



## Postoperative Spine Dressing Changes Are Unnecessary

Ravi S. Bains, MD\*, Mayur Kardile, MD, Lance K. Mitsunaga, MD, Sukhraj Bains, BS,  
Nirmal Singh, MS, Cary Idler, MD

Northern California Regional Spine Center, Kaiser Permanente Oakland Medical Center, Oakland, CA 94611, USA

Received 21 October 2016; revised 21 April 2017; accepted 23 April 2017

### Abstract

**Introduction:** There is minimal literature regarding when dressing changes should be performed. We present the dressing change protocol adopted by our institution. The purpose of this study was to provide an update of our experience with this dressing change protocol over a 15-year period.

**Methods:** Effective January 2005, we implemented our universal protocol of no dressing changes for five days after surgery. Reviewing a health system administrative database, all spine surgery cases involving instrumentation performed at our institution were captured. Surgical site infection (SSI) cases: superficial, deep, and organ space as defined by the Centers for Disease Control and Prevention (CDC), were identified by reviewing an infection control database. Fisher exact test was used to compare SSI rates in all instrumented fusion cases from January 1999 to December 2004 (prior to implementation of the dressing change protocol) to those from January 2005 to December 2013 (after the protocol was initiated).

**Results:** A total of 8,631 instrumented spine fusions were performed at a single institution from 1999 to 2013. Overall, after instituting our universal no-dressing-change protocol, SSI rates for all cervical, thoracic, and lumbar instrumented cases combined decreased from 3.9% (97/2473) to 0.93% (57/6158) ( $p < .0001$ ). The reduction in SSI rates was most significant for posterior cervical and posterior lumbar surgeries. After our dressing change protocol was implemented, we saw an improvement in SSI rates for posterior cervical instrumented cases from 3.2% (6/186) to 0.50% (4/815) ( $p = .0041$ ). Posterior lumbar instrumented fusion SSI rates dropped from 5.5% (65/1179) to 1.1% (32/2890) ( $p < .0001$ ).

**Conclusion:** Dressing changes in the immediate postoperative period are not necessary. Applying a sterile dressing in the operating room may serve as a barrier to nosocomial pathogens during hospitalization. Our data suggest this dressing change protocol may lead to reduced SSI risk. Leaving the original postoperative surgical dressing intact is safe, simple, and cost-effective.

© 2017 Scoliosis Research Society. All rights reserved.

**Keywords:** Dressing change; Surgical site infection; Adult spine deformity; Pediatric spine deformity

### Introduction

Despite modern advances in infection control measures, surgical site infections (SSIs) continue to be a major source of morbidity and mortality following spine surgery. SSI rates in spine surgery vary from 0% to 15%, depending on a variety of factors including operative diagnosis, surgical approach, number of operative levels, medical comorbidities, and the use of instrumentation [1-8]. The implications for patients who develop an SSI following spine surgery

are concerning, as SSIs can increase the risk of adverse clinical outcomes including pseudoarthrosis, deformity, implant-bone failure, osteomyelitis, and even death. Postoperative infections can require additional surgery and prolonged administration of systemic antibiotics, and they can retard postoperative recovery and therapy. SSIs, in general, are associated with a fivefold increase in readmission and reoperation rates and a doubling of mortality risk [9].

The costs associated with SSIs are worrisome from a socioeconomic standpoint, as well. SSIs can extend a patient's hospitalization by 9.7 days and increase costs by \$20,842 per admission. In addition, SSIs cause nearly one million additional inpatient days and \$1.6 billion in excess health care costs annually [10]. The resources used to treat SSIs have been shown to increase health care costs by 300% [11]. In the current health care climate,

Author disclosures: none.

\*Corresponding author. Northern California Regional Spine Center, Kaiser Permanente Oakland Medical Center, 3600 Broadway, Suite 15, Oakland, CA 94611, USA. Tel.: (510) 752-6565; fax: (510) 752-1530.

E-mail address: [Ravi.s.bains@kp.org](mailto:Ravi.s.bains@kp.org) (R.S. Bains).

reimbursements for certain procedures from the Centers for Medicare and Medicaid Services can be withheld for cases involving SSIs. Thus, more and more emphasis is being placed on patient outcomes assessment and resource utilization. SSIs are a commonly used measure to evaluate quality of outcomes in spine surgery.

