APHM / ASQua / ISQua International Healthcare Conference 2009

CLINICAL EXCELLENCE COMMISSION

Theory vs Practice – Implementation of Programs for Patient Safety and Quality

The Leadership Challenges

Bruce Barraclough.

President, International Society for Quality in Healthcare

Innovation, Leadership, Data and Evaluation

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- Success in change management for central line associated bacteraemia
- Addressing the key issue – recognition and management of the deteriorating patient
- Using data to inform clinical practice
- Enhancing leadership

clabicu PROJECT

PREVENTING CENTRAL LINE INFECTIONS

NSW Central Line Associated Bacteraemia – ICU Project

AR Burrell, M-L McLaws, A Pantle, M Murgo, E Calabria

ICCMU Intensive Care Coordination & Monitoring Unit

NSW HEALTH

UNSW THE UNIVERSITY OF NEW SOUTH WALES SCHOOL OF PUBLIC HEALTH AND COMMUNITY MEDICINE

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Published Results

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CLAB rate was reduced to:

1.36/1000 line days over a 4 year period in 69 ICUs in South Western Pennsylvania

CDC MMWR reported in JAMA 2006; 269-270

1.44/1000 line days in 46 ICUs in New York State

Koll BS, Straub TA, Jalon HS et al Jt Comm J Qual Patient Saf 2008; 34:713-723

1.7/1000 line days in 9 VA Hospitals, Midwest, US

Bonello RS, Fletcher CE, Becker WK et al. Jt Comm J Qual Patient Saf 2008; 34:639-645

1.4/1000 (mean) line days in 103 ICUs in Michigan

Pronovost et al NEJM 2006

A regional collaborative involving 44 ICUs is underway in Tuscany

S Rodell, Forni S, Castagnoli M et al (abstract). Qual Saf Health Care 2008;17:20-21

New South Wales Central Line Associated Bacteraemia – Intensive Care Unit project

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‘Top down/bottom up’ project – New South Wales Intensive Care Coordination & Monitoring Unit and Clinical Excellence Commission

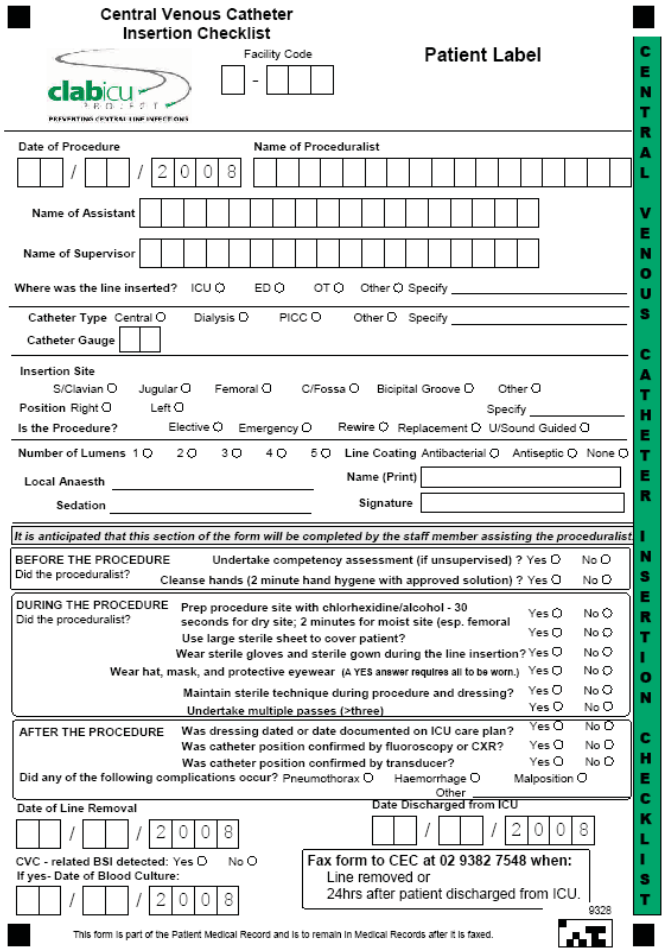
Methodology modelled on the work of Pronovost et al.

