Type(s):** Article In Press

**Abstract:**Background: Staphylococcal scalded skin syndrome (SSSS) is a blistering dermatosis caused by exfoliative toxins released from Staphylococcus aureus. Objectives: To describe the incidence, costs, length of stay (LOS), comorbidities and mortality of SSSS in U.S. children. Methods: The Nationwide Inpatient Sample 2008-2012 was analysed, including a 20% sample of U.S. hospitalizations and 589 cases of SSSS. Results: The mean annual incidence of SSSS was 7.67 (range 1.83-11.88) per million U.S. children, with 45.1 cases per million U.S. infants age < 2 years. In multivariable logistic regression models, SSSS was significantly associated with the following (shown as adjusted odds ratio and 95% confidence interval): female sex (1.12, 1.00-1.25), age (2-5 years: 13.31, 11.82-14.99; 6-10 years: 2.93, 2.35-3.66; 11-17 years: 0.44, 0.31-0.63); race/ethnicity (black: 0.69, 0.58-0.84) and season (winter: 2.04, 1.66-2.50; summer: 3.47, 2.86-4.22; autumn: 3.04, 2.49-3.70), with increasing odds over time (2010-2011: 2.28, 2.07-2.51; 2012: 2.98, 2.69-3.30). The geometric mean (95% confidence interval) LOS and cost of hospitalization for patients with vs. without SSSS were 3.2 (3.0-3.4) vs. 2.4 (2.4-2.5) days and $4624.0 ($4250-$5030) vs. $1872 ($1782.7-$1965). Crude inpatient mortality rates (with 95% confidence intervals) were similar for children with vs. without SSSS (0.33%, 0.00-0.79% vs. 0.36%, 0.34-0.39%). SSSS was associated with other infections, including in the upper respiratory tract and skin. Conclusions: The prevalence of SSSS appears to be increasing over time, and was associated with a number of sociodemographic factors and other infections. Further studies are needed to confirm these findings and reduce rising rates of SSSS. 

**Button battery ingestion in children-A potentially catastrophic event of which all radiologists must be aware**

**Author(s):** Semple T.; Calder A.D.; Ramaswamy M.; Mchugh K.

**Source:** British Journal of Radiology; 2018; vol. 91 (no. 1081)

**Publication Type(s):** Review

**Abstract:**Foreign body ingestion is common in infants and young children and can cause numerous complications, mainly if ingested and left in place for prolonged periods. In recent years, particular dangers, specifically from ingested button batteries, have become increasingly recognized as a public health issue. Of particular note is the rapid onset of full thickness burns and oesophageal perforation which may occur within as little as 2 h following the ingestion of button batteries. The aim of this review is twofold: (1) to increase awareness of the need for rapid action from radiologists, emergency care physicians and paediatricians on identifying a button battery impacted within the oesophagus, and (2) to review the imaging appearances that can distinguish button batteries from other similar appearing foreign bodies, most notably coins. Copyright © 2018 The Authors.

**Evaluation of high-dose ascorbic acid in thermal injury**

**Author(s):** Allen S.; Prazak A.M.; Lewis G.; Cochran A.

**Source:** Critical Care Medicine; Jan 2018; vol. 46 ; p. 772

**Publication Type(s):** Conference Abstract

Available at Critical Care Medicine - from Ovid (Journals @ Ovid)

**Abstract:**Learning Objectives: Burns > 20% total body surface area (TBSA) are associated with hypovolemic shock and release of inflammatory mediators, which can lead to production of reactive oxygen species that propagate shock by increased vascular permeability. Aggressive fluid resuscitation is paramount to minimize end organ damage in severe burns. Fluid resuscitation is initiated based on burn size with Lactated Ringer's solution (LR) and titrated to a goal urine output (UOP) of 30-50 mL/hr. At the University of Utah Burn Center, albumin is added at a ratio of 1/3 albumin to 2/3 LR if UOP goals are not met. High-dose ascorbic acid (AA) may also be added if patients are failing resuscitation. Ascorbic acid is a free radical scavenger that may reduce vascular permeability by inactivating reactive oxygen species. Despite reported benefits of AA during resuscitation, concerns for osmotic diuresis and risk for renal injury have limited widespread use in burn centers. Methods: We conducted a case-control study to analyze the impact of AA in reducing fluid requirements and the risk for renal injury during the first 24 hours of resuscitation. All-cause mortality was assessed as a secondary outcome. All adult and pediatric patients admitted between 2008 and 2016 with an order for high-dose AA were evaluated for inclusion. Results: Sixty-two patients were included, with 31 in both AA and control groups. Patients were matched based on age (2-77 years), burn size (18-91%), inhalation injury (52% and 39%), and gender (56% male). There were no statistical differences in the baseline characteristics. Average 24-hour fluid resuscitation was 5.9 +/- 2.9 mL/kg/%TBSA for AA and 5.1 +/- 2.7 mL/ kg/%TBSA for control (P = 0.16). Ten AA patients and 5 control patients developed renal injury (P = 0.24). There were no differences in all-cause mortality, and 8 patients in each group expired during the study time period. Conclusions: Adjunctive use of AA did not reduce fluid resuscitation or increase the risk for renal injury in the first 24 hours of resuscitation. Additionally, there were no differences in mortality between the AA or control groups.