The importance of reducing SSIs has long been recognized in spine surgery. To that end, several advances have resulted in terms of sterile and surgical techniques, surgical instrumentation, mechanics of the operating room, and perioperative intravenous and local antibiotic administration [12]. However, there is really no scientific evidence regarding the relationship between postoperative dressing changes and SSIs. Nor is there any consensus on the optimal management of postoperative dressings. In general, dressing changes are performed at an interval of 2 to 3 days after surgery and dressings are discontinued at end of 10 to 14 days after surgery. This is a practice developed during surgical training that has been passed on to subsequent generations of surgeons despite no evidence in the literature. In addition, how to manage postoperative wound dressings after the initial dressings are removed is unclear and based purely on surgeon preference, anecdotal experiences, and training.

Starting in January 2005, our team of six spine surgeons initiated a dressing change protocol. We kept the initial wound dressing intact for the first five days following surgery and then left the wound open to air. The purpose of this study was to present our experience with this dressing change protocol. Specifically, the aim of this paper was to evaluate if there were any changes in SSI rates when dressing changes were avoided altogether in the postoperative period. SSI is a multifactorial issue and we did not intend to prove that infection rates are reduced by not changing the dressings alone. We hypothesized that by keeping the wound covered for the first five days after surgery, we could reduce exposure of surgical wounds to nosocomial pathogens during the inpatient period and, thus, decrease SSI rates.

## Materials and Methods

After obtaining institutional review board approval, a retrospective review of our electronic medical record system was performed from January 1999 to December 2013. All patients who underwent a spine fusion procedure were identified by querying our electronic medical record system for International Classification of Disease (ICD-9) procedure codes for spine arthrodesis and/or instrumentation. Six spine surgeons at a single institution during this time period performed a total of 8,361 instrumented spine surgeries. Demographics of patient population are given in Table 1.

Patients with SSIs were captured using data compiled by our infection control team. The infection control team monitors SSI rates through various surveillance methodologies, including the following:

Table 1  
Demographics of patient population.

Variables	n	%
Study sample	8,631	
Age		
18–29	216	2.5
30–39	440	5.1
40–49	1,381	16
50–59	2,158	25
60–69	2,330	27
70–79	1,641	19
80–89	440	5.1
≥90	25	0.3
Gender		
Female	4,574	53
Male	4,057	47
BMI		
<30	5,437	63
30–35	1,986	23
≥35	1,208	14
ASA classification		
1	302	3.5
2	4,919	57
3	3,022	35
4 or 5	155	1.8
Missing	233	2.7
Yes	4,549	52.7
Smoking history		
No	3,944	45.7
Unknown	138	1.6

ASA, American Society of Anesthesiologists; BMI, body mass index.

1. Daily review of readmissions for postoperative infections based on diagnosis codes.
2. Daily review of operative cases performed to identify any patients requiring operative debridement due to an SSI.
3. Review of electronic records to identify any clinical documentation suggesting SSI within 30 days of surgery.

For the purposes of this study, we used the definition of an SSI as put forth by the Centers for Disease Control and Prevention (CDC). A superficial/incisional SSI is an infection that occurs within 30 days after surgery with one of the following: purulent drainage, positive culture, one sign or symptom of infection (such as tenderness or erythema), or diagnosis made by an attending physician or surgeon. A deep incisional SSI occurs within one year of surgery when spine implants are in place or within 30 days if no implant is used. These deep SSIs occur at or below the fascia with one of the following: purulent drainage, deep fascial dehiscence, abscess, or diagnosis made by an attending physician or surgeon. An organ space SSI occurs within one year of surgery when spine implants are present or within 30 days when there are no spinal implants. An organ space SSI, as defined by the CDC, is related to the spine surgery and involves any part of the anatomy (other than the incision) that was involved in the surgery.

Download English Version:

<https://daneshyari.com/en/article/5712529>

Download Persian Version:

<https://daneshyari.com/article/5712529>

[Daneshyari.com](https://daneshyari.com)