

The 2014 Update of CDC/HICPAC[†] Guidelines for Surgical Site Infection (SSI) Prevention

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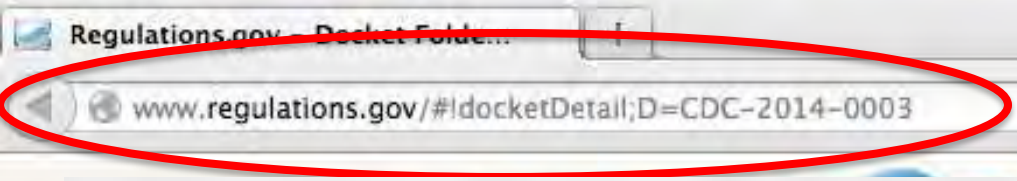
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and

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www.regulations.gov/#!docketDetail;D=CDC-2014-0003

Draft Guideline for the Prevention of Surgical Site Infections

Docket Folder Summary

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Docket ID: CDC-2014-0003

Agency: Centers for Disease Control and Prevention (CDC)

Parent Agency: Department of Health and Human Services (HHS)

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Draft Guideline—Centers for Disease Control and Prevention Draft Guideline for the Prevention of...

Notice Posted: 01/30/2014 ID: CDC-2014-0003-0001

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Current Status

- Final draft completed and reviewed by HICPAC (Healthcare Infection Control Practices Advisory Committee) prior to Federal Registry placement for public comment
- Public comments presented to HICPAC April 2014
- Final approval scheduled for July 2014


GUIDELINE FOR PREVENTION OF SURGICAL SITE INFECTION, 1999

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The Hospital Infection Control Practices Advisory Committee

Hospital Infections Program
National Center for Infectious Diseases
Centers for Disease Control and Prevention
Public Health Service
US Department of Health and Human Services

Hospital Infection Control Practices Advisory Committee Membership List, January 1999