The project promoted a standardised insertion technique including:

- **Hand washing**
- **Full barrier precautions during insertion**
- **Cleaning skin with chlorhexidine**
- **Avoiding femoral site if possible**
- **Removing unnecessary catheters**

Data on >12,000 lines inserted in New South Wales ICUs from July 07 to Dec 08

Guideline and checklist produced



Central Venous Catheter Insertion Checklist

clabicu PROJECT — PREVENTING CENTRAL LINE INFECTIONS

Facility Code ☐ - ☐☐☐

Patient Label

CENTRAL VENOUS CATHETER INSERTION CHECKLIST

Date of Procedure ☐☐ / ☐☐ / 2008 — Name of Proceduralist

Name of Assistant

Name of Supervisor

Where was the line inserted? ICU ○ ED ○ OT ○ Other ○ Specify

Catheter Type Central ○ Dialysis ○ PICC ○ Other ○ Specify

Catheter Gauge ☐☐

Insertion Site
S/Clavian ○ Jugular ○ Femoral ○ C/Fossa ○ Bicipital Groove ○ Other ○

Position Right ○ Left ○ Specify

Is the Procedure? Elective ○ Emergency ○ Rewire ○ Replacement ○ U/Sound Guided ○

Number of Lumens 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ Line Coating Antibacterial ○ Antiseptic ○ None ○

Local Anaesth — Name (Print)

Sedation — Signature

It is anticipated that this section of the form will be completed by the staff member assisting the proceduralist

BEFORE THE PROCEDURE — Did the proceduralist?
- Undertake competency assessment (if unsupervised) ? Yes ○ No ○
- Cleanse hands (2 minute hand hygene with approved solution) ? Yes ○ No ○

DURING THE PROCEDURE — Did the proceduralist?
- Prep procedure site with chlorhexidine/alcohol - 30 seconds for dry site; 2 minutes for moist site (esp. femoral — Yes ○ No ○
- Use large sterile sheet to cover patient? Yes ○ No ○
- Wear sterile gloves and sterile gown during the line insertion? Yes ○ No ○
- Wear hat, mask, and protective eyewear (A YES answer requires all to be worn.) Yes ○ No ○
- Maintain sterile technique during procedure and dressing? Yes ○ No ○
- Undertake multiple passes (>three) Yes ○ No ○

AFTER THE PROCEDURE
- Was dressing dated or date documented on ICU care plan? Yes ○ No ○
- Was catheter position confirmed by fluoroscopy or CXR? Yes ○ No ○
- Was catheter position confirmed by transducer? Yes ○ No ○

Did any of the following complications occur? Pneumothorax ○ Haemorrhage ○ Malposition ○ Other

Date of Line Removal ☐☐ / ☐☐ / 2008

Date Discharged from ICU ☐☐ / ☐☐ / 2008

CVC - related BSI detected: Yes ○ No ○

If yes- Date of Blood Culture: ☐☐ / ☐☐ / 2008

Fax form to CEC at 02 9382 7548 when:
Line removed or
24hrs after patient discharged from ICU.

9328

This form is part of the Patient Medical Record and is to remain in Medical Records after it is faxed.

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HEALTHCARE ASSOCIATED INFECTIONS

CENTRAL VENOUS CATHETER INSERTION — STANDARD

CareSafe NSW HEALTH *putting the patient first*

Related policy

Central venous catheter defined

Central venous catheter (CVC):
- refers to an intravenous device with a tip ending in a major vein
- may have a skin entry point in the trunk, 'centrally inserted', or skin entry point through a limb, 'peripherally inserted'.

