



Patients in intensive care units are particularly at risk of infections as they are usually very unwell and often have invasive devices (e.g. catheters placed in veins to administer fluids, medicines etc.).

The main infection monitored in intensive care units are infections in the blood (bloodstream infections) related to what are called “central lines”. A central line is a catheter placed in a large vein, usually inserted near the collarbone. Bacteria may enter the bloodstream through the line, and bloodstream infections can be very serious.

While central lines are often necessary in patients who are in intensive care, and may be life-saving, having a central line in place puts a patient at greater risk of a bloodstream infection. The longer the line is in place the more likelihood there is of the patient getting an infection.

All intensive care units in Victoria are currently required to monitor bloodstream infections related to central lines. Infection rates are calculated by dividing the number of infections occurring by the number of “central line days”. Bloodstream infections associated with central lines are often referred to as “CLABSI” (Central Line Associated Bloodstream Infections).

VICNISS also provides a tool to help hospitals wanting to monitor insertion and care of central lines. Hospitals can collect this data, submit to VICNISS and receive a report on compliance with best practice for insertion and care of central lines.

## What is a “central line day”?

One central line day is one person having a central line for one day. So, for example if there are 8 patients in the intensive care unit and all 8 have central lines in place for 2 days and 3 of the 8 have them for an additional 2 days, the number of central line days is  $(8 \times 2) + (3 \times 2) = 22$ . This gives a total of 22 central line days. In practice, the number of patients with a central line are counted at the same time every day and totalled each month to obtain the number of central line days for the month.

## What can cause hospitals to have different infection rates?

Internationally, it has been shown that major teaching hospitals tend to have higher rates of CLABSI infections. This is at least partly because they tend to treat patients who are extremely unwell compared with those in smaller and regional hospitals.

VICNISS thus calculates two “tiers” of CLABSI rates: one for the major teaching hospital intensive care units and a separate one for all other intensive care units.

This allows infection control staff to compare their hospital’s results with other hospitals which would be expected to be treating the same types of patients. This is sometimes called “risk adjustment” or “risk stratification”.

Examples of practices which can be monitored include:

- Observance of correct hand hygiene
- Use of equipment (masks, gowns and gloves)
- Use of skin antiseptic prior to insertion
- Whereabouts on the body the central line is placed
- Type of catheter used
- Type of dressing applied

Adhering to best practice for line insertion and maintenance can reduce the incidence of central line infections. If hospitals are experiencing an unusual spike in infection rates, monitoring of these practices and looking for any areas for improvement can assist.

## How has this helped?

The incidence of central line associated infections in Victorian intensive care units has fallen from 2.1 per 1000 central line days in 2009-09 to 0.6 per 1000 central line days in 2018-19. Between 2009 and 2015 the risk of acquiring one of these infections fell by 26% each year.

## Information about rates of SAB infection in Victoria can be found:

[vicniss.org.au/resources/annual-reports/](http://vicniss.org.au/resources/annual-reports/)  
[vicniss.org.au/resources/surveillance-data-for-victoria/](http://vicniss.org.au/resources/surveillance-data-for-victoria/)  
[vahi.vic.gov.au/quality-and-safety/healthcare-associated-infections](http://vahi.vic.gov.au/quality-and-safety/healthcare-associated-infections)