**Nitroglycerin: An unusual solution to intraoperative hypothermia in a 4-year-old burn patient**

**Author(s):** Goenaga Diaz E.J.; Templeton T.W.; Carter J.E.

**Source:** Paediatric Anaesthesia; Jan 2018; vol. 28 (no. 1); p. 71-72

**Publication Type(s):** Article

Available at Pediatric Anesthesia - from Ovid (Journals @ Ovid)

**Abstract:**We describe the case of a 4-year-old child undergoing extensive burn surgery with refractory intraoperative hypothermia. A low-dose nitroglycerin infusion was initiated to reverse vasoconstriction and improve heat absorption, after which the child's temperature steadily improved. In hypothermic burn patients, topical vasoconstrictors may hinder surface warming efforts. A vasodilator infusion may aid in warming the pediatric patient undergoing extensive excision and grafting. Copyright © 2017 John Wiley & Sons Ltd

**Parents' perceived quality of pediatric burn care**

**Author(s):** Willebrand M.; Sveen J.; Sjoberg F.; Huss F.

**Source:** Journal of Critical Care; Feb 2018; vol. 43 ; p. 256-259

**Publication Type(s):** Article

**Abstract:**Purpose To describe parents' perceived quality of pediatric burn care and evaluate factors associated with differences in perceived quality among parents. Methods 62 parents of children with burns were recruited on a Swedish national basis 0.8 to 5.6 years after the child's injury. Measures were an adaptation of the Quality of Care Indices - Parent questionnaire consisting of 8 subscales and one overall question, the Impact of Event Scale -Revised, Montgomery Asberg Depression Rating Scale, and Injury-specific fear-avoidance. Results Ratings of quality of care were high, especially regarding Staff Attitudes, Medical Treatment, and Caring Processes. Overall satisfaction rated from 1 to 10 was on average 9.1 (SD = 1.2). Overall satisfaction and specific indices of Quality of care were not associated with burn severity, parent gender, or parent age. However, Quality of care was associated with current symptoms of posttraumatic stress and depression, and parents of girls expressed being less satisfied with Participation. Conclusions Parents' perceived quality of care is associated with psychological health, but not with characteristics of the child's injury or age. The results suggest that burn care can improve by involving parents of girls more and by being more attentive towards parents who themselves appear stressed or worried. Copyright © 2017 The Authors

**Fifty Years of Burn Care at Shriners Hospitals for Children, Galveston.**

**Author(s):** Čapek, Karel D; Culnan, Derek M; Desai, Manubhai H; Herndon, David N

**Source:** Annals of plastic surgery; Mar 2018; vol. 80 (no. 3)

**Publication Type(s):** Journal Article

**Abstract:**More than 50 years ago, Shriners Hospitals for Children expanded their philanthropy to include care for burned children. In so doing, the effects of their work weightily expanded from rehabilitation and quality of life outcomes to include survival proper. As the first facility dedicated to the care of burned children, originally designated the Shriners Burn Institute, the Galveston hospital remains the cornerstone of this endeavor. Shriners maintains charitable pediatric hospitals, provide care irrespective of the patient's or the family's ability to pay, and promote research. The sole criterion for admission at Shriners Hospitals for Children is the determination by a surgeon at a Shriners hospital that "the child's trouble may be corrected or improved." This philanthropic effort to provide medical care for children is one expression of the human commonality recognized by Shriners. In this article, we provide some background information on how this hospital came into existence as well as a global summary of its interventions toward greater survival and more complete rehabilitation of burned children. Based on the findings presented herein, we assert that there is less suffering and less loss of life due to childhood burns today than in previous years. We attribute much of this improvement to the simple voluntary collective decision by Shriners to provide alms for burned children.