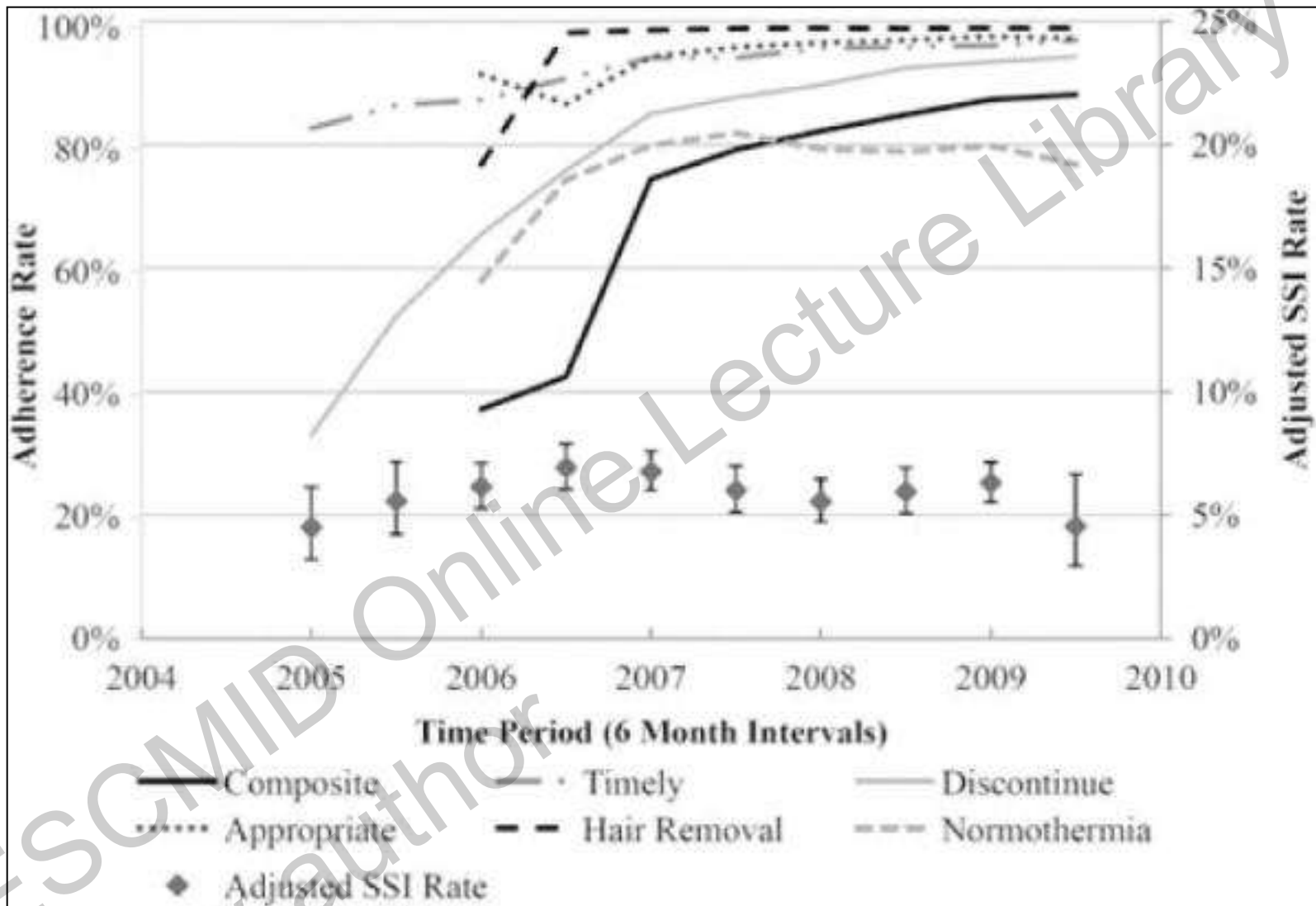
The Background

The update to the 1999 guidelines are driven by two issues:

- Use of compliance rates with guideline-based performance measures as a payment index
- Concern for the rapid increase in joint replacement volume

How the Surgical Care Improvement Project Works

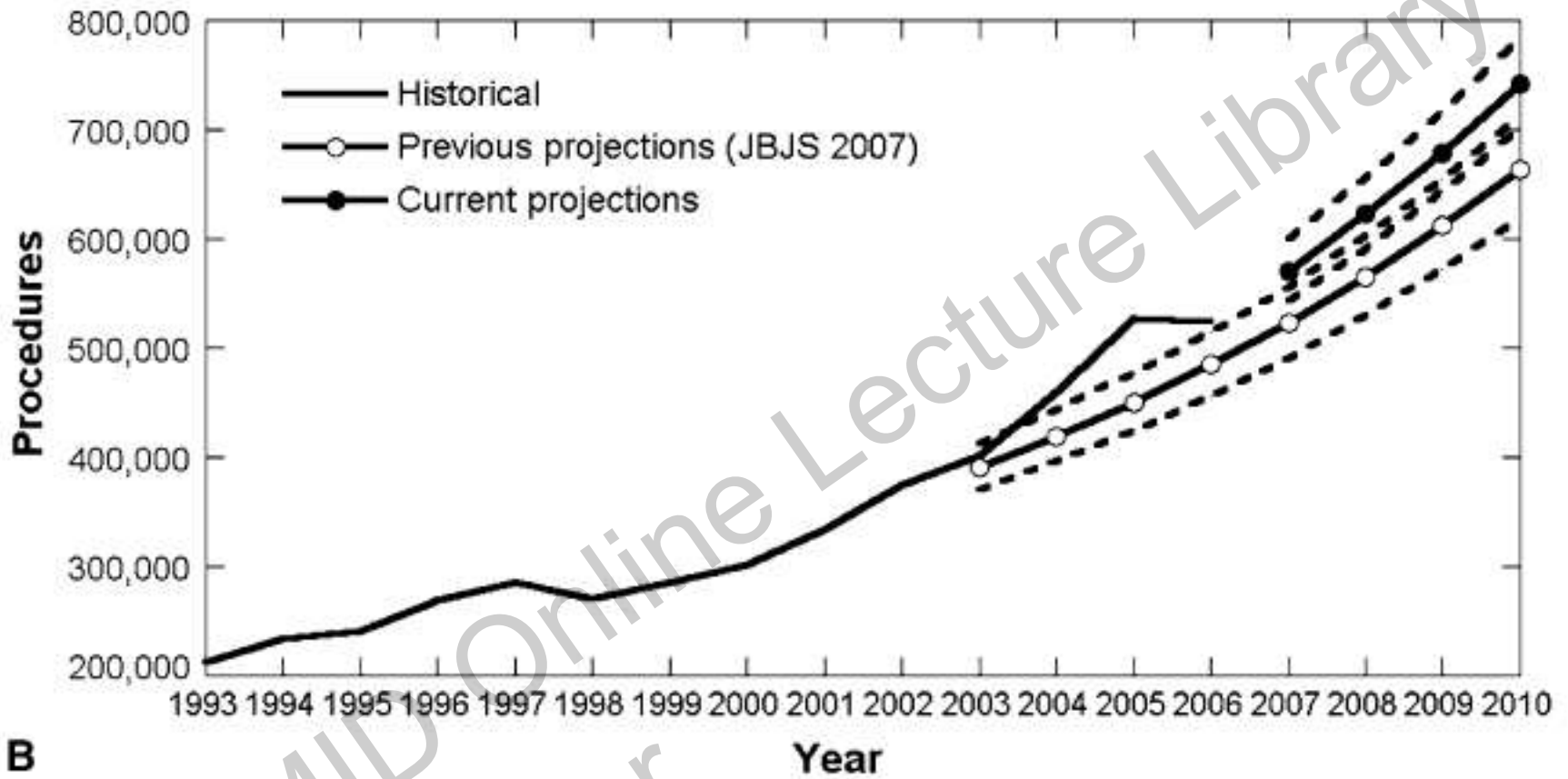
- For each patient undergoing operation, hospitals report to the government (CMS/CDC) if SCIP measures were met
- If hospitals have <90% compliance, payment from CMS is reduced by 1-3%
- Compliance rates are reported to the public through the internet



