Quality Improvement and Infection Prevention
Dr. Sally Roberts, Auckland Hospital, New Zealand
A Webber Training Teleclass

Quality Improvement and Infection Prevention

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What is Quality in Healthcare?

- Many differing definitions but some common themes
  - Safe care
  - Effective care
  - Patient-centred
  - Timely access
  - Equitable access
  - Value for money

Quality Improvement

- System change to improve outcome
- Culture of safety
  - Patient safety at the centre
  - When error is made a "no name, no blame, no shame" culture encourages a focus on the improvement of the processes
- Transparency of reporting
- Quality Tool Kit
  - Tools for data collection and analysis, evaluation and decision making, idea creation analysis and project implementation

"To address this mistake we must use root-cause analysis. I'll begin by saying it's not my fault."

"Do the right thing, the right way, the first time, every time"

Quality Improvement

- There is a gap between what we know and what we do
- Improvement requires system change/s
- Developing changes that are new requires a creative effort
- Working with people
- Clinical leadership

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The Quality Improvement Process

- Identify the issue, plan and prioritize
- Collect and analyze data to further the understanding of the problem; hypothesize what changes will solve the problem and develop a solution strategy
- Test and deploy: test the hypothesis with a small sample that becomes progressively larger
- Report and adjust: compare results with internal and external benchmarks and make adjustment to the process to move closer to the desired goal

Quality Improvement Strategies

- **Model for Improvement**
  - Shewhart/Deming "plan-do-study-act" cycle
- **Six Sigma**
  - Developed By Motorola and GE to improve processes and eliminate defects in performance
  - Aim is to reduce variation and to achieve stable and predictable process results

Quality Improvement Strategies

- **Lean Process**
  - Pioneered by Toyota
  - Change operational processes to become faster and more flexible and to reduce waste.
- **Balanced Scorecard**
  - Planning and management tool used to align an organization's activities to it's vision and business strategy to improve internal and external communication

Quality Improvement and IPC

- SENIC Study
  - The incidence rate of nosocomial infections decreased and remained lower in hospitals that conducted surveillance for nosocomial infections and that used EB infection prevention patient care activities
- HAI are an important measure of quality
  - Ministry of Health Quality Accounts
  - DHB KPI
- Evidence-based standards are available to reduce infection risk
  - Compliance with best practice is variable

Infection Prevention

- What are we trying to achieve?
  - Reducing healthcare-associated infection rates
- How will we know that a change is an improvement?
  - Measuring change – process measure
- What changes can we make that will result in improvement
  - Measuring outcome measure

Prevention of HAI

- Tend to focus on procedure or device-related infections
  - Interventions associated with reduced infection rates
  - Evidence for effectiveness of these interventions variable
    - RCT, observational studies, pre and post-interventional studies and expert opinion.
  - Interventions put together as "bundles"
- To implement the "bundles" needs team work
- Need to measure change

Performance Measures

- Monitoring of performance is critical for assessing the effectiveness of quality improvement interventions
- Performance can be measured by process measures and outcome measures
- Quality indicators = process measures and outcome measures

Quality Indicators

- Clearly defined numerators and denominators
- Variables are easy to identify and collect
- Use a data collection method that is sensitive enough to capture the data and can be standardised across a number of healthcare settings
- Select outcome measures that occur frequently enough to provide an adequate sample size
- Compare populations with similar intrinsic risks or provide a means of risk adjustment

Process measure

- Can aim for 100% adherence to the recommended practice
- Do not require adjustment for the patient's underlying risk of infection or severity of disease

Outcome measure

- At least one outcome measure is essential
- Determines how the "system" is working
- Measure of harm
  - SSI rate
  - SAB-BSI

Health Quality and Safety Commission's Infection Prevention and Control Projects

Target CLAB ZERO
Central Line Associated Bacteraemia

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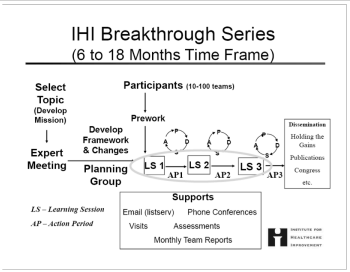
Target CLAB ZERO

