Continuous Passive Disinfection of Catheter Hubs Prevents Contamination and Bloodstream Infection
Marc-Oliver Wright, MT (ASCP), MS, CIC
Jackie Tropp, RN, MSN
Donna M. Schora, MT (ASCP)
Mary Dillon-Grant, RN, MSN
Kari Peterson, BS
Sue Boehm, RN
Ari Robicsek, MD
Lance R. Peterson, MD

BACKGROUND
Catheter hub decontamination requires a thorough scrub and compliance varies. This study evaluates the effectiveness of a disinfection cap with 70% alcohol in preventing contamination/infection.

METHODS
A 3-phased, multifacility, quasi-experimental study of adult patients with central lines divided into P1 (baseline), when the standard scrub was used; P2, when the cap was used on all central lines; and P3, when standard disinfection was reinstituted. House-wide central-line associated bloodstream infection (CLABSI) rates are reported with catheter-associated urinary tract infections (CAUTI) as a control measure. Adults with peripherally inserted central catheters inserted during hospitalization having 5+ consecutive line-days gave consent and were enrolled, and 1.5 mL of blood was withdrawn from each lumen not in use and quantitatively cultured.

RESULTS
Contamination was 12.7% (32/252) during P1; 5.5% (20/364) in P2 (P = .002), and 12.0% (22/183; P = .88 vs P1 and P = .01 vs P2) in P3 (P = .001 vs P2). The median colony-forming units per milliliter was 4 for P1, 1 for P2 (P = .009), and 2 for P3 (P = .05 vs P2). CLABSI rates declined from 1.43 per 1,000 line-days (16/11,154) to 0.69 (13/18,972) in P2 (P = .04) and increased to 1.31 (7/5,354) in P3. CAUTI rates remained stable between P1 and P2 (1.42 and 1.41, respectively, P = .90) but declined in P3 (1.04, P = .03 vs P1 and P2).

CONCLUSION
Disinfecting caps reduce line contamination, organism density, and CLABSIs.