Home Health After Hip and Knee Replacement: Physical Therapist Decision-Making

Alliance Learning Collaborative
May 21, 2014
About the Alliance

• 501(c)(3) non-profit research and education foundation

• Mission: To support research and education on the value home health care can offer to patients and the U.S. health care system. Working with researchers, key experts and thought leaders, and providers across the spectrum of care, we strive to foster solutions that will improve health care in America.

• [www.ahhqi.org](http://www.ahhqi.org)
Today’s Webinar

• During the presentation submit questions to “Teresa Lee” at the Fuze Chat Box.

• Slides will be posted on the “Webinars” portion of the Alliance website. We are also recording the webinar for playback on the website.
Culver has been at the American Physical Therapy Association (APTA) since 1993 and now holds the title of Senior Specialist, Clinical Practice in the Department of Practice and Research. She communicates and collaborates with APTA Sections and Chapters, in addition to various committees and task forces to meet Association and professions goals, contributes to practice and policy development related to the practice of physical therapy within the current health care environment and promotes the role of the physical therapy as an integral part of healthcare delivery including exploring new and innovative areas of practice. She has been involved in the development of the Guide to Physical Therapist Practice since its first publication in 1995 and has taken key roles in various components of its development and revisions. She also recently developed resources for Safe Patient Handling and Movement. Culver’s prior experience includes management of both physical therapy services and of multidisciplinary rehabilitation settings and service provision in the home health setting. Culver received her Bachelor of Science in physical therapy in 1977 from Indiana University and her Master of Business Administration in 1989 from George Mason University and her doctorate in physical therapy in Massachusetts General Hospital Institute of Health Professions in 2007.
Today’s Speaker: Roger Herr

Roger Herr, PT, MPA, COS-C
Director, Board of the American Physical Therapy Association

Roger Herr, PT, MPA, COS-C is an elected Director on the Board of the American Physical Therapy Association (APTA), the national nonprofit membership organization of physical therapists based in Alexandria, VA. Roger’s career is in geriatrics, rehabilitation, home care, and post-acute care data sets & reporting. Roger has worked in seven settings of care, with the majority in post-acute care focused in home health and hospice. He has served as a clinician, analyst, manager, director and external site visitor for accreditation. Currently, Roger is Vice President Quality Management at Independence Care System, a Not-For-Profit integrated Managed Long Term Care Plan in New York City. Roger has degrees in biological science in physical therapy from Temple University in Philadelphia and a master’s degree in public administration - health care management from New York University.
Home Health
After Hip or Knee Replacement

Physical Therapist
Decision-Making
Lower Extremity Arthroplasty

• Person
  – Elective Hip or knee replacement
  – Male or female
  – 50-70 years old
  – Active lifestyle: Career, social, family, etc.

• Orthopedic Surgeon
• Continuum of Care
Changing Environment

• Integrating providers and systems
  – Incentivizing the Continuum of Care
    • ACOs, Bundling and Post-Acute Reform
  – Data sets & shifting from volume to outcomes
  – Preventable readmissions
  – Medical review and audits

• Person-centered care

• Patient Experience
Orthopedic Home Care

- Functional mobility
- Pain management
- Anticoagulation Therapy
- Medication Management
Key Care Areas

• Functional Mobility
  – Bed, bath and beyond
  – Safety, support and assistive devices

• Pain Management
  – Assessment
  – Expectations
  – Support
Key Care Areas

• Anticoagulation Therapy
  – Variety of approaches
  – Efficiency in care and clinicians
    • CLIA waiver

• Medication Management
  – Conditions of Participation
  – OASIS
Medicare Payment and Policies for Home Health

Information and resources on Medicare payment and policies in the home health setting. If you have questions about this information, contact advocacy@apta.org.

