Best Care...Always! A Collaborative Reducing Healthcare-associated Infection in Nine Public Hospitals in the Western Cape
Problem

Healthcare-associated infections (HAI) are a global problem increasing cost, length of stay, morbidity and mortality.

— Standard methods have not reduced HAIs
— Infection rates not routinely measured
— Infection prevention measures are neither systematic nor reliably implemented
Intervention

- 9 Western Cape hospitals participated in an 18 month (May 2011 - Nov 2012) *Best Care...Always!* (BCA) campaign aimed at reducing hospital-acquired infections.

- BCA is based on the 100,000 Lives Campaign, a successful patient safety campaign run in the US by the Institute for Healthcare Improvement (IHI).

- It uses the Breakthrough Series Collaborative (BTS) model that engages a number of hospitals to solve common problems together over a defined period of time.
BTS Model: Accelerating change and improvement through networking and collaboration.

- Workshops
- CEOs

Activity Period

- Learning session 1
  - May 2011

- Learning session 2
  - Nov 2011

- Learning session 3
  - June 2012

Calls, email, hospital visits, reporting

18 months
Intervention

• Hospitals tested and implemented evidence-based care bundles using improvement methodology to reduce
  
  – Ventilator-associated pneumonia (VAP)
  – Central line-associated bloodstream infection (CLABSI) / Peripheral venous cannula (PVC)-associated infection,
  – Catheter-associated urinary tract infection (CAUTI) and
  – Surgical Site Infection (SSI)
Intervention

• Care bundles include a short list of interventions proven to reduce specific HAIs, with relevant measures for tracking progress, and some change ideas.

• CLABSI bundle

1. Hand hygiene
2. Maximal barrier precautions
3. Chlorhexidine skin antisepsis
4. Optimal catheter insertion site selected after weighing infection risk* and possible complications
5. Daily review of necessity for line, prompt removal of unnecessary central lines
Study design and strategy for change

• Goal: To achieve lower median infection rates and a higher median ‘days between infections’.

• Hospitals selected the care bundle they felt addressed their biggest HAI problems and set clear aims.

• Pilot units implemented bundles using iterative tests of change to address process reliability including checklists, teamwork, measurement and feedback.
Some great *changes*

**Redesign of work processes**
- Multidisciplinary teams
- Checklists for insertion and maintenance
- Checklists in sterile packs on standardised carts

**Infrastructure**
- Protractors or wall markings for measuring elevation of the bed
- Sealguard ET tubes and closed suction catheters
- Silastic urinary catheters

**Support**
- VAP coordinator (RXH)
- Leadership walkabouts (NSH)

**Sustained measurement and vigilance**
- Monthly reporting
- Audits and feedback

**Involving “others” in care**
- Patients in hand hygiene ‘gentle reminders’ (WCRC)
- Patients asked not to shave before elective caesars (Mowbray)
Effects of Changes: Data on HAIs

Welsh Safety Calendar

Days/cases between infection

Infection rates
Effects of changes: Patient Safety Culture

• Practice and “culture” around the insertion and maintenance of invasive devices changed to improve patient safety.

  – Western Cape Rehabilitation Centre did pioneering work on reducing CAUTI in spinal injury patients

• All except one hospital established routine compliance measures and all improved compliance with bundle elements over the course of the project.
Effects of changes:
Reduced CLABSI Overall

• All units involved sustained zero CLABSI/1000 central line-days during many months

<table>
<thead>
<tr>
<th>Facility</th>
<th>Tygerberg A1 Surgical</th>
<th>Tygerberg A5 Medical</th>
<th>GSH C27</th>
<th>GSH D12</th>
<th>GSH E26</th>
<th>GSH D22 Cardiac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of central line days per month</td>
<td>279</td>
<td>99</td>
<td>136</td>
<td>142</td>
<td>125</td>
<td>89</td>
</tr>
<tr>
<td>Median monthly CLABSI rates /1000 central line days by November 2012</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum continuous number of days between CLABSI from the start of measuring days between infection</td>
<td>199</td>
<td>207</td>
<td>248</td>
<td>277</td>
<td>256</td>
<td>426</td>
</tr>
<tr>
<td>Maximum continuous number of months without CLABSI</td>
<td>6.6</td>
<td>6.9</td>
<td>8.2</td>
<td>9.2</td>
<td>8.5</td>
<td>14.2</td>
</tr>
</tbody>
</table>
Effects of Changes: Reduced septic C/S

