Observation Checklist of Surgical Site Infection (SSI) Prevention Best Practices

Johnson & Johnson MEDTECH

Observation Checklist of Surgical Site Infection (SSI) Prevention Best Practices

INFECTION RISK MANAGEMENT

Observation Date/Time: _____ Observer: _____

Type of Surgery Observed: _____ OR Room #: _____

Prevention Practice: Surgical Site Infection	Evidence Based Action to Mitigate Infection Risk	Method of Measurement	Assessment of SSI Prevention Practices		
			Meets Practice	Does not meet practice	Comment or not applicable
Pre-Operative Prevention Practices					
Normothermia	Forced air warming (FAW) or other method used to maintain peri-operative normothermia ≥36°C[1-5]	Patient has a FAW or other device in place upon entry to OR			
Nasal de-colonization	Pre-op nasal MRSA/MSSA screening for orthopedic, cardiac and spine surgery[2,3,6.7]	Pre-op checklist – results are documented in EMR			
	For MRSA/MSSA pre-op nasal and skin decolonization protocol with either mupirocin ointment or nasal antiseptic (povidone iodine or alcohol) and daily bathing with chlorhexidine for 5 days prior to surgery for orthopedic, cardiac and spine cases for patients with + MRSA/MSSA test.[6,7]	Interview with pre-op staff and or observation of practice in pre-op if done day of surgery in pre-op surgery unit			
	Universal pre-op nasal decolonization for orthopedic, cardiac and spine cases for patients regardless of pre-screening[8,9]	Interview with pre-op staff and or observation of practice in pre-op if done day of surgery in pre-op surgery unit			
Oral Health	Assess teeth and gum health for risks of secondary seeding of implant sites. (i.e. Orthopedic)10	Observe in Pre-Op			
Blood Loss Prevention: Immunosuppressive Effect of Blood Transfusion	Administration of Tranexamic acid (TXA) given in pre-op and postop (usually as a single pre-op dose)11	Check the EMR for dose administration			
Hyperglycemia	Patient blood glucose maintained less than 200 mg/dL in patients with and without diabetes for the perioperative period [2, 12, 13] Organizational policies may include A1c level vs BG. Typical A1c tight control range would be less than 7 .[12,13]	Check the EMR for pre-op glucose result			

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Intra-Operative Prevention Practices (Staff)					
Proper OR Attire	Mask fully covers mouth and nose.[14]	Observe during case for compliance			
	Attire worn in OR provides complete hair coverage – chest, arm, and head (Beards).[12]				
	Long sleeves worn by both scrubbed and non-scrubbed team members.[14]				
	Personal clothing is contained not visible within the scrub attire.[14]				
	Attire is laundered in a health care-accredited facility.[14]				
	Clean shoes are dedicated for use in OR or cloth booties are worn over outside shoes.[14]				
	Jewelry is not worn or is covered.[2,14,16]				
	Stethoscopes are not worn around neck and disinfected between cases.[14]				
	Briefcases, backpacks, computers, phones, smart wristwatches, and other personal items are restricted or disinfected prior to entry. No items stored on floor.[16]				
Gloving	Surgeon and scrubbed staff double glove.[2,15]				
	Surgeon changes sterile gloves prior to handling any implant.[2, 15]				
	Surgeon changes sterile gloves before closing incision.[15]				
Sterile Field Compromise	Items introduced onto sterile field are opened, dispensed, transferred while maintaining sterility.[15]				
	Scrubbed team members don sterile gowns and gloves in a manner to prevent contamination of attire or instrument tables.[15]				
	Conversations in the presence of a sterile field are kept to a minimum.[15]				
	Scrubbed staff do not turn back to sterile field.[15]				
	Hands above waist.[15]				