General Information

Podcast: Home Health PTs and Medication Management - 11/10/10

Official Statement: Role of Physical Therapists in Medication Management (.pdf) - 10/26/10

Physical Therapists and Medication State Laws and Regulations (.pdf)

APTA Summaries

Final Rule for 2014 Home Health Prospective Payment System (.pdf) - 11/26/13

Proposed Rule for 2014 Home Health Prospective Payment System (.pdf) - 7/11/13

Final Rule for 2013 Home Health Prospective Payment System (.pdf) - 11/27/12

Highlights: Proposed Rule for 2013 Home Health Prospective Payment System (.pdf) - 7/15/12

Final Rule for 2012 Home Health Prospective Payment System (.pdf) - 11/9/11
Evidence-Based Practice

- Best Available Evidence
- Clinical Expertise
- Patient/Client Values & Circumstances
Patient Values & Circumstances

• What is most important to them?

• What type of support do they have?

• What was their prior level of function?

• What are their expectations post-op level of function?
Clinical Expertise

• Are you familiar with this type of surgery and the typical progression?

• How often have you had this type of patient?

• How successful have you been?
Best Available Evidence

• What does this really mean?
  – What resources are available?
  – How do you apply them?
### Clinical Management of Total Knee Arthroplasty (TKA)

**Classification**

1. **Compartments Replaced**
   - **Unicompartmental**: 1 component on medial or lateral side
     - Predictors of success:
       - No clinical symptoms in the contralateral compartment
       - Non-inflammatory osteoarthritis
       - Uncompartmental degeneration
       - Maximum of 10° varus or 5° valgus deviation from the mechanical axis; correctable
       - Flexion contractures not exceeding 10°
       - Intact ACL
       - No signs of mediolateral subluxation
       - No clinical patellofemoral symptoms
       - Body mass index not exceeding 32
   - **Bicompartmental**: femoral and tibial components on medized and lateral sides
     - Menisci and ACL are removed
     - PCL removal is dependent on surgical approach
     - Femoral and tibial components are typically metallic with a polyethylene spacer
   - **Tricompartmental**: femoral, tibial, and patellar components
     - Similar to bicompartmental with addition of polyethylene patellar button
     - Patellar tilt or instability after surgery can reduce function and indicate revision surgery
     - If patellar implant is too large, it can constrain knee motion ("overstuffing"); implicated in postoperative flexion loss, patellar maltracking, excessive prostatic wear, and pain

2. **Fixation**
   - **Cemented**: Most common
     - Longer rehabilitation required
     - Bone growth needed for stability
   - **Noncemented**: Less common
     - Bone growth needed for stability
   - **Hybrid**: Cemented tibial and patellar components
     - Noncemented femoral component

3. **Surgical Approach**
   - **Medial Parapatellar (Para Medial)**
     - May contribute to quadriceps muscle weakness
   - **Midvastus**
     - Minimizes quadriceps trauma
   - **Lateral**
     - Technically challenging
   - **Subvastus**
     - Decreased postoperative pain
     - Better immediate postoperative knee flexion
     - Early return of function
   - **PCL Sacrificing**
     - Posterior-stabilized design with PCL function replaced with cam and post mechanism
     - When flexed, the cam-on-femoral component contacts against the tibial post and blocks anterior translation of the femur
     - Allows femoral rollback kinematics similar to that of normal knee
     - Better overall pain, knee function, and strength

4. **PCL Sparing or Sacrificing**
   - **PCL Sacrificing**
     - Posterior-stabilized design with PCL function replaced with cam and post mechanism
     - When flexed, the cam-on-femoral component contacts against the tibial post and blocks anterior translation of the femur
     - Allows femoral rollback kinematics similar to that of normal knee
     - Better overall pain, knee function, and strength
   - **PCL Sparing**
     - PCL retains function, maintaining femoral rollback and adding to knee stability
     - More anatomically correct femoral rollback
     - No evidence of different outcome

**Screening**

DVT leading to PE occurs at a rate of 41%, infection occurs at a rate of 1.5% (about 18% of failures), and mortality occurs at a rate of 53%.

