National Joint Registry
for England, Wales Northern Ireland and the Isle of Man
Mike Swanson
Northgate Public Services
NJR - Background

- Established in 2002 following 3M hip
- Healthcare Quality Information Partnership
- Collects data about
  - Hips
  - Knees
  - Shoulder
  - Elbows
  - Ankles
- NHS and Independent Sector Healthcare
- Large register - 2.8 million records
NJR - Data Entry

- Via a web-based data entry application or Bulk Upload
- Primary and revision procedures include:
  - Patient demographics and identifiers
  - Operation details
  - Surgeon Details
  - Procedure details, e.g. side, indications for surgery
  - Surgical approach
  - Thromboprophylaxis
  - Untoward events
  - Details of all major components used
Underpinning Component Database

- A management system directly accessible by industry
- Industry upload, review, and amend all their own data
- NJR retains brand assignment
- Approximately 80,000 components, 40,000 GTIN
- Classification - Not a simple ‘library’ or catalogue
- Use by other registries ‘Internationalisation’
## Component Classification

<table>
<thead>
<tr>
<th>Component Group</th>
<th>Component Type</th>
<th>Composition</th>
<th>Fixation Method</th>
<th>Implant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humeral Stem</td>
<td>Modular</td>
<td></td>
<td></td>
<td>Shoulder - Stem</td>
</tr>
<tr>
<td></td>
<td>Monobloc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humeral Component</td>
<td>Unipolar Head</td>
<td>Polyethylene, Metal, Ceramic</td>
<td></td>
<td>Shoulder - Humeral</td>
</tr>
<tr>
<td></td>
<td>Bipolar Head</td>
<td>Polyethylene, Metal, Ceramic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liner</td>
<td>Metal, Ceramic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proximal Section</td>
<td>Metal Polyethylene, Combination</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resurfacing</td>
<td>Metal, Ceramic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glenoid Component</td>
<td>Standard Plate</td>
<td>Metal, Polyethylene, Metal Polyethylene Combination</td>
<td>Cemented</td>
<td>Shoulder - Glenoid</td>
</tr>
<tr>
<td></td>
<td>Liner</td>
<td>Metal, Polyethylene</td>
<td>Cementless HA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head</td>
<td>Metal, Polyethylene, Ceramic</td>
<td>Cementless Non HA</td>
<td></td>
</tr>
</tbody>
</table>
Why the need for detailed classification?

- Traceability - Patient Recall (metal on metal)
- To determine which brands have the best outcomes
- Need to standardise across variants in order to see the outcome effect of a single variant
- Is there variation in outcomes within a brand - camouflaging?
- We need to be able to compare like with like
- Intelligence sharing - International registers
Data Entry - Components
Data Entry - Ensuring Data Quality

• Business Rules based on classification - Unique to NJR
• Clinical, statistical, and implant expertise required
Data Compatibility - Mismatched Component

- Mismatches
  - Hip - Stem and cup/liner; Mix and Match
  - Knee - Knee (left/right) and sided implant

There is a mismatch between the size of head and the liner/cup size. Please check that the correct components have been entered. If the details are correct it is vital the Consultant is alerted immediately.

This record can still be submitted using the manual override facility. By doing so, you acknowledge that the Consultant must be made aware of this issue. Please click on the ‘I acknowledge’ button below to continue.

I ACKNOWLEDGE
Never Events - How Many

- ‘Never events’ to date:
  - Hips    - 26 (6)
  - Knees   - 11
- Post Operative - too late
4. **Recommendation 2018/004**: The Department of Health and Social Care expands the remit of the working group consisting of Derby Teaching Hospitals NHS Foundation Trust’s Scan4Safety Programme, the National Joint Registry, and the Medicines Healthcare products Regulatory Agency to include alerts to identify wrong prostheses prior to implantation.

