Collaborative to Prevent Central Line Associated Bacteraemia

A Triple Journey

DHB: Auckland District Health Board

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The way we were

Pre-collaborative

- CVICU CLAB rate for Jan – Dec 2011 was 2.05 per 1,000 line days
- DCCM CLAB rate for Jan – Dec 2011 was 1.80 per 1,000 line days
- PICU CLAB rate for Jan – Dec 2011 was 1.40 per 1,000 line days

The way we were

Weaknesses

- Little collaboration between the 3 ICUs
- Variable consumables used
- Equipment stocked separately
- Hats & masks not worn
- Inadequate sized drape in use
- Variable CLAB surveillance process
- Variable blood culture collection patterns and procedure

Strengths

- CVC nursing guideline available
- Chlorhexidine 2% used for skin antisepsis
- Chlorhexidine 2% for catheter access antisepsis

Preparing for the journey

Target CLAB ZERO
Central Line Associated Bacteraemia

IHI OPEN SCHOOL for health professions

KEY DRIVER DIAGRAM

Aim:

To reduce the rate of CLAB in PICU/CVICU/DCCM from a rate of ... per 1,000 line days to <1 per 1,000 line days by 31st March 2013 through achieving greater than 95% compliance with evidence based

Measures:

Aim/Primary Driver-Outcome Measure(s):

1. CLAB rate per 1,000 line days
2. Number of days since last CLAB

Secondary Drivers-Process measure (s)

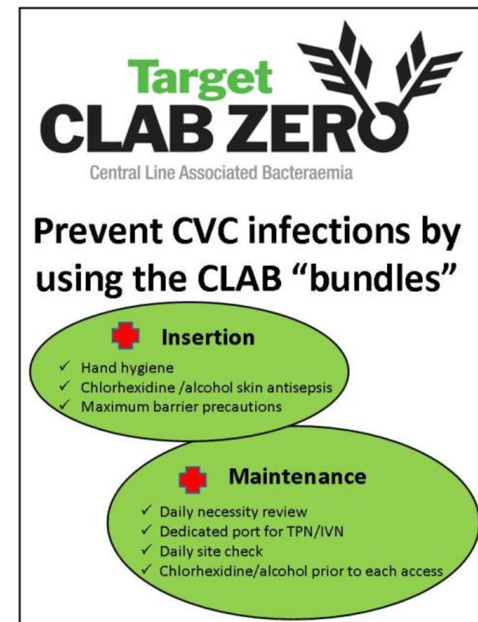
1. Percent compliance with insertion bundle
2. Percent compliance with maintenance bundle

Primary Drivers	Secondary Drivers
Provide appropriate safe care to all patients requiring a central venous line using evidence based practice	Reduce complications of healthcare associated infections from central lines Implement insertion bundle: • Hand hygiene • Chlorhexidine skin antisepsis • Maximal barrier precautions Implement maintenance bundle • Daily necessity review • Dedicated port for IVN • Daily site check • Chlorhexidine prior to hub access
Availability of appropriate equipment	Provide appropriate equipment: Insertion pack Hand hygiene supplies
Develop an infrastructure that promotes quality care, communication and collaboration within multidisciplinary teams	Provide appropriate education Develop a team and provide leadership to deliver consistent, reliable evidence based care Put on agenda for all regular team meetings Provide frequently and timely feedback
Robust data collection and analysis	Reduce variation in practice of blood culture specimen collection Improve consistency of application of agreed definition Develop process for data collection: CLAB and line days Develop database for Insertion and maintenance bundle compliance tracking

Getting started …

PDSA cycles

- Implementation of Insertion bundle practice and checklist
  - Insertion and maintenance checklists developed
  - Unit CLAB teams developed
  - Education resources developed (and shared)
  - Introduction of CVC insertion trolley
  - Development of standard insertion pack (adult and paediatric)
- Process for monitoring compliance with insertion bundle checklist established



…circling …

CLAB Surveillance process developed

- standard method (Tally) for capturing line days established
- standard process for identifying CLAB established
  - Standard process and procedure for blood cultures established

Implementation of maintenance bundle and checklist

  - education resources developed

Process for monitoring compliance with maintenance bundle checklist established (sampling)

