Effective PICC Securement
Creating
an
Ongoing Sustainable Environment

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Disclosure: No known conflict of interest
ABOUT US:

• The Canterbury District Health Board is the second largest health provider in NZ
• Tertiary - acute - complex service
• Medical School & Research centre

Across Canterbury and the West Coast Regions:
Provides health services to population of 600,000 NZs
Place between 1500-1650 PICCs annually
HEALTHCARE IS A COMPLEX ADAPTIVE SYSTEM DELIVERED BY PEOPLE ON THE FRONT LINE WHO FLEX AND ADJUST TO THE CIRCUMSTANCES
WE WORK IN A WORLD OF CONTINUOUS & FAST DEVELOPMENT OF MEDICAL DEVICE DESIGNED TO GENERATE CONTINUOUS IMPROVEMENT

INTRODUCING NEW DISCOVERIES & TECHNIQUES IS INEVITABLE

THESE INNOVATIONS CHALLENGE US & REQUIRE US TO RE-DEFINE CLINICAL PRACTICE
WHY DO PICCS MIGRATE?

1. Area of insertion site

2. Human factors
   - Skill mix
   - Lack of experience = lack of confidence > serious error
   - Skill decay -“the last time I dressed a PICC was …”
   - ‘cultural attitudes’ - cultural shifts away from norm
   - Expectations / product
   - Patient variables
   - ‘Missing in action’- on the job learning
• PICC securement is fundamentally a management and care issue. It can be the difference between catheter success and failure or death.
THE GOAL – TO ACHIEVE

✓ Zero PICC migration
✓ One stabilization device for life of PICC
✓ Decrease PICC related HABSI
✓ Stabilisation solution for patients with skin reactions/Irritant Contact Dermatitis
✓ Increase staff confidence during cleaning and dressing
✓ Increase patient satisfaction and safety
✓ Fiscal responsibility
<table>
<thead>
<tr>
<th>2 Pre-Trial Areas</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>179 PICCS inserted</td>
<td>$ 70.005</td>
</tr>
<tr>
<td>24 Migrations requiring re-insertion</td>
<td>$9.480</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td><strong>$79.485</strong></td>
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</table>
PRE-TRIAL RESULTS CAMPUS WIDE

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Total PICCs inserted</td>
<td>1650</td>
</tr>
<tr>
<td>Cost Per Insertion</td>
<td>$395.00</td>
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<tr>
<td>Total Cost</td>
<td>$651.750</td>
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<tr>
<td>Estimated Migrations requiring re-insertion</td>
<td>150</td>
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<tr>
<td>Cost of replacement</td>
<td>$59.250</td>
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</table>

**OVERALL COST**

$711.000
Criteria for Replacement:
1. PICC migration that met the criteria for replacement
2. Patients with history of PICC migration requiring re-insertion for essential IVT
3. Skin related issues
4. Vessel health preservation & patient safety

Four month Trial of SecurAcath™ 2015

1. If the catheter tip migrates out 2cms continue to use, but monitor for any further migration.
2. If the catheter tip migrates out 4 - 8cms, only isotonic solutions should be infused. If irritant or vesicant solutions i.e. Parenteral Nutrition are required, the PICC must be removed to prevent complications such as vessel erosion, perforation or DVT. Replace PICC if still required.
3. If the catheter tip migrates out 8cms or greater, REMOVE PICC. Replace PICC if still required.
LESSONS FROM 2015 TRIAL

Culture & leadership

Technical support

Training

Clinical support

Staff shortages

Inexperienced team member

Failed to monitor vital signs

Poor team communication
THE CHALLENGE OF A LARGE SYSTEMS CHANGE

- Creating sustainability in the clinical environment
- Ability to see and understand the complexities of practice within each area
- Is there a formula for success?
- Does this guarantee ongoing sustainability?
Provide platform for:

• Effectively align critical device education with practical skills
• Nomination of resource person/s

• Weekly ward rounds provided foundation for:
  • building knowledge & skills
  • confidence & commitment at bedside
  • ‘Moment in time’ opportunity- education
  • staff engagement & feedback proved essential
  • audit
2 YEARS ON...

HAVE WE CREATED A SUSTAINABLE AND SAFE ENVIRONMENT?

ARE WE CHANGING CULTURE AND ATTITUDES TOWARDS PICC MANAGEMENT?

SOME OF OUR RESULTS TO DATE...
TRIAL WARD SURGICAL
MIGRATION/REINSERTION

Securacath Trial commenced June
CONTROL WARD
MIGRATION/REINSERTION

SecurAcath re introduced

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td>Cases</td>
<td>83</td>
<td>78</td>
<td>89</td>
<td>79</td>
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AREA 1  MIGRATION/REINSERTION

Securacath rollout

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
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<tbody>
<tr>
<td>2015</td>
<td>79</td>
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<tr>
<td>2016</td>
<td>45</td>
</tr>
<tr>
<td>2017</td>
<td>45</td>
</tr>
</tbody>
</table>
AREA 3  MIGRATION/REINSERTION

Securacath rolled out half way through year.
AREA 4
MIGRATION/REINSERTION

Securacath Roll out

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>52</td>
<td>50</td>
<td>50</td>
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</tbody>
</table>

2016: 2
2015: 6
2017: 0
AREA 5

MIGRATION/REINSERTION

SecurAcath rollout

<table>
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<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
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<tr>
<td>Value</td>
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<td>Notes</td>
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AREA 6

MIGRATION/REINSERTION

SecurAcath rollout half way through year

2016: 41
2017: 57

2017: 2
Total Number PICC inserted:

- Jan-Dec 2014: 1510
- Jan-Dec 2015: 1571
- Jan-Dec 2016: 1590
- Jan-Dec 2017: 1654

Cost of treating HA BSI $20-50.000

SecurAcath™ Trial commenced mid June 2015

Rate of BSI 2015 = 1.4%
Rate BSI 2017 = 0.6%

Source: CDHB Infection Control Service
• Staff engagement
• Mentoring
• Commitment

Improved Patient Outcomes

• Knowledge
• Skill
• Confidence

Best available clinical evidence
Effective Product
FORMULA FOR SUCCESS

• ‘on the job learning’
• Reinforcement of knowledge & skills learnt
• Accountability & support systems
• Provide deliberate and consistent reinforcement

this is the value of processes and systems that reinforce, encourage and monitor those critical behaviours
CREATING A CULTURE OF SAFETY
TRANSFERRING LEARNING TO BEHAVIOUR

Reinforcement that occurs after the training event produces the highest level of learning effectiveness.
We are what we repeatedly do. Excellence, then, is not an act, but a habit.

Aristotle
REFERENCES


• Macklin,D.,Blackburn,P.L.(2015) Central Venous Catheter Securement: Using the healthcare and technology synergy model to take a closer look. JAVA. Vol.20 No1: