Impact of addition of alcohol-impregnated port protectors to post central line insertion bundle in the adult blood and marrow transplant population

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**SIGNIFICANCE**

Central venous catheters (CVC) are a commonly used tool in hematopoietic stem cell transplant (HSCT).

- Several risks are associated with the use of CVCs including infection and thrombosis.
- The incidence of blood stream infection in HSCT recipients has been observed at 13-60% (Dix, Yeung, Rule & Ma, 2011).
- Poutsikas et al. (2007) found that blood stream infection was independently associated with increased mortality after HSCT.
- Central line-associated blood stream infections (CLABSIs) are associated with increased health care costs due to increased length of stay and treatment costs.
- On average a CLABSI increases a patient’s length of stay by 7.5 days and costs $16,550 to treat (Sacks et al., 2014).

**BACKGROUND**


**DESIGN/METHODS**

An interdisciplinary team was tasked with developing an intervention, in addition to the standard post central line insertion maintenance bundle, to reduce the number of CLABSIs at OUOMS, a university-affiliated, acute care teaching hospital.

Standard Post-Central-Line Insertion Maintenance Bundle

- Hand hygiene
- Regular dressing changes
- Monitor catheter site
- Patient report of changes
- Daily 2% CHG skin cleansing
- Sutureless securement device
- Scheduled replacement of administration sets/needless components
- CHG sponge dressing
- Bundle & Track compliance (CDC, 2012)

An observational pre-intervention/post-intervention trial was conducted in all oncology units, including an adult blood & marrow transplant unit. During the intervention, alcohol-impregnated port protectors were used in the place of alcohol wipes for central line hub care.

**CLABSI RATES PRE- & POST-INTERVENTION**

<table>
<thead>
<tr>
<th>Month</th>
<th>Line Days</th>
<th>CLABSIs</th>
<th>CLABSI rate</th>
<th>OU</th>
<th>MBB-ECB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul-13</td>
<td>70</td>
<td>120</td>
<td>0.00</td>
<td>0.58</td>
<td>0.00</td>
</tr>
<tr>
<td>Aug-13</td>
<td>114</td>
<td>151</td>
<td>0.00</td>
<td>0.75</td>
<td>0.00</td>
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<tr>
<td>Sep-13</td>
<td>113</td>
<td>127</td>
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<td>0.85</td>
<td>0.91</td>
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<tr>
<td>Oct-13</td>
<td>187</td>
<td>211</td>
<td>1.00</td>
<td>10.04</td>
<td>0.89</td>
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<tr>
<td>Nov-13</td>
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<td>175</td>
<td>1.00</td>
<td>20.98</td>
<td>0.92</td>
</tr>
<tr>
<td>Dec-13</td>
<td>135</td>
<td>164</td>
<td>1.00</td>
<td>14.83</td>
<td>0.92</td>
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</tbody>
</table>

**COMPLIANCE**

Valve Compliance* = % of BMU’s valves covered with SwabCap

Patient Compliance** = 100% of patient’s valves covered with SwabCap

**RESULTS/IMPLICATIONS**

Results: A total of 935 central line days and 2 CLABSIs were documented during the intervention period, compared with 762 central line days and 9 CLABSIs during the control period.

Implications: The addition of alcohol-impregnated port protectors to the post-insertion central line maintenance can assist healthcare providers to reduce CLABSI incidence in the blood and marrow transplant population, which should reduce the morbidity and mortality associated with infection in the immune-compromised patient.

**REFERENCES**


Patient Compliance** = 100% of patient’s valves covered with SwabCap

* % of central line/PICC/U etc. valves (needless connectors ) and associated Ysites protected by Swab Cap out of total opportunities.

**% of patients who had 100% of their central line valves/Ysites etc… completely protected.