

Evaluating the clinical and cost effectiveness of educational interventions for preventing vascular catheter bloodstream infections in critical care

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ABSTRACT:

Background. Vascular catheter bloodstream infections (catheter-BSI) increase patients' morbidity in critical care. Catheter-BSI are thought to be preventable using educational interventions to promote evidence-based clinical practices. However, it is unclear which interventions would be the most clinically and cost effective in NHS settings.

Aims / objectives. To assess the clinical and cost effectiveness of educational interventions for preventing catheter-BSI in critical care units in England

Methods. We conducted a systematic review of primary studies of clinical effectiveness and an economic evaluation. A decision analytic economic model compared an educational intervention to existing clinical practice to estimate associated costs, mortality and lifetime survival.

Results. Twenty four studies met the inclusion criteria of the systematic review. The studies varied widely in their temporal and spatial scales and types of educational approach they used. The majority (19) were uncontrolled before-after studies. Only two studies were conducted in the UK. Risk of bias was difficult to assess due to poor reporting. Where possible, data from the systematic review were used to inform the economic evaluation. Model results showed that implementing an educational intervention could reduce catheter-BSI incidence and total costs compared to existing clinical care, potentially resulting in cost savings to the NHS.

Conclusion. Educational interventions appear promising for preventing catheter-BSI but there is a need to improve the rigour of the primary studies to avoid bias and confounding. Coordinated, systematic collection of infection incidence data, and improved accuracy in the reporting of study settings and educational interventions would reduce the reliance on primary evidence from other countries.