Clinical Evidence Summary

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Despite modern advancements in infection prevention, healthcare-acquired infections (HAIs) remain one of the top 10 leading causes of death in the United States and are responsible for nearly 100,000 deaths each year.¹ Surgical site infections (SSIs) are the second most-common HAI, accounting for 20% of all HAIs among hospitalized patients.² Post-operative SSIs are the most common healthcare-associated infection in surgical patients³, occurring in up to 5 percent of surgical patients.⁴

SSIs are a major public health concern for health care providers and patients alike. Studies find that surgical patients who develop an SSI are more than twice as likely to die as those who don’t.⁵
Infections at the Site

If an SSI occurs, a patient is 60 percent as likely to spend time in the ICU after surgery than is an uninfected surgical patient.5

Patients who develop a surgical site infection after hospital discharge are also five times more likely to be readmitted to the hospital.5

To equip your hospital with tools to implement infection prevention strategies, improve patient outcomes and reduce costs, 3M offers a full line of 3M™ Steri-Strip™ Adhesive Skin Closures that have been clinically proven in numerous studies to help stop surgical site infections at the most ideal time: Before They Start.

References

Big Impact. Small Solution.
Stopping infections before they start is a big part of your job. Surgical site infections (SSIs) are the second most-common hospital-acquired infection (HAI) accounting for 20% of all HAIs among hospitalized patients,* and costing up to $29,000 depending on the pathogen and procedure.** As you are looking for untapped potential for infection control, have you considered using 3M™ Steri-Strip™ Skin Closures?

Bring the Fight to the Site.
3M™ Steri-Strip™ Skin Closures are a small but effective way for you to help reduce the risk of SSIs on your patients and help the bottom line. Bring the fight against infection to the wound site and provide your patients with the added protection they deserve against painful and costly infections.

*Surgical site infections (SSIs) are the 2nd most frequently reported hospital-acquired infection.*

**Surgical site infections (SSIs) cost up to $29,000 depending on the pathogen and procedure.**


** Surgical Site Infection Toolkit, Berrio-Torres, CDC Division of Healthcare Quality Products, 2009
Less Risk of Infection
Studies have shown that Steri-Strip™ Skin Closures are associated with a lower infection rate than for those closed with invasive sutures or staples.

Improved Cosmetic Results
Provides better cosmetic outcome than sutures or staples.

Trusted Brand
Preferred by clinicians because they trust 3M to deliver innovation, quality and educational support.

Proven Effective By More Than 100 Studies
Steri-Strip™ Skin Closures which have been clinically proven safe and effective for wound closure, offer real benefits for the patient and the physician.

Length of stay increases, up to 7 to 10 additional postoperative hospital days for SSI.**

Surgical Site Infections (SSIs) cause 2 to 11 times higher risk of death.**

References
Antimicrobial

*In vitro* testing shows the iodophor adhesive used in the manufacture of 3M™ Steri-Strip™ Antimicrobial Skin Closures has broad-spectrum activity against the most common pathogens causing surgical site infections.¹

- *Staphylococcus aureus* is the leading cause of surgical site infections.²
- Hospital stays for Methicillin-resistant *Staphylococcus aureus* (MRSA) infection have more than tripled since 2000 and have increased nearly ten-fold since 1995.³
- Preventing a single case of SSI due to (MRSA) can save hospitals as much as $60,000.⁴

References

Organisms Causing SSI

- Staphylococcus aureus: 30%
- Escherichia coli: 9.6%
- Enterococcus spp: 11.2%
- Coagulase-negative staphylococci: 13.7%
- Pseudomonas aeruginosa: 5.6%
- Enterobacter spp: 4.2%
- Klebsiella pneumoniae: 3.0%
- Candida spp: 2.0%
- Klebsiella oxytoca: 0.7%
- Acinetobacter baumannii: 0.6%

N = 7,025


Assessment of Antimicrobial Effectiveness:
MICROBIAL KILL BY EXPOSURE TO IODOPHOR ANTIMICROBIAL, MEAN Log10 REDUCTION

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<th>Pathogen</th>
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<td>Staphylococcus epidermidis MRSE ATCC 51625</td>
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</table>
3M™ Steri-Strip™ Adhesive Skin Closures provided a lower risk of infection against *Staphylococcus aureus* when compared to sutures.

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**Penetration of *Staphylococcus Aureus* into Sutured Wounds**


**Purpose**

The purpose of this study was to develop an animal model to study whether *Staphylococcus aureus* could penetrate a sutured wound.

**Key Points**

- Bacteria can penetrate sutured wounds and remain viable for several days.
- When 3M™ Steri-Strip™ Skin Closures were used to close the wounds, bacteria could not be recovered from any of the 24 wounds when bacteria were applied 4 or 7 days after wound closure.

“Although the sutured wound remained penetrable by bacteria for at least 1 week, the wounds with [3M™ Steri-Strip™ Adhesive Skin Closures] were effectively sealed after 4 days.”
These studies indicate that wounds closed with 3M Steri-Strip™ Adhesive Skin Closures have a greater resistance to infection than sutured wounds.

**Technique of Closure: Contaminated Wounds**


**Purpose**

The purpose of the study was to define the influence of the closure technique to resist infection in experimentally contaminated wounds.

**Key Points**

- The study findings suggest subdermal and subcutaneous sutures potentiate the development of infection.
- The studies indicate that wounds closed with 3M Steri-Strip™ Adhesive Skin Closures have a greater resistance to infection than sutured wounds.

“... [3M™ Steri-Strip™ Adhesive Skin Closures] permits passage of air and water vapor and limits the growth of skin bacteria.”

Reduced Infection
3M™ Steri-Strip™ Adhesive Skin Closures provide a lower rate of infection and over-all morbidity when compared to sutures.