**DVT**
- Most common reason for readmission post-TKA
- Greatest risk: first week after surgery
- Frequently asymptomatic; first clinical manifestation can be PE
- 15% higher risk every decade after 50 years of age
- Proximal DVT is associated with more serious potential for fatal PE
- Wells et al. clinical prediction rules assess likelihood of DVT
- Venography better diagnostic tool early after orthopedic surgery
- Prevention combined pharmacological thromboprolyphaxis agents, mechanical compression devices and support stockings, and expanded use of regional anesthesia

**TKA Failure/Revision**
- Expectations reduced (poorer outcomes 6 months and beyond)
- Lower scores on outcome measures for pain and activity
- Seen more often with greater medical comorbidities
- 82% aspecific extensor mechanism rupture, stiffness, instability, fracture, loosening, patellar complications and malrotation, implant fracture

**Infection**
- Higher in TKA than in total hip arthroplasty
- Risk factors: revision surgery, rheumatoid arthritis, diabetes mellitus, obesity, poor nutrition, immunosuppressive medication, and presence of psoriatic skin lesions
- Signs and symptoms: low-grade fever, night sweats, redness, or drainage from the incision with or without red streaks, hardening of the incision, swelling, severe pain, malaise, or delayed healing
- Routine prophylaxis against in some cases 2 years following TKA recommended
- Two most common forms: staphylococcus epidermidis and aeruginosus
- Acute infections undergo irrigation and debridement with retention of components if possible (success 10%-50%)
### CLINICAL MANAGEMENT OF TOTAL KNEE ARTHROPLASTY (TKA)

#### EXAMINATION

**Skin Integrity**
- Wound development is increased due to increased comorbidities (e.g., obesity, poor nutritional status, multiple prior incisions, inflammatory arthritis, steroid use, peripheral vascular disease, lengthy tourniquet times during surgery, immunocompromised state)
- Skin necrosis can lead to infection of components
- Persistent wound drainage (>4 days after surgery) may indicate infection; requires immediate referral
- Sudden drainage from a dry wound requires immediate referral
- Increased skin tension may delay wound healing; may affect ability to perform aggressive continuous passive ROM

#### Impairments

**Complications**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rate of Occurrence</th>
<th>Signs/Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stiff Knee</td>
<td>1%-15%</td>
<td>Flexion contracture &gt;10° or a total arc of motion &lt;95°</td>
</tr>
<tr>
<td>Peripheral Nerve Injury</td>
<td>0.01%</td>
<td>Dorsal lateral foot burning or hypersensitivity, dorsiflexion and evertor weakness</td>
</tr>
<tr>
<td>Infection</td>
<td>1.55% within 2 years; 0.86% between 2 and 10 years post-TKA</td>
<td>Low-grade fever, night sweats, high skin temperature of the knee, redness or drainage from the incision with or without red streaks, hardening of the incision, swelling, severe pain, malaise, or delayed healing</td>
</tr>
<tr>
<td>Quadriceps Tendon Rupture</td>
<td>0.1%</td>
<td>Avulsion of patellar tendon-ibial tubercle junction, leading to poor outcomes</td>
</tr>
</tbody>
</table>

**Activities**

- KDQOL:
  - Used to capture higher level of function for younger and more active individuals
  - 42-item questionnaire with pain, other symptoms, function in daily living, function in sport and recreation, and knee-related quality of life subscales
  - 100-best possible function
- WOMAC:
  - 5 minutes to complete
  - 24 items grouped into 3 dimensions: pain, stiffness, and physical function
  - 0-best possible level of knee function
- TUG:
  - Time to rise from an armchair, walk 3 m, turn, and return to sitting in the same chair without physical assistance
  - Good interrater and intrarater reliability
- KOS:
  - Questionnaire with 2 sections; one on knee joint and one on function
  - Each scored 0-100, 100-best possible score
  - Less responsive than WOMAC or SF-36
- LEFS:
  - 20-item region-specific questionnaire regarding LE function
  - Scored 0-100; 100-best outcome
  - More responsive than WOMAC in subacute, post-op period
- 6MWT:
  - Measures distance walked in 6 minutes by walking laps of 100 feet
  - Excellent test-retest reliability
- Stair Climb Test
  - Time taken to ascend and descend one flight of stairs
  - Correlates with TUG
- KOS-ADLs
  - Used to assess how symptoms and limitations affect ADLs
  - 17 items
  - 100%-best score possible
  - ICC=.87 and good responsiveness and validity

