Background

Incidence of Hospital-Onset Clostridium difficile Infection (CDI) in our 60-bed academic cancer hospital was higher than expected. Prevalence in the community was also increasing, and it was discovered that due to the timing of tests, some hospital-onset cases may have actually been community-acquired. In 2016, our misclassification rate for hospital-onset cases was 21%. Our goal was to promptly identify patients who have CDI in order to quickly initiate treatment and isolation, and thus decrease risk of transmission to other hospitalized patients.

2016 C. diff Cases

<table>
<thead>
<tr>
<th>Quarter/Year</th>
<th>Total # of Early Onset Cases</th>
<th>Total # of Cases</th>
<th>% of Cases Early Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q 2015</td>
<td>3</td>
<td>19</td>
<td>16.27%</td>
</tr>
<tr>
<td>2Q 2015</td>
<td>4</td>
<td>21</td>
<td>21.05%</td>
</tr>
<tr>
<td>3Q 2015</td>
<td>2</td>
<td>11</td>
<td>18.18%</td>
</tr>
<tr>
<td>4Q 2015</td>
<td>1</td>
<td>10</td>
<td>10%</td>
</tr>
</tbody>
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Methods

A multifaceted approach to reduce incidence of CDI was implemented.

- Education on CDI signs/symptoms and appropriate test ordering provided to Nursing, Providers, Patient Care Technicians, and Environmental Services
- Formation of a Multidisciplinary C. difficile Reduction Taskforce
- Addition of the Bristol Stool Scale to electronic medical record for more accurate documentation (non-Type 7 stool rejected by lab)
- Implementation of Standardized Nursing Procedure for C. difficile Testing to screen high risk patients for CDI on admission

Results

- Reduction of hospital-onset C. difficile cases proved difficult to sustain in our inpatient cancer population.
- Our C. difficile prevention bundle includes environmental cleaning, antibiotic stewardship, prompts for providers in the electronic medical record, and emphasis on hand hygiene.
- We saw an initial decrease in C. difficile cases through staff re-education of the signs and symptoms and appropriate ordering of a C. difficile test, but we were not able to sustain it.
- By empowering nurses to order a C. difficile test within the first three days of admission without a provider cosign, we were able to more promptly identify and treat community-onset cases.
- Misclassification rate went from 21% in 2016 to 0% in first two quarters of 2017
- One limitation is the short study period (6 months) where sustainability of our efforts have not yet been verified.

Discussion

- In 2015, our SIR was 1.502 which indicated 50% more infections than predicted (17 predicted with 25 actual)
- Our initial interventions in 2016 yielded an 11% reduction in SIR from the 2015 baseline
- After implementation of the nurse-driven Standardized Procedure for the Testing of C. difficile in 4th quarter of 2016, there was an additional 61% decrease in SIR during the first two quarters of 2017
- Identification of community-onset cases increased following the implementation of the nurse-driven procedure which contributed to a decrease in SIR

Data Analysis:

- Identification of community-onset cases increased following the implementation of the nurse-driven procedure which contributed to a decrease in SIR

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