Global Improvement Guide

Optimising Length of Stay for Total Joint Replacement Patients

Improvement Imperative

It has long been recognised that unnecessarily prolonged lengths of stay for total joint replacement (TJR) procedures compromise quality, increase risk of hospital acquired infection, and drive up costs. Additionally, as an ageing demographic increases demand for these procedures—procedure demand is forecasted to grow 18% over the next decade—financial constraints across the NHS will require providers to become more efficient in the use of existing capacity. As England’s average length of stay (ALOS) for TJR is variable among providers and is higher than in many comparable health economies, care pathway optimisation should present a path to both improved quality and efficiency. An additional rationale for care pathway optimisation can be found in the new best practice tariff (BPT) for elective primary total hip and knee replacements introduced in the Payment by Results (PbR) Draft Guidance for 2011-12, which is designed to incentivise high quality, cost effective care.

For those considering pathway optimisation work, keep in mind:

- Variability in ALOS across providers in England suggests room for improvement.
- High ALOS often results from process and communication breakdowns across the care pathway.
- Utilisation of standardised pathways will improve patient experience and satisfaction, reduce lengths of stay and shorten the post-operative rehabilitation period.
- The ability to achieve safe and less than 3-day stays for select TJR patients suggests that, with proper pain management and post-discharge support, trims beyond current national ALOS are possible without compromising quality.

Key Areas of Focus in TJR Care Pathway Optimisation

Optimal performance requires connections across the care pathway. The four, key aspects of good clinical pathways as described in the 2011-12 BPT for primary total hip and knee replacements include:

- **Pre-Operative Assessment**
  - including patient education, planning and preparation before admission

- **Structured Peri- and Post-Operative Care**
  - including pain relief management

- **Early Supervised Mobilisation**
  - as well as safe discharge

- **Access to Post-Discharge Support**
  - including clinical advice and outreach rehabilitation

---

**Using This Guide**

- p 1 The Improvement Imperative
- p 2 Evaluating Improvement Options
- p 2-3 Planning for Change: Options In-Depth
- p 4 Considerations and Resources

**TJR LOS**

<table>
<thead>
<tr>
<th>Standard Performer*</th>
<th>Top Performer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>England</strong></td>
<td><strong>United States</strong></td>
</tr>
<tr>
<td>5.0 days</td>
<td>3.8 days</td>
</tr>
<tr>
<td>4.0 days</td>
<td>&lt;3.1 days</td>
</tr>
</tbody>
</table>

Note: Statistics include private providers caring for NHS-funded patients. Standard Performer indicates the median hospital (mean = 6.2 days); Top Performers include those at the 90th percentile or higher.

Sources: Hospital Episode Statistics (HES), The NHS Information Centre for Health and Social Care, 2009-10; Sg2 INSIGHT database, 2010; Sg2 Analysis 2011.

**TJR Care Provider**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Hospital</td>
<td>66.0%</td>
<td>7.3 days</td>
</tr>
<tr>
<td>NHS Centre</td>
<td>5.3%</td>
<td>5.8 days</td>
</tr>
<tr>
<td>Private Hospital</td>
<td>23.6%</td>
<td>4.9 days</td>
</tr>
<tr>
<td>Private Centre</td>
<td>5.2%</td>
<td>4.5 days</td>
</tr>
</tbody>
</table>

THR = total hip replacement; TKR = total knee replacement.

Note: The ALOS of patients in treatment centres and independent hospitals remain shorter than those treated in NHS hospitals, even after adjustment for age, gender, physical status, prosthesis type and country based on National Joint Registry data for 2009.