5. **Recommendation 2018/005**: The Department of Health and Social Care commissions the development and implementation of an interim basic scanning system to identify wrong prostheses prior to implantation.
Scan4Safety and Third Party Systems (004)

• Develop an API
  ▪ De-Couple implant validation from NJR Data Entry
  ▪ ‘Testing’ of implant combination both post and pre-operatively

REQUEST containing:
  Procedure Type

RESULT containing:
  PASS or ALERT+ Alert details

3rd Party System

Implant Validation

Message / interface standard
SELECT PROCEDURE TYPE

PRIMARY HIP

PRIMARY KNEE
Standalone Interface

**Implant Validation**
*Supporting Patient Safety*

**SELECT SIDE:**
- **TOTAL KNEE**
- **LEFT SIDE**
- **UNICONDYLAR KNEE**
- **RIGHT SIDE**

**Add new item**

**CHECK IMPLANT COMBINATION**

Disclaimer
Standalone Interface

Implant Validation
Supporting Patient Safety

SCAN or ENTER PRODUCT REFERENCE NUMBER: ___________ 123-4-56789

PRODUCT NOT FOUND?

Disclaimer
### Implant Validation
**Supporting Patient Safety**

#### TOTAL KNEE

<table>
<thead>
<tr>
<th>Component</th>
<th>LEFT Side</th>
<th>RIGHT Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia</td>
<td>4</td>
<td>In date</td>
</tr>
<tr>
<td>Femur</td>
<td>6</td>
<td>In date</td>
</tr>
<tr>
<td>Patella</td>
<td>Universal</td>
<td>32</td>
</tr>
<tr>
<td>Tibial Insert</td>
<td>Universal</td>
<td>3-4</td>
</tr>
</tbody>
</table>

#### Additional Details

- **To Review an Item**
- **CHECK IMPLANT COMBINATION**

---

**Disclaimer**
## Total Knee

### Implant Validation

*Supporting Patient Safety*

<table>
<thead>
<tr>
<th>Component</th>
<th>Side</th>
<th>Count</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia</td>
<td>Left</td>
<td>4</td>
<td>In date</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td>Left</td>
<td>6</td>
<td>In date</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patella</td>
<td>Universal</td>
<td>32</td>
<td>In date</td>
</tr>
<tr>
<td>Tibial Insert</td>
<td>Universal</td>
<td>3-4</td>
<td>In date</td>
</tr>
</tbody>
</table>

### Disclaimer

Validation has been applied to check side and lot expiry dates. Use this tool as a guide only. Do not rely on this tool for clinical decision making. NJR/NPS accept no responsibility etc.
### Implant Validation

**Supporting Patient Safety**

<table>
<thead>
<tr>
<th>TOTAL KNEE</th>
<th>LEFT SIDE</th>
<th>RIGHT SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia</td>
<td>LEFT 4</td>
<td>RIGHT 6</td>
</tr>
<tr>
<td>Femur</td>
<td>LEFT 4</td>
<td>RIGHT 6</td>
</tr>
</tbody>
</table>

**Error Report**

1. **Wrong Side Femur implant** – Right side femur selected for a left side procedure.
Barcode Scanning

- **Pre-UDI**
  - Unmanageable - Multiplicity of barcode standards
  - ‘All too difficult’ - Multiplicity of processes
  - ‘Too expensive’ - Barcode scanners too expensive

- **Post-UDI**
  - More manageable - Fewer standards (GTIN)
  - ‘All too difficult’ - Still no common processes
  - ‘Barcode scanners don’t work’ - 3D Barcodes
  - ‘Too expensive’ - £30-40 for a 3D scanner
Barcode Scanning Rates 2018 - 5%

- Components Recorded: 1,124,421
- Components Scanned: 64,278 (5%)

National Joint Registry
www.njrcentre.org.uk
Working for patients, driving forward quality
How to improve scanning rates?

- Development and support of interfaces for pre-operative implant validation
- Data Quality Programme - increasing awareness
- Awareness of frequency of Never Events
- Support to develop interfaces
- Linkage to procurement systems?