# National Programme to Prevent Central-Line Associated Bacteraemia

## Project Charter
## October 2011 to April 2013

### 1. Overview

Central-Line Associated Bacteraemia (CLAB) prevention is one of the most important measures in the fight against healthcare -associated infections. Central-line infections are an issue throughout hospitals, but particularly in ICUs. Local and international data shows that patients in ICUs are at a high risk of developing healthcare-associated infections (HAIs), with 20% to 30% of all HAI s occurring in ICU. CLAB has a significant impact on morbidity due to increased length of stay and associated costs. It has an attributed mortality at 4-20%

Preventative measures against CLAB are well-documented and accepted by most professional organizations as evidence based. This collaborative, funded by the Health Quality and Safety Commission, is providing leadership, coordination and data management and aims to significantly decrease CLAB in New Zealand ICU's, and in so doing, develop a sustainable clinical improvement network.

The expectation is that all 20 DHB's will participate in this 18 month initiative; (October 2011 to April 2013). It is accepted that there may be a phased approach.

***Ultimately we are all called to action to do the right thing and be part of an initiative that puts our patients at the heart of delivering high quality, safe care, through a proven methodology.***

**The key objectives are:**

- To reduce the rate of CLAB in New Zealand ICUs towards zero (<1 per 1000 line days by 31 March 2013)
- To share good practices that have already been developed and provide leadership, coordination and data management that will lead to sustainable improvement and better patient safety outcomes
- To establish a robust national measurement approach to CLAB to inform the establishment of a national web-based data repository for collection, analysis and reporting of outcomes.

### 2. Problem Statement

- CLAB is one of the important measures required to enable the measurement and reduction in healthcare acquired infections
- Implementation of best practice is achievable
- It will provide a baseline for measuring the extent of the problem in NZ and enable improvement to be measured.

*What problem does it seek to solve?*

- Reduce the incidence of Central- Line Associated Bacteraemia

*Success and Failure Factors*

**Success**

- Patient - reduction in patient morbidity
- Staff – provides the tools and techniques to implement evidence based practice and the ability to implement continuous quality improvement
- Health Sector – Reduce unnecessary use of resources and the excess cost associated with increased length of stay
- Community – provides higher levels of safety and confidence to members of the public
- Has synergies with other national healthcare initiatives such as the HQ&SC Infection Prevention and Control projects, i.e. Hand Hygiene and Surgical site infection surveillance

**Failure**

- Significant patient morbidity and mortality is associated with CLAB
- Has the potential to create a sense of failure for staff
- Results in additional costs to the health sector with no gain

*How does this project impact the lives or well-being of patients?*

- Reduction in morbidity and mortality rates
- Reduction in the number of bed days used for healthcare-associated infections
- Reduction in increased length of hospital stay for patients

*What other stakeholders are involved?*

- Intensive Care Units, Surgical Units, Operating Theatres, Inpatient wards, Renal units, Haematology/Oncology Units
- Patients and families
- Health Quality and Safety Commission (HQ &SC)
- Executives and staff of 20 DHB's
- Clinical Lead Health Quality and Safety Commission

*Other linkages*

- NZNO National Division of Infection Control Nurses
- Critical Care Nurses Section
- ANZICs Safety and Quality Committee
- Australasian Society for Infectious Diseases (NZ Group)
- Intra Venous Nurse Specialists

*How does this project fit into the strategic vision of the National Health Sector?*

Supports:

- Regional plans to reduce Healthcare -associated Infections
- CMDHB initiative to save 20, 000 hospital bed days
- CMDHB Hospital wide initiative "zero patient harm"
- The direction of the Health Quality and Safety Commission (HQ & SC)

- In line with other national initiatives to reduce the rate of healthcare-associated infections

*What are the potential risks of not doing the project? Of failing to succeed?*

- Ongoing morbidity and mortality
- Inability to measure the current national status of CLAB
- Lost opportunity in reducing CLAB and the potential for rates to increase
- Lost opportunity in providing DHB s the mechanism through which they are able to solve their own problems in a collaborative supported environment where they are able to build on their own and each others best practice, effective and efficient practices

**3. Project Scope and Approach**

Central venous lines are common in Intensive Care Units (ICU) – nationally there are approximately 19,000 ICU admissions each year. In these vulnerable patients, there is a serious risk of central line infection and with it an associated mortality of 4 - 20%. Furthermore, the cost of each Central Line Associated Bacteraemia (CLAB) has been estimated to be between $NZ 20,000 and $54,000. (Seddon et al, Aiming for zero: decreasing central line associated bacteraemia in the intensive care unit, NZMJ 29 July 2011, Vol 124 No 1339;issn 11758716)