Sources: National Joint Registry Annual Report 2010; Sg2 Analysis 2011.
## Improvement Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Overview</th>
<th>Implementation Indicators</th>
</tr>
</thead>
</table>
| **Manage Patient Expectations During the Pre-Operative Stage** | **Rationale:** Lack of clear, consistent communication with patients about the recovery timetable can hinder timely discharge.  
**Actions:**  
- Set realistic patient expectations, educate patients about necessary home preparations, set mobility and discharge goals, and ensure informed decision-making.  
- Optimise a patient’s pre-surgical condition and identify peri-operative risks.  
- Plan to admit patients on the day of surgery, conduct pre-operative discharge planning and highlight well ahead of admission any special needs that can be proactively managed.  
- Familiarise patients with post-operative exercises and care plans; assess patient rehabilitation needs and arrange for equipment to be delivered to patient’s home pre-admission. | **Cost:**  
**Time:**  
**Culture:**  
**Impact:** |
| **Structure Peri- and Post-Operative Management** | **Rationale:** Variability in care practices leads to inefficiency and increases the risk of errors.  
**Actions:**  
- Develop standardised care paths for anaesthesia and educate staff about the process.  
- Establish an education plan for new staff.  
- Evaluate and optimise surgical techniques. | **Cost:**  
**Time:**  
**Culture:**  
**Impact:** |
| **Provide Early Supervised Mobilisation and Safe Discharge** | **Rationale:** Early mobilisation can reduce hospital stay and have a positive impact on patient motivation to return to wellness.  
**Actions:**  
- Establish a process for pre-operative mobilisation planning.  
- Ensure multi-disciplinary teams are in place to optimise nutrition, hydration, pain control and plans for early mobilisation—preferably within 24 hours of surgery.  
- Remove catheters as soon as possible following surgery. | **Cost:**  
**Time:**  
**Culture:**  
**Impact:** |
| **Offer Structured Plans for Access to Clinical Advice and Support Post-Discharge** | **Rationale:** Lack of patient communication and poorly integrated post-discharge and patient recovery planning can prolong length of stay and negatively impact outcomes.  
**Actions:**  
- Create mechanisms to identify and prepare patients for individualised levels of post-operative training and support.  
- Provide a structured pathway to follow-up support and advice. | **Cost:**  
**Time:**  
**Culture:**  
**Impact:** |

**Indicators Key**

| Cost (facility, technology, staff): | ≤£100K; £100K–£500K; £500K+ |
| Time: | 0–6 months; 6–18 months; 18+ months |
| Culture (organisation-wide change management): | Limited; Moderate; Significant |

Shaded options indicate in-depth action plans provided on the following page.
### Options: In-depth

#### Manage Patient Expectations During the Pre-Operative Stage

<table>
<thead>
<tr>
<th>Actions</th>
<th>Implementation Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set Realistic Patient Expectations</strong></td>
<td></td>
</tr>
</tbody>
</table>
  - Educate patients about what to expect leading up to and following surgery.  
  - Consider hosting elective orthopaedic pre-admission information sessions open to patients, relatives and carers.  
  - Consider organising a joint school, designed to deliver group-based, in-depth education to patients on facets of the care pathway delivered by nurses, physiotherapists, occupational therapists, surgeons and/or anaesthetists.  
  - Set patient-tailored goals related to mobility and discharge. For example:  
    - “On the day of surgery, you will bear weight with assistance from the physical therapist.”  
    - “You will go home on day 3 unless an unforeseen reason necessitates a longer hospital stay.”  
  - Provide a clear to-do list for patients to follow when preparing their home.  
    - The list should include directions to line up a friend or family member to stay with them for at least the first few days post-discharge. |
| **Optimise Pre-Surgical Condition and Identify Peri-Operative Risks** |  
  - Ensure a robust pre-operative assessment and communicate an estimate of individualised risk to patients.  
  - Leverage simple tools, such as the South Devon Healthcare NHS Trust “traffic light” assessment which pre-operatively triages patients based on risk factors related to elective hip and knee replacement assessment. (See resources section, last page.) |
| **Familiarise Patients with Post-Op Exercises** |  
  - Encourage patients to begin rehab exercises before surgery to gain strength/flexibility and to develop a routine.  
  - Provide adaptive equipment to patients during pre-operative education classes so they can practice at home prior to surgery.  
  - Deliver and install rehabilitation equipment to the home pre-hospitalisation. |
| **Offer Structured Plans for Access to Clinical Advice and Support Post-Discharge** |  
  - Revisit pre-operative discharge plans and ensure any special needs affecting a patient’s continued care outside of the hospital environment have been, and will continue to be, managed. |
| **Provide a Structured Pathway to Follow-up Support and Advice** |  
  - Keep open communication with GPs, community nurses and social care to ensure continued care, education and on-going therapy are seamless.  
  - Ensure clinical care teams across the continuum are aware of communication channels available for advice and guidance.  
  - Consider a 24-hour helpline staffed by ward or community nurses, and/or offer calls to patients at pre-scheduled intervals following discharge.  
  - Explore collaborative community-based partnerships for follow-up support.  
    - Consider turnkey enhanced supported discharge models such as those provided by Healthcare at Home Ltd. |
Leadership Considerations

