Validation of surgical site infection surveillance system data in São Paulo state, Brazil: development of a protocol

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Background

- Validation of surveillance system data of surgical site infection (SSI) ensures the quality of the information.
- In São Paulo state, Brazil, the SSI surveillance system was implemented in 2004, with participation of 569 hospitals in 2017 (CVE, 2018).
- The criteria for healthcare associated infections are based on those of NHSN/CDC.
- However, up to now there was no validation of data collected in the system.

Results from literature review

- Number of papers included: 14.
- Conclusion: there is no standard method used to validate the SSI data of surveillance systems at governmental level.

Objective

To develop and to pilot a protocol to validate data of SSI reported to surveillance system of the State of São Paulo, Brazil.

Methods

Study performed from February-2014 to January-2018 in three phases:

I) systematic literature review of strategies used by governmental surveillance systems to validate SSI data;

II) conducting a pilot study in a selected region of state.

III) development of a protocol to validate the SSI data reported to surveillance system.

- Participants: 05 hospitals: 03 (60%) private; 02 (40%) public.
- 168 medical records reviewed (hip and knee arthroplasty, laparoscopic hysterectomy and cesarean section).
- 15 minutes (mean time) to review each medical record

Table. Comparison of SSI reported by the participant hospitals and the reviewers. São Paulo, Brazil, 2018.

<table>
<thead>
<tr>
<th>Surgical procedure</th>
<th>Hospital reporting</th>
<th>Yes SSI</th>
<th>No SSI</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee arthroplasty</td>
<td>Yes SSI</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>No SSI</td>
<td>0</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3</td>
<td>54</td>
<td>57</td>
</tr>
<tr>
<td>Total hip Knee arthroplasty</td>
<td>Yes SSI</td>
<td>8</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>No SSI</td>
<td>0</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>8</td>
<td>72</td>
<td>80</td>
</tr>
<tr>
<td>Laparoscopic hysterectomy</td>
<td>Yes SSI</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No SSI</td>
<td>0</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

- Five cases were misclassified as SSI despite no evidence according to the criteria for diagnosis.
- Discrepancies between data found by researchers and those reported in the surveillance system related to both denominators and numerators.
- Sensibility and NPV = 100%
- PPV = 53.3% - 60%
- Specificity = 50% - 100%

The protocol describes:

- steps to plan validation process, including the required resources;
- method to calculate the simple size of hospitals and medical records;
- a tool for data collection
- method for data analysis and feedback to the hospitals.

Conclusion

The protocol showed to be feasible and pointed out needs for improvement in the SSI surveillance system.

References