

### A general approach to managing infected wounds and when to remove sutures

Dear Editor,

*I think the antibiotics guide is fantastic and use it very frequently. It is great the way it has first line, second line etc. It is a very useful guide.*

*I was wondering if you could add another part into the "skin" section. I feel wounds deserve their own section. I feel there is not a consensus among doctors in general in terms of the best approach for infected wounds. Or is it as simple as approaching it the same way as standard infected wound like cellulitis – unless it is a closed fist injury or on a diabetic foot.*

*I would also like to know what the policy should be on soft tissue wounds that have been sutured which then get infected. At what point do we remove the sutures? Is it as soon as infection is suspected or can you watch and wait and manage with antibiotics?*

*I struggled to find much evidence online on my article search. Most of the evidence was for surgical wound infections instead of soft tissue injuries.*

*I had a discussion with a patient today who had developed infection post-suturing. He came in previously with signs of infection on Day 3 (Day 1 = sutured) and was already on cephalexin for infection prophylaxis and was switched from that to flucloxacillin 1g four times daily. He was reviewed again on Day 5 and the doctor he saw advised him the sutures needed to be left in longer than normal.*

*I reviewed him on day 8 (today) and he still had the sutures in place in a wound that still looked red and infected but improved from previously. A colleague of mine who worked as an orthopaedic registrar, advised sutures need to be removed when infected and that's what I thought was standard practice.*

*However, I would very much appreciate your opinion on this given the lack of evidence I could find online.*

Many thanks

**Dr Nick Wilmore**

**Auckland**

#### **Response from the bpac<sup>nz</sup> editorial team:**

##### **1. General guidance on wound management**

Wounds comprise a diverse range of skin lesions. Wound management is guided by both the type of wound as well as patient characteristics which may delay wound healing, e.g. underlying medical conditions, older age, obesity, smoking, and poor nutrition. All open skin wounds are colonised by bacteria, however, this does not mean all wounds are infected. Inflammation occurs in all wounds during healing and minor

---

swelling, erythema and increased warmth at the site is normal and should not be confused with clinical infection. Similarly, sutures can provoke a local skin reaction; a small amount of redness and irritation around sutures is not necessarily indicative of infection.

There are four classes of wounds:<sup>1</sup>

- Clean
- Clean-contaminated
- Contaminated
- Dirty

Traumatic wounds are defined as contaminated if they are less than four hours old at time of medical review, and dirty if more than four hours old.<sup>2</sup> Some traumatic wounds, however, are more prone to infection than others: shearing force wounds, such as lacerations, tend to heal well, while avulsion injuries heal poorly and crush injuries both heal poorly and are prone to infection.<sup>3</sup> While clinicians need to consider each case individually, antibiotic prophylaxis is often recommended for contaminated and dirty wounds.<sup>4</sup>

Empiric antibiotic choices, for either traumatic or non-traumatic wounds, are guided by the type of wound, its location, potential pathogens and local antibiotic susceptibility. Susceptibility may differ by geographical area or location, e.g. MRSA is more common in some residential care facilities, and the prevalence of other multi-drug resistant organisms is increasing in New Zealand.<sup>5</sup> Laboratories may publish local antibiotic sensitivities, while the Institute of Environmental Science and Research Ltd (ESR) collates regional laboratory data and publishes this information quarterly.<sup>6</sup>

Flucloxacillin or cefalexin are the mainstays of empiric antibiotic treatment for skin infections, including wounds. Alternatives include erythromycin and co-trimoxazole (if MRSA is present).

Depending on the clinical circumstances, a wound swab may be required in addition to empiric antibiotics. It may be appropriate to change to a narrower spectrum antibiotic when swab results become available, especially if a long course of antibiotics is anticipated. Wounds failing to respond to empiric treatment should be swabbed, with the culture result guiding antimicrobial treatment; note any empiric therapy on the laboratory form.

## 2. Managing wounds with sutures

When considering wound infections, surgical and traumatic wounds are often grouped together as much of the advice is applicable to both types. Wound infections should be evaluated by severity; patients with mild infections may have

increased redness, swelling and pain at the incision site. More severe infections may also have spontaneous drainage from the wound, as well as causing systemic symptoms of fever and tachycardia with associated lymphocytosis. In general, mild wound infections can be cleaned and observed, without suture removal.<sup>2</sup> Patients with moderately infected wounds should have the sutures removed and incisions opened and drained, while those with deep infections may require referral for washout in theatre.<sup>4</sup>

Wound infections do not always require antibiotics, and many wounds can be managed by cleaning, or suture removal and opening and drainage of incisions.<sup>2,4</sup> Antibiotics are recommended for the treatment of infected surgical or traumatic wounds if the patient has systemic signs including a fever >38°C, tachycardia >110/min, erythema and/or induration > 5 cm from the incision, or necrosis.<sup>4</sup> Appropriate antibiotic therapy should be effective in treating wound infections as long as there is a good blood supply at the wound site. This may not always be the case, e.g. if necrotic tissue is present.

Written guidance cannot, however, replace evaluation of individual patients by an experienced clinician. If unsure, clinicians are advised to discuss their concerns with a senior colleague, an orthopaedic surgeon, or a wound care specialist.

 The antibiotic guide is currently under review and will be updated later this year. The current version of the guide is available from: [www.bpac.org.nz/antibiotics](http://www.bpac.org.nz/antibiotics)

 For more information on wound management see: [www.bpac.org.nz/BT/2013/June/infected-wounds.aspx](http://www.bpac.org.nz/BT/2013/June/infected-wounds.aspx)

## References

1. Centers for Disease Control and Prevention. Surgical Site Infection (SSI) Event. 2016. See: [www.cdc.gov/nhsn/pdfs/pscmanual/9pscscscurrent.pdf](http://www.cdc.gov/nhsn/pdfs/pscmanual/9pscscscurrent.pdf)
2. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft-tissue infections. *Clinical Infectious Diseases* 2005;41:1373–406. doi: 10.1086/497143
3. Notley D, Martin D, Hill M. Evaluation and Management of Traumatic Wounds. <http://www.ahcmedia.com/articles/134664-evaluation-and-management-of-traumatic-wounds>
4. Lyden JR, Dellinger EP. Surgical Site Infections. *Hospital Medicine Clinics* 2016;5:319–33. doi:10.1016/j.jehmc.2015.11.002
5. Williamson DA, Heffernan H. The changing landscape of antimicrobial resistance in New Zealand. *The New Zealand Medical Journal (Online)* 2014;127:41–54.
6. Institute of Environmental Science and Research Ltd. Public Health Surveillance. <https://surv.esr.cri.nz/surveillance/NZPHSR.php> (accessed 6 Jul 2016).

**We value your feedback. Write to us at:  
Correspondence, PO Box 6032, Dunedin  
or email: [editor@bpac.org.nz](mailto:editor@bpac.org.nz)**