**A Rare Case of Anal and Perianal Chemical Burn in a Child due to Potassium Permanganate Crystals.**

**Author(s):** Dash, Suvashis; Bhojani, Jatin; Sharma, Sharadendu

**Source:** Drug safety - case reports; Feb 2018; vol. 5 (no. 1); p. 10

**Publication Type(s):** Journal Article

Available at Drug Safety - Case Reports - from PubMed Central

**Abstract:**Many chemicals used as medical treatments can cause chemical burns as an untoward side effect. One of such chemicals is potassium permanganate. It is a caustic chemical used as a disinfectant. The most common sites of burn by potassium permanganate are exposed sites like the face and hands. Chemical burns in the perianal and anal region are rare in clinical practice and even sparser in the pediatric age group. In this article, we report a case of perianal and anal chemical burn in an 18-month-old, male child, caused by potassium permanganate crystal applied wrongly for the treatment of pinworm infestation. As a chemical burn in this region can have serious complications, it is necessary to be vigilant when using such chemicals in these cases. Early and timely management in such cases leads to good outcomes. This is the first of such cases of chemical burn caused by potassium permanganate in the anal and perianal region.

**Emergency department management of patients with thermal burns.**

**Author(s):** Tolles, Juliana

**Source:** Emergency medicine practice; Feb 2018; vol. 20 (no. 2); p. 1-24

**Publication Type(s):** Journal Article

**Abstract:**Thermal burn injuries are a significant cause of morbidity and mortality worldwide. In addition to treatment of the burns, emergency clinicians must assess for inhalation injury, exposure to toxic gases, and related traumatic injuries. Priorities for emergency resuscitation include stabilization of airway and breathing, intravenous fluid administration, pain control, and local wound care. Special populations, including children and pregnant women, require additional treatment considerations. Referral to specialized burn care for select patients is necessary to improve long-term outcomes. This article reviews thermal burn classification and evidence-based treatment strategies.

**Osteomyelitis in burn children: Ten years of experience.**

**Author(s):** Rosanova, María T; Voto, Carla; Carnovale, Susana; Tramonti, Nidia; Lema, Jimena

**Source:** Archivos argentinos de pediatria; Feb 2018; vol. 116 (no. 1); p. 59-61

**Publication Type(s):** Journal Article

**Abstract:**INTRODUCTIONOsteomyelitis is uncommon among burn patients.OBJECTIVETo describe the clinical, microbiological, and evolutionary characteristics of burn children with osteomyelitis hospitalized in a tertiary care facility.METHODSRetrospective and descriptive study conducted between January 2007 and January 2017.RESULTSOut of 600 burn children, 12 developed osteomyelitis (incidence: 2%). Eleven patients had a burn caused by direct fire. Patients' median age was 42.5 months (interquartile range [IQR]: 27-118 months), and their median burned surface area was 33.5% (IQR: 18.5-58%). Osteomyelitis was diagnosed at a median period of 30 days following the burn injury. The most common locations were the upper limbs and the cranial vault. Fever was the most frequent clinical manifestation. The most common microorganisms isolated in bone tissue were fungi in 9 patients. All showed compatible anatomopathological findings. The treatment lasted a median of 44.5 days (IQR: 34.5-65.5 days). Six patients had motor sequelae and 1 died.CONCLUSIONFungal osteomyelitis was the most commonly observed etiology. Half of patients had functional sequelae and only 1 patient died.

**Survey of Nonprescription Medication and Antibiotic Use in Patients with Stevens-Johnson Syndrome, Toxic Epidermal Necrolysis, and Overlap Syndrome.**

**Author(s):** Sullivan, Katherine J; Jeffres, Meghan N; Dellavalle, Robert P; Valuck, Robert

**Source:** Antibiotics (Basel, Switzerland); Feb 2018; vol. 7 (no. 1)

**Publication Type(s):** Journal Article

Available at Antibiotics - from Europe PubMed Central - Open Access

**Abstract:**Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and overlap syndrome (SJS-TEN) are rare, serious skin and mucosa break-down conditions frequently associated with antibiotic use. The role of nonprescription medications alone, or in combination with antibiotics in triggering SJS/TEN, is largely unknown. This study summarized data collected from patient surveys about nonprescription and antibiotic use prior to a SJS/TEN diagnosis. The survey was administered online to members of the U.S. SJS Foundation who had been diagnosed with SJS/TEN or were the parent of a child who had been diagnosed with SJS/TEN. Respondents were asked about nonprescription medications taken within the year before diagnosis, and the approximate point in time before diagnosis that they had taken them. They were also asked about specific prescription medications, including antibiotics, that they took before diagnosis. An estimated 4500 patients received an invitation to complete the survey. 251 patients completed it, resulting in a response rate of 5.6%. The mean age of respondents was 43 years (SD (standard deviation) = 17.3) and 70% were female. 32.3% of respondents indicated that a prescription antibiotic triggered their reaction. 14.1% indicated a nonprescription medication had triggered their SJS/TEN, and 18.1% said a nonprescription medication may have triggered their SJS/TEN. 85.5% of respondents said they took a nonprescription medication within three months of their SJS/TEN diagnosis. Of those respondents who reported that an antibiotic triggered their SJS/TEN, 35.2% reported taking a nonprescription medication within the three months prior to their diagnosis. This survey captured valuable information about nonprescription and antibiotic use in SJS/TEN patients. It is important for future studies to estimate the impact of antibiotics on SJS/TEN, and account for nonprescription medication use in that relationship.

