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# Central Venous Catheter 6 Cs for safety

Initiative Type

Education and Training

Status

Initiate

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17 November 2022

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23 May 2024

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<https://clinicaexcellence.qld.gov.au/improvement-exchange/central-venous-catheter-6-cs-safety>

## Summary

Staff at the Ipswich Hospital Emergency Department (ED) realised there was an opportunity to standardise processes and streamline interdepartmental transfers, particularly for patients transferred from ED to the Intensive Care Unit (ICU). ED clinicians place central venous catheters (CVCs) for critically unwell patients and commence inotropes via central line utilising a three-way extension set. Upon transfer into ICU, the three-way extension set is changed to an Alaris IV port manifold, primed,

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and new lines and inotrope infusions prepared and commenced. This quality improvement project sought to guide clinicians through a poster in safely utilising and managing central venous catheters and thereby potentially reducing the risk of infection. ED clinicians place CVCs for critically unwell patients and commence inotropes via central line utilising a three-way extension set. Upon transfer into ICU, the three-way extension set is changed to an Alaris IV port manifold, primed and new lines and inotrope infusions prepared and commenced.

## Key dates

Nov 2022

Jun 2023

## Implementation sites

Ipswich Hospital, Emergency Department

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## Aim

The aim of this project is to support the decision-making of Emergency Department clinicians when utilising central venous catheters. This includes CVC placement, access, and inotrope administration.

## Benefits

Nurses will be more empowered and equipped with better knowledge and skills around CVC use, mitigating the risks and therefore improving patient safety. The guide highlights all the key safety areas around access and delivery of medications, in particular inotropes via a central venous catheter. Posters as a resource have a statewide relevance and can lead to standardisation of care.

## Background

Central Venous Catheter placement is not a common procedure performed in EDs, therefore exposure and confidence with the management of CVCs is limited. About 80 CVCs per year are inserted at Ipswich Hospital ED. This project was pitched at [PROVED Pitchfest 2022](#) and can be utilised across Queensland Health hospitals.

## Solutions Implemented

Pre-implementation involve gathering data sets on staff baseline knowledge of CVC management, then introduce the CVC poster and determine the same staff members' confidence and knowledge using the poster as a cognitive aid to guide management. The participant will then complete a satisfaction survey on the use of the poster. Pre-implementation also involved cost analysis and comparison including the number of patients with central lines in the past 12 months and the actual cost of consumables involved in transitioning from ED 3-way extension set to Alaris IV-port manifold, new infusions, lines as well as approximate staff time to complete changeover. Implementation involves education rollout of the poster and specifically the utilisation of Alaris IV-port manifold when commencing inotropes via CVC in the ED. Post implementation includes an audit of the patients transferred to ICU with a CVC and inotropes, and what device the inotropes are connected to, for example, 3-way extension set or Alaris IV-port manifold.

## Evaluation and Results

A post-implementation cost analysis and post audit data will be collected and compared with the pre-

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implementation data to determine the overall cost benefits. A staff satisfaction survey will be analysed, but early feedback suggests that participants love the visual aid. System impact on improving efficiencies of interdepartmental transfers and staff time will also be measured.

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