Implementing the National Central Line Associated Bacteraemia project in A Small Rural Hospital in NZ....the benefits for Infection Prevention & Control

Ray Pickles BSc, Dip.N, RGN
Infection Control
Clinical Nurse Specialist
National Central Line Associated Bacteraemia Collaborative

Health Quality & Safety Commission New Zealand

KO AWA TE A
in partnership with the
Institute for Healthcare Improvement

COUNTIES MANUKAU DISTRICT HEALTH BOARD
A Community Partnership

Institute for Healthcare Improvement
Goals of the Collarative

- To reduce the rate of CLAB in New Zealand ICUs towards zero (<1 per 1000 line days by 31 March 2013).
- To support local implementation of best practices regarding the reduction of CLAB across New Zealand Intensive Care Units.
- To establish a robust measurement approach to CLAB.
- To establish a national web-based data base for collection, analysis and sharing of information.
- To develop capacity and capability in the application of the Model for Improvement.
Evidence available Nationally and Internationally about “what works” (Best practice)

- Zero CLAB rates are achievable
- Cost per CLAB estimated to be between $NZ 20,000 and $54,000
- 19,000 patients get admitted to ICU.
- Approximately 50% of these patients have a Central Line in situ.
- The mortality rate from CLAB has been estimated to be between 10 and 50%
Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Act

Plan

Study

Do
Contributing Factors That Can lead Infected Lines

• Catheters require frequent manipulation for administration of fluids, drugs and blood products.

• Catheters are often inserted in urgent situations, during which optimal attention to aseptic technique might not be feasible.

• Underlying disease processes and acuity of illness increases patient’s susceptibility to infection.

• Type of catheter and location of insertion site also plays a contributory role.
Prevention Strategies

Insertion bundle

Daily Maintenance
Implementation of the Central Line Bundle

- Strong leadership committed to change
- The purpose of a bundle:
  - Reduce variation in practice
  - Build a collaborative environment
  - Bring about change
  - Promote problem solving ability of the staff
Central Line Insertion Bundle

- Optimal site selection
- Hand washing !!!
- Full body drape (sterile field)
- Sterile Gloves, Gown, Towels
- Surgical mask & cap
- Chlorhexidine 2 % & 70% alcohol skin prep
- Immediate dressing application (dated)
Central Line
Daily Maintenance Bundle

- Hand washing/Alcohol rub before access
- Dressing changes (date & time)
- Scrub ports with Chlorhexidine >0.5% & 70% alcohol swabs
- Dedicated line for TPN
- Change IV bags q24 hours
- Change IV tubing q72 hours
- Daily review of necessity/Early removal
Hand Hygiene

- Part of the insertion check list
- Naked Below the elbow
- Reminders about hand hygiene
- Have alcohol on the bed or ‘cart’
- Monitor compliance
Bundles
Insertion Packs or insertion Trolley
Definition of CLAB

- Meets the CDC definition
- Clinical Microbiologist
- Infection Control
- Standardized approach
Preventative Strategies

Chlorhexidine impregnated Dressing

Antibacterial lines

Bio Patch
1 in 100 Year Strom
Waioeka Gorge
Then the Train line fell in!!

Gisborne to Wairoa
316mm of Rain fell in 48hrs
Not Always Raining….. in Gisborne

Surfing at Wainui Beach
Gisborne Hospital

- Gisborne Hospital is a small DHB with around 105 beds and a small 3 bedded ICU unit
- Maximum 48hr ventilation period
- Distance from major hospitals
- Use locums/ small core of permanent medical staff
- Medical staff are from different countries
Project Team

- Do we have a problem
- No data available

What we discovered
- Small number inserted
- Therefore Low Line days
- Insertion & Maintenance Bundle
“You won’t get Doc’s to fill in those!!”
Case study

- 69 Male THJR in 1989
- Admitted with an infected hip requiring AB’s
- CVL placed on the 10/10/11 removed 20/10/11
- PICC placed which failed (unable to gain further access)
- CVL placed on the 5/12/11 with an insertion bundle
- Placed on a maintenance bundle (not perfect)
- Removed on the 17/1/12
- 43 days later !!
Progress at Gisborne

- Refined the Insertion & Maintenance Bundles
- Collecting Data and inputting this into the IHI data base
- Rolled out to the ward areas to increase the number of CVL’s
- Clinical & Project Lead meet with Clinician
- In conjunction with the Quality nurses begun education to ward staff
- Improved compliance to both bundles
- Implementing ‘Naked Below the Elbow
- Improve the feedback to staff (due to low numbers)
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Task Description</th>
<th>AM Shift</th>
<th>PM Shift</th>
<th>Night Shift</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Today's Date</td>
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<tr>
<td>Was the Need for Central Line reviewed today?</td>
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<tr>
<td>Did you check the site for inflammation?</td>
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<tr>
<td>Hand hygiene is performed before &amp; after all CVL access/maintenance tasks.</td>
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## Last 2 months Data

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<th>Running Total CLAB Free</th>
<th>Running Total Line days</th>
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<td><strong>Jun-12</strong></td>
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<tr>
<td>Line days</td>
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<tr>
<td>CLAB per 1000</td>
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<tr>
<td>Compliance with Insertion Bundle</td>
<td>9 (Transfer 6 1 dec)</td>
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<tr>
<td>Compliance with Maintenance Bundle Days</td>
<td>11(25 Total ) 44%</td>
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<tr>
<td>Number of CLAB free</td>
<td></td>
<td>231</td>
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<tr>
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<th>Running Total Line days</th>
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<tr>
<td><strong>Jul-12</strong></td>
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<tr>
<td>Line days</td>
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<tr>
<td>CLAB per 1000</td>
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<tr>
<td>Compliance with Insertion Bundle</td>
<td>6(Tatol 7 -1 transfer) 85%</td>
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<tr>
<td>Compliance with Maintenance Bundle Days</td>
<td>10(tatol 47) 21%</td>
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<td>Number of CLAB free</td>
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### Last 2 months Data

<table>
<thead>
<tr>
<th>Pts. NHI</th>
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<th>IJ/SUB/FEM</th>
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<td>PICC</td>
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WE HAVE PREVENTED
Central Line Associated Bacteraemia
IN ALL OF OUR PATIENTS

FOR 231 DAYS
TDH Compliance

Hand Hygiene Compliance

% Compliance

TDH ICU WD8

CLAB


TDH ICU WD8
TDH Hand hygiene Compliance

Total % Compliance for Hand Hygiene for all Services

- Jun-09
- Nov-09
- Mar-10
- Jun-10
- Oct-10
- Mar-11
- Jun-11
- Oct-11
- Mar-12
- Jun-12
TDH HAI

June 2011 to June 2012
HAI Infections Rate

- Staph Aureus
- Bacteraemia
- Surgical
- C-section
- Hip & Knee
- Linear (C-section)
Capt. Cook Over looking Gisborne beaches

Use of a quality improvement program for infection control will .......... promote positive patient outcomes
First to See the light!!