

## **Report: VICNISS Central Line Associated Bloodstream Infection (CLABSI) Master Class**

***Held: 31<sup>st</sup> August 2011 at VICNISS Coordinating Centre***

### **Introduction**

In response to recent public discussion and interest expressed from a number of ICPs and others experienced in CLABSI surveillance VICNISS conducted a 'CLABSI Master Class'. The aim of the Master Class was to provide attendees with an overview of CLABSI surveillance in Victoria, recent changes to NHSN surveillance, best practice in prevention of CLABSI, and application of surveillance definitions using case scenarios (provided by attendees and distributed prior to the session).

There were approximately 50 attendees comprising Infection Control Professionals, Infectious Diseases Physicians, Intensivists, ICU Nurses, Quality Consultants and IV team specialists.

### **Master Class Overview**

Leon Worth (ID Physician, VICNISS) delivered a PowerPoint presentation which is available on the [VICNISS website](#).

Highlights and discussion points included:

1. CLABSI surveillance/definitions:
  - Differences exist between clinical and surveillance definitions for CLABSI.
  - The impact to NHSN and VICNISS CLABSI rates after removal of definition 2b and 3b in 2008
    - Reduced number of CLABSI reported
    - Changes to causative organisms for CLABSI – decreasing CNS, similar MRSA, increasing enterococci (increasing vancomycin resistance)
  - Changes to NHSN CLABSI surveillance:
    - Skin contaminants now referred to as common commensals
      - List of [common commensals](#) (PDF 40kb) now available on the VICNISS website
      - Relatedness of infecting organisms – only requires review of genus/species, antibiotic susceptibility profile not required
  - Comparing CLABSI rate in Victoria with other jurisdictions
2. Prevention of CLABSI
  - Proven interventions to prevent CLABSI – 'bundle' includes number of evidence based components
  - Introduction of VICNISS central line insertion practices (CLIP) adherence monitoring module
    - Audit CVC insertion practices (process measures) – maximal barrier precautions, handwashing, insertion site and skin preparation
    - Successful pilot in ICU at 4 hospitals Jan-Jun 2011
    - Optional module available for VICNISS participants commencing October 2011 (ICU and non-ICU clinical areas)
3. Validation of CLABSI data
  - Emphasised importance of accuracy and reproducibility of CLABSI cases

**Case Scenarios:**

Scenarios supplied by attendees were presented. Prior to discussion attendees were asked to vote as to whether the scenario would meet VICNISS CLABSI criteria. The outcomes and response from VICNISS is outlined below.

	Case Scenario	Was the scenario a CLABSI – yes or no			VICNISS decision	Rationale
		Participants				
		Yes	No	unsure		
1	Trauma patient, day 18 post MVA – blood cultures collected at the same time: <ul style="list-style-type: none"> <li>from PICC - <i>Enterobacter Gergoviae</i></li> <li>from peripheral site – no growth</li> </ul>	16	16	0	Yes	Definition 1 - recognised pathogen, not related to an infection at another site
2	Patient with 60% burns. After prolonged hospital stay, central line in place, blood culture: <i>Enterobacter spp.</i> The patient had clinically infected burns with tissue cultures growing multiple organisms (but not enterobacter) on the day of the bacteraemia.	33	0	1	Yes	Definition 1 - recognised pathogen, not related to an infection at another site NB: <i>Enterobacter spp</i> not grown in burns tissue culture
3	The patient was admitted 5 days ago for a head injury and has a central line in situ. Single blood culture from central venous line grew <i>Pseudomonas spp.</i> No peripheral culture is taken. The patient was not febrile or septic at the time of the culture and was not started on antibiotics.	26	5	0	Yes	Definition 1 - recognised pathogen, not related to an infection at another site NB: Clinical signs not required to meet definition 1
4	28 Apr Admitted to hospital 1 May Admitted to ICU 2 May (2200) CVC inserted 3 May (0600) Bld cult - <i>Acinetobacter spp</i> (all bld cult -ve prior to 3 May) 3 May Tracheal aspirate - MSSA 4 May Notes: "febrile, ? Source GNB on blood culture" 3-7 May CXR essentially clear 7 May ID documented "Acinetobacter as cause of line sepsis" 8 May CXR increasing consolidation, collapse in the LLL and increasing consolidation R) lung base; <i>Acinetobacter spp</i> isolated from tracheal aspirate	13	21	3	Yes	Definition 1 - recognised pathogen, not related to an infection at another site NB: No minimum period of time that the CVC must be in place for BSI to be considered central line related
5	A patient grew an <i>Enterococcus spp</i> from a single peripheral blood culture. The patient was in ICU for severe pneumonia but was clinically improving (extubated the day before, no longer febrile, white cell count decreasing). A comment is written in the notes by the ID physician saying "enterococcus - probable contaminant".	25	4	5	Yes	Definition 1 - recognised pathogen, not related to an infection at another site NB: Clinical signs not required to meet definition 1
6	A patient is undergoing treatment for acute myeloid leukaemia and has chemotherapy induced mucositis (mouth ulcers, nausea, vomiting). She has a Hickman line in situ. Blood taken peripherally grows <i>Enterococcus spp</i> on multiple occasions.	11	16	6	Yes	Definition 1 - recognised pathogen, not related to an infection at another site NB: mucositis not currently considered an infection – see below*
7	Patient with acute myeloid leukaemia (AML) relapse presented with documented febrile neutropenia. <i>Streptococcus viridians</i> species grown from two separate blood draws.	30	2	1	Yes	Definition 2 – Meets clinical criteria (fever) <i>and</i> signs & symptoms and positive blood culture not related to infection at another site <i>and</i> common skin contaminant is cultured from 2 blood cultures drawn on separate occasions