*How many and what type of organizational units (units, departments, divisions, sites, etc.) are involved?*

- 20 District Health Boards, 24 Intensive Care Units, High Dependency Units, theatres and inpatient wards

*What specific processes will you need to change in order to achieve your goals?*

- Practices related to the insertion of central lines in ICU's and theatres
- Practices related to the maintenance of central lines in ICU's and theatres, as well as all other inpatient areas
- Developing the Data collection and reporting processes-agree what data will be collected and how, agree on the key reporting measures and how these will be reported; includes the consistent application of CLAB and capturing of the denominator data – central line days.
- Procurement related processes

Supporting Activities

- Roles and responsibilities of key stakeholders
- Communication processes
- Reporting processes and templates, at local DHB and national level
- Learning sessions, timing, what, where, when, registration
- Processes for developing "packs"
- Website development

This is an 18 month program with identifiable milestones throughout the duration of this project. Commencement date October 2011-Completion date April 2013. It may be that this is a staged approach where the early adopters begin from the outset and the balance of the units within the DHBs join at a later date.

**PHASE 1**

| Key Activity/Milestone | Measure of improvement | Timeline | Status |
|---|---|---|---|
| 1. Identify participants for IHI | ISIA attendance by 20 CLAB Project Leaders<br>BTS attendance by 12 CLAB Leaders | 30 Sept 11 | Not achieved and verbally reported |
| 2. Complete Project Charter | Identified dates for key milestones | 30 Sept 11 | Complete |
| 3. Project Plan and Timelines | Completed project Plan | 31 Oct 11 | In progress |
| 4. Analysis of Baseline CLAB | Develop the questionnaire<br>Distribute questionnaire to all 20 DHBS<br>Collate the information<br>Report on the Baseline CLAB rates | 30 Nov 11 | In progress |

| Key Activity/Milestone | Measure of improvement | Timeline |
|---|---|---|
| **6. Launch Collaborative Learning Session** | Benchmark measures established<br>Sharing of CLAB prevention toolkit | **28-29 Nov 2011** |
| **7. Monthly ongoing support to Regions**<br>- Monthly meetings agreed<br>- Onsite visits<br>- teleconference | Level of engagement<br>Progress in insertion checklist<br>Progress in Maintenance checklist<br>Measures improvement | Jan to Dec 2012 |
| 8. Analysis of CLAB rates 31 Dec period | That all participating DHBs have a data base for the reporting of CLAB | 31 Jan 2012 |
| 9. Analysis of CLAB rates 30 April period | A reduction in CLAB rate per 1000 line days | 14 May 2012 |
| 10. First year summary report | A reduction in CLAB rate per 1000 line days | 14 July 2012 |
| **11. Second Collaborative Learning Session** | | **30, 31 July 2012** |
| 12. Analysis of CLAB rates 30 Sept period | As above | 31 Oct 2012 |
| 13. Analysis of CLAB rates 31 Dec period | As above | 31 Jan 2013 |
| 14. Analysis of CLAB rates 31 Mar period | As above | 30 April 2013 |
| **15. Third Collaborative Learning Session** | | **18,19 March 2013** |
| 16. Full year result report | No of participants<br>CLAB rates per 1000 line days<br>No of CLAB free days per ICU/Unit<br>Compliance with insertion processes<br>Compliance with Maintenance processes | 30 April 2013 |
| 17. Review and report on lesson learned | Agree a bundle of care | 7 May 2012 |
| 18. Roll out the developed and agreed bundle of care to 20 DHBs | Number out of 20 of the DHBs who have rolled out the bundle of care | 30 June 2012 |
| 19. CLAB bundle of care in use in all DHBs | Number of DHBs using the bundle of care | 30 April 2013 |

The Model for Improvement[i] has been integral to the success of improvement initiatives in hundreds of health care organizations in several countries. Using the key elements of the model, especially testing changes on a small scale with Plan-Do-Study-Act (PDSA) cycles[ii], will allow people to understand the effects of changes system-wide and has facilitated partnerships among various units as they participated together in finding solutions to problems of flow.