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Intra-Operative Prevention Practices (Staff)					
Sterile Field Compromise (cont.)	Physical separation of sterile team from non-sterile team.[15]	Observe during case for compliance			
	Open sterile field is covered when not in use by either the two-cuffed drape method or with a drape designed for the purposes of covering a sterile field. Parts of the sterile field may also be covered during the procedure.[15]				
	Constant monitoring of the covered sterile field during unanticipated delays is not required.[15]				
Traffic Flow	Interventions are in place to minimize traffic flow in and out of all procedures.[15]				
Anesthesia	Anesthesia provider wears double gloves, removes outer gloves/sheathes, laryngoscope handle and blade after intubation to reduce contaminating immediate environment.[16]				
	Anesthesia cart appears clean and un-cluttered[17]				
	Anesthesia cart - hand sanitizer readily available & in use routinely[16]				
	All medication vial tops are disinfected with alcohol before accessing, after popping off cover.[18]				
	Skin prep prior to any local anesthetic.[18]				
	IV injection ports swabbed prior to access or port protector/disinfector cap used.[18]				
Physical Environment – HVAC Controls	Doors closed, traffic in and out of room kept to minimum during case.[15]	Observe and count # door openings or install door counter			
	Positive air pressure[18,19]	Review documentation maintained by Engineering/ Facilities/Plant Operations			
	Minimum of 20 air changes/hour[18,19]				
	HEPA air filtration[18,19]				
	Temperature 68 to 75°F[18.19]				
	Humidity 20% to 60%[18.19]				
	Documented HVAC metrics are available for review.[19]				
	Staff educated in how system works and their roles in maintaining proper air flow.[19]				

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Intra-Operative Prevention Practices (Patient)					
Hand Hygiene	Hand sanitizing performed by any non-scrubbed staff as they enter OR.[16] Hand sanitizer dispenser mounted at entrance door to operating room (inside or outside).[16]	Observe before and during case			
	No artificial nails, no chipped nail polish, short natural nails for all members of surgical team.[16]	Observe before and during case for those not wearing gloves			
Parenteral Antimicrobial Prophylaxis	Administer prophylactic antimicrobial agents only when indicated based on established guidelines. When antibiotics are recommended, administer within 60 minutes prior to incision. For vancomycin, administration period is up to 2 hours prior to incision[2]	Check EMR for antibiotic administration			
	Prophylactic antibiotic dosing adjusted for weight of patient. For cefazolin, recommendations are to administer 2.0 g for patients weighing >60-80 kg and 3.0 g if >120 kg. For aminoglycosides, dosing is calculated using the patient's ideal body weight plus 40% of the difference between the actual and ideal body weight. Vancomycin should be dosed at 15 mg/kg.[2,13]	Check EMR for antibiotic administration			
Parenteral Antimicrobial Prophylaxis Re-dosing	Re-dosing of prophylactic antibiotic for long cases > 3 hours[2,13,21]	Surgeon will direct Anesthesia provider during case if needed Check EMR for administration			
CAUTI Prevention	Urinary drainage bag kept off the floor. Category 1)[22] If urinary catheter inserted prior to procedure, aseptic technique followed.[22]	Observe during case			
Hair Removal	If hair is removed in the operating room, it is performed prior to skin prep and in a manner that contains clipped hair with a clipper vacuum device[23-25]	Observe in Preoperative Holding Unit and OR			
Skin Preparation Type	Perform intraoperative skin prep with an alcohol based antiseptic agent unless contraindicated[23] Povidone iodophor or PCMX skin prep product used for mucous membranes (e.g., genitalia)[23]				

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Intra-Operative Prevention Practices (Patient)					
Surgical Hand Scrub	Pre-surgical hand scrub per protocol for scrubbed team members using antimicrobial solution plus brush OR brushless alcohol-based scrub product per manufacturer's recommendations.[2,16]	Observe if possible or review facility protocols			
Reduced Core Body Temperature	Forced air warming device or other method used to maintain intra-operative normothermia = ≥36°C1,[26]	Check Anesthesia Record and EMR			
Increased Oxygenation	For patients with normal pulmonary function undergoing general anesthesia with endotracheal intubation, administer increased FiO2 intraoperatively and post-extubating in the immediate postoperative period. To optimize tissue oxygen delivery, maintain perioperative normothermia and adequate volume replacement.[2,27]	Check Anesthesia Record and EMR			
Safe Medication Administration	Intra-capsular injection (total knee) comes sterile/prepared by pharmacy vs. prepared in OR to prevent contamination[28]	Check Anesthesia Record and EMR			
Wound Care (Intra-Op)	Wound edge protector for C Section, Lap, Ortho, Abdominal, Biliary procedures[2]	Check OR Record and EMR			
	FDA approved sterile irrigation solutions used to remove contaminants prior to closing wound (normal saline, chlorhexidine 0.05% or diluted betadine)[1,3]				
Wound Care	Antimicrobial coated suture used (for any type of suture including barbed)[1-3]	Check OR Record, EMR and observe during case			
	Suture used instead of staples.[30-32]				
	Skin glue (TSA) in addition to tape, staples or suture used to provide a sealed, sterile wound until skin starts to heal[33,34]				
	Antiseptic post op wound, dressings applied (silver, PHMB (i.e. Antimicrobial Island Dressing), CHG) for high risk procedures including cardiac, orthopedic, breast, bariatric[35-38]				