- The organisation’s leaders and key stakeholders must approach efforts to optimise length of stay as a means of elevating clinical quality and improving the patient experience. Providing evidence of how care pathway optimisation provides a high quality service for patients will help ensure stakeholder commitment.
- Care pathway optimisation and resulting length of stay reductions will be the result of joined-up working practices led by a coordinated, multi-disciplinary team. Secure and engage key members:
  - Executive leadership, whose support drives progress and whose visibility on the short- and long-term implications of care pathway optimisation, is critical. Service and management leadership will also play a strong supportive role.
  - Physicians and clinical staff must be involved from the beginning in any efforts to standardise and improve care processes. Surgeons, anaesthetists, GPs, nurses, ward staff, junior doctors, physiotherapists, dieticians, and pharmacists all have roles in the process; many successful redesign efforts have clinical staff champion the process.
  - Local community health teams, including social services, ambulance services, primary care, and other health and social care partnerships must be integrated. Develop a shared understanding of roles within the care pathway, and engage commissioners in conversations to secure local post-discharge support.
  - As always, patients provide valuable insight and should be an active part of redesign efforts.
- Understanding your current pathway is the first step to pathway redesign. Once this understanding is achieved, conduct gap analyses to identify and prioritise the areas most in need of optimisation efforts.
- Set goals and repeatedly measure progress. Data on length of stay variation provide a good starting point to objectively assess current processes. Incorporating patient experience measures (including clinical outcomes, return to normal rate, and related patient reported outcome measures (PROMs)), readmission rates and compliance measures with specific facets of the care pathway will ensure that length of stay reductions are not gained through reductions in care quality.
- Ensure sustainability through continued data review and team communication.

Operational Considerations

- Length of stay solutions offered in this guide are accessible to providers willing to optimise a pathway which crosses the entire care continuum. Consider a facilitator or coordinator role to take ownership of ongoing management of the breadth and depth of work ahead.
- Visit recognised centres of excellence to learn and avoid common pitfalls during implementation.
- High-volume programmes will face additional challenges related to weekend care and discharge.
  - Physical therapy and nurse staffing levels need to be adequate to support patients who remain over the weekend.
  - Communication between the primary consultant and on-call consultants should be addressed to prevent prolonged stay in the hospital.
  - Agreed-upon home care and transfer processes should have provisions for weekend discharge/transfer.

Resources

Related Sg2 Resources

- Innovations Review: Rapid Recovery Total Joint Programs, May 2009
- Service Kit for Primary Hip and Knee Care Pathway Redesign. February 2011

Other Resources

- The British Orthopedic Association’s guides to good practice
- The NHS Institute’s report: Focus on: Primary Hip and Knee Replacement
- The Enhanced Recovery Programme (including the “Traffic Tool”)
- Map of Medicine
- Healthcare at Home Ltd’s Hospital Care at Home, February 2010