Mandatory central venous catheter insertion principles

- CVC insertion is a complex procedure requiring maintenance of a sterile field to reduce the risk of local or systemic infection.
- Only trained or experienced clinicians must insert a CVC. All clinicians new to the insertion of a CVC must complete a training program.
- Multiple attempts at CVC insertion increases the risk of mechanical and infective complications. An escalation procedure to minimise this risk should be followed.
- Careful ongoing maintenance of a CVC is essential. Refer to guidelines for post insertion care (insert hyperlink to guidelines).

Safe insertion - summary

A proceduralist must comply with the following when inserting a CVC:
- Consider use of the subclavian insertion site.
- Seek procedural support from an assistant or supervisor.
- Perform hand hygiene.
- Put on full sterile personal protective equipment.
- Prepare insertion site using an approved solution.
- Use sterile sheet/s to drape the entire patient.
- Maintain sterile technique throughout the procedure.
- Secure and dress the CVC with a sterile transparent semi-permeable self adhesive dressing.
- Check CVC position using a transducer.
- Confirm the CVC position before use by fluoroscopy or x-ray.

The clinical team responsible for the patient must.....

- Review the CVC daily.
- Remove the CVC as soon as practical.

Escalation procedure

Multiple passes as an insertion site may increase the risk of complications. Therefore it is recommended that:
- Passes by a junior clinician should be limited to two at the same site after which no further attempts at cannulation should be made and a change of proceduralist should occur.
- Number of passes by a senior clinician should be governed by clinical judgement. Where multiple insertion failure has occurred, the senior clinician should consider using an alternate proceduralist, radiological or ultrasound guidance.

Pass
Skin puncture with the intention of cannulating a central vein.
Multiple pass
More than one cannulation pass at the same insertion site.
Insertion failure
Unsuccessful cannulation after a multiple pass or arterial puncture.

Assistance and supervision

Only trained or experienced clinicians should insert a CVC. All clinicians new to inserting central lines in NSW must complete a training program that has both knowledge and practical components.

The minimum training requirements for CVC insertion are outlined in the CVC Training and Education Framework (insert hyperlink). Supervision requirements are also specified.

Issues in implementation

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Initial clinician resistance

- 'We don't have Central Line Associated Bacteraemia'
- 'I don't believe the evidence'
  - Staff in 4 ICUs refused to wear hats
- Data collection/reporting requirements – 'Where's the money?'
- Apathy

Later increasing senior intensivist involvement – greater scrutiny of data submitted due to feedback reports to participating ICUs

