

Dr. Leo's Literature Review
March 2023

Please see Dr. Leo's most recent literature review. Thank you, Dr. Leo! Also included is a contribution from Dr. Hanouneh. Thank you, Dr. Hanouneh!

1. EMS placed PIV is related with longer hospital durations as being associated with *S. aureus* bacteremia
2. CLABSI rates were not significantly different between patients with triple-lumen or double-lumen PICCs (22.1% vs 23.4%; $P = .827$)
3. Currently, there is a 4.9% rate of deep infection following spinal fusion surgery. Total rate of 6.6% (1.7% superficial SSIs and 4.9% deep-incisional SSIs)

<p><u>SHEA - 10/2022 - PIVs and Staph aureus Bacteremia</u></p>	<ul style="list-style-type: none">• We focused initial quality efforts on EMS-placed PVCs and found opportunities for improvement. Nursing staff did not routinely remove externally placed PVCs because PVC placement location was not readily apparent. Nursing informatics modified the manager and bedside nurse dashboards to highlight externally placed PVCs. Additionally,• <u>PVCs in place for ≥ 24 hours became a standard metric that infection preventionists reported on the daily safety call.</u>• We also evaluated <u>EMS PVC placement technique</u>. EMS PVC supplies included an alcohol swab, clear adhesive tape, tourniquet, macro/micro drip set or blood pump, 1,000-mL normal saline bag, and a PVC. <u>The tape and tourniquets were stored in an open area and were used on multiple patients.</u> Quality improvement efforts included introduction of sterile, single-use packages of CHG/IPA, semipermeable dressing, clear tape, tourniquet, extension tubing, and PVC.• Our initial evaluation of the postintervention data showed no infections in EMS-placed PVC, but there has been no decrease in overall PVC-related SAB.• Previous researchers have described 4 mechanisms contributing to PVC infection: contamination along the catheter line where it inserts into the skin, contamination via the catheter hub, inoculation from a bloodstream infection, and inoculation from a contaminated infusate. Reference Zhang, Cao and Marshé Next, researchers at our institution will investigate these factors as we strive for better quality and safety for patients.• Our findings suggest that longer length of hospital stay, but not individual PVC durations, are associated with a higher risk of infection. Although PVC duration has been shown to be a risk factor for infection in other studies, <u>the</u>
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	<p>routine removal of PVC has not been associated with <u>better outcomes</u>. In fact, a randomized-controlled trial found that clinically indicated replacement of PVC has an equivalent infection risk to routine replacement. Reference Rickard, Webster and Wallis7 Clinically indicated replacement also has patient satisfaction benefits such as fewer needle sticks to patients in the hospital.</p> <ul style="list-style-type: none"> • This study had several limitations. It had a single-center design and relatively small number of bloodstream infections. We focused our attention on SAB because it is a common, serious bloodstream infection often due to a break in the skin, but we did not evaluate bacteremia due to other pathogens because it would have been very difficult to determine the source of infection in many cases. The strengths of the study included a case-control design and the use of standardized NHSN definitions to determine the source of bacteremia. • <u>In summary, our analyses identified EMS-related PVC and longer hospital durations as being associated with SAB. In addition to our EMS-specific interventions, we will address hand hygiene, hub-cleansing procedures, and catheter securement in the near future</u> • https://doi.org/10.1017/ice.2022.15 - Peripheral venous catheters: An underrecognized source of <i>Staphylococcus aureus</i> bacteremia
<p><u>SHEA - 10/2022 - impact of number of lumens in CVC insertion and CLABSI</u></p>	<ul style="list-style-type: none"> • This retrospective study was conducted to determine whether the number of peripherally inserted central-catheter lumens affected the rate of central-line associated bloodstream infections (CLABSIs) in adult patients with acute leukemia. <u>The results show that CLABSI rates were not significantly different between patients with triple-lumen or double-lumen PICCs (22.1% vs 23.4%; P = .827)</u> • https://doi.org/10.1017/ice.2021.423
<p><u>SHEA - 10/2022 - Risk and economic burden of surgical site infection following spinal fusion in adults</u></p>	<ul style="list-style-type: none"> • Retrospective, observational cohort analysis of 210,019 patients undergoing SFS from 2014 to 2018 using IBM MarketScan commercial and Medicaid-Medicare databases. • Overall, 6.6% of patients experienced an SSI, 1.7% superficial SSIs and 4.9% deep-incisional SSIs, with a median of 44 days to presentation for superficial SSIs and 28 days for deep-incisional SSI • <u>Selective risk factors included</u> <ul style="list-style-type: none"> ○ surgical approach,

	<ul style="list-style-type: none"> ○ admission type, ○ payer, and ○ higher comorbidity score • We identified a 4.9% rate of deep infection following SFS, with substantial payer burden • DOI: https://doi.org/10.1017/ice.2022.32
<u>Contribution from Dr. Hanouneh</u>	
<p>JASN article supporting using Jardiance for SIADH treatment:</p>	<p>Summary: In this randomized, double-blind, placebo-controlled, crossover trial, they compared 4-week treatment with empagliflozin 25 mg/d to placebo in outpatients with chronic SIAD-induced hyponatremia. Fourteen patients. Median serum sodium level at baseline was 131 mmol/L (IQR, 130–132). After treatment with empagliflozin, median serum sodium level rose to 134 mmol/L (IQR, 132–136), whereas no increase was seen with placebo (130 mmol/L; IQR, 128–132), corresponding to a serum sodium increase of 4.1 mmol/L (95% confidence interval [CI], 1.7 to 6.5; P50.004).</p>
<p>A new paper in Journal of Clinical Endocrinology and Metabolism-Oxford Academic: Compared the efficacy and safety of 100 and 250 ml NaCl 3% rapid bolus therapy as initial treatment of severe hypotonic hyponatremia</p>	<p>Conclusion: <u>Initial treatment of severe hypotonic hyponatremia is more effective with a NaCl 3% bolus of 250 ml than of 100 ml and does not increase the risk of 24 overcorrection</u></p>