Collaborate to Validate:
A Region-Led Statewide Data Validation Project

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Background
This project was conceived to improve data submitted to the state trauma registry. Validity of this data is key, as the state registry is used to advise state operations, develop the state annual report, and fill data requests from many different types of organizations. While a project like this can be challenging at the state level because of the large number of facilities providing data, approaching it from the regional level can be much more practicable task. Thus, six Regional Data Managers (RDMs) collaborated on this project, reporting data and discussing issues identified within their own regions.

Methodology
Identified data fields for testing over a 15-month period:

1. Ventilator days
   Should be recorded “Not Applicable” or a numeric value; not as zero, “Not Documented” or blank.

2. ICU days
   Should be recorded “Not Applicable” or a numeric value; not as zero, “Not Documented” or blank.

3. AIS external region
   The correct AIS body region should be assigned per diagnosis for patients with abrasions and contusions.

4. Transfer in and transport mode
   Patients who are transferred in from another acute care facility should have the Other Transport Mode field completed. Field should not be answered as “Not Applicable” if patient is transferred into facility from another acute care hospital.

5. Discharge status and autopsy
   Patients who expire should have the value of “Yes”, “No” or “Not Documented” in the Autopsy Performed field.

6. Alcohol screen and results
   Patients who were tested and found to have positive results for alcohol use within the first 24 hours of treatment should have a documented numeric value of the BAC.

7. Work related injury and payment source
   Patients who had a work-related injury should have a primary method of payment equal to the payer’s compensation.

1st Quarter 2017 acted as baseline quarter. RDMs then sought out possible causes for inaccurate data and carried the appropriate interventions (i.e. registrar education, mapping changes with registry software, etc.). Data was collected quarterly from regions via an anonymous online survey, and then aggregated for reporting. Types of facilities included were trauma centers, non-trauma acute care facilities, and free-standing emergency departments. Regions differ in their participating facility types, so RDMs reported their data as relevant for their own region.

Results
During the baseline quarter (Q1 2017), all but two of the data fields were below 90%. By the end of the project (Q1 2018), all but two of the data fields had risen above 90%.

The two fields that did not meet the goal were “ICU Days” and “Work Related and Payment Source”. It was decided that the latter was not actually a good measure for two reasons:

1) There are many injuries that were work related but were not ultimately paid under worker’s compensation.
2) While the State’s Trauma and Acute Care Registry (TACR) does collect “Worker’s Compensation” as a Primary Payor option, the National Trauma Data Standard (NTDS) does not. This may affect the data that is reported by trauma centers if they decide to the NTDS field values rather than TACR.

ICU Days however was an accurate reflection of data accuracy. Hospitals included in the study use one of two trauma registry software platforms, one of which had a persistent mapping issue with this particular field, resulting in it not abiding by the definition.

Validation Results by Data Field

<table>
<thead>
<tr>
<th>Data Field</th>
<th>Correct Responses</th>
<th>Total # Occurrences</th>
<th>Accuracy %</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS External Region</td>
<td>10,863</td>
<td>14,644</td>
<td>73.7%</td>
</tr>
<tr>
<td>Hospital Transfer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All External Region</td>
<td>12,199</td>
<td>16,951</td>
<td>72.8%</td>
</tr>
<tr>
<td>Acute Care Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma Center</td>
<td>5,565</td>
<td>7,687</td>
<td>72.3%</td>
</tr>
<tr>
<td>Acute Care Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>3,106</td>
<td>4,344</td>
<td>71.8%</td>
</tr>
<tr>
<td>Anesthesia</td>
<td>2,089</td>
<td>2,946</td>
<td>68.1%</td>
</tr>
<tr>
<td>Other Procedures</td>
<td>14,644</td>
<td>20,327</td>
<td>71.9%</td>
</tr>
<tr>
<td>Work Related and Payment Source</td>
<td></td>
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</tbody>
</table>

Conclusions
Across the course of the project, there was a marked improvement in data accuracy. Overall accuracy went from 81.7% in the first quarter collected to 94.9% in the final quarter collected. Further, through the collaboration between regions through the project, the Regional Data Managers were able to easily identify if low-accuracy fields were an educational issue or a registry mapping issue. Thus, this project offered a successful opportunity for collaboration across the six regional trauma systems to improve data submitted to the state trauma registry.

Lessons Learned

1. Data quality can be improved with a simple validation process
2. The project is scalable to different geographic areas
3. Project is restricted to fields not requiring access to the medical record

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Affiliations
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