

**The primary objective of this quality improvement project was to eliminate future incidences of guidewire retention during CVC insertion in the MICU and medical intermediate care area (MICA) via a structured educational program and a cost effective modified CVC set” Peh et al (2016).**

Abstract:

Guidewire retention is a severe but preventable complication from central venous catheter (CVC) insertion. There were three cases of guidewire retention during CVC insertion in the medical intensive care unit (MICU) in Singapore General Hospital, in the period between December 2011 and February 2012. The primary objective of this quality improvement project was to eliminate future incidences of guidewire retention during CVC insertion in the MICU and medical intermediate care area (MICA) via a structured educational program and a cost effective modified CVC set. The secondary objective was to perform a cost analysis and comparison between the use of the conventional hospital CVC set and drape with our newly modified CVC dressing kit. Root cause analysis of the three cases identified major factors leading to guidewire retention. Interventions were planned and tested using PDSA cycles. Internal medicine trainees rotating through MICU and MICA during the period between February 2012 and June 2013 underwent a multi-modal structured CVC insertion training program with hands on simulation. They also used a newly modified CVC dressing kit and drape.

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The CVC dressing kit was modified (CVC PLUS) to include a sterile drape with reminder stickers stating “REMOVE the GUIDEWIRE,” as well as a sterile ultrasound sleeve. The total number of CVC insertions performed and guidewire retentions were monitored. During the period of study there were 320 CVC insertions in the MICU and MICA. Since this quality improvement project was initiated, and up to the submission of this article, there have not been any further cases of guidewire retention in the MICU and MICA. The total cost

reduction per use of CVC PLUS was S\$29.26 (Singaporean Dollars). A multi-modal structured training program, integrated with a modified, pre-packed CVC set, and drapes with reminder stickers (all included in CVC PLUS) were cost effective, and improved patient safety by eliminating guidewire retention during CVC insertion.

Reference:

Peh, W.M., Loh, W.J., Phua, G.C. and Loo, C.M. (2016) Eliminating guidewire retention during ultrasound guided central venous catheter insertion via an educational program, a modified CVC set, and a drape with reminder stickers. *BMJ Quality Improvement Reports*. 12;5(1), eCollection 2016.

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