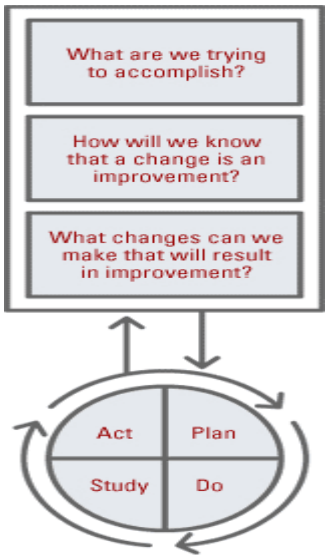


Figure 1 – The Model for Improvement

1. **Setting Aims -** Improvement requires setting aims. The aim should be time-specific and measurable; it should also define the specific population of patients that will be affected.
2. **Establishing Measures** - Teams use quantitative measures to determine if a specific change actually leads to an improvement.
3. **Selecting Changes -** All improvement requires making changes, but not all changes result in improvement. Organizations therefore must identify the changes that are most likely to result in improvement.
4. **Testing Changes** - The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change in the real work setting - by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning

## 4. Expected Outcomes

*What do you expect to achieve with this project?*

- Improvement in the rate of CLAB per 1000 line days
- An agreed national bundle of care for the insertion and maintenance of central lines
- A national data base for the collection and analysis of CLAB rates
- Increased capacity and capability across the DHBs in "Science Improvement in Action" and Breakthrough Series collaborative improvements.

*What are the criteria for success?*

- Engagement of ALL 20 DHB's

- National improvement in the CLAB rates
- Informed staff who are excited about sustaining the improvements that have given them positive results and striving for ongoing improvement

*What is the time frame*

- 18 months (October 2011 to April 2013)

Milestone details on the Gantt Chart

*Desired outcome in terms of specific numerical goals?*

- Reduce CLAB rates in all 24 ICUs identified towards zero < 1 per 1000 line days by 31 March 2013
- Engagement of 20 DHBs
- 20 staff trained in ISIA
- 12 staff trained in BTS

**5. Measures (How will we know change is an improvement?)**

*How will you monitor your progress toward your expected outcome(s)?*

- Measurement development of the following and recording and reporting trends
  - Number of line days
  - Number of CLABS per 1000 line days
  - Compliance against insertion bundle criteria
  - Compliance against maintenance bundle criteria
  - Days since last CLAB/ICU

**6. Baseline Data**

*What is the current performance of the process and outcome measures?*

Some DHB ICUs report the following:

- Compliance with insertion bundle – overall and individual components
- Compliance with maintenance bundle –overall and individual components
- CLAB rate per 1,000 line days

## Improvement Science Professional Development Program: Project Charter

**6. Ideas for Change (What changes can we make that will lead to improvement?)**

*Relevant questions for this item:*

- *Initial ideas that teams can test to move toward expected outcome(s)?*
  - Collection process for ICU line days
  - Implementation process for insertion bundle
  - Implementation process for maintenance bundle
  - Recording of data.

- *What can you change to make things better?*

- Share best practice
- Provide tools and expertise and support to participants

- *What resources do you have available to work on the project?*
  - Representatives from the DHBs recommended 0.2 FTE per site
  - Steering Group
  - Clinical Leader for CLAB
  - Improvement Advisor 0.2 FTE
  - National Clinical Leader for HQ &SC Infection Prevention and Control projects 0.2FTE
  - Data Analyst 0.1FTE
  - Project and Campaigns Manager 1.0FTE

- *Are there financial or organizational constraints that pose potential barriers to the work?*
  - Financial constraints in terms of backfilling positions, particularly during set up
  - Small DHBs have less staff flexibility, staff already have multiple roles
  - There is some change fatigue
  - Cost of travel and accommodation to attend training sessions
  - Limited capacity and capability in the Improvement Science and Breakthrough Collaborative methods

## 7. Roles and Responsibilities

**NATIONAL PROJECT MANAGER (DIRECTOR):**

- Oversees all aspects of the Collaborative
- Drives the content development for all phases, including the topic content
- Learning Sessions, and Action Period activities
- Coaches and guides topic experts
- Feedback to staff at the DHB s following attendance at the learning session
- Set up Regional Meetings between each collaborative, the purpose of which would be to focus on key areas of learning/coaching, identifying what is working really well, what the challenges are etc.
- Facilitates Learning Sessions and conference calls
- Teaches and coaches teams about process improvement
- Regularly assesses Collaborative progress and institutes necessary changes to meet Collaborative aim
- Supports collaborative learning throughout the Action Periods
- Website data base development

