A comprehensive care bundle reduces harm in patients with Central Venous Access Devices: A QI project

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In 2019, 1.43 7 4 22.87% 32%

In 2020, 0 0 0 8.2% 5.2%

Aims

Reduce CLABSI rate to zero lines per 1000 lines days
Reduce the major vascular complications to zero
Decrease the patients discharged with a CVAD by 50 % to the ward
Achieve at least 80% ICU JMOs accredited for CVC insertion

Background

• In 2019, Australia and New Zealand reported 0.53 CLABSI per 1000 lines days (111 per 209173 Line days)
• 0.1 to 1% reported to have major vascular complications in literature
• Majority of CLABSI were noted in patients with a CVAD inserted outside Canberra Hospital and patients discharged with a CVAD to the ward.

Identified Risk factors

Lack of uniformity in training, education, standardised insertion packs, and equipment

Interventions

Policy and checklists

Systematic review
New Canberra Hospital CVC policy
Updated CVC insertion checklist
Standard CVC packs
Surveillance process for CVC in wards
Unified education pack for JMOs in 3 departments

Staff education

Combined ICU and Anesthesia orientation
Focus on vascular ultrasound & aseptic technique
CVC insertion supervisor checklist

Standardization CVC insertion technique
CVC insertion video
CVAD management in ICU
Discharging with a CVAD to the ward

• Use of column manometry or pressure transduction in addition to US confirmation of guidewire
• Only under EXCEPTIONAL circumstances, CVC flag and proposed recommended date of removal for ward teams, any exceptions should be endorsed and verbal handover

Staff accreditation

Complete e-learning module on hand hygiene and CVC education pack on Capabiliti and OSLER before orientation
Assessment of competency on vascular ultrasound and CVC insertion technique on a mannequin at orientation
 Supervision by a senior registrar or a specialist until judged competent

Results and outcomes

77% JMOs accredited for CVC competency
8 Education sessions in ICU and Anesthetic department
7 New policies, check lists, education packs and equipment

Sustainability

• Mandatory training and accreditation process for critical care JMOs and nurses
• Prospective surveillance of CVADs in ICU and wards
• Business case for CVAD nurse for the wards
• CVAD flag on patients records on upcoming DHR

Key messages

• 0 CLABSI achievable and sustainable
• Major vascular injuries are preventable
• Important to identify the weakness and address it
• Multidisciplinary approach and ongoing staff engagement is a key

CLABSI: Central line associated blood stream infection, CVAD: Central venous access device, CVC: Central venous catheter