…and spiralling…

Definition of high risk criteria for each ICU established

- Education resources developed

Process and method developed for ongoing feedback to staff

- Visual displays developed
- Data analysis support to produce meaningful graphs

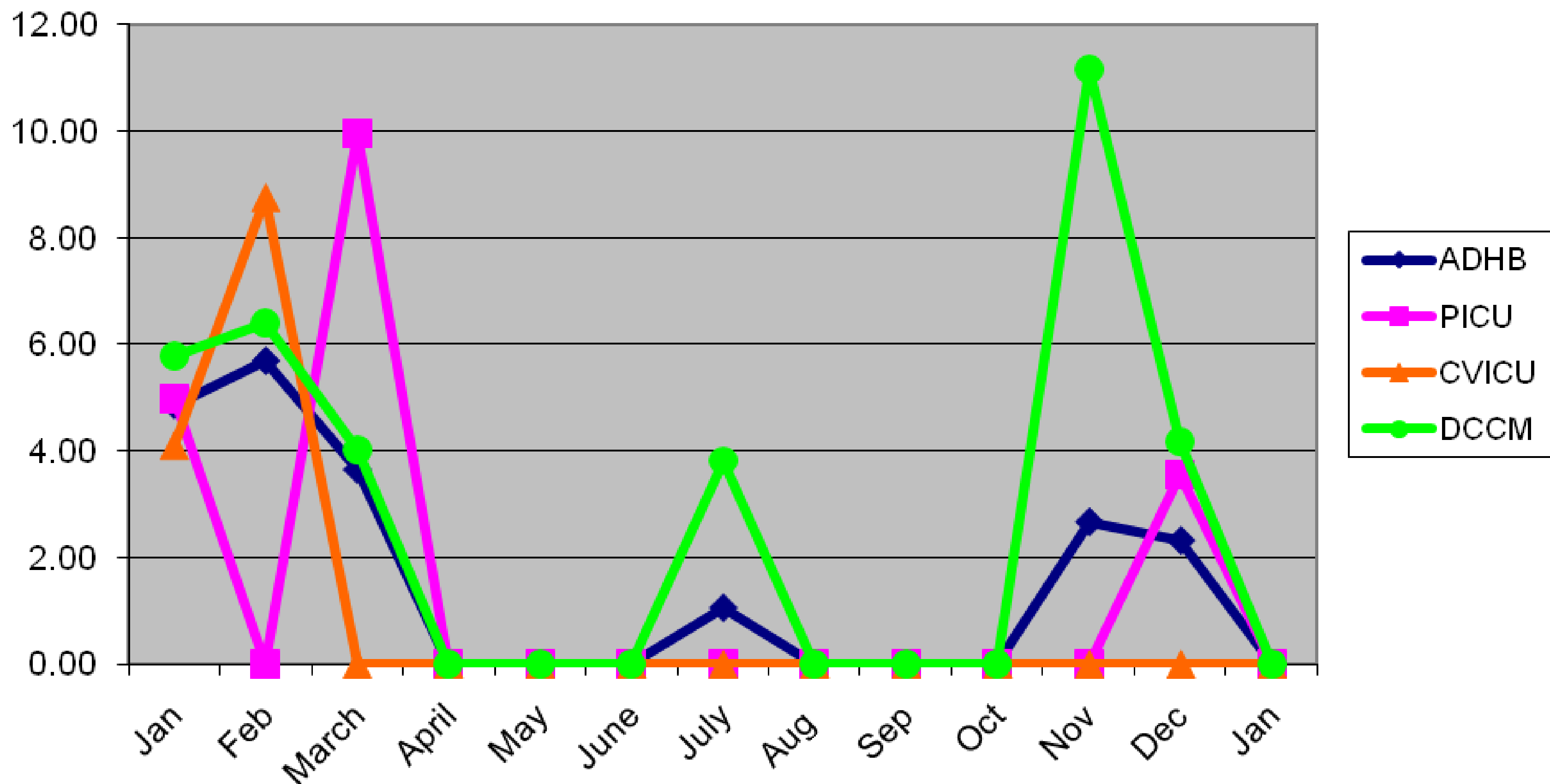
Process of case review of all CLAB events established

…along the way …

- Implementation of insertion bundle and checklist in anaesthesia (adult and paediatric)
- Implementation of insertion bundle and checklist in adult radiology
- ADHB Adult and Paediatric CVC nursing guidelines updated
- ADHB Blood culture guideline developed

…where we are now…

Target CLAB ZERO
Central Line Associated Bacteraemia



…taking time to reflect …

- Increased collaboration between the 3 ICUs
  - Weekly CLAB team meetings
- Improved interdisciplinary communication
- Standard consumables used
- Central stock of equipment (trolley)
- Full barrier precautions used
- Standard CLAB surveillance process
- Standard blood culture collection patterns and procedure
- Feedback to the whole ICU team on how we are doing – rates, compliance, blood culture practice

… & refuel for the future

- Roll out of maintenance bundle and checklist to ward areas
- Implementation of Insertion bundle to adult renal service and emergency department and child emergency department
- Identify 'best' drape for inclusion in adult pack
- Keeping up momentum
  - Continue data collection & reporting of CLAB as a KPI
  - Continue to investigate all CLAB events and feedback to staff
  - Ongoing PDSA cycles…….
- Continue to share learning's between ICUs
- Use the collaboration model for further projects

Celebrating success

CLAB team runners up in the Clinical Excellence category of the Healthcare Excellence Awards 2012

CVICU has the highest number of central line days in NZ and have achieved <u>over a year</u> without a CLAB event

DCCM has increased the percentage of paired (within 12 hours) blood cultures from 12 % to 80%

PICU has sustained 100% compliance with insertion bundle

Target
CLAB ZERO
Central Line Associated Bacteraemia

We have prevented CLAB on our ward for 365 days.