

# Continuous Passive Disinfection of Catheter Hubs Prevents Contamination and Bloodstream Infection

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## 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 P<sub>1</sub> (baseline), when the standard scrub was used; P<sub>2</sub>, when the cap was used on all central lines; and P<sub>3</sub>, when standard disinfection was reinstated. 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inserted during hospitalization having 5+ consecutive line-days gave consent and were enrolled, and 1.5 mL of blood was withdrawn from each lumen not in use and quantitatively cultured.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 P<sub>1</sub>; 5.5% (20/364) in P<sub>2</sub> ( $P = .002$ ), and 12.0% (22/183;  $P = 0.88$  vs P<sub>1</sub> and  $P = .01$  vs P<sub>2</sub>) in P<sub>3</sub> ( $P = .001$  vs P<sub>2</sub>). The median colony-forming units per milliliter was 4 for P<sub>1</sub>, 1 for P<sub>2</sub> ( $P = .009$ ), and 2 for P<sub>3</sub> ( $P = .05$  vs P<sub>2</sub>). CLABSI rates declined from 1.43 per 1,000 line-days (16/11,154) to 0.69 (13/18,972) in P<sub>2</sub> ( $P = .04$ ) and increased to 1.31 (7/5,354) in P<sub>3</sub>. CAUTI rates remained stable between P<sub>1</sub> and P<sub>2</sub> (1.42 and 1.41, respectively,  $P = .90$ ) but declined in P<sub>3</sub> (1.04,  $P = .03$  vs P<sub>1</sub> and P<sub>2</sub>).

## CONCLUSION

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