**Knowledge of childhood burn risks and burn first aid: Cool Runnings.**

**Author(s):** Burgess, Jacqueline D; Watt, Kerrianne A; Kimble, Roy M; Cameron, Cate M

**Source:** Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention; Jan 2018

**Publication Type(s):** Journal Article

Available at Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention - from BMJ Journals - NHS

**Abstract:**AIMThe high incidence of hot beverage scalds among young children has not changed in the past 15 years, but preventive campaigns have been scarce. A novel approach was used to engage mothers of young children in an app-based hot beverage scald prevention campaign 'Cool Runnings'. This paper provides baseline data for this randomised controlled trial (RCT).METHODQueensland-based mothers aged 18+ years with at least one child aged 5-12 months were recruited via social media to Cool Runnings, which is a two-group, parallel, single-blinded RCT.RESULTSIn total, 498 participants from across Queensland completed the baseline questionnaire. The most common source of burn first aid information was the internet (79%). One-third (33%) correctly identified hot beverage scalds as the leading cause of childhood burns, 43% knew the age group most at risk. While 94% reported they would cool a burn with water, only 10% reported the recommended 20min duration. After adjusting for all relevant variables, there were two independent predictors of adequate burn first aid knowledge: first aid training in the past year (OR=3.32; 95% CI 1.8 to 6.1) and smoking status (OR=0.17; 95% CI 0.04 to 0.7).CONCLUSIONIn this study, mothers of young children were largely unaware how frequently hot beverage scalds occur and the age group most susceptible to them. Inadequate burn first aid knowledge is prevalent across mothers of young children; there is

an urgent and compelling need to improve burn first aid knowledge in this group. Given the high incidence of hot beverages scalds in children aged 6-24 months, it is important to target future burn prevention/first aid campaigns at parents of young children.TRIAL REGISTRATION NUMBERACTRN12616000019404; Pre-results.

**Assessment of the general quality of sunscreen products available in Palestine and method verification of the sun protection factor using Food and Drug Administration guidelines.**

**Author(s):** Zaid, Abdel Naser; Jaradat, Nidal; Darwish, Saja; Nairat, Sura; Shamlawi, Rawan

**Source:** Journal of cosmetic dermatology; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDSunlight exposure affects all skin types causing skin tanning, burns or even skin cancer. Sunscreens were invented to prevent these outcomes by scattering or absorbing the UV light.AIMSThis study aimed to verify the effectiveness of Mansur method in SPF measurement and to find out how much reliable the labeled sun protection factor (SPF) value for the products that are imported to Palestine knowing that they are considered as cosmetics and they don't undergo tests by the Ministry Of Health (MOH).MATERIALSIn this research, sun protection factor (SPF) was determined for 16 commercially available sunscreen products using Mansur equation which was also validated; moreover sunscreen classification, product phase determination and pH measurement were also done.RESULTSSun protection factor values were mostly 50, 43.75% of the analyzed samples were close to the labeled SPF, 31.25% were under the labeled value, and 25% SPF value above the labeled value. All samples exhibited a pH close to skin pH. 62% of them were found to be O/W. Cosmetic companies and importers should focus on pediatric sunscreens, since only 12.5% are pediatric sunscreens.CONCLUSIONSMinistry Of Health should ask prove about the quality of an SPF value of sunscreens for final registration of these products. More instructions should be available on the label regarding the proper use especially, if they are not water proof.

**Risk factors for burn injuries and fire safety awareness among patients hospitalized at a public hospital in Nairobi, Kenya: A case control study.**

**Author(s):** Wanjeri, Joseph K; Kinoti, Mary; Olewe, Tom H A M

**Source:** Burns : journal of the International Society for Burn Injuries; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**INTRODUCTIONBurn injuries are some of the most physically and psychologically devastating forms of trauma and most common injuries affecting children, especially in the home environment. They are more prevalent and are a public health problem in developing countries mainly because of poor socio-economic conditions. Effective prevention programs should be guided by the results of well-designed studies aimed at investigating risk factors for burns.STUDY OBJECTIVETo establish the risk factors for burn injuries among patients hospitalized at the Kenyatta National Hospital (KNH).METHODOLOGYThis was an age and gender matched case-control study comprising 202 patients admitted with burns (cases) and 202 non-surgical patients (controls) admitted into the pediatric and medical wards. The study site was KNH, a 1800-bed national referral and teaching hospital in Kenya.DATA ANALYTICAL METHODSSPSS version 17 was used for data analysis, with descriptive statistics used for demographic data, whereas in the analysis for risk factors chi square test and odds ratio (OR) were used to determine the relationship between the predictive (risk factors) and outcome variables (burn injury). Logistic regression was used to determine the strength of association between risk factors and burn injury.RESULTSThe risk factors found to be significant for burn injuries were: low level of education (p=0.043), use of kerosene as fuel for cooking (OR=2.027; 95% CI: 1.361-3.019, p=0.000) and lack of knowledge of burn injury prevention and fire safety (OR=4.009; CI: 2.603-6.172, p=0.000).CONCLUSIONLow level of education, use of kerosene for cooking and lack of knowledge of burn injury prevention and fire safety were

identified as risk factors for burn injury among patients hospitalized at KNH. These risk factors should be addressed in burn injury prevention programs for Kenya.