#### Postoperative Complications

**KEY:**
- 6MWT-6-Minute Walk Test
- ADL-activities of daily living
- KOS-Knee Society Score
- LEFS-Lower Extremity Functional Scale
- PCL-posterior cruciate ligament
- ROM-range of motion
- TUG-Time Up & Go Test
- WOMAC-Western Ontario and McMaster Universities Osteoarthritis Index

![PTNow Logo](ptnow.png)
Measurement

- Determines initial status
- Gauges progress toward goals
- Determines status at conclusion of care
<table>
<thead>
<tr>
<th>Table 3. Contextual factors that influence delivery and outcomes of post–acute rehabilitation after THA and TKA*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Need for rehabilitation</strong></td>
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<tr>
<td></td>
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<tr>
<td>Personal factors</td>
</tr>
<tr>
<td>General health</td>
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<tr>
<td>Body weight</td>
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<tr>
<td>Other symptomatic joints</td>
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<tr>
<td>Fitness level</td>
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<tr>
<td>Pain status</td>
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<tr>
<td>Healing/wound status</td>
</tr>
<tr>
<td>Postoperative complications</td>
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<tr>
<td>Functional status</td>
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<tr>
<td>Psychological status</td>
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<tr>
<td>Mental/cognitive status</td>
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<tr>
<td>Patient expectations and goals</td>
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<tr>
<td>Patient attitude</td>
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<tr>
<td>Patient engagement and motivation</td>
</tr>
<tr>
<td>Physical response to rehabilitation</td>
</tr>
<tr>
<td>Patient adherence</td>
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<tr>
<td>External factors</td>
</tr>
<tr>
<td>Support of spouse/family</td>
</tr>
<tr>
<td>Attitude of physician</td>
</tr>
<tr>
<td>Access/availability of rehabilitation professionals</td>
</tr>
<tr>
<td>Access to rehabilitation programs</td>
</tr>
<tr>
<td>Waiting time for rehabilitation services</td>
</tr>
<tr>
<td>Access to transportation</td>
</tr>
<tr>
<td>Health insurance policies/coverage</td>
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<tr>
<td>Health care system/policies</td>
</tr>
<tr>
<td>Health professional skills</td>
</tr>
<tr>
<td>Surgeon skills</td>
</tr>
</tbody>
</table>

* Bullets show factors achieving >80% agreement in round 3. THA = total hip arthroplasty; TKA = total knee arthroplasty.
Outcome Measures

• What are outcome measures?

• Why and how to choose

• Need to repeat measures

• Collection of standardized measurements
**10-Meter Walk Test (10MWT) for Hip Fracture**

**Target Population:** People with hip fracture

**ICF Domain(s):** Activity (Function)

**G-code Categories:** Mobility: Walking & Moving Around

**What it measures:** Walking speed in meters per second (m/s) over a short duration

**Get Test:** Download test from the Rehabilitation Measures Database
## Instrument Properties

**Minimal Detectable Change (MDC)**

Gait speed MDC=0.17 m/s (Latham et al, 2008; aged > 65 y; within 17 d of surgical repair of hip fracture; sample included Norway, United Kingdom, Sweden, Israel, Germany, United States, Denmark, Spain; gait speed tested over 4 m of walking after 12 wk)

MDC at 95% confidence level [CI]=0.82 m/s (Hollman et al, 2008)

**Minimally Clinically Important Difference (MCID)**

Not established for this condition

**Sensitivity/Specificity**

Not established for this condition

**Likelihood Ratios (LR)**

Not established for this condition

**Standard Error of Measurement (SEM)**

0.03 m/s (Hollman et al, 2008; n=16, participants aged 77.9 (9.0) y, tested at a mean of 4.7 (2.0) d, range=2-8 d, after surgical fixation of hip fractures; after rest, a second trial under the same parameters was conducted)