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Intra-Operative Prevention Practices (Patient: Colon Cases/Bundle ONLY)					
Wound Care (cont.)	Negative pressure wound dressings for sternotomy, C section in obese women, ORIF of high-risk lower extremity fractures (tibial plateau, pilot, calcaneal)[39]	Check OR Record, EMR and Observe during case			
Colon Prevention Bundle Element	Mechanical bowel prep and oral antibiotics before colorectal procedures[16] Sterile fields and instrumentation used during procedures that involve both the abdominal and perineal areas should be kept separate.[16]	Check, EMR and Observe during case			
	Barrier technique is used during bowel surgery[16]				
	Surgeon uses separate sterile instrument tray for closing incision in colon surgeries.[16]				
Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)					
Storage of OR Supplies	Items are stored in restricted areas.[42] Items are removed from their external shipping containers prior to OR storage[42]	Observed prior to or during case			
	Items labeled with an expiration date are not expired.[42]				
	Items stored in the OR are in closed cabinets.[42]				
	Items are stored to minimize dragging, sliding, or crushing.[42]				
	Clean personnel scrubs stored in clean area in closed cabinetry.[42]				
Instrumentation Processing	All containerized instrument sets weigh less than 25lbs.[42]	Conduct an audit of Sterile Processing Dept			
	No organic material (blood, hair, lint, tissue) or other debris is noted on instruments or in a set.[42]	Observed during the opening of the case			
	Paper plastic pouches are used for small, lightweight, low price profile item.[42]	Conduct an audit of Sterile Processing Department			
	If the item is double packaged, sequentially size pouches are used. The sealed in pouch fits inside the other pouch without folding. The pouches are positioned so that the plastic faces plastic and paper faces paper.[42]				
	Paper plastic pouches are not placed for use within wrapped sets or containment devices.[42]				

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Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)					
Instrumentation Processing (cont.)	Chemical indicators are located on the outside and inside of every package and checked for proper reactions.[42]	Conduct an audit of Sterile Processing Department			
	Wrapped packages are snug but not too tight[42]				
	Rigid containers are regularly inspected by manufacturer's representative according to manufacturer's written IFU.[42]				
	The integrity and proper alignment of the plate and filter or valves in rigid containers is inspected with each use in accordance the manufacturers' written IFU. Filters do not have visible holes.[42]				
	All gaskets in rigid containers are free of brakes, cracks, or cuts. Each gasket is properly secured and even at joint surfaces.[42]				
	The filter material in the rigid containers completely covers the perforated area, and the device holding the filter place.[42]				
	The latching mechanism is secure to the lid of the rigid container so that it cannot move when locked.[42]				
	Mechanical valves move freely. Rivets and screws are secure and show no signs of damage or corrosion.[42]				
	Items from offsite transportation are managed Properly[42]				
	Towels and gauze are labeled as lint free[42]				
	Automated cart distribution systems/pneumatic systems follow IFU for cleaning[42]				
Immediate Use Sterilization	The items are cleaned consistent with all devices process within the facility. Once cleaned, they are placed within a container intended for immediate use.[42]	Observed prior to or during case			
	The process items are transferred immediately to the sterile field in an ongoing surgical procedure.[42]				
	The physical layout of the department or work area Insures direct delivery of sterilized items to the point of view.[42]				
	Implantable items are not sterilized for immediate use.[42]				
Instrument Contamination	Point of use cleaning of sterile instruments (wipe and flush lumens – cover with gauze soaked in sterile water or other means of preventing drying of bioburden (enzymatic gels/ spray)[42]	Observe during case			

