#IVTEAM #Intravenous literature: “Bloodstream infections resulting from intravascular catheters (catheter-BSI) in critical care increase patients’ length of stay, morbidity and mortality, and the management of these infections and their complications has been estimated to cost the NHS annually £19.1-36.2M. Catheter-BSI are thought to be largely preventable using educational interventions, but guidance as to which types of intervention might be most clinically effective is lacking.” Frampton et al (2014).

Reference:

Abstract:
Background: Bloodstream infections resulting from intravascular catheters (catheter-BSI) in critical care increase patients’ length of stay, morbidity and mortality, and the management of these infections and their complications has been estimated to cost the NHS annually £19.1-36.2M. Catheter-BSI are thought to be largely preventable using educational interventions, but guidance as to which types of intervention might be most clinically effective is lacking.

Objective: To assess the effectiveness and cost-effectiveness of educational interventions for preventing catheter-BSI in critical care units in England.

Data sources: Sixteen electronic bibliographic databases – including MEDLINE, MEDLINE In-Process & Other Non-Indexed Citations, Cumulative Index to Nursing and Allied Health Literature (CINAHL), NHS Economic Evaluation Database (NHS EED), EMBASE and The Cochrane Library databases – were searched from database inception to February 2011, with searches updated in March 2012. Bibliographies of systematic reviews and related papers were screened and experts contacted to identify any additional references.

Review methods: References were screened independently by two reviewers using a priori selection criteria. A descriptive map was created to summarise the characteristics of relevant
Educational interventions for preventing vascular catheter bloodstream infections in critical care

studies. Further selection criteria developed in consultation with the project Advisory Group were used to prioritise a subset of studies relevant to NHS practice and policy for systematic review. A decision-analytic economic model was developed to investigate the cost-effectiveness of educational interventions for preventing catheter-BSI.

Results: Seventy-four studies were included in the descriptive map, of which 24 were prioritised for systematic review. Studies have predominantly been conducted in the USA, using single-cohort before-and-after study designs. Diverse types of educational intervention appear effective at reducing the incidence density of catheter-BSI (risk ratios statistically significantly < 1.0), but single lectures were not effective. The economic model showed that implementing an educational intervention in critical care units in England would be cost-effective and potentially cost-saving, with incremental cost-effectiveness ratios under worst-case sensitivity analyses of < £5000/quality-adjusted life-year.

Limitations: Low-quality primary studies cannot definitively prove that the planned interventions were responsible for observed changes in catheter-BSI incidence. Poor reporting gave unclear estimates of risk of bias. Some model parameters were sourced from other locations owing to a lack of UK data.

Conclusions: Our results suggest that it would be cost-effective and may be cost-saving for the NHS to implement educational interventions in critical care units. However, more robust primary studies are needed to exclude the possible influence of secular trends on observed reductions in catheter-BSI.

Study registration: The study is registered with PROSPERO as CRD42012001840.

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Other intravenous and vascular access resources that may be of interest (External links – IVTEAM has no responsibility for content).