Five Year experience with tape closure of abdominal wounds

Purpose
The purpose of this retrospective study was the analysis of 3M™ Steri-Strip™ Skin closures as the sole method of skin closure from over 350 intra-abdominal operations.

Key Points
- 3M™ Steri-Strip™ Skin Closures provided a lower rate of infection and over-all morbidity when compared to sutures and/or staplers.
- 3M™ Steri-Strip™ Skin Closures provided a lower cost and a reduction in operating room time when compared to sutures and/or staplers.
- Strangulation and necrosis of tissue are eliminated because of gentle handling of tissue.
- 3M™ Steri-Strip™ Skin Closures provided better cosmetic results.
Early staple removal and replacement with 3M™ Steri-Strip™ Adhesive Skin Closures produced more acceptable cosmetic results and improved wound healing.

Cutaneous Wound Closure: Early Staple Removal and Replacement by Skin Tapes
Traub A.C., Quattlebaum F.W., Contemporary Surgery, June, 1981, 18.

Purpose
The purpose of this study was to study the effect of early staple removal (three days) with replacement by 3M Steri-Strip™ Adhesive Skin Closures.

Key Points
- Incisions closed with 3M Steri-Strip™ Adhesive Skin Closures failed to show any evidence of erythema or purulent material unlike the stapled portion of the incision.
- Incisions with early removal of staples and replacement with 3M Steri-Strip™ Adhesive Skin Closures produced more acceptable cosmetic results.

“At 6 months no staple sites were visible where the staples had been removed early and supported by [3M™ Steri-Strip™ Adhesive Skin Closures].”

Improved outcomes
Reduced Trauma to Tissue
3M™ Steri-Strip™ Adhesive Skin Closures provided a more suitable cosmetic outcome and a less expensive technique when compared to a tissue adhesive.

Prospective, Randomized, Controlled Trial Comparing a Tissue Adhesive (Dermabond™) with Adhesive Strips (Steri-Strips™) for the Closure of Laparoscopic Trocar Wounds in Children.

**Purpose**
The purpose of this study was to assess the impact of tissue adhesives (Dermabond™) compared to adhesive strips (Steri-Strip™) on potential complications of wound healing, wound pain, cosmetic outcome and patient satisfaction after laparoscopic appendectomy in children.

**Key Points**
- The evaluation showed a significant difference between the two groups with regard to the cosmetic outcome favoring 3M Steri-Strip™ Adhesive Skin Closures.
- 3M Steri-Strip™ Adhesive Skin Closures were the less expensive technique.
3M Steri-Strip™ Adhesive Skin Closures were both a cost-saving and a cost-effective alternative to sutures and tissue adhesives in the closure of low-tension lacerations.

**Economic comparison of methods of wound closure: wound closure strips vs. sutures and wound adhesives**


**Purpose**

The purpose of this study was to review and assess the treatment of low-tension wounds and evaluate the cost-effectiveness of wound closure methods.

**Key Points**

- For lacerations without complications, 3M Steri-Strip™ Adhesive Skin Closures had the lowest average cost per laceration.
- For lacerations with infection, 3M Steri-Strip™ Adhesive Skin Closures had the lowest average cost per laceration.
- For lacerations with dehiscence, 3M Steri-Strip™ Adhesive Skin Closures had the lowest average cost per laceration.

“*We conclude [3M™ Steri-Strip™ Adhesive Skin Closures] were both a cost-saving and a cost-effective alternative to sutures and tissue adhesives in the closure of low-tension lacerations.*”
ABDOMINAL SURGERY


ACCIDENT AND EMERGENCY


AMPUTATION

GENERAL SURGERY
2. Hufnagel, C.A., M.D. et al., Clinical Results with a Sutureless Skin Closure (Summary of a Seminar), *Hospital Topics*, January 1963.

GYNECOLOGY

NEUROSURGERY

ORTHOPEDIC
OUTPATIENT SURGERY

PLASTIC

THORACIC

UROLOGY

VASCULAR

For additional references on clinical studies, please contact your 3M Health Care Sales Representative or call the 3M Health Care Customer Helpline at 1-800-228-3957.
Supporting Your Infection Prevention Efforts

3M helps you deliver tangible, positive results — by bringing the broadest array of solutions to the fight against hospital-acquired conditions.

- A recognized leader in research and development, 3M has been providing health care professionals and patients with innovative solutions that help make people’s lives better since 1948.
- 3M delivers the resources you need to be a leader in detecting, preventing and controlling hospital-acquired conditions and access to key opinion leaders who can help clinical managers understand and lead through these changes.
- Evidence-based solutions. Customers expect it and 3M is committed to continuously expanding the extensive body of clinical evidence that supports the effectiveness of 3M products and solutions.
- 3M is a trustworthy, credible partner for hospitals — dedicated to helping hospitals do the right thing for their business and their patients.

3M also provides:

- Experienced sales and support teams, specialized in the areas of skin, wound and IV site care.
- Clinical and technical specialists who provide support using a variety of methods
  - In-service training, professional continuing education and conversion programs
  - Protocol and formulary development to promote clinical outcomes, standardization and utilization within your departments.
- Toll-free helpline that offers experts to assist customers with technical and product information.
- Customer service representatives who are available to handle daily calls for order entry and special shipment requests to ensure customer satisfaction.

The use of 3M® Steri-Strip® Adhesive Skin Closures is supported in well over 100 studies. Over one billion Steri-Strips have been used since their introduction.
Notes
### Ordering Information

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*CAUTION: THE PACKAGE OF THIS PRODUCT CONTAINS NATURAL RUBBER LATEX WHICH MAY CAUSE ALLERGIC REACTIONS.

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