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Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)					
Environmental Contamination Prevention	Non-sterile equipment such as C-Arm covered by a clean barrier; sterile handles for microscope, lights or other equipment touched by scrubbed team members.[42]	Observe in OR			
Construction	Interventions are in place to minimize dust contamination when construction or remodeling is in and/or near operating room, sterile supply instruments or storage (i.e., barriers, traffic flow, particulate count).[20]				
Post-Operative Prevention Practices (Patient)					
Post-operative Wound Care	Aseptic dressing change - observe for signs of infection and document in health record including drainage and redness.[44]	Review EMR for documentation of education Discuss w/ staff after case in PACU, SDS or Inpatient Unit regarding patient discharge instruction			
	Frequent hand cleaning especially prior to touching/ changing dressing[45]				
	Daily patient bathing/clean clothes and bed linen change[46]				
Discharge	Discharge instructions include proper care of wound and limitations that may increase risk of infection. (i.e. wearing of unclean shoes after foot surgery).[44]	Check EMR for patient education			
	Patients with implants educated on the need to maintain good oral care and potential risk of infections after undergoing dental procedures.[47,48]				
Post-Operative Prevention Practices (Equipment)					
Transporting of OR Items	Unused items that previously have been packaged, sterilize, and issued to the OR are returned to the sterile storage area only if the integrity of the packaging has not been compromised and there is no evidence of contamination.[41,42] The reprocessing of single-use devices is performed according to FDA requirements.[41,42]	Observed after case			
	Soiled items are immediately contained and transported to the decontamination area or soiled utility area, where cleaning procedures can be accomplished away from patient care.[41,42]				
	Immediately after use, items are kept moist in the transport container by adding a towel moistened with water or a foam spray or gel products specifically intended for this use. Items are not transported in liquid.[41,42]				
	During transport clean or sterile items are contained and segregated from contaminated items, trash, and food.[41]				

