The Impact of Procedural Checklist Competency Requirements on Early Chest Port Infections

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Purpose

- Central line associated blood stream infections (CLABSI)
  - Prolong hospital stays
  - Increase cost
  - Important cause of morbidity and mortality
Purpose

• While subcutaneous port catheters have a lower incidence of infection, adverse events still occur

Purpose

• Early infections (within 30 days of placement) may be due to a variety of factors
  – Insertion technique
  – Patient skin preparation
  – Operator experience
Purpose

• We undertook a continuous quality improvement project to evaluate the impact of a multilevel intervention of formalized training and certification of residents, fellows, and technologists on the early infection rate.

Methods

• Baseline early infection (<30 days) rates as defined by the CDC were obtained in 152 consecutive patients
  – These were segregated by
    • primary operator (Attending, Fellow, Resident)
    • Timeframe (greater than or less then 14 days)
Methods

• Following establishment of a baseline infection rate, formalized training of residents and fellows was undertaken
  – Hands on suture workshop
  – Satisfactory completion of a skill set with attending level certification
Methods

• Formalized training of technologists included
  – Observation of a demonstration about sterile technique
  – Completion of an inservice on prevention of port infection
  – Completion of a port placement checklist during subsequent cases

• Following the training period infection rates of 415 consecutive patients were calculated
Results

• During the intervention period, a total of 8 eligible residents (PGY3 or higher) rotated through our section who had completed the suture workshop
• 4/8 (50%) satisfactorily demonstrated competency and were certified as primary operators for port insertion
• Both of two Interventional Radiology Fellows were certified

Results

• Following the training period infection rates of 415 consecutive patients were calculated
### Early Infection Rate

<table>
<thead>
<tr>
<th></th>
<th>Prior to Intervention</th>
<th>Following Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident</td>
<td>3.0% (2/67)</td>
<td>2.2% (2/89)</td>
</tr>
<tr>
<td>Fellow</td>
<td>NA</td>
<td>0.6% (1/170)</td>
</tr>
<tr>
<td>Attending</td>
<td>2.4% (2/85)</td>
<td>1.9% (3/156)</td>
</tr>
<tr>
<td>Total</td>
<td>2.6% (4/152)</td>
<td>1.4% (6/415)</td>
</tr>
</tbody>
</table>

### Acute Infection Rate

<table>
<thead>
<tr>
<th></th>
<th>Prior to Intervention</th>
<th>Following Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.7% (1/152) (Resident)</td>
<td>0.5% (2/415) (Resident, Attending)</td>
</tr>
</tbody>
</table>
Conclusion

• Early infection rates of port catheters slightly decreased following the intervention period though this decrease was not statistically significant
• The intervention and formalized process received positive feedback

Conclusion

• The procedural competency checklist served as a method to document resident ACGME competency in patient care
• We continue the practice of holding an annual suture workshop and formally certifying residents during their Interventional Radiology rotation