Wound Infection News

Higher than predicted wound infection rate after abdominal surgery
The authors investigated the clinical effectiveness of wound edge protection devices in reducing surgical site infection (SSI) following laparotomy in a prospective, randomised controlled study entitled the ROSSINI (Reduction Of Surgical Site Infection using a Novel Intervention) trial. A total of 760 patients were enrolled from 21 UK hospitals; 382 in the device group and 378 in the control group. The primary outcome was SSI within 30 days of surgery. Post-surgery SSI developed in 24.7% of patients in the device group and 25.4% in the control group. The authors reported a consistent lack of benefit from use of wound edge protection devices, across both wound assessments performed by clinicians and reported by patients. They concluded that the use of wound edge protection devices does not reduce SSI rate. An interesting development, however, was that the baseline wound infection rate of 25.4% seen in this study was significantly higher than the predicted infection rate of 12%.
Pinkney TD, *et al*. **Impact of wound edge protection devices on surgical site infection after laparotomy: multicentre randomised controlled trial (ROSSINI Trial)**. *BMJ*. 2013 Jul 31;347:f4305.
http://www.bmj.com/content/347/bmj.f4305?view=long&pmid=23903454

Evidence for biofilm presence in infected sternal wounds
The authors investigated six patients with sternal wound infection (SWI) for evidence of biofilm presence. All patients had dehiscence of all wound layers, with no signs of healing post-surgery even after treatment with broad-spectrum antibiotics. Stainless steel wires used for post-surgery sternum approximation were collected during debridement and examined for bacterial adhesion, biofilm formation and bacterial tobramycin resistance. Staphylococcus presence was identified in debrided infected tissue, along with the presence of thick clumps of staphylococci colonizing the wound bed; the presence of three-dimensional cocci clusters on the extracted stainless steel wires was also reported, using scanning electron microscopy (SEM). The authors conclude that these results provide evidence supporting the presence of biofilm in these cases, and further, that deep SWI in these six patients is a biofilm-associated infection.
Elgharably H, *et al*. **First evidence of sternal wound biofilm following cardiac surgery**. *PLoS One*. 2013 Aug 1;8(8):e70360. Print 2013.
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0070360

Updated Cochrane review on adjunctive G-CSF for treatment of diabetic foot infections
The objective of this updated review was to examine the effects of granulocyte-colony stimulating factor (G-CSF) therapy compared with placebo in patients with diabetic foot infections. A total of 5 randomized controlled trials (167 patients) were identified that met the inclusion criteria; various preparations of G-CSF were administered with varying doses and time durations. The authors found that addition of G-CSF to therapy for these wounds was associated with a significantly reduced risk of lower extremity surgical infections, but did not significantly affect the likelihood of infection resolution/wound healing. G-CSF administration was also found to reduce the duration of hospital stay, but not of systemic antibiotic therapy.

The authors conclude that although the evidence is limited, it suggests that adjunctive G-CSF administration appears to reduce the need for surgical intervention (including amputation), and the duration of hospital stay, although it is not clear which

patients might benefit. It does not appear to increase resolution of infection or wound healing.
Cruciani M, *et al*. **Granulocyte-colony stimulating factors as adjunctive therapy for diabetic foot infections**. *Cochrane Database Syst Rev*. 2013 Aug 17;8:CD006810. [Epub ahead of print]
http://www.ncbi.nlm.nih.gov/pubmed/23955465

New publications in Wound Infection – August 2013

Fares Y, *et al*. **Trauma-related infections due to cluster munitions**. *J Infect Public Health*. 2013 Jul 31. [Epub ahead of print]
This prospective study reviewed infections caused by sub-munitions and penetrating agents in South Lebanon from 2006–2012. Of a total 350 patients studied, 19.4% developed infections from pathogens including: Pseudomonas, *Escherichia coli*, Candida and fungus, which sometimes led to necrosis. The authors advise that antibiotic therapies and wound irrigation should be performed at appropriate emergency units, with excision and complete debridement of necrotic and contaminated tissue.
http://www.ncbi.nlm.nih.gov/pubmed/23999350

