# Letters

COMMENT & RESPONSE

## For and Against Routine Removal of Peripheral Intravenous Catheters

**To the Editor** Dr Buetti and colleagues provided reassuringly low rates of bloodstream infection (BSI) of less than 1 case per 10 000 peripheral intravenous catheter (PVC) regardless of removal policy.[1] However, routine replacement was associated with statistically fewer PVC-BSI cases compared with clinically indicated replacement (0.005% [46 of 130 779 PVCs] vs 0.035% [15 of 281 852]). Their finding may be subject to a type 1 error and is the inverse of a meta-analysis of 9 well designed, randomized clinical trials (RCTs) that found slightly fewer PVC-BSI cases with clinically indicated replacement than with routine replacement (0.028% [1 of 3590 patients] vs 0.053% [2 of 3733 patients]).[2,3]

In the study by Dr Buetti and colleagues[1] and in the RCTs,[2,3] the difference in BSI cases with routine vs clinically indicated PVC removal was consistently very small, ruling out a larger effect size of the intervention. Two-thirds of PVC-BSIs occurred on days 1 to 5, without a linear or exponential increase in per-day risk during the catheter dwell.

The diagnostic definition used by Dr Buetti and colleagues[1] was a composite of catheter-*related* BSI (requiring microbiologic confirmation of the PVC as the source) and catheter-*associated* BSI (more subjective surveillance-based) definitions—a breakdown would have allowed comparison with the RCTs, which used catheter-*related* BSI.[4] Furthermore, it would be valuable to know if assessors were blinded and if interrater reliability was assessed.

No information was provided by the authors on how the policy change was implemented.[1] For staff unaccustomed to assessing what is or is not a clinically indicated removal of a PVC, a supportive and structured transition is necessary.[5] Were nursing and medical staff educated to guide appropriate removal decisions and were they empowered to initiate removal? Was dressing durability ensured?

In well conducted RCTs, measured and unmeasured confounders are equally distributed between arms, assuring readers of the overall study findings. In this study,[1] we did not know the effects of important factors such as cancer diagnosis, immunosuppression, or difficult PVC insertion. We caution against using observational studies to inform and/or change practice, particularly when a reduced risk of infection of 1 (at most) per 10 000 PVC days would incur substantial economic, staff time, and patient experience costs.

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