New Registry Updates to Provide Increased Transparency into Data Submission Quality and Status

April 19, 2023

Dr. Richard I. Illgen
AJRR Steering Committee

Mita De, PhD
Director of Research
I have something to disclose.

All relevant financial relationships have been mitigated.

Detailed disclosure information is available via: AAOS Disclosure Program on the AAOS website at http://www.aaos.org/disclosure
AJRR | Improve Site-Level Data Completeness

- Background
- Completeness Levels 1-3 Definition
- Site Completeness Requirements
- Site Completeness Mockups
Goals | Data Completeness

- **Provide** increased transparency for both AAOS Registry staff and individual participating sites to understand the quality and status of their data submission to the registry.

- **Establish** a foundation and increased awareness related to:
  - ✓ Frequency of submission
  - ✓ Completeness of the submission.

- **Describe** Dr. Illgen’s discovery of data completeness and creation of a champion team
**How can we improve data transparency?**

Creation of Reports to display data element quality coverage for each participating site and surgeon

<table>
<thead>
<tr>
<th>Element</th>
<th>N Reported</th>
<th>% Reported</th>
<th>% NIL</th>
<th>% Inval</th>
<th>Yr N % Reported</th>
<th>Yr N % NIL</th>
<th>Yr N % Inval</th>
<th>Yr N % Inval</th>
<th>Yr % Subreported</th>
<th>Yr % Subreported</th>
<th>Change</th>
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<tbody>
<tr>
<td>Surgical Information</td>
<td>323258</td>
<td>96.87</td>
<td>0.13</td>
<td>1.00</td>
<td>140722</td>
<td>99.82</td>
<td>0.18</td>
<td>0.08</td>
<td>0.04</td>
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<td>Principal Procedure Code</td>
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<td>99.90</td>
<td>0.07</td>
<td>0.03</td>
<td>140722</td>
<td>100.00</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
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<td>Principal Diagnosis Code</td>
<td>320815</td>
<td>99.71</td>
<td>0.11</td>
<td>0.18</td>
<td>140722</td>
<td>99.71</td>
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<td>0.29</td>
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<tr>
<td>End Stage Procedures Listed</td>
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<td>99.36</td>
<td>0.17</td>
<td>0.47</td>
<td>140722</td>
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<td>Maligancy Stage</td>
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<td>226266</td>
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<td>86.5</td>
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<td>71086</td>
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<td>Surgical Technique Hip*</td>
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<td>99.69</td>
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<td>Surgical Technique Knee*</td>
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<td>1.5</td>
<td>0.22</td>
<td>0.22</td>
<td>0.22</td>
</tr>
</tbody>
</table>

**These reports will be accessible on the Registry Insights platform for all registry participants and surgeons.**

Visual indicators will denote lack of coverage for data elements – resources will be available to correct and improve submissions.

**Registry staff will have access to reports to inform outreach to sites with low scores.**
Completeness Levels | Definition

AJRR has identified 3 ‘Levels’ of datasets to improve completeness and data element coverage to inform outcome analysis and enhance the overall quality of registry data.

**Level 1**: Required to be considered an acceptable submission (Minimum data set)

- Proposed minimum data set for primary TKA and primary THA
- AOAr UK
  1. First and Last name (100% capture) x
  2. DOB (100% capture) x
  3. Gender (99.6% capture) x
  4. Facility (hospital or ASC) NPI- 98% capture rate x x
  5. Surgeon NPI- 99% capture rate x x
  6. Operative date- 100% capture rate x
  7. Laterality- 99.8% capture rate x x
  8. Diagnosis code- ICD9/10- 93.4% capture rate x x
  9. Procedure code- CPT- 99.8% x
  10. Implant information- catalog and lot numbers – 95.3% capture rate x x
  11. Length of Stay (calculated by admit date-discharge date)-98% capture rate
  12. Zip Code- 94% capture rate
  13. Discharge disposition- 92% capture rate

**Level 2**: Enhanced data set- 11 additional fields- reporting 10 out of 11 fields required for official designation and recognition by the AJRR as an enhanced reporting site (Recognize in annual report, possibly to payers for centers of excellence designations, possibly be required for individuals to receive credit for ABOS CME applied to MOC process)

- 1. BMI- 78% capture rate
- 2. ASA- 23% capture rate
- 3. Anesthesia type- 65% capture rate
- 4. Surgical approach- 9% capture rate
- 5. Navigation- 34% capture rate
- 6. Robotic use- 40% capture rate
- 7. Race- 84% capture rate
- 8. SSN- high capture rate (93%) but problem for some institutions- Mayo
- 9. Duration of procedure- 68% capture rate
- 10. Payer status – 37% capture rate
- 11. Co-Morbidity-74% capture rate

**Level 3**: PROMs- current 10-20% capture rate

- 1. Accepted general health scores- SF-12, VR-12, or PROMIS
- 2. Accepted joint specific scores- KOOS-JR, HOOS-JR
- 3. Supported by not required- HHS, UCLA activity, forgotten joint score, WOMAC

Additional recognition for centers consistently submitting PROMS
## Completeness Levels: Requirements

The Data Element Quality & Coverage Report will contain the following categories of scoring and will be implemented in a phased approach. Planned report launch times are noted for each category.