**IMPROVEMENT ADVISOR**: 0.2 FTE

- Develop the Collaborative measurement system with the assistance of the faculty and Director
- Teach and coach teams on process improvement at Learning Sessions and during Action Periods
- Assesses progress in the Collaborative and identifies necessary changes in key technical content, measurement, and use of improvement methods
- Supports collaborative learning throughout the Action Periods
- Development of change package and preparatory materials for participants pre-work

**CLINICAL LEADER:** 0.1 FTE (HALF DAY/WEEK)

- Help the Project Manager and Improvement Advisor to develop a charter, topic content ("change package"), and Collaborative measurement strategy
- Assist in the recruitment of District Health Boards to participate in the collaborative and to work on retaining their participation
- Teach at Learning Sessions and coach the teams in improvement methods
- Support teams during the Action Periods (e.g. answering subject matter questions, providing examples of success or challenging teams)
- Attend Steering Group Meetings
- Attend the Breakthrough Training course
- Attend all three learning sessions and present

***It is assumed that the time commitments of the regional roles will be at the expense of the contributing DHBs***

**REGIONAL LEADER:** Clinical Director/Head of ICU or Consultant in ICU

- Provide Clinical Leadership to the regional participants
- Attend the monthly regional meetings
- Provide support and encouragement to teams engaged in the collaborative

**DHB LOCAL CLINICAL LEADER (ICU Physician, anaesthetist, ICU Clinical HOD)**

The local DHB Clinical lead is absolutely pivotal to this initiative and although the time commitment in terms of "hands on" is relatively insignificant at approximately a day a month, the support and positive influence for the initiative in terms of whether or not the unit succeeds is significant.

- Role model the agreed changes
- Support the Project Leader in achieving the agreed aims and objectives
- Contribute to the development of interventions
- Contribute actively to removing barriers that could inhibit progress
-

**DHB LOCAL PROJECT LEADER:**

Programme Sponsors and Programme leaders from each DHB are encouraged to attend the Collaborative Learning Sessions, (CLS) as well as 2-3 other key stakeholders who would benefit from attending and are likely to influence and drive the projects.

Our advice from the team at Middlemore Hospital Critical Care Unit is that the nominated project leader's time commitment will be up to one day a week spread over 5 week days. This investment in time is re-paid relatively quickly as improvements to process lead to freeing up of time. A commitment from the Clinical Director/Head of Department is critical to the process, as well as support and leadership from the Charge Nurse Manager.

- Responsible for driving the project
- For the motivation of the staff within the unit
- For problem solving in collaboration with the local, regional and national tea
- Attend the Learning sessions

## 5. Communication Strategy

It is recognised that a comprehensive communication plan is essential to the ability of this project to succeed. The changes envisaged as a consequence of the implementation of the collaborative To Prevent Central Line Associated Bacteraemia will impact on different District Health Boards (DHB's) to a greater or lesser extent, depending on the current organisational culture, particularly in respect to accepting experimentation and improvements initiated and implemented at the coal face.

Change impacts all staff in different ways and depending on how and what is communicated to staff will contribute significantly to the success or not of the planned changes.

It is recommended that each of the Project Leaders develops a communication strategy in relation to the CLAB collaborative. The strategy needs to include all key stakeholders, including any department, unit or individual that is likely to be impacted by the programme. The plan needs to reach out to staff and be designed to inform, educate and assist employees to understand and accept the objectives of the CLAB Program and the process for its implementation.

It is recommended that each DHB include CLAB on the agenda of meetings already in place, including the Executive Management team meetings.

The strategy is to provide staff with access to complete and consistent information that clarifies what the project is about and outlines how the changes will affect them directly. It is intended that staff and stakeholders receive clear, concise and useful information throughout the project that is timely, accurate and responsive. Providing deliberate, consistent and targeted communication will help establish and maintain understanding, acceptance and co-operation.

The development of your communication strategy could include the following:

- Create a list of all the key stakeholders, including the project team, support areas, such as theatres, none clinical support.
- Use current meeting forums and including CLAB on the agenda
- Provide staff opportunities to feedback on the programme
- Establish communication and sharing with other DHB s involved in the collaborative
- Manage staff expectations

[i] Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance.

[ii] The Plan-Do-Study-Act cycle was developed by W. Edwards Deming (Deming WE. The New Economics for Industry, Government, Education.).