**Reliability:**

Test-retest reliability:
Lower Extremity Functional Scale (LEFS) for Hip Disorders

Target Population: People with hip disorders, including hip osteoarthritis (OA) and total hip arthroplasty (THA)

ICF Domain(s): Activity (Function)

G-code Categories: Mobility: Walking and Moving Around

What it measures: Lower extremity musculoskeletal function

Get Test: Download test from PTNow
# Instrument Properties

<table>
<thead>
<tr>
<th>Minimal Detectable Change (MDC)</th>
<th>Hip OA:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.9 points (Pua et al, 2009)</td>
</tr>
<tr>
<td>General population:</td>
<td>9 points (Binkley et al, 1999)</td>
</tr>
<tr>
<td>Inpatient:</td>
<td>8.2 points (Yeung et al, 2009)</td>
</tr>
<tr>
<td>Hip and knee OA:</td>
<td>10 points (Hoogeboom et al, 2012)</td>
</tr>
</tbody>
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<th>General population:</th>
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<tr>
<td></td>
<td>9 points (Binkley et al, 1999)</td>
</tr>
</tbody>
</table>

| Sensitivity/Specificity | N/A |

| Likelihood Ratios (LR)  | Not found |

<table>
<thead>
<tr>
<th>Standard Error of Measurement (SEM)</th>
<th>Hip OA:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.6 points (Pua et al, 2009)</td>
</tr>
<tr>
<td>General population:</td>
<td>5.3 points (Binkley et al, 1999)</td>
</tr>
<tr>
<td>Inpatient:</td>
<td></td>
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</tbody>
</table>
Lower Extremity Functional Scale (LEFS) for Knee Disorders

Created: September 28, 2013
Author(s): Lauren Binder PT, DPT (author); Paul Mintken PT, DPT, OCS (reviewer); David Scalzitti, PT, PhD (reviewer) | Disclosures

Add to My Clinical Collections

Target Population: People with knee disorders (any condition of the joints, muscles, or other soft tissues), including knee osteoarthritis (OA), total knee arthroplasty (TKA), and anterior knee pain

ICF Domain(s): Activity (Function)

G-code Categories: Mobility: Walking and Moving Around
Changing and Maintaining Body Position

What it measures: Lower extremity musculoskeletal function

Get Test: Download test from PTNow

Instrument Properties

Minimal Detectable Change (MDC)
Lower extremity musculoskeletal dysfunction:
9 points (Binkley et al, 1990)
Hip and knee OA:
10 points (Hoogeboom et al, 2012)
Knee OA (Williams et al, 2013)
### Minimally Clinically Important Difference (MCID)

- Lower extremity musculoskeletal dysfunction: 9 points (Binkley et al., 1999)
- OA (Williams et al., 2012):
  - 6.3 points at 0-2 mo
  - 7.5 points at 0-6 mo
  - 12.5 points at 0-12 mo

### Sensitivity/Specificity
N/A

### Likelihood Ratios (LR)
N/A

### Standard Error of Measurement (SEM)

- OA:
  - 6.9 points at 2 mo (Williams et al., 2012)
  - 6.4 points at 6 mo (Williams et al., 2012)
  - 8.2 points at 12 mo (Williams et al., 2012)
  - 3.4 points (Stratford et al., 2010)
- Anterior knee pain:
  - 0.10 points (Watson et al., 2005)
  - TKA: 3.7 points (Stratford et al., 2009)

### Reliability: Test-retest reliability:
- OA (Williams et al., 2012):
  - Intraclass correlation coefficient (ICC) at 2 mo = .81
  - ICC at 6 mo = .85
  - ICC at 12 mo = .75
Knee Outcome Survey-Activities of Daily Living (KOS-ADLS) for Total Knee Replacement

Created: January 23, 2013
Disclosures

Target Population: People with total knee replacement

ICF Domain(s): Activity (Function)

G-code Categories: N/A

Get Test: Download test from PTNow

Instrument Properties

Minimal Detectable Change (MDC): Not established for this condition
Knee Outcome Survey-Activities of Daily Living (KOS-ADLS) for Total Knee Replacement

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<tr>
<td>Likelihood Ratios (LR)</td>
</tr>
<tr>
<td>Standard Error of Measurement (SEM)</td>
</tr>
</tbody>
</table>

**Reliability:**
Displays a high level of internal consistency, test-retest reliability, and a more precise knee function measurement than can be obtained with the Lysholm Knee Scale.

