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Clinical Practice

Evidenced-based Practice to Reduce Central Venous Catheter Related Blood Stream Infection in the Cardiothoracic Intensive Care Unit

Majority of intensive care patients require central venous catheters for multiple drug administration, venous access, parenteral nutrition and assessment of volume status. When these invasive lines get infected, the mortality rates range from 4 to 20 percent.

To reduce infection rates, the Central Line Bundle was introduced in the Cardiothoracic Intensive Care Unit in November 2005. This is a care bundle consisting of 5 evidenced-based interventions which were designed to reduce blood stream infections. These interventions were validated individually to reduce infections. By combining all 5 interventions, the outcome would be better than when implemented individually. The Central Line Bundle consists of hand hygiene, maximum barrier precautions, chlorhexidine skin antisepsis, optimal catheter site selection and daily review of catheter requirement with the aim to remove unnecessary line promptly.

It is important to constantly remind all providers in the care of patients with central venous catheters that adherence to the Central Line Bundle. It has observed that compliance tends to drop when medical staff take short cuts or omit certain parts of the Central Line Bundle. This will negate the positive benefits.

The baseline infection rate in the unit prior to the start of the Central Line Bundle was 8 per 1000 catheter days. This works out to be about 2 infected cases per month. From November 2005 till September 2006, there had been only 1 case of catheter related blood stream infection. Hence the Central Line Bundle has been effective in reducing infection in the cardiothoracic intensive care unit.