Surgical Site Infection Prevention: Time to Move Beyond the Surgical Care Improvement Program.

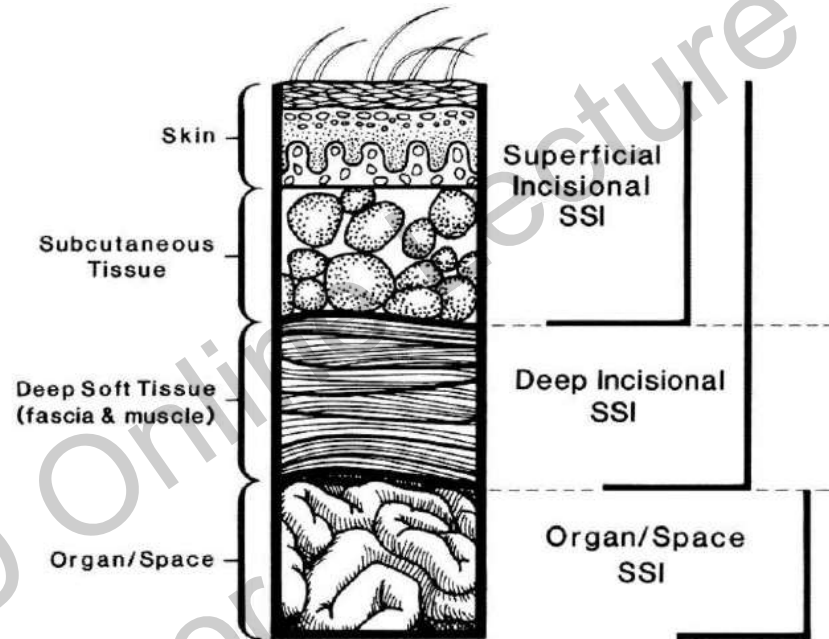
Hawn, Mary; Vick, Catherine; Richman, Joshua; et al:

Annals of Surgery. 254(3):494-501, September 2011.



Kurtz SM, Lau E, Watson H, et al: Economic burden of periprosthetic joint infection in the United States. J Arthroplasty. 2012 Sep;27(8 Suppl):61-65

Other Relevant Changes: CDC/NNIS/NHSN Anatomy of Surgical Site Infection



Anderson DJ, Chen LF, Sexton DJ, Kaye KS. Complex surgical site infections and the devilish details of risk adjustment: important implications for public reporting. *Infect Control Hosp Epidemiol.* Oct 2008;29(10):941-946.

NHSN Modifications to Reporting Definitions

- Superficial incisional SSIs often do not require hospitalization and are inconsistently diagnosed by post-discharge surveillance
- Deep incisional and organ space infections are considered “complex” SSIs
 - In most series, complex SSIs represent about one-third to one-half of SSI
 - Complex SSIs typically require re-hospitalization, drainage or debridement, and systemic antimicrobial therapy
 - These infections generate considerable morbidity, cost, and even mortality.

How Big a Problem are Surgical Site Infections in the US?

NHSN 2011

Procedure	#Procedures	# Infections	Infection Rate (%)
CABG	87,934	926	1.05
Small bowel surgery	12,262	259	2.11
Colon surgery	68,702	1663	2.42
Abdominal hysterectomy	82,082	524	0.64
Hip prosthesis	180,996	1,422	0.79

Guideline Methodology in Modern Healthcare

- Guidelines are systematically developed and often aimed to produce process measures
- Guidelines are based on systematic review to identify all relevant work and rigorous quality/strength scoring of individual studies - GRADE to the fore
- Over the past 10-15 years, the use of guidelines has significantly improved outcomes, particularly if coupled with government policy

Formulating Recommendations

Key inputs

Values and preferences used to determine the “critical” outcomes

Overall GRADE of the evidence for the “critical” outcomes

Net benefits, net harms, or trade-offs that result from weighing the “critical” outcomes

Recommendations

Strong or weak (strength)

Overall GRADE Quality of Evidence

High

Further research is *very unlikely* to change confidence in the estimate of effect

Moderate

Further research is *likely* to impact confidence in the estimate of effect and *may change* the estimate

Low

Further research is *very likely* to impact confidence in the estimate of effect and is *likely to change* the estimate .