**Validity:**
Moderately strong levels of correlation ($>0.80$) with the Lysholm Knee Scale and the Global Rating of Knee Function.

**Responsiveness:**

Reference values for interpretation in target population: A 100 indicates the best score and would equate with “no perceived disability based on knee symptoms”
Plan of Care

• With total joint replacements often a collaborative decision with the surgeon.

• Patient centric goals collaborating with other members of the team.
CLINICAL MANAGEMENT OF TOTAL KNEE ARTHROPLASTY (TKA)

INTERVENTION

Rehabilitative Strategies

Perioperative (Hospital)
- Average length stay: 4 days
- Having procedure at joint center reduces risk of complications by 50%
- Out of bed first postoperative day for 4 hours of physical therapy and 8 hours daily thereafter
- Reduced length of stay: increased ROM
- Goals: pain reduction, education on restrictions, safety with walking and stairs, self-care and incision management, home exercise program, and meeting knee flexion milestones

Early Postoperative
- Includes home health emphasizing neuromuscular reeducation and ROM

Postoperative
- Outpatient physical therapy follows home health, emphasizes quadriceps recovery, functional mobility, pain management, and ROM

Swelling
- Cryotherapy

ROM
- Continuous passive ROM (achieves 5° more ROM at 2 weeks after discharge but no difference 8 weeks or 3 months later)
- Stairs require 95° flexion, standing 95°, and kneeling 125-135°
- Knee flexion ROM should measure within 5°-10° of preoperative range after rehabilitation
- Goal: 120-125° flexion
- Passive low-load stretch for extension
- Passive and active ROM with bike for flexion
- Flexion contractures occur in up to 15% of patients

Joint Motion
- Patellar subluxation is possible
- Need to assess patellofemoral mobility for hypomobility
- Tibiofemoral joint mobilization research is unavailable but needed

Quadriceps Strength
- Deficits of 20%-65% are seen after TKA due to muscle atrophy and muscle activation failure
- Gains of 25%-70% are seen in rehabilitation
- Use of neuromuscular electrical stimulation (NMES) at 60° knee flexion

Pain/Taping
- Patellofemoral taping may reduce 50%-80% of pain complaints
- Discontinue if no resolution

Compensatory/Adaptive Strategies

Allowed
- Bowling
- Stationary cycling
- Ballroom dancing
- Golf
- Shuffleboard
- Swimming
- Normal walking
- Canoeing
- Road cycling
- Square dancing
- Hiking
- Speed walking

Allowed with Experience
- Ice Skating
- Stationary skiing
- Doubles tennis
- Rowing
- Cross-country skiing
- Horseback riding
- Downhill skiing

No consens
- Weight Lifting
- Fencing
- Roller skating
- Baseball
- Gymnastics
- Handball
- Hockey
- Rock climbing
- Squash/raquetball
- Singles tennis
- Weight machine

Not Recommended
- Jogging
- Basketball
- Football
- Soccer
- Volleyball

Prevention

Aseptic Component Loosening
- Complication that occurs years after surgery
- Common reasons: wear of polyethylene liner, cement fracture, and metal debris
- Osteolysis without symptoms can occur, becoming symptomatic when joint becomes unstable
- Diagnosis through spiral computed tomography (CT)
- Treatment often requires revision surgery
### Table 4. Recommended post–acute rehabilitation interventions after primary THA and TKA*

