



Intravenous literature: Webster, J., Osborne, S., Rickard, C.M. and New, K. (2013) Clinically-indicated replacement versus routine replacement of peripheral venous catheters. Cochrane Database Systematic Review. April 30;4:CD007798.

#### Abstract:

**BACKGROUND:** US Centers for Disease Control guidelines recommend replacement of peripheral intravenous (IV) catheters no more frequently than every 72 to 96 hours. Routine replacement is thought to reduce the risk of phlebitis and bloodstream infection. Catheter insertion is an unpleasant experience for patients and replacement may be unnecessary if the catheter remains functional and there are no signs of inflammation. Costs associated with routine replacement may be considerable. This is an update of a review first published in 2010.

**OBJECTIVES:** To assess the effects of removing peripheral IV catheters when clinically indicated compared with removing and re-siting the catheter routinely.

**SEARCH METHODS:** For this update the Cochrane Peripheral Vascular Diseases (PVD) Group Trials Search Co-ordinator searched the PVD Specialised Register (December 2012) and CENTRAL (2012, Issue 11). We also searched MEDLINE (last searched October 2012) and clinical trials registries.

**SELECTION CRITERIA:** Randomised controlled trials that compared routine removal of

peripheral IV catheters with removal only when clinically indicated in hospitalised or community dwelling patients receiving continuous or intermittent infusions.

**DATA COLLECTION AND ANALYSIS:** Two review authors independently assessed trial quality and extracted data.

**MAIN RESULTS:** Seven trials with a total of 4895 patients were included in the review. Catheter-related bloodstream infection (CRBSI) was assessed in five trials (4806 patients). There was no significant between group difference in the CRBSI rate (clinically-indicated 1/2365; routine change 2/2441). The risk ratio (RR) was 0.61 but the confidence interval (CI) was wide, creating uncertainty around the estimate (95% CI 0.08 to 4.68;  $P = 0.64$ ). No difference in phlebitis rates was found whether catheters were changed according to clinical indications or routinely (clinically-indicated 186/2365; 3-day change 166/2441; RR 1.14, 95% CI 0.93 to 1.39). This result was unaffected by whether infusion through the catheter was continuous or intermittent. We also analysed the data by number of device days and again no differences between groups were observed (RR 1.03, 95% CI 0.84 to 1.27;  $P = 0.75$ ). One trial assessed all-cause bloodstream infection. There was no difference in this outcome between the two groups (clinically-indicated 4/1593 (0.02%); routine change 9/1690 (0.05%);  $P = 0.21$ ). Cannulation costs were lower by approximately AUD 7.00 in the clinically-indicated group (mean difference (MD) -6.96, 95% CI -9.05 to -4.86;  $P \leq 0.00001$ ).

**AUTHORS' CONCLUSIONS:** The review found no evidence to support changing catheters every 72 to 96 hours. Consequently, healthcare organisations may consider changing to a policy whereby catheters are changed only if clinically indicated. This would provide significant cost savings and would spare patients the unnecessary pain of routine re-sites in the absence of clinical indications. To minimise peripheral catheter-related complications, the insertion site should be inspected at each shift change and the catheter removed if signs of inflammation, infiltration, or blockage are present.



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