Waikato Regional Meeting Central Line Associated Bacteraemia

8th November 2012

Aims

- Understand local issues in relation to data collection, reporting and recording
- Clarify Data validity and Reliability
- Discuss what the Surveillance audit shows us?
- Address local regional challenges

Target CLAB ZERO
Central Line Associated Bacteraemia

Midland Region

- Gisborne
- Rotorua
- Taranaki
- Tauranga
- Waikato

Target
CLAB ZERO
Central Line Associated Bacteraemia

- Size of the ICU varies between regions
  - Ranging from Level 1 to Level 3 ICU's with variable line days
  - September Combined 519 Line days which contribute 21% to overall national line days
    - Taranaki 59 line days
    - Tauranga 75 line days
    - Waikato 280 line days

Target CLAB ZERO
Central Line Associated Bacteraemia

- Tauranga – leading the way
  - Excellent buy In from the beginning
- Gisborne, Rotorua and Taranaki with Tauranga have all had ZERO CLAB since January
- Waikato had 2 CLAB
- Despite variable compliance with Insertion and Maintenance bundles

Target CLAB ZERO
Central Line Associated Bacteraemia

- Communication between regions has not been brilliant.

- Regional meetings generally not well attended - 2/5 of regions were at the Rotorua meeting
  - Commitments
  - Geographical distance
  - Teleconference is ok, but not ideal
  - Not all singing from the same song book

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Waikato

- Overall doing well- but plenty of room for improvement

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2 CLAB's

- Semi root cause analysis
- Essentially both patients did not have antibiotic coated lines
  - Post cardiac surgery
  - Vas cath for dialysis

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Cardiac Surgical Patients

- On going discussions with Cardiac anaesthesia regarding antibiotic coated lines
- Anaesthesia have developed a sticker when inserting lines

Target
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Central Line Insertion by Anaesthetic Staff

(circle appropriate responses)

G2945HWF

Patient Label
Name: ____
NHI: ____ DOB: ____ dd/mm/yy
Address: ____

Consent obtained: Verbal Written
Reason if not obtained: Emergency Other: ____
Indication: CVP Inotropes Chemotherapy
Difficult IV access TPN
Long term IV access Other: ____
Line type: PICC VasCath CVL PACath
Insertion site: Right Left Subclavian Femoral
Int Jug ACF Other: ____
Number of lumens: 1 2 3 4
French catheter size: ____
Antibiotic coated: Yes No
Local anaesthetic used: Yes No
Type: Lignocaine 1% 2% Other: ____ Volume: ____ mL
Skin sterilized with: Chlorhexidine Iodine
Precautions: Gloves ☐ Mask ☐ Gown ☐
Venous cannulation confirmed by: U/S Manometry ABG Xray
Catheter length at skin: ____ cm
All lumens aspirated and flushed with: Saline HepSaline 10u/mL Not
If not provide details: ____

For PICC lines: Upper arm circumference is ____ cm at mid bicep.
For VasCaths only. All lumens HepLocked with Heparin 1000/5000u/mL: Yes No

Comments: ____
Inserter's signature: ____ Date: ____ dd/mm/yy
Inserter's name: ____ Designation: ____

Radiological appearance
Tip position within 2.5cm distal to Right TracheoBronchial Angle: Yes No
If no provide details: ____

Pneumothorax: Yes No
Other noted pathology not previously reported: ____
Radiology reviewed by: ____ Ok for intended use: Yes No
Comments: ____
Signature: ____ Date: ____ dd/mm/yy
Name: ____ Designation: ____

03/12JB

- Interhospital transfer of Critically Ill
  - Line change to antibiotic coated if likely >48hrs in the unit