Leamer NK, *et al*. **Update: community-acquired methicillin-resistant *Staphylococcus aureus* skin and soft tissue infection surveillance among active duty military personnel at Fort Benning GA, 2008–2010**. *Mil Med*. 2013;178:914–20.
The authors reviewed trends in community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infection in army personnel between January 2008 and December 2010. They found a decline in annual CA-MRSA infection rates between 2008–2010, from 33 to 27 infections per 1,000 soldiers.
http://www.ncbi.nlm.nih.gov/pubmed/23929055

Itatsu K, *et al*. **Risk factors for incisional surgical site infections in elective surgery for colorectal cancer: focus on intraoperative meticulous wound management**. *Surg Today*. 2013 Aug 6. [Epub ahead of print]
The authors assessed data from 1,980 patients who had undergone elective resection surgery for colorectal cancer, identifying 233 incisional SSIs. The authors identified high body mass index, previous laparotomy, chronic liver disease, wound length, contaminated wound class, creation or closure of an ostomy, right hemicolectomy procedure, the suture material used for fascial closure and the incidence of organ/space SSI, as independent risk factors for incisional SSI.
http://www.ncbi.nlm.nih.gov/pubmed/23913010

Bowler PG, *et al*. ***In vitro* antimicrobial efficacy of a silver-containing wound dressing against mycobacteria associated with atypical skin ulcers**. *WOUNDS.* 2013;25:225–30.
The authors found that a silver-containing dressing was effective in an *in vitro* wound model using *Mycobacterium fortuitum* as a surrogate for skin ulcers caused by the Mycobacterium species. They conclude that silver dressings may be effective in managing wound infection in ulcers caused by pathogenic mycobacteria.
http://www.woundsresearch.com/article/vitro-antimicrobial-efficacy-silver-containing-wound-dressing-against-mycobacteria-associate

Colombier S, *et al*. **Influence of deep sternal wound infection on long-term survival after cardiac surgery**. *Med Sci Monit*. 2013 Aug 14;19:668–73.

This retrospective evaluation investigated medical records from 4,732 adult patients undergoing cardiac surgery. Logistic regression analysis was used to evaluate predictive factors for deep sternal wound infection (DSWI) survival, and the authors found that DSWI was not an independent predictor of long-term survival in this patient population.
http://www.ncbi.nlm.nih.gov/pubmed/23942043

Alberts VP, *et al*. **Effect of gentamicin-containing collagen sponges on surgical site infection after hand-assisted laparoscopic donor nephrectomy**. *Surg Infect (Larchmt)*. 2013 Aug 9. [Epub ahead of print]
The authors report that implantation of a gentamicin-containing collagen sponge during wound closure following hand-assisted laparoscopic donor nephrectomy, led to a statistically significant reduction in SSI rate (p=0.01).
http://www.ncbi.nlm.nih.gov/pubmed/23930909

Kalra L, *et al*. **Risk of methicillin-resistant *Staphylococcus aureus* surgical site infection in patients with nasal MRSA colonization**. *Am J Infect Control*. 2013 Aug 21 [Epub ahead of print].
The authors report that patients undergoing surgery who had a positive nasal screen for MRSA had a 9-fold increased risk of developing an MRSA-related SSI, compared with patients who had a negative nasal MRSA screen.
http://www.ncbi.nlm.nih.gov/pubmed/23973424

King C, *et al*. **Syndromic surveillance of surgical site infections - a case study in coronary artery bypass graft patients**. *J Infect*. 2013 Aug 31 [Epub ahead of print].
The authors report on a surveillance system for SSIs using data from a cohort of patients undergoing coronary artery bypass graft. They conclude that this surveillance system is efficient, and avoids the need for resource-intensive data collection.
http://www.ncbi.nlm.nih.gov/pubmed/24001609