**Analysis of Pediatric Trauma in Combat Zone to Inform High-Fidelity Simulation Predeployment Training.**

**Author(s):** Reeves, Patrick T; Auerbach, Marc M; Le, Tuan D; Caldwell, Nicole W; Edwards, Mary J

**Source:** Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVESThe military uses "just-in-time" training to refresh deploying medical personnel on skills necessary for medical and surgical care in the theater of operations. The burden of pediatric care at Role 2 facilities has yet to be characterized; pediatric predeployment training has been extremely limited and primarily informed by anecdotal experience. The goal of this analysis was to describe pediatric care at Role 2 facilities to enable data-driven development of high-fidelity simulation training and core knowledge concepts specific to the combat zone.SETTING AND PATIENTSA retrospective review of the Role 2 Database was conducted on all pediatric patients (< 18 yr) admitted to Role 2 in Afghanistan from 2008-2014.INTERVENTIONSThree cohorts were determined based on commercially available simulation models: Group 1: less than 1 year, Group 2: 1-8 years, Group 3: more than 8 years. The groups were sub-stratified by point of injury care, pre-hospital management, and Role 2 facility medical/surgical management.MEASUREMENTS AND MAIN RESULTSAppropriate descriptive statistics (chi square and Student t test) were utilized to define demographic and epidemiologic characteristics of this population. Of 15,404 patients in the Role 2 Database, 1,318 pediatric subjects (8.5%) were identified. The majority of patients were male (80.0%) with a mean age of 9.5 years (± SD, 4.5). Injury types included: penetrating (56%), blunt (33%), and burns (7%). Mean transport time from point of injury to Role 2 was 198 minutes (±24.5 min). Mean Glasgow Coma Scale and Revised Trauma Score were 14 (± 0.1) and 7.0 (± 1.4), respectively. Role 2 surgical procedures occurred for 424 patients (32%). Overall mortality was 4% (n = 58).CONCLUSIONSWe have described the epidemiology of pediatric trauma admitted to Role 2 facilities, characterizing the spectrum of pediatric injuries that deploying providers should be equipped to manage. This analysis will function as a needs assessment to facilitate high-fidelity simulation training and the development of "pediatric trauma core knowledge concepts" for deploying providers.

**A Universal Noninvasive Continuous Blood Pressure Measurement System for Remote Healthcare Monitoring.**

**Author(s):** Mukherjee, Ramtanu; Ghosh, Sanchita; Gupta, Bharat; Chakravarty, Tapas

**Source:** Telemedicine journal and e-health : the official journal of the American Telemedicine Association; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDThe effectiveness of any remote healthcare monitoring system depends on how much accurate, patient-friendly, versatile, and cost-effective measurement it is delivering. There has always been a huge demand for such a long-term noninvasive remote blood pressure (BP) measurement system, which could be used worldwide in the remote healthcare industry. Thus, noninvasive continuous BP measurement and remote monitoring have become an emerging area in the remote healthcare industry.INTRODUCTIONPhotoplethysmography-based (PPG) BP measurement is a continuous, unobtrusive, patient-friendly, and cost-effective solution. However, BP measurements through PPG sensors are not much reliable and accurate due to some major limitations like pressure disturbance, motion artifacts, and variations in human skin tone.MATERIALS AND METHODSA novel reflective PPG sensor has been developed to eliminate the abovementioned pressure disturbance and motion artifacts during the BP measurement. Considering the variations of the human skin tone across demography, a novel algorithm has been developed to make the BP

measurement accurate and reliable. The training dataset captured 186 subjects' data and the trial dataset captured another new 102 subjects' data.RESULTS AND DISCUSSIONThe overall accuracy achieved by using the proposed method is nearly 98%. Thus, demonstrating the efficacy of the proposed method.CONCLUSIONSThe developed BP monitoring system is quite accurate, reliable, cost-effective, handy, and user friendly. It is also expected that this system would be quite useful to monitor the BP of infants, elderly people, patients having wounds, burn injury, or in the intensive care unit environment.