Target
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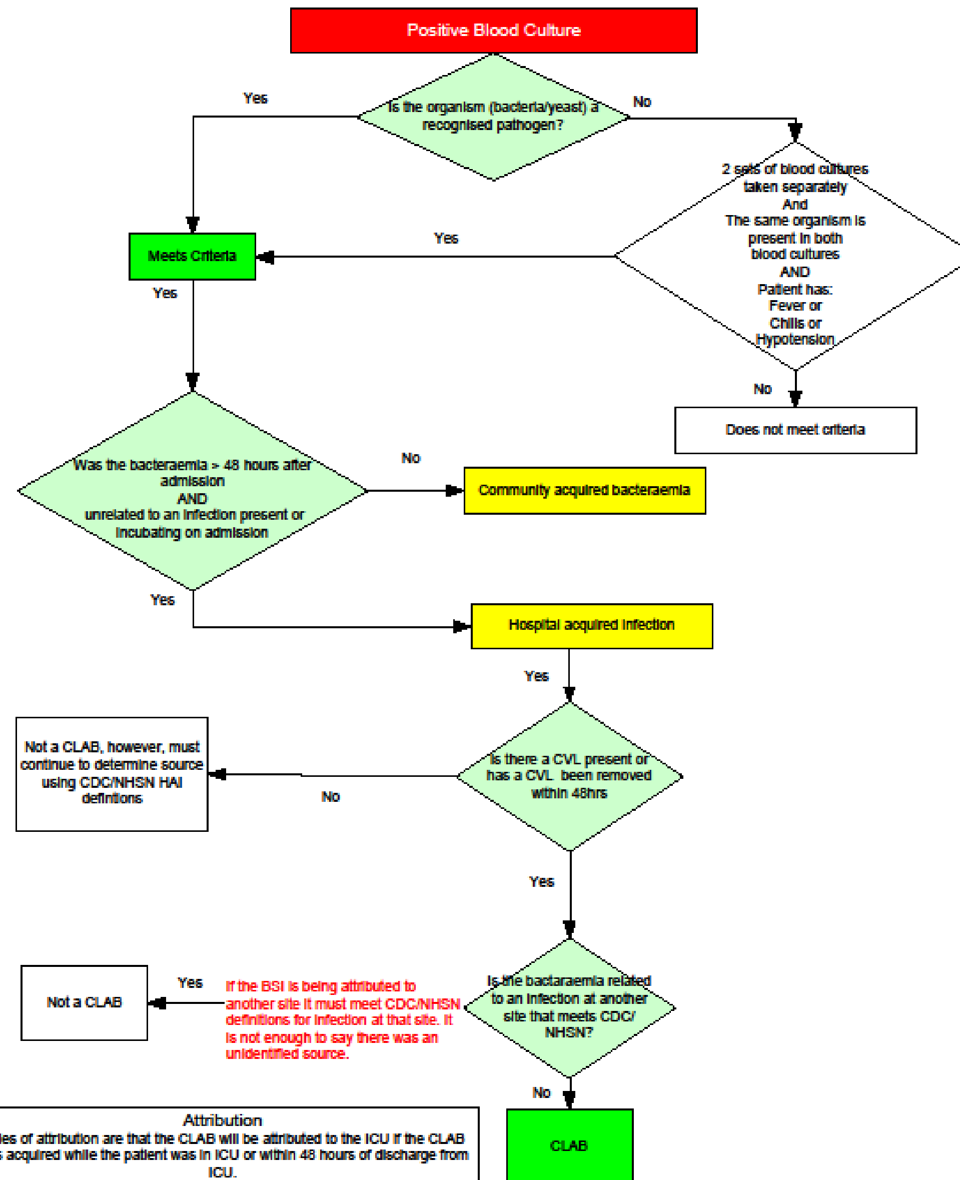
Counting CLAB

- **Clarify Data validity and Reliability**
  - Critical integration of microbiology with Chris Mansell and the ICU
    - Reliable assessment of positive blood cultures
  - Developed a robust system which demonstrates some holes

Target CLAB ZERO
Central Line Associated Bacteraemia

Surveillance Process for Determining CLAB



http://www.cdc.gov/nhsn/PDFs/pscManual/

http://www.cdc.gov/ncidod/dhqp/pdf/nnis/NosInfDefinitions.pdf

http://www.asid.net.au/hicsigwiki/index.php/title=NHSN potential contaminant organisms

25th July 2012

- Protocols pre CLAB were to perform only one blood culture
- Culture change

Target
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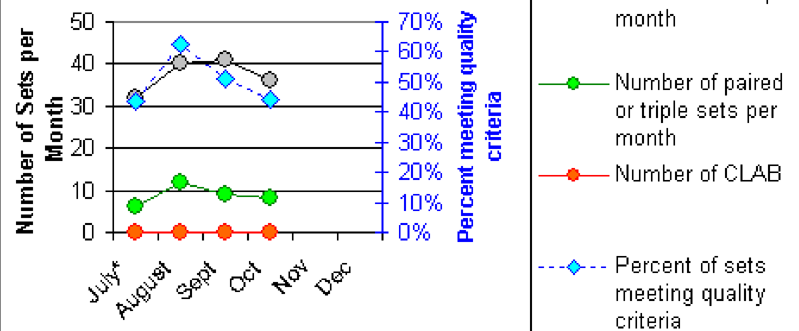
Microbiology