References for SSI Prevention Best Practices

1. Berrios-Torres SI, Umscheid CA, Bratzler DW, et al. Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017. JAMA Surg. Aug 1 2017;152(8):784-791. doi:10.1001/jamasurg.2017.0904
2. Ban KA, Minei JP, Laronga C, Harbrecht BG, Jensen EH, Fry DE, Itani KM, Dellinger EP, Ko CY, Duane TM. American College of Surgeons and Surgical Infection Society: Surgical Site Infection Guidelines, 2016 Update. J Am Coll Surg. 2017 Jan;224(1):59-74. doi: 10.1016/j.jamcollsurg.2016.10.029. Epub 2016 Nov 30. PMID: 27915053.
3. World Health Organization. Global Guidelines for the Prevention of Surgical Site Infection. 2018. https://www.who.int/publications/i/item/global-guidelines-for-the-prevention-of-surgical-site-infection-2nd-ed
4. Madrid E, Urrútia G, Roqué I, Figuls M, et al. Active body surface warming systems for preventing complications caused by inadvertent perioperative hypothermia in adults. Cochrane Database Syst Rev 2016 Apr 21;4:CD009016.
5. Beltramini AM, Salata RA, Ray AJ. Thermoregulation and risk of surgical site infection. Infect Control Hosp Epidemiol. 2011;32(6):603–610.
6. Edmiston CE, Ledeboer NA, Buchan BW, Spencer M, Seabrook GR, Leaper D. Is staphylococcal screening and suppression an effective interventional strategy for reduction of surgical site infection? Surg Infect 2016;17:158-166.
7. Kim DH, Spencer M, Davidson SM, et al. Institutional prescreening for detection and eradication of methicillin-resistant Staphylococcus aureus in patients undergoing elective orthopedic surgery. J Bone Joint Surg Am 2010;92:1820-1826.
8. Franklin S. A safer, less costly SSI prevention protocol—Universal versus targeted preoperative decolonization American Journal of Infection Control, Volume 48, Issue 12, 1501 – 1503
9. Mullen A, et al. Perioperative participation of orthopedic patients and surgical staff in a nasal decolonization intervention to reduce Staphylococcus spp surgical site infections. American Journal of Infection Control, Volume 45, Issue 5, 554 – 556.
10. Young JR, Bannon AL, Anoushiravani AA, Posner AD, Adams CT, DiCaprio MR. Oral health implications in total hip and knee arthroplasty patients: A review. J Orthop. 2021 Feb 20;24:126-130.
11. Bryan AJ, Sanders TL, Trousdale RT, Sierra RJ. Intravenous Tranexamic Acid Decreases Allogeneic Transfusion Requirements in Periacetabular Osteotomy. Orthopedics. 2015 Dec 31:1-5.
12. Chen JY, Nassereldine H, Cook SB, Thornblade LW, Dellinger EP, Flum DR. Paradoxical Association of Hyperglycemia and Surgical Complications Among Patients With and Without Diabetes. JAMA Surg. Published online June 15, 2022. doi:10.1001/jamasurg.2021.5561
13. Edmiston C, Borlaug G, Davis JP, Gould JC, Roskos M, Seabrook GR. The Wisconsin Department of Health Services, Division of Public Health Supplemental Guidance for the Prevention of Surgical Site Infections: An Evidence-Based Perspective. 2017. https://www.dhs.wisconsin.gov/publications/p01715.pdf
14. AORN Guideline for Surgical Attire, 2019
15. AORN Guideline for Sterile Technique Guideline, 2018
16. AORN Guideline for Hand Hygiene, 2022
17. AORN Guidelines for Environmental Cleaning, 2020
18. Dolan, SA, Arias K, et al. APIC Position Paper: Safe Injection, Infusion, and Medication Vial Practices in Healthcare. AJIC 2017 Jul 1;44(7):750-7.
19. ANSI/ASHRAE/ASHE Addendum a to ANSI/ASHRAE/ASHE Standard 170-2017 Ventilation of Health Care Facilities
20. AORN Guideline for Design and Maintenance of The Surgical Suite, 2018.
21. Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. American Journal of Health-System Pharmacy 2013;70:195-283.
22. CDC Guideline for Prevention of Catheter-Associated Urinary Tract Infections. 2009 https://www.cdc.gov/infectioncontrol/pdf/guidelines/cauti-guidelines-H.pdf
23. AORN Guideline for Preoperative Skin Antisepsis, 2021
24. Charles E. Edmiston, Russell K. Griggs, Judith Tanner, Maureen Spencer, Gary R. Seabrook, David Leaper, Perioperative hair removal in the 21st century: Utilizing an innovative vacuum-assisted technology to safely expedite hair removal before surgery, American Journal of Infection Control, Volume 44, Issue 12,2016,Pages 1639-1644.
25. Spencer M, Barnden M, Johnson HB, Fauerbach LL, Graham D, Edmiston CE Jr. Perioperative hair removal: A review of best practice and a practice improvement opportunity. J Perioper Pract. 2018 Jun;28(6):159-166.
26. AORN Guideline for Prevention of Hypothermia, 2019
27. Belda FJ, Aguilera L, Garcia de la Asuncion J, et al. Supplemental perioperative oxygen and the risk of surgical wound infection: a randomized controlled trial. JAMA. Oct 26 2005;294(16):2035-42.
28. US Pharmacopeial Convention, Inc. General Chapter: Pharmaceutical Compounding – Sterile Preparations. United States Pharmacopeia 38 – National Formulary 33. Rockville, MD: United States Pharmacopeial Convention, Inc.; 2008:567-611.
29. Smith TO, Sexton D, Mann C, Donell S. Sutures versus staples for skin closure in orthopaedic surgery. BMJ 2010;340:c1199.
30. Tuuli MG, Rampersad RM, Carbone JF, Stamilio D, Macones GA, Odibo AO. Staples compared with subcuticular suture for skin closure after cesarean delivery: a systematic review and metaanalysis. Obstet Gynecol 2011;117:682- 690.
31. Basha SL, Rochon ML, Quiñones JN, Coassolo KM, Rust OA, Smulian JC. Randomized controlled trial of wound complication rates of subcuticular suture versus staples for skin closure at cesarean delivery. Am J Obstet Gynecol 2010;203:285-287.
32. Ando M, Tamaki T, Yoshida M et al. Surgical site infection in spinal surgery: a comparative study between 2-octyl-cyanoacrylate and staples for wound closure. Eur Spine J 2014;23;854-862.