**Patterns of burns and scalds in Mongolian children: a hospital-based prospective study.**

**Author(s):** Gerelmaa, Gunsmaa; Tumen-Ulzii, Badarch; Nakahara, Shinji; Ichikawa, Masao

**Source:** Tropical medicine & international health : TM & IH; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVETo describe the circumstances of burn injury occurrence among Mongolian children and the products involved.METHODSStudy participants were children aged 15 years and younger who were admitted to the Burn Unit of the National Trauma Orthopedic Research Center from August 2015 to July 2016. We collected data on participant demographics and the aetiology and clinical features of their burn injuries, and we analysed the data based on the NOMESCO Classification model.FINDINGSOf 906 children, 83% were aged 0-3 years, 66% were injured around the cooking area in the traditional tent-like dwelling called a ger or a detached house where no specified kitchen exists, and 28% were injured in a kitchen. Burn injuries resulted mostly from exposure to overflowing hot liquids (93%). Electric pots and electric kettles were the products most frequently involved in causing burn injuries (41% and 14%, respectively). Of 601 major burn injuries, 52% were due to electric pots. Moreover, burn injuries inflicted by electric pots were most likely to be major burn injuries (83%). Children typically fell into electric pots, while electric kettles were often pulled down by children.CONCLUSIONBurn injuries among Mongolian children mainly occurred in cooking area of a ger involving electric pots. The current practice of cooking on the floor should be reconsidered for child burn prevention.

**Patient and social characteristics contributing to disparities in outcomes after burn injury: application of database research to minority health in the burn population.**

**Author(s):** Chen, Jason H; Nosanov, Lauren B; Carney, Bonnie C; Vigiola Cruz, Mariana

**Source:** American journal of surgery; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDAlthough racial disparities have been well described in trauma and medical literature, less is known about disparities in the burn population, especially the Native American, Hispanic, Black, and Asian minority groups. This study seeks to identify at-risk populations for differences in patient and social characteristics that may link certain race groups to disparate burn outcomes.METHODSData was reviewed from the National Burn Repository. Information regarding patient demographics, co-morbidities, complications, and clinical outcomes was recorded. Student's T-test, ANOVA, and binary logistic regression were used to assess relationships between patient factors and outcomes.RESULTSThe Native American cohort had higher rates of alcoholism, drug abuse, and homelessness compared to all patients. Native Americans also had significantly longer hospital lengths of stay, and higher rates of respiratory failure, pneumonia, sepsis, and wound complications. The Black population demonstrated the highest percentage of injury at home, child abuse, and non-insurance. Mortality was highest in the Black population compared to all patients.CONCLUSIONSThese findings suggest that outcome disparities exist in burn-injured patients in multiple minority groups.

**Incidence, outcomes, and resource use in children with Stevens-Johnson syndrome and toxic epidermal necrolysis.**

**Author(s):** Antoon, James W; Goldman, Jennifer L; Lee, Brian; Schwartz, Alan

**Source:** Pediatric dermatology; Jan 2018

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND/OBJECTIVESStevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are life-threatening cutaneous reactions, typically to drugs or infection. The incidence and outcomes of these conditions in children are unknown. The objective of this study was to report the overall burden of Stevens-Johnson syndrome and toxic epidermal necrolysis in children in the United States.METHODSWe performed a retrospective cohort analysis of children and adolescents younger than 18 years of age using the 2009 and 2012 Kids' Inpatient Database.RESULTSWe identified 1486 children and adolescents hospitalized with a diagnosis of Stevens-Johnson syndrome or toxic epidermal necrolysis. The national incidence per 100 000 was 6.3 for Stevens-Johnson syndrome, 0.7 for Stevens-Johnson syndrome/toxic epidermal necrolysis overlap syndrome, and 0.5 for toxic epidermal necrolysis. The highest incidence in children was in those aged 11-15 years (38.4 per 100 000). Toxic epidermal necrolysis and Stevens-Johnson syndrome/toxic epidermal necrolysis overlap syndrome were associated with longer stay, greater mortality, and higher hospital charges than those with Stevens-Johnson syndrome. Hospital mortality was highest in children with toxic epidermal necrolysis and in children aged 0-5 years.CONCLUSIONSThe incidence of Stevens-Johnson syndrome and toxic epidermal necrolysis in children is higher than reported in adults, and there are significant age-based variations in incidence and outcomes across the pediatric population. Further study is needed to determine the most effective treatment strategies to reduce costs and improve outcomes in children hospitalized with severe cutaneous reactions.