Blood culture quality summary	Includes both ICU2 and ICU1 (HDU)

Waikato Blood Culture Collection Quality Criteria
2 or 3 sets collected within < 24 hr
> 48 hr gap between collections
desirable: collect before changing antibiotics (not audited)

Non Compliance reasons:
S Single sample within 24 hr period
R Repeat sampling between 24 - 48 hr

Quality Indicator Statistics
Number of blood culture sets per month
Percent sampling episiodes meeting quality criteria
Number of episodes with paired or triple samples
(opportunities to diagnose CLAB with a commensal



Month	Sets collected per month	Percent of sets meeting quality criteria	Number of paired or triple sets per month	Number of CLAB	Blood cultures in paired sets	Blood cultures in triple sets	Total Isolates of pathogens	CLAB due to pathogen Criterion 1	Total Isolates of commensals	CLAB due to Commensal Criterion 2 or 3	Repeat sets between 24 - 48 hr
July*	32	44%	6	0							
August	40	63%	12	0							
Sept	41	51%	9	0							
Oct	36	44%	8	0	16	0	1	0	1	0	1
Nov											
Dec											

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- Significant number of Coag negative staph; probably contaminants
  - August 10% of cultures taken were Coag Neg Staph i.e. 4 sets
    - 3 with single cultures

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Central Line Associated Bacteraemia

- As commented and the focus of this session, this is inconsistent across the country
- Comments from the September report, Capital Coast have a similar problem
- Microbiology (Dr Addidle) , similar problem exists for Tauranga and Rotorua

CLAB Surveillance of System Standardisation Checklist

The definition for CLAB used is the CDC NHSN as identified in: http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf

The definition for 'secondary infection source' used is: http://www.cdc.gov/ncidod/dhqp/pdf/nnis/NosInfDefinitions.pdf

The definition for a potential contaminant used is: http://www.asid.net.au/hicsigwiki/index.php?title=NHSN_potential_contaminant_organisms

Important Features	Rationale	OCT	COMMENTS
Objective process for evaluation performed by an identified panel which includes doctor responsible and staff not directly involved in clinical care of the patient	Ensure all clinical information is used and gives opportunity for all avenues to be explored		
System to ensure majority of blood cultures collected are 2 sets from different sites	Best practice. Avoids interpretation difficulties. If two sets are not taken then CLAB definition will never be meet for some organisms		
Surveillance of positive blood cultures	Be confident that all positive blood cultures are reviewed, that includes ones recorded up to 48 hours post discharge form ICU CVL infection usually won't become manifest for > 48 hr post insertion and since the typical length of stay in ICU is only 2-4 days, many cases will be detected after leaving the ICU.		
Source from infection at another site is ruled out using CDC/NHSN criteria.	If BSI is being attributed to another site – that infection needs to meet the CDC definition for that, it is not enough to say there was possibility of another source		
Final decision whether CLAB is present is made by objective personnel not directly involved in clinical care of the patient.	Important to assure impartiality is maintained		
Clear approach for investigating new fever/sepsis in your patients.	Need to be confident that blood cultures are being taken when required to be able to capture all possible CLAB		
Hour of admission and discharge are captured.	Enables decision where to attribute CLABSI.		
CVL status of all patients who have been admitted is recorded. Date, time and location of insertion and removal.	1. Denominator data to enable calculation of CLAB per CVL days. 2. BSI occurring up to 48 hr after removal of a line are included as potential CLABSI [CDC CLABSI 2012 p4-1].		
All positive blood cultures up to 48 hr after discharge are captured.	BSI recorded up to 48 hr after leaving the unit are attributed to the ICU [CDC CLABSI 2011 transfer rule p 4-2] CVL infection		