<table>
<thead>
<tr>
<th>Procedure Layout</th>
<th>Post-Op/Discharge Layout</th>
<th>PROMs</th>
<th>Submission Metrics</th>
</tr>
</thead>
</table>
| • Level 1 Global and Individual Scores  
  • Level 2 Global and Individual Score  
  • Elements Remaining Global and Individual Score  
  • TJC Global and Individual Score | • Level 1 Global and Individual Scores  
  • Level 2 Global and Individual Score  
  • Elements Remaining Global and Individual Score | • Benchmarked Global and Individual Score  
  • Non-Benchmarked Global and Individual Score | • Global Score  
  • Submission Frequency  
  • Submission Volume |
Completeness | Rollout Approach

**April 27, 2023**

**Phase 1**

**Who:** All sites

**What:**
- Level 1: Minimum Data Set
- Level 2: Enhanced Data Set

**Outcome(s):**
- Ensure elements that are *Required* are submitted
- Ensure elements that are valuable in research are submitted

**May 30, 2023**

**Phase 2**

**Who:** All Sites

**What:**
- Level 3: PROMs

**Outcome(s):**
- Ensure benchmarked PROMs are adopted
- Ensure that both a *preop & postop* PROM is submitted

**June 30, 2023**

**Phase 3:**

**Who:** All Sites

**What:**
- Remaining Elements
- Submission Metrics

**Outcome(s):**
- Assess completeness of elements that are *optional and conditional*
- Determine if submission frequency and volume is sufficient
Completeness | Dashboard Integration

**Data Elements Quality Coverage**

- **Level 1 - Procedures - Last Quarter**: 366 (91%)
  - Passed: 3686
  - Failed: 91%

- **Level 1 - Post Op - Last Quarter**: 366 (91%)
  - Passed: 3686
  - Failed: 91%

- **Level 1 - Procedures - All Time**: 366 (91%)
  - Passed: 3686
  - Failed: 91%

- **Level 1 - Post Op - All Time**: 366 (91%)
  - Passed: 3686
  - Failed: 91%

- **Level 2 - Procedures - Last Quarter**: 1483 (3%)
  - Passed: 2306
  - Failed: 61%

- **Level 2 - Post Op - Last Quarter**: 1483 (3%)
  - Passed: 2306
  - Failed: 61%

- **Level 2 - Procedures - All Time**: 1483 (3%)
  - Passed: 2306
  - Failed: 61%

- **Level 2 - Post Op - All Time**: 1483 (3%)
  - Passed: 2306
  - Failed: 61%

Level 1 and Level 2 layout is very similar.
Completeness | Dashboard Integration

Data Elements Quality Coverage
Level 1: Minimum Data Set

Level 1: Minimum Data Set - Procedures
- Patient First Name: 98.6%
- Patient Last Name: 98.6%
- Patient Date of Birth: 96.7%
- Patient Gender: 100.0%
- Facility: 96.7%
- Institution NPI: 98.6%
- Operation Date: 96.7%
- Laterality: 100.0%
- Surgeon NPI: 96.6%
- Diagnosis Code: 96.7%
- Procedure Code: 96.7%
- Catalog Numbers: 100.0%
- Length of Stay: 98.6%
- Lot Numbers: 98.6%
- Zip Code: 98.6%
- Discharge Disposition: 100.0%

Level 1: Minimum Data Set - Post Op
- Patient First Name: 98.6%
- Patient Last Name: 98.6%
- Patient Date of Birth: 96.7%
- Patient Gender: 100.0%
- Facility: 96.7%
- Institution NPI: 98.6%
- Operation Date: 96.7%
- Laterality: 100.0%
- Surgeon NPI: 96.6%
- Diagnosis Code: 96.7%
- Procedure Code: 96.7%
- Catalog Numbers: 100.0%
- Length of Stay: 98.6%
- Lot Numbers: 98.6%
- Zip Code: 98.6%
- Discharge Disposition: 100.0%

Level 1 and Level 2 layout is very similar.
Next Steps | Data Completeness

- **Access** your dashboards to view your completeness and coverage

- **Establish** a team to tackle poor completeness areas:
  - EMR Contact
  - Site IT Staff
  - Data Submission Staff
  - **Surgeon Champion**

- **Monitor** progress and engage with AAOS Registry Staff for guidance and support: registrysupport@aaos.org