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8	Haematology patient with severe B-cell lymphoma Day 3 post allograft - E. coli grown in blood cultures from both Hickman lumens and peripherally Patient has an anal fissure - CT scan found no abscess. Ongoing abdominal pain however laparotomy one week earlier - NAD. Abdominal pain still under investigation. Hickman was not removed by the treating team, TPN was ongoing.	31	2	2	Yes	Definition 1 - recognised pathogen, not related to an infection at another site  NB: anal fissure is not an infection
9	Patient with CVC <i>in situ</i> for 9 days becomes febrile 1/5 <i>E. coli</i> is isolated in blood culture 2/5 <i>Klebsiella pneumoniae</i> is isolated in blood culture  CXR is clear and no organism isolated from urine. No other primary source of infection is identified.  Is this one CLABSI or two?	Late additional case - No vote			Yes	This is one CLABSI – per NHSN: The first infection must have resolved before the second can be identified. This scenario appears to be extension of the same unresolved BSI.
10	In the setting of fever, a patient with CVC <i>in situ</i> isolates <i>Staphylococcus epidermidis</i> from a single blood culture.  The treating clinician commences vancomycin for targeted therapy.	Late additional case - No vote			No	Does not meet Definition 2 which requires common skin contaminant cultured from 2 blood cultures drawn on separate occasions (only one blood culture collected)

**\* CLABSI in the presence of mucositis:**

Following lengthy discussion at the Masterclass VICNISS contacted NHSN for clarification re: Scenario 6 above - does mucositis (based on clinical assessment) constitute another site of infection?

NHSN response:

“At the current time, NHSN does not recognize mucositis as a type of healthcare-associated infection. Because of this, no BSI can be considered secondary to the mucositis (see the flowchart at this link [http://www.cdc.gov/nhsn/PDFs/SecondaryBSIGuide\\_06\\_11.pdf](http://www.cdc.gov/nhsn/PDFs/SecondaryBSIGuide_06_11.pdf)).

There is currently a working group of the Healthcare Infection Control Advisory Committee (HICPAC) which is completing a very thorough review of the NHSN CLABSI definition and SSI definition and attending to issues which are problematic for surveillance data. This is one issue in particular which is under intense scrutiny and which may lead to a change in the definitions.

For now, until we have a final recommendation from HICPAC, facilities must continue to utilize the definitions as written and as they agreed to when they enrolled in NHSN.

Having said this, I am wondering if your patient could meet the definition of GIT, specifically criterion 2c. Please see page 322 of the article included within Chapter 17 of the NHSN manual. [http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef\\_current.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf)  
If the patient has a GIT, then no separate BSI is reported.”

## Outcomes

- Revised VICNISS manual including CLABSI module available and to commence 1<sup>st</sup> October 2011
- VICNISS will continue to work with NHSN and others to ensure surveillance criteria are objective and relevant to clinicians
- VICNISS will liaise with Sexton DJ *et al.* to determine if initiatives have been made internationally to propose refinement/s to surveillance methods.
- While all participants may not agree with all the CLABSI surveillance criteria, it is important that VICNISS hospitals consistently use them for reporting infections to VICNISS so rates between hospitals can be appropriately compared. Where clear consensus is lacking, the current criteria are based on the best information available.