Checklist Compliance – all ICUs – July 07 – Dec 08

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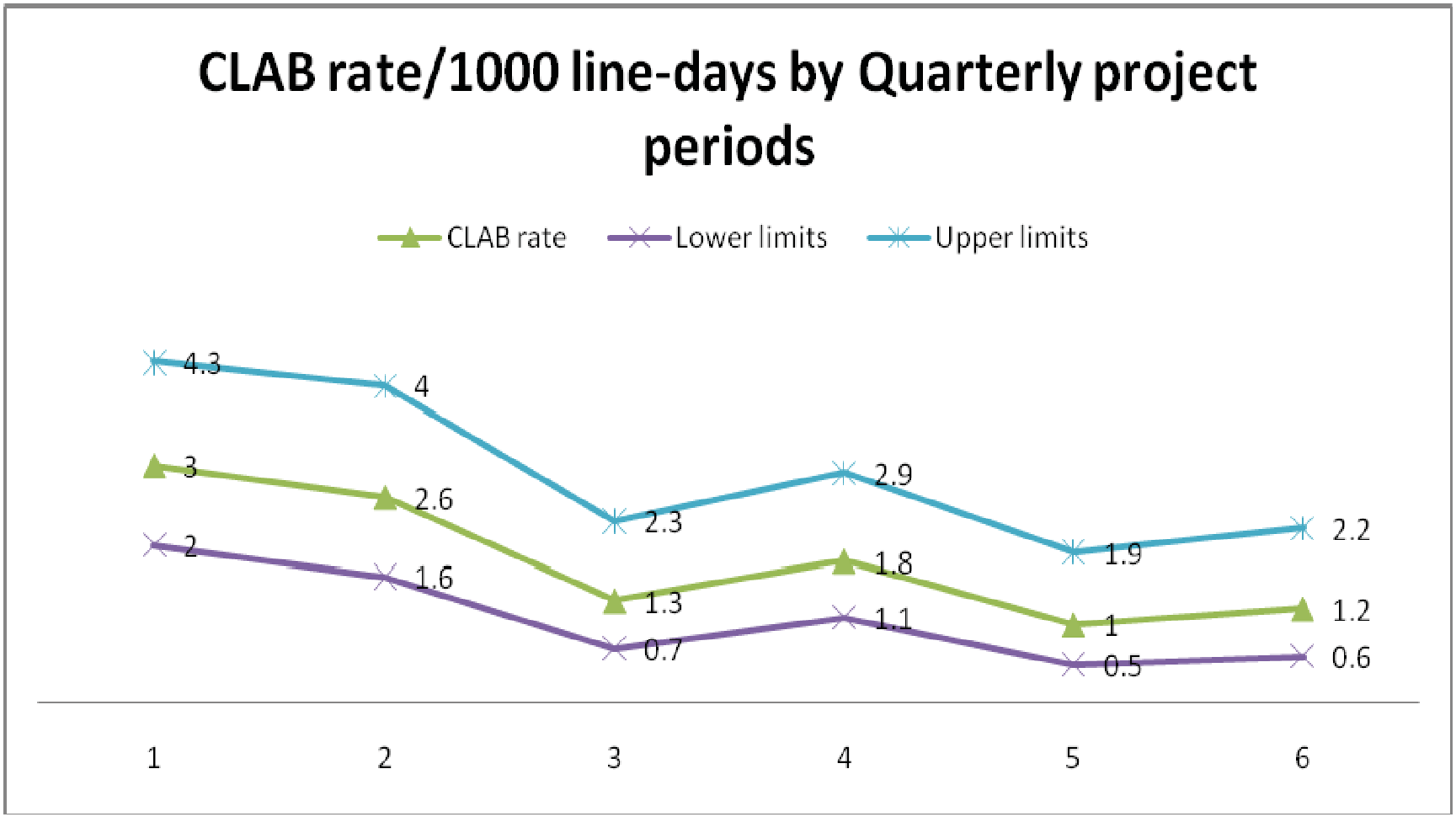
Competency assessed	48.3% (22.9% no, 28.8% missing)
Hat, mask, eyewear	79.9%
Hands washed 2 mins	91.6%
Sterile gown/gloves	95.9%
Alcoholic chlorhexidine prep allowed to dry	95.8%
Entire patient draped	93.4%
Sterile technique maintained	95.6%
No multiple passes	80.9%
Confirm position radiologically	74.3%
Other method to confirm placement	43.6% (44.7% no, 11.7% missing)


CLAB rate/1000 line-days by Quarterly project periods
CLAB rate
Lower limits
Upper limits
4.3
4
2.3
2.9
1.9
2.2
3
2.6
1.3
1.8
1
1.2
2
1.6
0.7
1.1
0.5
0.6
1
2
3
4
5
6

Reason for Improvement multi-factorial

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Increased awareness of need for scrupulously sterile insertion

Increasing compliance with clinician bundle (if non hat wearers excluded)

Significantly better communication between intensive care & infection control

Increasing ownership by intensive care clinicians following reporting of individual ICU Central Line Associated Bacteraemia data

Between the Flags

Keeping patients safe

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Recognition and management of the deteriorating patient

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Swimming at open surfing beaches, there has been no drowning in a patrolled area (in between the flags) in New South Wales (or Australia) when lifesavers were on duty!

What about Health?

