**Title: PRIMARY TOTAL KNEE & HIP MRSA PRE-OP SCREENING & ANTIBIOTIC PROPHYLAXIS GUIDELINE**

**Target Audience:**
Orthopaedic Surgeons on staff at any MHS facility who perform primary total knee and hip joint replacement procedures; Anesthesiologists on staff at any MHS facility; MHS Pre-admission Clinic Nurses; MHS Perioperative Nurses and MHS Pharmacists.

**Scope/Patient Population:**
All patients scheduled for elective primary total hip or knee replacement surgery (screening step) and those with a positive methicillin resistant staphylococcus aureus screening result (antibiotic prophylaxis step).

**Objective:**
Reduce the likelihood of a post-operative MRSA Periprosthetic Joint Infection (PJI) in those patients found to be a carrier of Methicillin Resistant Staphylococcus Aureus (MRSA).

**Recommendations:**
- Screen all patients scheduled for elective primary total hip or knee joint replacement surgery at the time of their Pre-Admission Clinic appointment for MRSA.
- Patients found to be positive carriers of MRSA should receive the following peri-operative antibiotics:
  - **Pre-op Dose:** 15mg/kg Vancomycin IV piggyback (rounded in 250mg increments up to maximum dose of 1.5gm) **PLUS** 1g Cefazolin IV piggyback (2g if weight >80kg) or 900mg Clindamycin IV piggyback if beta-lactam allergy (for confirmed significant PCN or cephalosporin allergy) within 1 hour of incision.
    - Re-dose intraoperatively same pre-op antibiotic given (except Vancomycin) if Estimated Blood Loss is > 1000cc or the case is > 4hrs.
  - **1st Post-op Dose:** 1g Cefazolin IV piggyback (2g if weight >80kg) or 900mg Clindamycin IV piggyback if beta-lactam allergy (for confirmed significant PCN or cephalosporin allergy).
  - **2nd Post-op Dose:** 1g Cefazolin IV piggyback (2g if weight >80kg) or 900mg Clindamycin IV piggyback if beta-lactam allergy (for confirmed significant PCN or cephalosporin allergy).
- All post-op antibiotics should be discontinued within 24hrs after incision.
- Patients should use chlorhexidine gluconate (CHG) wipes to bathe the evening before surgery.
- Patients should use the CHG wipes again on the morning of surgery (provided at the hospital).
- All elective total joint patients, regardless of MRSA carrier status, should receive a single application of 3M Nasal Antiseptic (povidone-iodine solution 5%) just prior to going to the operating room.

**Rationale:**

Over 1.1 million hip and knee joint replacement procedures are performed annually in the US. Postoperative infection affect approximately 1 to 7% of all total joint arthroplasties Cost of care following a total joint infection is approximately $50,000. Patient lives are also negatively impacted as a result of a SSI. (Illingworth et al., 2013)

**Evidence:**

1. A randomized, double-blind, placebo-controlled study of patients undergoing clean-contaminated surgery comparing the use of povidone-iodine vs. CHG plus alcohol preoperative skin antisepsis found that CHG plus alcohol use was associated with significantly lower superficial and deep SSI rates.
3. Studies do show that CHG bathing substantially reduces the density of microorganisms on the skin that can lead to a SSI. The 1999 Hospital Infection Control Practices Advisory Committee (HICPAC) guideline for prevention of SSI recommend that patients bathe with an antiseptic agent at least the night before surgery.
6. The Institute for Healthcare Improvement published the “How-to Guide: Prevent Surgical Site Infection for Hip and Knee Arthroplasty”
8. Investigators have also found that using targeted Vancomycin in addition to Cefazolin resulted in a significant reduction in PJI resulting from methicillin-resistant organisms from 4.21% to 0.89%.
List of Implementation Items:

- Orthopedic Pre-Admission Order Set
- Total Knee Replacement Post-Op Order Set 418
- Total Hip Replacement Post-Op Order Set 591
- Primary Total Joint QlikView Quality Improvement Dashboard
- “Preparing the Skin Before Surgery” patient educational handout.
- Supporting MHS Policy: PREOPERATIVE SKIN CLEANSING
- Supporting MHS Policy: PREOPERATIVE ANTIBIOTIC DOSING PER PATIENT WEIGHT: PHARMACIST AUTOMATIC DOSAGE ADJUSTMENT

Metrics Plan:

- Measure SSI outcomes as currently performed by the Infection Prevention surveillance process
- Review all SSI cases
- Goal is to eliminate all Periprosthetic Joint Infections

PDCA Plan:

- The MMA Total Joint Program Medical Director will monitor SSI data and results on a quarterly basis and determine appropriate Quality Improvement countermeasures as indicated.
- Literature reviews will be conducted in partnership with the Infection Prevention department.

Point of Contact: MHS Total Joint Program Medical Director

Approval By: Medical Staff Committee(ies) if needed
Quality Steering Council

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