

The logo for SQUIRE features the word "SQUIRE" in a bold, red, sans-serif font. A silver quill pen is positioned diagonally across the letters, with its tip pointing towards the center of the 'Q'. The quill has a dark grey feather and a silver shaft. The letters have a slight drop shadow effect.

SQUIRE

Every Clinician · Every Patient · Every Time

SQUIRE Guide

Central Line Associated Infection Prevention

as at January 2009

Central Line Associated Infection Prevention

GOAL: TO PREVENT CENTRAL LINE ASSOCIATED BLOOD STREAM INFECTIONS

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Resources

Some of these resources may be protected by copyright, please ensure all copyright requirements are met prior to their use.

- The 'How-to' Guides developed by IHI and Safer Healthcare Now and websites of the programs listed below provide excellent information, contain invaluable tips, lessons from success, and tested measurement and data collection tools that can be used or adapted. The tools vary and teams should peruse all three sources to find examples and ideas which may suit their needs best.
- Institute for Healthcare Improvement (IHI) 5 Million Lives campaign:
<http://www.ihl.org/nr/rdonlyres/0ad706aa-0e76-457b-a4b0-78c31a5172d8/0/centrallineinfectionshowtguide.doc>
- Safer Healthcare Now! campaign:
<http://www.saferhealthcarenow.ca/ViewResource.aspx?resourceid=485>

This Canadian program contains additional components separated into "Insertion" and "Maintenance" bundles that CPI teams may choose to adapt
- Safer Systems Saving Lives:
http://www.health.vic.gov.au/sssl/interventions/central_line.htm

Eligible Patient Population

- For the purpose of reporting to OSQH, please report the approximate proportion of patients with non-tunnelled temporary CVCs in your hospital that are targeted in this program.

MEASURE 1 - COMPLIANCE WITH THE CENTRAL LINE BUNDLE

- The inclusions, exclusions and definitions for this measure is the same as used successfully in IHI 5 Million Lives Campaign: Prevent Central Line Infections How-to Guide <http://www.ihl.org/nr/rdonlyres/0ad706aa-0e76-457b-a4b0-78c31a5172d8/0/centrallineinfectionshowtogoide.doc>
- This guide is best suited to non-tunnelled CVCs. It has primarily been designed for an ICU setting which is probably the best place to start implementing improvements. Teams who wish to look at CVC infection reduction for other types of lines may need to adapt the bundle, and should be aware that it hasn't been well-tested in other settings.

Definition

- The percentage of patients with a CVC inserted who receive **all five** elements of the central line 'bundle' in accordance with the definitions in the above resource:
 1. hand hygiene;
 2. maximal barrier precautions;
 3. chlorhexidine skin antisepsis;
 4. optimal site selection; and
 5. daily review of central line necessity.
- Development of a CVC checklist will support both practice improvement and monitoring.
- If a bundle element is contraindicated or not relevant for a particular patient and this is documented appropriately on the checklist, then the patient can still be considered compliant with respect to that element.

Patients who should be excluded from data

- Patients less than 18 years of age at the date of admission.
- Some of the material in the CVC bundle is not directly applicable to paediatric practice, and therefore age is an exclusion. However, CPI teams who want to use this approach in a paediatric setting, can choose to make necessary adaptations to reflect evidence-based care practices in the paediatric population, and could contact the OSQH team to discuss this further. The same principals of including the same population in all measures applies, and the recognition that an adapted bundle may be effective at reducing infection rates.

Measurement Methods and Tools

- Compliance should be measured weekly or monthly and reported using a run chart to measure progress towards the goal of 100% compliance.
- Sampling documented compliance of patients with CVCs in situ against the bundle components on one day each week is recommended as a weekly compliance measure. As outlined in the Safer Healthcare Now! guide, rotating the days and shifts is recommended. An alternative sampling method is to review on a monthly basis 20 patients who had CVCs inserted, and assess compliance with the bundle (see Safer Systems Saving Lives Toolkit).
- Easy-to-use calculation worksheets which may be used or adapted are available from:
 - http://www.health.vic.gov.au/sssl/downloads/cvc_checklist.doc
 - http://www.health.vic.gov.au/sssl/downloads/cvc_audit.doc
 - <http://www.saferhealthcarenow.ca/ViewResource.aspx?resourceId=533>

Measure 1 calculation:

Number of patients with a CVC during the monitoring period who received all five elements of the central line bundle		X 100	=	Rate of post-operative infection at the surgical site in patients undergoing surgery
Number of patients with CVCs audited during the monitoring period				

MEASURE 2: CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION RATE

- The inclusions, exclusions and definitions for this measure are the same as in IHI 5 Million Lives Campaign: Prevent Central Line Infections How-to Guide <http://www.ihl.org/nr/rdonlyres/0ad706aa-0e76-457b-a4b0-78c31a5172d8/0/centrallineinfectionshowtguide.doc>

Definition

- The definition stipulated in the Healthcare Infection Surveillance WA (HISWA) manual should be used to classify CVC associated bloodstream infections. This is consistent with nationally endorsed definitions. The definition specifically refers to the ICU setting, but in principal can be applied for other patient groups.

Measurement Methods and Tools

- A trained infection control professional should collect data for this measure, as interpretation is required. The use of the infection control practitioner’s current data collection system is acceptable. Continuous collection of infection rates is essential. This is likely to only be possible in well-defined clinical units such as ICU where it is possible to collect catheter day data. Sampling measures to calculate catheter day data may also be used if desired and if they can be validated.
- For technical definitions refer to the IHI 5 Million Lives Campaign How-to Guide (pg 41-44):<http://www.ihl.org/nr/rdonlyres/0ad706aa-0e76-457b-a4b0-78c31a5172d8/0/centrallineinfectionshowtguide.doc>
- This measure should be converted to the rate of infections in proportion to the total number of days that patients had CVCs. An easy-to-use calculation worksheet which may be used or adapted is available from: <http://www.saferhealthcarenow.ca/ViewResource.aspx?resourceId=532>

Measure 2 calculation:

$\frac{\text{Number of CVC associated bloodstream infection cases in monitoring period}}{\text{Number of catheter days in monitoring period}}$	X 1000	=	Central line associated bloodstream infection rate per 1000 catheter days
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