33. Dumvill JC, Coulthard P, Worthington HV, et al. Tissue adhesives for closure of surgical incisions. Cochrane Database Syst Rev 2014;11;CD004287.
34. Krieger BR, Davis DM, Sanchez JE, et al. The use of silver nylon in preventing surgical site infections following colon and rectal surgery. Dis Colon Rectum 2011;54:1014e1019. 131.
35. Abboud EC, Settle JC, Legare TB, et al. Silver-based dressings for the reduction of surgical site infection: review of current experience and recommendation for future studies. Burns 2014;40[Suppl 1]:S30eS39.
36. Martín-Trapero C, Martín-Torrijos M, Fernández-Conde L, Torrijos-Torrijos M, Manzano-Martín E, Pacheco-Del Cerro JL, Díez-Valladares LI. Surgical site infections. Effectiveness of polyhexamethylene biguanide wound dressings. Enferm Clin. 2013 Mar 22. pii: S1130-8621(13)00036-3.
37. Hewish J. Understanding the role of antimicrobial dressings. Wounds Essentials 2012;1:84-90. http://www.wounds-uk.com/pdf/content_10457.pdf. Accessed February 13, 2017.
38. Norman G, Shi C, Goh EL, Murphy EMA, Reid A, Chiverton L, Stankiewicz M, Dumville JC. Negative pressure wound therapy for surgical wounds healing by primary closure (Review). for surgical wounds healing by primary closure. Cochrane Database of Systematic Reviews 2022, Issue 4. Art. No.: CD009261.
39. Migaly J, Bafford AC, Francone TD, Gaertner WB, Eskicioglu C, Bordeianou L, Feingold DL, Steele SR; Clinical Practice Guidelines Committee of the American Society of Colon and Rectal Surgeons. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Use of Bowel Preparation in Elective Colon and Rectal Surgery. Dis Colon Rectum. 2019 Jan;62(1):3-8. doi: 10.1097/DCR.0000000000001238. Erratum in: Dis Colon Rectum. 2019 Oct;62(10):e436. PMID: 30531263.
40. Chen M, Song X, Chen LZ, Lin ZD, Zhang XL. Comparing Mechanical Bowel Preparation With Both Oral and Systemic Antibiotics Versus Mechanical Bowel Preparation and Systemic Antibiotics Alone for the Prevention of Surgical Site Infection After Elective Colorectal Surgery: A Meta-Analysis of Randomized Controlled Clinical Trials. Dis Colon Rectum. Jan 2016;59(1):70-78. doi:10.1097/DCR.0000000000000524
41. ANSI/AAMI ST 79 Comprehensive guide to steam sterilization and sterility assurance in health care facilities , A5 2017
42. AORN Guideline for Instrument Cleaning, 2020.
43. AORN Guideline for Design and Maintenance of The Surgical Suite, 2018.
44. Greene L. Preventing surgical site infections. American Nurse Today. September 2015 Vol 10 No 9
45. Tartari E, et al. Patient engagement with surgical site infection prevention: an expert panel perspective Antimicrobial Resistance & Infection Control 6:45 May 12, 2017.Tartari_2017_
46. Dayton P. Study: Postoperative showering or bathing does not increase infection risk after foot, ankle surgery Journal Foot and Ankle Surgery. August 28, 2013.
47. Quinn, R. et al. The American Academy of Orthopaedic surgeons Appropriate Use Criteria for the Management of Patients with Orthopaedic Implants Undergoing Dental Procedures: J Bone Joint Surg Am 2017: 99:161-3
48. Sollecito, T et al The use of prophylactic antibiotics prior to dental procedures in patients with prosthetic joints. JADA 1 46 (1), January 2015