Study	Design	No of cases	Surgical prophylaxis	Aim	Methodology	Findings	Authors conclusion
Falconer (2016)	Retrospective case series	40	2 g of intra- venous cefazolin. Betadine-alcohol skin preparation antiseptic. iodine- impregnated adhesive drape	Identify potential sources of contamination during arthroplasty	Patients undergoing primary arthroplasty had swabs taken from subdermal layer, tip of surgeons gloves, inside scalpel blade, forceps and outside scalpel blade	Positive cultures from: Subdermal layer 30%; forceps 17.5%; tip of surgeons gloves 17.5%; outside scalpel 10%; inside scalpel 2.5%	P. acnes is a common contaminant and the subdermal layer may be source of contamination
Hatch (2017)	Economic decision analysis	n/a	Local application of 1g vancomycin powder into arthroplasty wound	Develop equation to evaluate the variables and the cost points at which the use of 1g vancomycin powder becomes cost effective as a prophylactic agent	Cost data of 16 patients treated for deep PJI was analysed and equation developed that would determine at what efficacy (ARR) 1g vancomycin powder. An PJI incidence of 4% was used based on literature	Vancomycin would be cost effective with an ARR range of 0.01%(at a cost of \$2.50/1000mg) to 0.19% (at a cost of \$44/1000mg)	We demonstrated the prophylactic administration of local vancomycin powder during shoulder arthroplasty to be a highly cost- effective practice.

					search		
Lorenzetti (2013)	Retrospective cohort study	55	2% chlorhexidine gluconate and 70% isopropyl alcohol with adhesive iodine- barrier drapes versus cyanoacrylate microbial sealant in addition to the alcohol-based preparation and adhesive iodine-barrier drapes. All patients received preoperative antimicrobial prophylaxis in accordance with Surgical	Evaluate whether the addition of cyanoacrylate microbial sealant to the surgical preparations of revision shoulder arthroplasty would decrease the prevalence of positive cultures.	Patients having revision shoulder arthroplasty between Jan 2005 and Dec 2011. Two separate cultures were taken from deep synovial tissue lining the prosthesis	In standard prep group 18% of cultures were positive versus 7% in cyanoacrylate sealant group (p=0.35). 3 infections in standard prep group versus 0 in the cyanoacrylate sealant group.	Our observations suggest application of a cyanoacrylate microbial sealant may reduce the prevalence of positive cultures

			Care Improvement Project (SCIP) guidelines				
Lovallo (2014)	Retrospective cohort study	507	IV Cefazolin or IV vancomycin if allergic to cephalosporins. Iodine impregnated adhesive drapes. In one group 160mg intra-articular gentamicin injected at the end of the operation	Evaluate whether intra-articular antibiotics reduces the risk of infection after total shoulder arthroplasty	Retrospective review of patients having total shoulder arthroplasty between 2005 and 2011. Infection was defined as increasing pain, elevated erythrocyte sedimentation rate and C- reactive protein level, clinical appearance	3.0% infection rate in patients prior to gentamicin injection versus 0.29% following gentamicin injection.	Intra-articular intraoperative gentamicin administration may reduce postoperative infection.

					of infection at the time of surgery, possible positive culture, and more than 10 white blood cells per high-power field. Beginning in June 2007, patients were also injected with 160 mg of gentamicin in the glenohumeral joint.		
Maccioni (2015)	Retrospective cohort study	32	intravenous cephazolin (2 g). 10% povidone-iodine solution skin disinfection. Ioban adhesive drape	Determine the rate of P acnes infection in arthritic shoulders using a strict specimen collection technique	Modified oxford sampling technique used to collect 6 samples from capsule/synovium of patients undergoing primary shoulder arthroplasty	3.125% of samples were positive for P. acnes. No patients went on to develop PJI	Low rate of positive cultures for P acnes, but no P acnes infection. Results do not support a cause- and-effect relationship between P acnes and osteoarthritis

Matsen (2015)	Retrospective case series	10	Skin preparation of the entire forequarter with ChloraPrep. Adherent plastic skin drapes were applied. IV ceftriaxone 2 g	Determine whether shoulders undergoing primary arthroplasty would have positive deep cultures for Propionibacterium despite aggressive antibiotic prophylaxis and skin preparation.	10 patients had samples taken from (1) dermis; (2) fascia; (3) capsule; (4) synovium and (5) glenoid tissue which were then cultured for P. acnes	14% of cultures were positive for P. acnes.	Preoperative antibiotics and skin preparation do not always eliminate Propionibacterium from the surgical field of primary shoulder arthroplasty.
Nowinski (2012)	Retrospective cohort study	501	Antibiotic- impregnated bone cement containing tobramycin, gentamycin, or vancomycin / tobramycin versus plain bone cement	Evaluate the effect of antibiotic-loaded bone cement vs plain bone cement on the prevention of deep infection after primary reverse TSA	Patients from four centres participated in retrospective data collection. Infections diagnosed by positive postoperative joint aspiration and confirmed during revision surgery by intraoperative cultures. A positive joint aspiration was	3.0% infection rate in the plain cement group versus 0% in the antibiotic loaded bone cement group (p<0.001)	Antibiotic- impregnated bone cement was effective in the prevention of postoperative deep infection after primary reverse total shoulder arthroplasty during short-term follow-up.

					defined as a positive culture or one that had >90% shift of polymorphonuclear leukocytes or >25,000/mm3 white blood cells on cell count.		
Phadnis (2016)	Retrospective case series	50	2 g intravenous cefazolin. 2% chlorhexidine gluconate and 70% isopropyl alcohol (ChloraPrep) skin disinfection	Investigate whether P acnes persists in the dermal layer of the skin, despite standard perioperative pre- cautions in consecutive patients undergoing open shoulder surgery.	Skin swabs taken pre- and post- skin preparation. After skin incision dermal swabs and biopsy taken	P. acnes present in 42% pre-skin prep, 14% post- skin prep samples, 52% of dermal swabs and 40% of dermal biopsies	Viable P. acnes persists within with skin dermis despite standard antimicrobial precautions.