



## Article Appraisal

**Article:** Traumatic lacerations: what are the risks for infection and has the 'golden period' of laceration care disappeared?

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**Resident Reviewer Name(s) and Residency Affiliation:** Mattias Berg / St. Paul's CCFP-EM

**Faculty Methodology/Bio-statistics Resource Person:** Rob Stenstrom

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### Background and Study Objective(s):

Traumatic wounds are among the most common presenting complaints of people seeking emergency department care. Although the vast majority of these wounds are not complicated by infection, it is unclear whether or not a subset of wounds are at a higher risk of infection and would thus benefit from prophylactic antibiotics.

The aim of this study was to determine the infection rate of traumatic wounds treated in ED as well as what characteristics render a wound higher risk of infection and therefore would be considered as candidates for prophylactic antibiotics or closer follow-up. Specific emphasis was placed on whether or not there was a relationship between infection and time to repair after injury.

### Study Design:

This was a multicentre prospective observational cohort study of 2663 consecutively recruited patients with lacerations presenting to the ED of one of three participating hospitals (a trauma centre, a community non-teaching hospital and a city teaching hospital) between February 2008 and September 2009.

The comparison was of 27 specific patient, laceration and treatment variables including age, sex, race, diabetes, hours from injury to presentation, length, shape, mechanism, location, contamination, repair type and closure method.

Primary outcome, elucidated by structured telephone interview, was infection at 30 days. Infection was determined by whether the patient was seen by a physician or treated with antibiotics. A secondary outcome of cosmetic appearance of their wound was evaluated by patient rating on a 100-point scale and if they would consider having their scar revised.

### Results:

In total, 3957 patients presented with lacerations of which 2663 patients completed follow-up (67%). Of these 96% were closed in the ED, 64% of which were closed with sutures, 24% with adhesive glue and/or strips, and 7% with

staples. A total of 50 patients (2.2%) were provided with prophylactic antibiotics.

In regards to the primary outcomes, a total of 69 patients (2.6% with a 95% CI of 2.0-3.3%) developed a wound infection. The multivariate analysis model identified four predictors of infection, specifically non-head and neck location (OR 2.5), diabetes (OR 3.1), length >5cm (OR 2.4) and moderate/heavy contamination (OR 1.9). Interestingly, no association was found between infection and repair before or after 12 hours, age, sex, race, or tetanus status.

In regards to the secondary outcomes of cosmesis, the study found that infected wounds were more likely to receive a worse cosmetic rating (70 vs. 87) and be considered for scar revision (24.6% vs. 9.6%).

### **Validity of Results:**

The trial addressed a clearly focused issue. A large sample size of patients were recruited on a prospective basis at three diverse emergency departments. It should be noted that follow-up was limited to 67% and that those lost to follow-up were excluded. The conclusion regarding the lack of temporal relationship between infection and wound repair is further limited by the fact that only 85 patients (2.1%) in the study has wounds >12 hours and of these only 72 of these were repaired.

### **Generalizability of Results:**

The results are likely generalizable with no difference seen between the diverse recruitment sites in the study which included a trauma centre, a community non-teaching hospital, and a city teaching hospital. The exclusion criteria of human and animal bites should be noted. Additional study is warranted in patients with traumatic wounds presenting greater than 12 hours due to the relative small proportion of these patients in the study.

### **The Bottom Line:**

Traumatic wounds are characterized by a relative low rate of infection. This study finds that there is no association between infection and time from injury to repair. Conversely, risk factors such as non-head and neck wounds, diabetes, laceration size greater than 5cm or those with significant contamination appear to be more likely to become infected and may benefit from prophylactic antibiotics. Once infected, this study finds that patients are likely to be less satisfied with the cosmesis and more likely to consider scar revision.