

Surgical Site Infection Prevention Protocol for Total Joint Arthroplasty

(Developed by ID/Stewardship, IPC, and Orthopaedics)

Last edited/reviewed 9/23/22

Pre-Hospital

- ☒ Patient Education
- ☒ 6 Chlorhexidine Gluconate wipes at home the evening before surgery per protocol
- ☒ Pre-op evaluation & tight control of blood glucose in Diabetics; Target HgbA1C < 8 if age < 70; < 9 if age >70
- ☒ Smoking cessation strongly emphasized; increased risks discussed with patient
- ☒ No intra-articular injections for 3 months prior to surgery

Pre-operative phase:

- ☒ Preoperative hair clipping in the pre-operative area if required
- ☒ 6 Chlorhexidine Gluconate wipes per protocol focusing on surgical site (avoid eyes/ears)
- ☒ Betadine nasal swab anti-sepsis in the pre-op area

Intra-operative phase:

Anesthesia:

- ☒ Antibiotic prophylaxis as per chart below, 30-60 minutes prior to incision
- ☒ The use of pre-loaded antibiotic impregnated cement in patients with DM, CKD, BMI>45, immunocompromise or other conditions at higher risk for infection

Surgeon/House-staff:

- ☒ Surgical field preparation with alcohol followed by 2% chlorhexidine gluconate -70% isopropyl alcohol or Iodine Povacrylex 0.7% available iodine and 74% isopropyl alcohol
- ☒ Use of "space suit" helmet, and gown systems for everyone on the surgical field, including relief staff

All Staff:

- ☒ Scrubs may not be worn outside of the hospital
- ☒ Entrance to the OR should only through the sub-sterile.
- ☒ Entrance to the OR suite should be kept **closed**
- ☒ OR Room traffic kept to a minimum
- ☒ Hand hygiene on entry and exit of rooms

I. Preoperative Antibiotic Prophylaxis - **NO history of recent infection:**

- NKDA patients or non-type I hypersensitivity reaction (**unknown or remote, non-urticarial rash**, etc.):
 - ☐ Cefazolin 1-3g based on age, weight, renal function (see page 3 for dosing guidelines)
- Patients with **immediate hypersensitivity reaction** to either penicillin or cephalosporin should **NOT** get either agent (**hives/urticarial, anaphylaxis, angioedema, facial swelling, bronchospasm, or intubation**); instead order:
 - ☐ Vancomycin 1-1.5g infused slowly; based on weight (see below for dosing guidelines)

II. Preoperative Antibiotic Prophylaxis – REVISION after completion of treatment for infection:

- PLEASE CALL ID PRIOR TO ALL CASES TO CUSTOMIZE PROPHYLAXIS:
 - Patients with history of **MRSA** infections should receive Vancomycin (15mg/kg, 1.5g for patients >100kg infused slowly OR Daptomycin 6mg/kg x 1); note that both agents will cover all species of Staphylococci and Streptococci
 - Patients with history of **MSSA** or **Streptococcal** infections should receive **Cefazolin 1-3g**
 - Patients with history of infection with **Gram negatives, Enterococcus, or other bacteria** should receive regimen to cover skin flora in addition to specific bacteria – **please call ID / Stewardship**
 - Patients with **immediate hypersensitivity reaction** to either penicillin or cephalosporin (hives/urticarial, anaphylaxis, angioedema, facial swelling, bronchospasm, or intubation) should receive **Vancomycin** (15mg/kg; 1.5g for patients >100kg OR Daptomycin 6mg/kg x 1)
 - Daptomycin requires upfront ID/stewardship approval; see pre-op ID/ASP note in EPIC for details

III. Preoperative Antibiotic Prophylaxis – ACTIVE infection:

- **ID consult** to discuss intra-operative, and post-operative antibiotic selection; contact Priya Nori or Jack Bao from ID/Stewardship for immediate assistance
- If possible, **hold antibiotic prophylaxis** until OR specimens obtained for culture. Discuss with ID/stewardship if AFB and/or fungal cultures are needed as these are very rare infections. Prioritize aerobic/anaerobic cultures.
- For upper extremity infected cases, cultures will be held for C. acnes recovery, for lower extremity infected cases, email microbiology supervisor (pgialane@montefiore.org) to request longer incubation if cultures are “negative” at 72h.

IV. Postoperative management

- ☑ Maintain glucose below 180mg/dl.
- ☑ Antibiotics to be completed within **24 hours** of surgery for primary cases, administer same dose as initial; frequency depends on CrCl; can contact ID/stewardship for assistance
 - Cefazolin 1-3g (Q8h for normal renal function)
 - Vancomycin 1g (Q12h for normal renal function)
- ☑ Dressing sterility maintenance for 24 hours from the time of surgery
- ☑ ID consult for suspected infections; ID outpatient follow up requested by email to OPAT@montefiore.org

Antibiotic Dosing Guidelines

Antibiotic	Dose (IV)	Instructions	Suggested intra-op <u>re-dosing</u> interval (normal renal function)
Cefazolin	1g for weight <60kg, age >80, or CrCl ≤30 ml/min 2g for weight ≥ 60kg to <120kg 3g for weight ≥ 120kg, CrCl ≥55 ml/min	Slow IV push over 5 min, or infusion over 30-60 minutes	4 hours OR Estimated Blood Loss >1.5L
Vancomycin (requires stewardship approval after 72h)	15mg/kg 1.5g for patients >100kg	DO NOT IV push; avoid infusion reactions: 1g: 60 min infusion 1.5g: 90 min infusion	8-12 hours OR Estimated Blood Loss >1.5L

References:

ASHP Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. Am J Health Syst Pharm. 2013 Feb 1;70(3):195-283.