Mowbray Maternity Hospital reduced septic Caesarian sections (C/S) by 73% to 0.6% of C/S cases, averting 6 septic C/S per month.
Red Cross Children’s Hospital reduced paediatric VAP by 70%, averting 3 VAPs per month.

Data entered and reported from the BCA/IHI Extranet
Outstanding sustainable results were achieved in 14 of the 20 project areas

<table>
<thead>
<tr>
<th>Project Progress Scores</th>
<th>VENTILATOR ASSOCIATED PNEUMONIA (VAP)</th>
<th>CENTRAL LINE ASSOC BLOODSTREAM INFECTIONS (CLABSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOSPITAL and UNIT</td>
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<td></td>
<td>TBH</td>
<td>NSH</td>
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<td></td>
<td>AS Medical</td>
<td>ICU</td>
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<td>5</td>
<td>Outstanding sustainable results</td>
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<tr>
<td>4.5</td>
<td>Sustainable improvement</td>
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<tr>
<td>4</td>
<td>Significant improvement</td>
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<tr>
<td>3.5</td>
<td>Improvement</td>
<td>x</td>
</tr>
<tr>
<td>3</td>
<td>Modest improvement</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Changes tested, but no improvement</td>
<td>x</td>
</tr>
<tr>
<td>2</td>
<td>Activity, but no changes tested</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Planning for the project has begun</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Forming team</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Not started or lapsed</td>
<td></td>
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</tbody>
</table>

Improvement across participating hospitals by the end of the 18 month project period using the IHI project assessment scale.
Lessons Learnt and Way Forward

• The BTS is a powerful and efficient model for wide-scale systems improvement and the spread of best practices.

• Western Cape Province decided to continue BCA and has set up structures and processes to sustain the work.
## BCA W Cape Presentations

<table>
<thead>
<tr>
<th>Presenter</th>
<th>PODIUM PRESENTATION</th>
<th>Hospital</th>
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</thead>
<tbody>
<tr>
<td>Dr Ann Horak</td>
<td>Environmental improvements in operating theatres in a public sector maternity hospital in South Africa reduce caesarian section surgical site infection</td>
<td>Mowbray Maternity Hospital</td>
</tr>
<tr>
<td>Heide Kunzmann</td>
<td>Dedicating an ICU nurse's time to improvement reduces paediatric VAP rates</td>
<td>Red Cross War Memorial Children's Hospital</td>
</tr>
<tr>
<td>Arina Jenkins, Dr Angela Dramowski</td>
<td>Central Line Associated Bloodstream Infections in neonates: early experience of the first BCA CLABSI programme in a public sector neonatal intensive care unit</td>
<td>Tygerberg Academic Hospital</td>
</tr>
<tr>
<td>Yolanda van Zyl</td>
<td>CAUTI: engaging staff across a hospital was the key to increasing compliance with the CAUTI bundle</td>
<td>Paarl Hospital</td>
</tr>
<tr>
<td>Carol Burgess, Dr Ernst Scriba</td>
<td>Early removal of urinary catheters in acute spinal injury to reduce catheter associated urinary tract infections.</td>
<td>Western Cape Rehabilitation Centre</td>
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<tr>
<td>Marilyn Philander</td>
<td>Changing doctor’s behaviours in order to reduce surgical site infections (SSI)</td>
<td>New Somerset Hospital</td>
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<tr>
<td>Milah Govender, Dr Michele Youngleson</td>
<td>From Research to Improvement - Changing the Data Mindset in a Teaching Hospital</td>
<td>Groote Schuur Hospital</td>
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</table>
THANKS...AND WELL DONE!!