**Postburn Itch: A Review of the Literature.**

**Author(s):** Nedelec, Bernadette; LaSalle, Leo

**Source:** Wounds : a compendium of clinical research and practice; Jan 2018; vol. 30 (no. 1); p. E118

**Publication Type(s):** Journal Article

**Abstract:**The problem of postburn itch has been underevaluated and undertreated in the past. However, recently published data have expanded the evidence base, which provides clinicians and their patients with new evaluation and treatment options that can help reduce and potentially eliminate the prolonged distress experienced by burn survivors faced with postburn itch. Although a gold standard evaluation method has not yet been agreed upon, there are a number of tools that have been published that clinicians can use for assessment. Epidemiological evidence has confirmed that the vast majority of both adult and pediatric burn survivors experience itch for years following injury. At discharge from the acute care hospital, 93% of burn survivors with major burn injuries report postburn itch that is still experienced by 44% of adult burn survivors 30 years postburn. Although larger surface area injuries are more likely to require a multimodal treatment approach to reduce the itch intensity as well as the episode duration and frequency, burn survivors with small surface area injuries also experience itch that needs to be addressed. A number of treatment protocols have been described that commonly call for concurrent administration of both pharmacological and nonpharmacological treatment approaches. These protocols provide clinicians with a structured, systematic approach to treatment decisions that are evidence-based. Although many questions require further investigation, the current state of the science creates an ethical imperative that all burn survivors' itch experience should be quantitatively evaluated and appropriate treatment options explored until satisfactory outcomes are obtained.

**An unexpected long-term complication of genital burn in a child: Secondary cryptorchidism.**

**Author(s):** Öksüz, Mustafa; Deliağa, Hasan; Topkara, Adem; Koçak, Ömer Faruk

**Source:** Ulusal travma ve acil cerrahi dergisi = Turkish journal of trauma & emergency surgery : TJTES; Jan 2018; vol. 24 (no. 1); p. 85-87

**Publication Type(s):** Journal Article

**Abstract:**Genital and perineal burns are rare and challenging injuries with serious long-term complications. Involvement of the testes is a sign of severity. There is limited knowledge in the literature about the management of complications and testes involvement in genital and perineal burns. In this report, we present the case of an 8-year-old boy with secondary cryptorchidism due to burn contracture who was treated by increasing the scrotal volume by Z-plasties, skin graft, and orchidopexy.

**Content Validity of Patient-Reported Outcome Instruments used with Pediatric Patients with Facial Differences: A Systematic Review.**

**Author(s):** Wickert, Natasha M; Wong Riff, Karen W Y; Mansour, Mark; Forrest, Christopher R

**Source:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association; Jan 2018 ; p. 16148

**Publication Type(s):** Journal Article

**Abstract:**Objective The aim of this systematic review was to identify patient-reported outcome (PRO) instruments used in research with children/youth with conditions associated with facial differences to identify the health concepts measured. Design MEDLINE, EMBASE, CINAHL, and PsycINFO were searched from 2004 to 2016 to identify PRO instruments used in acne vulgaris, birthmarks, burns, ear anomalies, facial asymmetries, and facial paralysis patients. We performed a content analysis whereby the items were coded to identify concepts and categorized as positive or negative content or phrasing. Results A total of 7,835 articles were screened; 6 generic and 11 condition-specific PRO instruments were used in 96 publications. Condition-specific instruments were for acne (four), oral health (two), dermatology (one), facial asymmetries (two), microtia (one), and burns (one). The PRO instruments provided 554 items (295 generic; 259 condition specific) that were sorted into 4 domains, 11 subdomains, and 91 health concepts. The most common domain was psychological (n = 224 items). Of the identified items, 76% had negative content or phrasing (e.g., "Because of the way my face looks I wish I had never been born"). Given the small number of items measuring facial appearance (n = 19) and function (n = 22), the PRO instruments reviewed lacked content validity for patients whose condition impacted facial function and/or appearance. Conclusions Treatments can change facial appearance and function. This review draws attention to a problem with content validity in existing PRO instruments. Our team is now developing a new PRO instrument called FACE-Q Kids to address this problem.

**Antimicrobial Chemotherapy has a Linear Relationship to the Proportion of Gram-Negative Isolates from Pediatric Burn Wounds.**

**Author(s):** Welk, Alexa; Herrnberger, Myriam; Engel, Veronika; Dennebaum, Martin

**Source:** Klinische Padiatrie; Jan 2018; vol. 230 (no. 1); p. 39-43

**Publication Type(s):** Journal Article

**Abstract:**Wound infection in burns is a relevant cause of morbidity and mortality in children. We aimed to determine the relationship between antibacterial chemotherapy and Gram-negative burn wound colonization and infection. All children admitted to the pediatric intensive care unit for burn trauma from June 1, 2005 to January 31, 2013 were included. We obtained 141 wound samples, of which 88 (65.7%) showed growth of Gram-positive bacteria. Treatment with antimicrobial chemotherapy was necessary in 23 (31.1%) patients. The proportion of Gram-negative isolates seems to increase linear from 12.5% (95% confidence interval (CI): 4.4%-28.7%) without antibacterial chemotherapy to 36.8% (95% CI: 25.5%-49.6%) with one to 48.9% (95% CI: 35.3%-62.8%) with 2 antimicrobial agents. The Odds ratio for a Gram-negative isolate, in comparison to patients without

antibacterial chemotherapy, increased from 4.083 (95% CI: 1.140-15.961) for one administered substance to 6.708 (95% CI: 1.832-26.786) if 2 or more were used.CONCLUSIONWe found that antibacterial chemotherapy seems to facilitate burn wound colonization and results in an increased number of gram-negative isolates from children with burn wounds.