Unexpected deterioration of patients on acute hospital wards confirmed by Root Cause Analysis and Incident Management System data in NSW

Local, national and international work but no single solution identified

Local: Clinical Emergency Response Systems Guidelines; Medical Emergency Teams

National: Implementing Rapid Response Systems (RRS)

International - NPSA report November 2007

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Other relevant issues

Workforce – rostering patterns, skill mix

Communication – between and across clinical teams (ie handover, rounds etc)

Education and training – physiology?

Work practices – nurses busy doing tasks other than bedside care; lack of emphasis placed on basic observations (task delegated to least trained member of staff)

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Measurement and Evaluation

Qualitative measures eg focus group/semi structured interviews

Audit – improvement in documentation

Process measures of implementation

Observational audits of process

Outcome measures - ↓ adverse events, ↓ unplanned transfer to ICU, ↓ unplanned returns to OT, ↓ death with no “not for resuscitation” order, ↓ treatment delays, ↑ response times by JMOs when called by nurses re deteriorating patient

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Basic observation Chart	Dept of Health
Education packages (3)	Area Health Services
Lifeguards-first responders	Hospitals
Rescue devices-second responders	ICU
Evaluation	Clinical Excellence Commission

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Further Information

Between the Flags Website -
http://www.cec.health.nsw.gov.au/moreinfo/betweentheflags.html

Prof Cliff Hughes -
clifford.hughes@cec.health.nsw.gov.au
+61 2 93827668


WARNING
STRONG
CURRENT
IF IN DOUBT, DON'T GO OUT

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Using Data to Inform Clinical Practice:

Acute Hospital System

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- Data tends to reflect key policy or high profile parts of the system, eg access, waiting times
- Rich in data, but poor in providing useful information to clinicians re outcomes and variation in practice (clinician, unit, hospital, system levels)
- Data is rarely used effectively to drive improvement

Key Points in "Garling" inquiry into Acute Hospital System re: Data and Reporting

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- Great reservoir of information available
- Problem is not in collecting the information but in gathering and interpreting it for practitioners down to ward or clinical unit level where patients are cared for.
- Understanding, analysing and publishing sensible health information will lead to big improvements in health care.

Clinical Excellence Commission Data Reports and Projects

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- Incident management
- Chartbook
- Medication Safety Self Assessment
- Quality Systems Assessment
- Special Reviews (ADHD, pacemakers, early pregnancy)
- CPI projects: transfusion medicine; central line associated bacteraemia; surgical mortality; hand hygiene; deteriorating patient; falls

CEC Workshop: "Measuring Hospital Performance"

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- Sydney, November 2008, 60 participants
- Input from Canada, Queensland, Victoria
- Key principles and critical measures identified
- Summary on CEC website: http://www.cec.health.nsw.gov.au/moreinfo/hpiw.html

Key Lessons *in designing a reporting system for Hospital Performance in Safety and Quality:*

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- Choice of measures should be driven by strategy – consider target audience and core purpose
- Choose a limited number of measures
- Greatest gains will accrue when hospitals and clinicians are able to compare performance with peers using valid measures
- Different sets of indicators for different purposes, eg high level indicators for public reporting; detailed outcome and process measures for improvement
- I.T. systems will need to be enhanced to facilitate access to outcome measures and reduce burden of data collection
- Indicator data quality tends to improve with reporting.

Identified critical measures

(highest potential of health gain)

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- Hospital Acquired Infections (bundle)
- Pressure Ulcers
- Best Practice Care for Acute Coronary Syndromes (bundle)
- Unplanned return to ICU
- Unplanned return to Operating Theatre
- Medication Errors
- 30 day Unplanned overnight readmission rate
- Venous Thromboembolism
- Patient Falls; Management of Deteriorating Patient
  (but difficulty in collecting robust data at this time)

Summary

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- Strategy must drive reporting, not vice versa
- Data needs to be relevant, accessible and timely for clinicians
- I.T. systems in place to support
- Focus on outcomes
- Evolutionary process