DRAFT

	usually won't become manifest for > 48 hr post insertion and since the typical length of stay in ICU is only 2-4 days, many cases will be detected after leaving the ICU.		
BSI organism is classified as pathogen or potential contaminant according to the standard list.	Organisms not on the list should be discussed among other DHBs to establish consensus for future reference. [some examples are given in CDC CLABSI 2011 p4-4]		
Strain identity of possible pathogens is interpreted according to standard criterion.	[CDC CLABSI 2012 note 4&5 p4-5]		
Decision whether CLABSI or not is made by a panel including the doctor responsible and others not in the treating team or the person who inserted the CVL.	Gives some impartiality while making use of clinical information.		
All positive and negative blood cultures and cultures from other body sites are available to the team deciding whether it is CLABSI or not.	Enables detection of all potential CLABSI and assessment as to whether it is contamination or infection at another site.		
Quality Improvement Activity			
Feedback process for identifying blood culture collection practices	Allows for identification of blood culture collection issues		
Feedback process for identifying number of possible CLABs that did not meet definition	Allows for problem resolution of issues preventing correct identification of CLAB		
Quality Assurance Activity			
Sample scenarios are run through the local protocol to assure consistent interpretation			
A sample of cases are reviewed by another DHB team to check agreement with interpretation.			
A sample of positive and negative cases are audited to confirm accuracy and completeness of data collection.			

DHB
Contact Person:

DRAFT

- Currently we are implementing a double culture drive!
  - 4 bottles will always be bundled together like MMH

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Blood Culture Guidelines

When

Temp ≥ 38°C Or Signs of sepsis: ↑HR, ↓SBP, Rigors Or Suspicion of sepsis

What

Collect 2 blood culture sets (4 bottles):
10mls of blood per bottle
Take one set at a time
(Paediatric volumes will be different)

Where

Take blood from:

Preferred:
2 separate peripheral sites or NEW CV line

Difficult access:
1 peripheral line and 1 existing line

No peripheral access
2 samples from any existing line, only to be used in extreme circumstances – least preferred

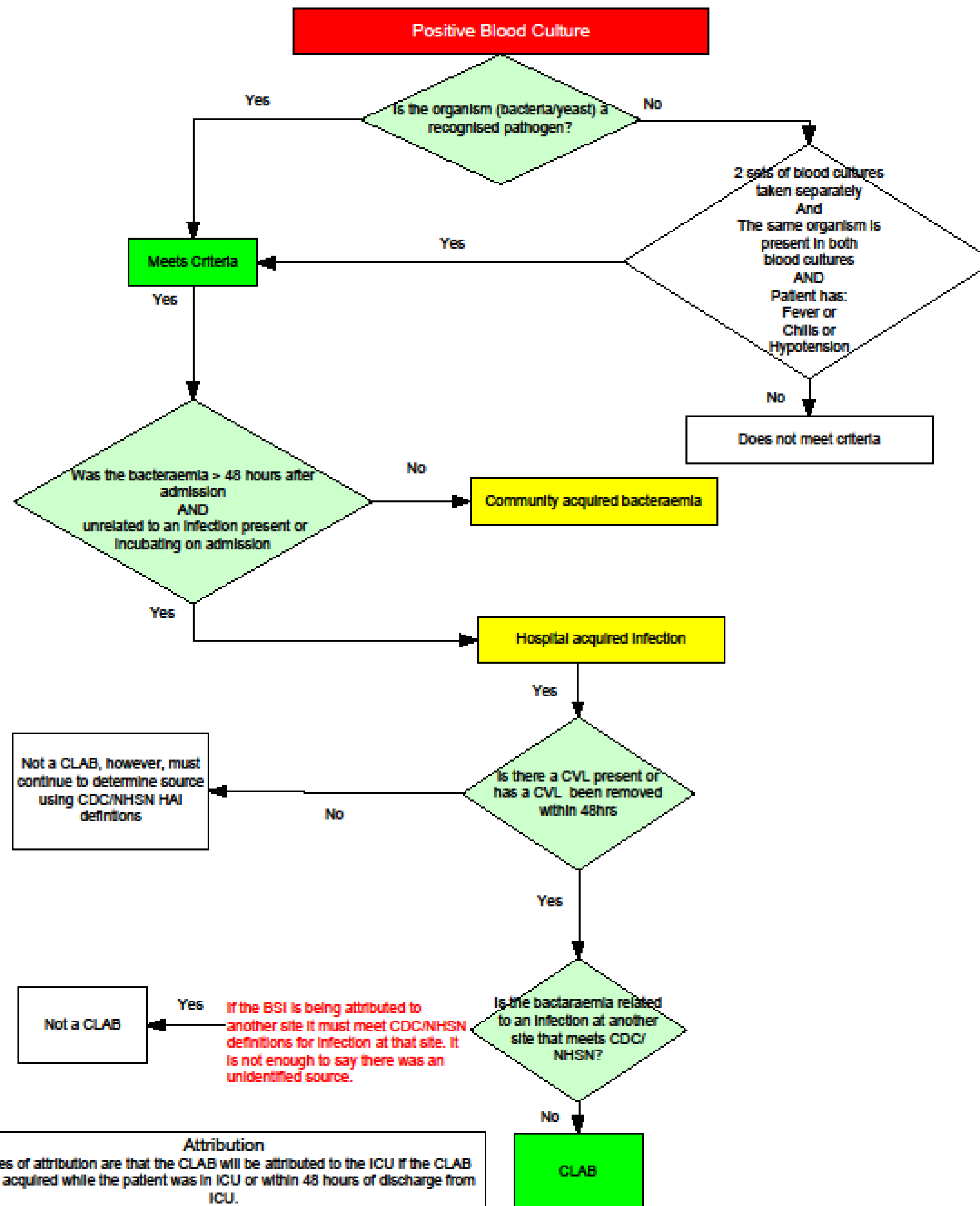
The two blood sets should be taken within 48hrs of each