**Results of simple limbal epithelial transplantation in unilateral ocular surface burn.**

**Author(s):** Gupta, Nidhi; Joshi, Jagdish; Farooqui, Javed Hussain; Mathur, Umang

**Source:** Indian journal of ophthalmology; Jan 2018; vol. 66 (no. 1); p. 45-52

**Publication Type(s):** Journal Article

Available at Indian Journal of Ophthalmology - from EBSCO (MEDLINE Complete)

**Abstract:**PURPOSEThis study aimed to report the long-term outcomes of autologous Simple Limbal Epithelial Transplantation (SLET) performed for unilateral limbal stem cell deficiency (LSCD) following chemical burn at a tertiary eye center in North India.METHODSThis was a single-center prospective interventional case series of patients who developed unilateral LSCD after suffering from ocular surface burns and who underwent SLET between October 2012 and May 2016 with a follow-up period of at least 6 months. The primary outcome measure was restoration of a completely epithelized, stable, and avascular corneal surface. The secondary outcome measure was percentage of eyes, which reported visual gain.RESULTSThe study included 30 eyes of 30 patients, 18 adults and 12 children, at a median follow-up of 1.1 years (range: 6 months to 3.5 years), 21 of 30 eyes (70%; 95% confidence interval, 53.6%-86.2%) maintained successful outcome. Visual acuity gain was seen in 71.4% of successful cases. The clinical factors associated with failure were identified as acid injury, severe symblepharon at the time of presentation, and SLET combined with penetrating keratoplasty (PK).CONCLUSIONAutologous SLET is an effective limbal cell transplantation technique for the treatment of unilateral LSCD. It is especially beneficial for centers where cell cultivation laboratory is unavailable. Presence of severe symblepharon, which requires PK peroperatively , has poor outcome.

**Eruptive nevi after burn injury.**

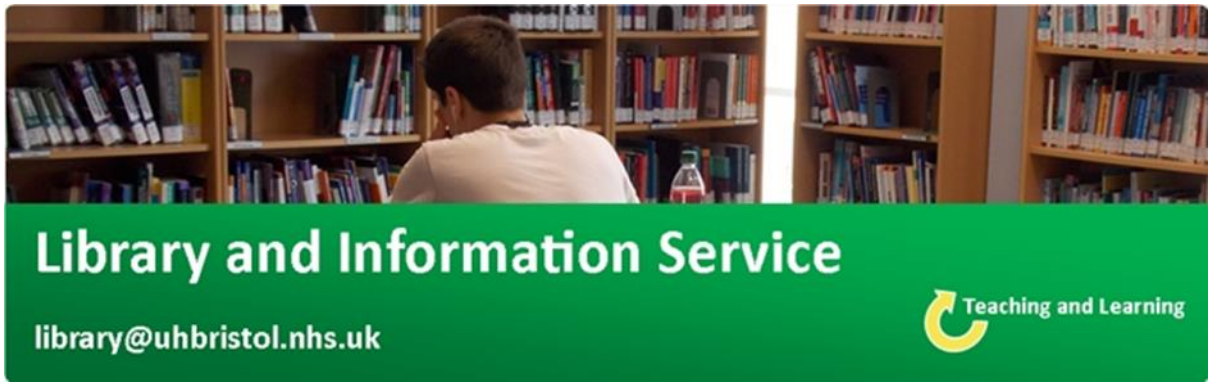
**Author(s):** Tareen, Ali; Pallesen, Kristine; Vestergaard, Tine

**Source:** Dermatology practical & conceptual; Jan 2018; vol. 8 (no. 1); p. 66-67

**Publication Type(s):** Journal Article

Available at Dermatology practical & conceptual - from PubMed Central

**Abstract:**Eruptive melanocytic nevi (EMN) is an unusual phenomenon characterized by the abrupt development of multiple melanocytic nevi over weeks to months in association with an underlying trigger. The underlying mechanisms are not fully understood, however, they have been associated with a variety of conditions. EMN is relatively uncommon and might be underreported due to the absence of close monitoring, insufficient recognition, and the presumed benign course of the condition. We describe the first case report of acral EMN associated with a burn wound on a 2-year-old child. Familiarity is important to differentiate EMN from neoplasms.

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