

The effectiveness and cost-effectiveness of using chlorhexidine prior to urinary catheter insertion

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Objectives

To evaluate the effectiveness and cost-effectiveness of using chlorhexidine in meatal cleaning prior to catheter insertion, in reducing catheter-associated asymptomatic bacteriuria (CA-ASB) and catheter-associated urinary tract infection (CAUTI).

Methods

A 32 week, stepped wedge randomised controlled clinical trial was conducted at three Australian hospitals. The intervention was the use of chlorhexidine (0.1%) solution for meatal cleaning prior to catheter insertion, the control was normal saline (0.9%). A Poisson regression model was used to estimate the impact of the intervention. There was no expected delay in the effect of intervention on the outcome. The stepped wedge design allows hospitals to act as their own control. An incremental cost-effectiveness ratio was used to assess cost relative to health benefits.

Lessons learned

The intervention was associated with a 74% reduction in the incidence of CA-ASB (IRR 0.26, 95%CI 0.08–0.86, $p=0.026$), and a 94% decrease in the incidence of CAUTI (0.06, 95%CI 0.01–0.32, $p<0.001$). There were no reported adverse events. The changes in health costs from switching from saline to 0.1% chlorhexidine per 100,000 catheterisations would save hospitals AUD\$387,909 per 100,000 catheterisations. Using a maximum willingness to pay for a marginal quality adjusted life year threshold of AUD\$28,000 and an accounting model for valuing bed days, suggests 100% probability that adopting chlorhexidine would be cost-saving.

Implications

The available evidence suggests that the benefits in preventing a clinically-relevant infection may be substantial while the potential risks are small. We recommend updating healthcare policy and clinical practice to reflect this new finding.