Recommendation Levels

IA	A <u>strong</u> recommendation supported by <u>high to moderate quality evidence</u> suggesting net clinical benefits or harms
IB	A <u>strong</u> recommendation supported by <u>low-quality evidence</u> suggesting net clinical benefits or harms, <u>or an accepted practice</u> supported by low to very low-quality evidence
II	A <u>weak</u> recommendation supported by <u>any quality evidence</u> suggesting a <u>tradeoff</u> between clinical benefits and harms
No rec	An <u>unresolved issue</u> for which there is either <u>low to very low-quality evidence</u> with <u>uncertain tradeoffs</u> between benefits and harms or <u>no published evidence on outcomes deemed critical</u> to weighing the risks and benefits of a given

CDC/HICPAC Recommendations

IA

Antimicrobial prophylaxis

Glycemic control

Normothermia

Oxygenation

Intraoperative skin preparation

IB

Preoperative bathing/showering
(for)

Antimicrobial irrigation of wound
(against)

II

Autologous platelet rich plasma in the wound

Antimicrobial coated sutures

Antimicrobial sealant

Adhesive drapes

Intraoperative antiseptic irrigants

Antibiotic Prophylaxis

- Optimal timing for administration is begin the infusion within 60 minutes of the incision (**Category IB**)
- Adjust dose based upon actual body weight (**No recommendation**)
- Administer additional antibiotics every 1-2 half-lives of agent used (**No recommendation/unresolved issue**)
- In clean and clean-contaminated procedures, do not administer additional prophylactic antimicrobial agent doses after the surgical incision is closed in the operating room, even in the presence of a drain. (**Category IA**)

Comments on ASHP/SHEA/IDSA/SIS Prophylaxis Recommendations

- Not based on GRADE review
 - No validation of weight-based dosing and intra-operative dosing in clinical outcome studies
-
- These practices are intended to reduce infection rates 1-2% (maximal)
 - Risk of toxicity from overdosing not known

Avoid Hyperglycemia

- Implement perioperative glycemic control and use blood glucose target levels $<200\text{mg/dL}$ in diabetic and non-diabetic patients. (**Category IA**)
- No recommendation can be made regarding the safety and effectiveness of lower ($<200\text{mg/dL}$) or narrower blood glucose target levels, nor the optimal timing, duration, or delivery method of perioperative glycemic control for the prevention of surgical site infection. (No recommendation/unresolved issue)

Maintain Normothermia

- Maintain perioperative normothermia (**Category IA**)
- **No recommendation** can be made regarding the safety and effectiveness of strategies to achieve and maintain normothermia, the lower limit of normothermia, or the optimal timing and duration of normothermia for the prevention of surgical site infection.

Provide Oxygen

- For patients with normal pulmonary function undergoing general anesthesia with endotracheal intubation, administer increased fraction of inspired oxygen (FiO_2) both intraoperatively and post-extubation in the immediate postoperative period. To optimize tissue oxygen delivery, maintain perioperative normothermia and adequate volume replacement (Category IA)

Preoperative Care

- Require patients to shower or bathe (full body) with either soap (antimicrobial or non-antimicrobial) or an antiseptic agent on at least the night before the operative day (**Category IB**)
- Perform intraoperative skin preparation with an alcohol-based antiseptic agent, unless contraindicated (**Category IA**)

What to Put In or On the Wound

- No recommendation can be made regarding the safety and effectiveness of intraoperative antimicrobial irrigation (e.g., intra-abdominal, deep or subcutaneous tissues) for the prevention of surgical site infection. **(No recommendation/unresolved issue)**
- Use of antimicrobial coated sutures is not necessary for the prevention of surgical site infection. **(Category II)**
- Do not apply antimicrobial agents (i.e., ointments, solutions, powders) to the surgical incision for the prevention of surgical site infection **(Category IB)**

Conclusions

- CDC Update is not intended as a clinical practice guideline
- The key new recommendations concern timing of AMP, avoidance of hyperglycemia, maintenance of normothermia, and adequate oxygenation
- Individual hospitals are encouraged to develop their own policies and procedures in areas not addressed in this guideline