How

- Perform hand hygiene
- After removing blood culture bottle lids, swab with alcohol, allow 20 seconds to dry
- Disinfect skin, allow 60 seconds to dry
- Take cultures before taking other blood samples (no discard required)
- Fill Aerobic bottle first, then Anaerobic, repeat for second set.
- 10 ml blood per bottle (adults)
- Clearly label each culture bottle and form with site of origin
- Repeat at next site

Final Version following further Regional Consultation 23rd July 2012 48hr rule added 11.10.12.

Surveillance Process for Determining CLAB



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25th July 2012

CLAB or not to CLAB

- Positive Blood Cultures Identified by Micro Team
- Discussed at Thursday Morning Micro Meeting
- Any Questionable Cases sent to me
- Pull charts/notes/cultures
- Discuss them with micro group
- Allocate/disregard them as CLAB
- Interrogate cases- why was there CLAB
  - Discuss the case at consultant meeting
  - How can we improve

Target
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- Structures and personnel are in place to deal with
  - Blood culture taking audit
  - Blood culture interpretation
  - Insertion and maintenance bundles

  Data is interpretable and reliable

- Roll Out' would not be so easy to manage

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- 48hr post ICU discharge is still somewhat hit and miss, but now existent.

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Within Regions

- Taken Waikato 12 months to develop a robust system- developed a large team
  - Trial and error
- Difficult to know how the regions fare without good microbiology input
  - Blood culture taking audit
  - Blood culture interpretation
  - Follow up of BC's after discharge
  - Insertion bundles
  - Maintenance bundles

- With multiple people and systems in place
  - Small amount of our time
    - Policing/collecting/interpreting/auditing
- Smaller centres
  - 1 or 2 people dealing with current systems
  - Significant proportion of their time
    - Policing/collecting/interpreting/auditing

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Sustainability

- The data collected must be meaningful
- An important barrier to ongoing success is perception of data validity across regions and the country
  - X CLAB free days or CLAB per/1000line days as conclusion- How valid is this knowing what I know?
  - Our retrospective data provided for the previous year is likely rubbish, and data for the first 6 months of the year is not accurate for reasons explained

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- We are talking the same language
- Are we still missing CLAB?

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- Only now, would I be confident in going to the other centers and explain what we do, and how we can potentially work together as a group.
- Roll out plan for HDU

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- To create a video re CLAB
- But script only

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Summary

- Region appears to be progressing well
- Are we too relaxed and satisfied there is no CLAB?
- Waikato is doing better
  - Blood culture taking audit
  - Blood culture interpretation
  - Insertion and maintenance bundles
- Roll out to other areas
  - Who will provide on going surveillance of all
  - the blood cultures as described?

- Local evidence to continue with Antibiotic coated lines

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