

Surgical site infections (SSI) occur in
1% to 2%
of all patients worldwide
undergoing inpatient
surgery¹⁻³

SSIs affect
millions
of patients each year
US: 1.5 million⁴
Europe: 500,000²

SSIs increase annual
treatment costs
**US:
+\$3.5 to \$10 billion⁵**
**Europe:
+€1.5 to €19 billion⁶**

SSIs prolong
hospitalization
US: +9.7 days⁵
Europe: +6.5 days⁶

3% estimated mortality rate with SSI⁴
75% of SSI-associated deaths are directly
attributable to the infection⁴
50% of SSIs are preventable^{1,7,8}



Not Just a Postoperative Dressing

Bioelectric dressings have demonstrated benefits when applied preoperatively, in addition to use during routine postoperative care.

- This prospective case series found that preoperative application of a microcurrent dressing resulted in significantly diminished *C. acnes* skin burden at the time of surgery.⁹ [Click here](#) to read more.
- When applied 2 hours before the development of an acute wound, bioelectric dressing can prevent biofilm formation¹⁰
- JumpStart dressing has been shown to be equally as effective in preventing bacteria formation as traditional skin preparation products¹¹
- When used both pre- and postoperatively, JumpStart dressing can provide enhanced antibacterial protection to wound sites

Evidence for Successful Use in Spine¹²

- Retrospective hospital-registry study found that SSI persists as a leading complication of spinal fusion surgery
- The majority (57.5%) of infections studied were resistant to the prophylaxis administered during the procedure
- The microbiology of spinal fusion surgical site infection has an anatomic gradient
 - Bacteria gradient along the spine:
 - Gram-positive: cervical spine
 - Gram-negative: lumbar spine
- JumpStart dressing kills and protects against both gram-positive and -negative bacteria



References

1. Keely Boyle K, Rachala S, Nodzo SR. Centers for Disease Control and Prevention 2017 guidelines for prevention of surgical site infections: review and relevant recommendations. *Curr Rev Musculoskelet Med.* 2018;11(3):357-369. doi:10.1007/s12178-018-9498-8 2. WHO global guidelines for the prevention of surgical site infection. World Health Organization. Accessed July 12, 2021. <https://www.who.int/gpsc/SSI-outline.pdf> 3. Klevens RM, Edwards JR, Richards CL Jr, et al. Estimating health care-associated infections and deaths in U.S. hospitals, 2002. *Public Health Rep.* 2007;122(2):160-166. doi:10.1177/003335490712200205 4. MA Preas, O'Hara L, Thom K. HICPAC-CDC guideline for prevention of surgical site infection: what the infection preventionist needs to know. Association for Professionals in Infection Control and Epidemiology. Accessed July 12, 2021. https://apic.org/Resource/_TinyMceFileManager/Periodical_images/API-Q0414_L_SSI_Guidelines_Final.pdf 5. RD Scott. The direct medical costs of healthcare-associated infection in U.S. hospitals and the benefits of prevention. Centers for Disease Control and Prevention. Accessed July 12, 2021. https://www.cdc.gov/hai/pdfs/hai/scott_costpaper.pdf 6. Leaper DJ, van Goor H, Reilly J, et al. Surgical site infection - a European perspective of incidence and economic burden. *Int Wound J.* 2004;1(4):247-273. doi:10.1111/j.1742-4801.2004.00067.x 7. Surveillance of surgical site infections in Europe 2010-2011. European Centre for Disease Prevention and Control. Accessed July 12, 2021. <https://www.ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/SSI-in-europe-2010-2011.pdf> 8. World Health Organization. Global guidelines for the prevention of surgical site infection. Accessed July 12, 2021. <https://www.who.int/publications/item/global-guidelines-for-the-prevention-of-surgical-site-infection-2nd-ed> 9. Miller BS, Olszewski AM, Bedi A. A microcurrent dressing reduces *Cutibacterium acnes* colonization in patients undergoing shoulder arthroplasty or arthroscopy: a prospective case series [published online June 22, 2022]. *HSS J.* 2022. doi:10.1177/15563316221100989 10. Barki K, Das A, Dixith S, et al. Electric field based dressing disrupts mixed species bacterial biofilm infection and restores functional woundhealing. *Ann Surg.* 2019;269(4):756-766. doi:10.1097/SLA.0000000000002504 11. Cooke CL, Greene RS, van Eck CF, Uquillas C, Limpisvasti O. Bioelectric silver-zinc dressing equally effective to chlorhexidine in reducing skin bacterial load in healthy volunteers. *Arthroscopy.* 2018;34(10):2886-2891. doi:10.1016/j.arthro.2018.05.046 12. Long DR, Bryson-Cahn C, Pergamit R, et al. 2021 Young Investigator Award winner: anatomic gradients in the microbiology of spinal fusion surgical site infection and resistance to surgical antimicrobial prophylaxis. *Spine.* 2021;46(3):143-151. doi:10.1097/BRS.0000000000003603