- National Collaborative to reduce central line-associated bacteraemia
- Collaboration between HQ&SC, Counties Manukau DHB and Ko Awatea
- Using the IHI Model for Improvement approach

Model for Improvement

- Three fundamental questions
  - What are we trying to accomplish?
    - Aim
  - How will we know that a change is an improvement?
    - Measures
  - What changes can we make that will result in an improvement
    - Changes

Model for Improvement

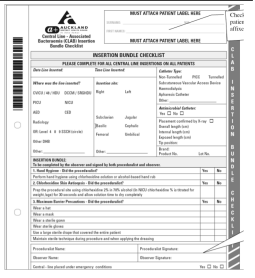


Measures

- Process measures
  - Compliance with insertion bundle
  - Compliance with maintenance bundle
- Outcome measure
  - Rate of central line-associated blood stream infections per 1000 catheter line days

PDSA

- Insertion pack
  - 'making the right thing to do the easiest thing to do"
- Insertion and Maintenance Forms
- Best practice for blood culture collection
- How to apply the CLAB definition



Improvement in measures

- Process measures
  - Compliance with insertion bundle
  - Compliance with maintenance bundle

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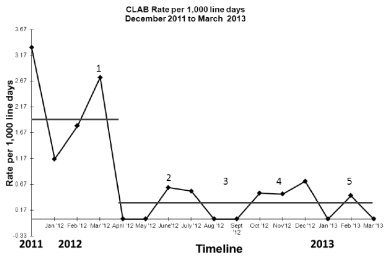
Outcome of the Collaborative



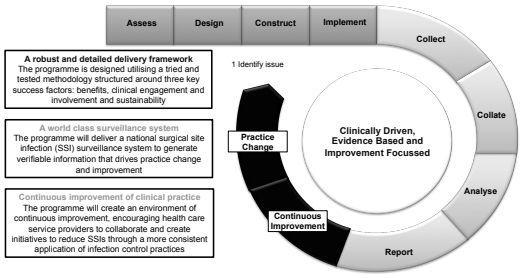
National Surgical Site Infection Surveillance Programme

SSIS **Surgical Site Infection Surveillance programme**

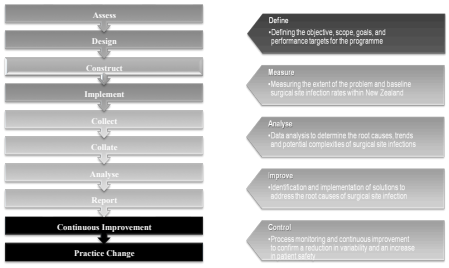
SSIS

- Collaboration between the HS&QC and Auckland and Canterbury DHB
- Approach
  - NHSH definitions
  - 30 day and 90 day follow up
  - No post discharge follow up
- Orthopaedic procedures
  - THJR and TKJR

Improvement methodology



Lean Six Sigma – 'DMAIC'



Measures

- Work in progress…
- Process measures
  - Antibiotic prophylaxis
  - Skin antisepsis
- Outcome measure
  - In-hospital surgical site infection per 100 procedures

Hand Hygiene New Zealand

HHNZ

- HHNZ is a collaboration between HQ&SC and Auckland DHB
- Re-engagement with the sector in June 2011
- Multimodal culture change programme delivered across the entire sector

Improvement Methodology

- Based on WHO Programme
  - Easily accessible product – 'easy to do the right thing'
  - Audit and feedback
  - Education
  - Champions and Clinical Leadership

Measures

- Process measures
  - Compliance with hand hygiene
- Outcome measure
  - Healthcare associated *S. aureus* bacteraemia rate per 1000 inpatient days

Summary

- Uniform implementation of infection surveillance, control and prevention recommendations will lead to improvements in infection rates and patient safety programmes
- Quality improvement + infection prevention initiatives = improved patient safety

Conclusion

- Infection Control has a key role to play in patient safety
- Get involved
  - National Patient Safety Campaign
    - "Open for better care"
  - The APAC Forum on Quality Improvement in Health and Healthcare, Sept 2013