<table>
<thead>
<tr>
<th>Therapeutic and functional exercises</th>
<th>THA</th>
<th>TKA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active ROM</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Passive ROM</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Strength training</td>
<td>●</td>
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<tr>
<td>Stretching</td>
<td>●</td>
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<td>Postural training</td>
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<td>Core stability training</td>
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<td>Home exercises</td>
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<td>Static balance</td>
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<td>●</td>
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<tr>
<td>Dynamic balance</td>
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<tr>
<td>Neuromuscular re-education</td>
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<tr>
<td>Stair climbing</td>
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<tr>
<td>Rising/lowering to chair</td>
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<tr>
<td>Rising/lowering to floor</td>
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<td>Transfer in/out of car</td>
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<tr>
<td>Transfer in/out of bathtub</td>
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<td>Transfer on/off toilet</td>
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<tr>
<td>Dressing</td>
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<td>Gait training</td>
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<tr>
<td>Correct use/progression of walking aids</td>
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<tr>
<td>Correction of altered gait pattern</td>
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<td>●</td>
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<tr>
<td>Ensuring proper weight-bearing status on operated extremity</td>
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<td>●</td>
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<td>Indoor/outdoor training</td>
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<tr>
<td>Variable surface training</td>
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</tbody>
</table>

*THA: Total Hip Arthroplasty, TKA: Total Knee Arthroplasty
Expert Consensus on Best Practices for Post–Acute Rehabilitation After Total Hip and Knee Arthroplasty: A Canada and United States Delphi Study

Arthritis Care & Research
Knee Society Score (KSS) for Total Knee Replacement

Target Population: People with total knee replacement

ICF Domain(s): Activity (Function), Body Structure & Function (Impairment)

G-code Categories: N/A

What it measures: The KSS contains questions in 2 sections: knee joint (pain, range of motion, stability) and function (walking distance, ability to climb stairs). When calculating the score, deductions are taken for assistive devices and flexion contractures, misalignment, or extension lag.
Knee Society Score

During the past 4 weeks......

Part 1 - Knee Score

<table>
<thead>
<tr>
<th>Pain</th>
<th>Flexion Contracture</th>
<th>Extension Lag</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild / Occasional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild (Stairs only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild (Walking and Stairs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate - Occasional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate - Continual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Flexion Contracture:
- 0°-10°
- 10°-15°
- 15°-20°
- >20°

Extension Lag:
- <10°
- 10°-20°
- >20°

Total Range of Flexion

<table>
<thead>
<tr>
<th>Total Range of Flexion</th>
<th>Antero-posterior</th>
<th>Mediolateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>0-10</td>
<td>&lt;5°</td>
</tr>
<tr>
<td>20-30</td>
<td>31-35</td>
<td>6-9°</td>
</tr>
<tr>
<td>51-55</td>
<td>56-60</td>
<td>10-14°</td>
</tr>
<tr>
<td>76-80</td>
<td>81-85</td>
<td>10-14°</td>
</tr>
<tr>
<td>101-105</td>
<td>106-110</td>
<td>10-14°</td>
</tr>
<tr>
<td>111-115</td>
<td>116-120</td>
<td></td>
</tr>
<tr>
<td>121-125</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stability (Maximum movement in any position):

- Antero-posterior
  - <5mm
  - 5-10mm
  - 10-14mm

- Mediolateral
  - <5°
  - 6-9°
  - 10-14°
Knee Society Score - Function

Please answer the following questions.

**Part 2 - Function**

<table>
<thead>
<tr>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Unlimited</td>
</tr>
<tr>
<td>☐ &gt;10 blocks</td>
</tr>
<tr>
<td>☐ 5-10 blocks</td>
</tr>
<tr>
<td>☐ &lt;5 blocks</td>
</tr>
<tr>
<td>☐ Housebound</td>
</tr>
<tr>
<td>☐ Unable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Normal Up and down</td>
</tr>
<tr>
<td>☐ Normal Up down with rail</td>
</tr>
<tr>
<td>☐ Up and down with rail</td>
</tr>
<tr>
<td>☐ Up with rail, down unable</td>
</tr>
<tr>
<td>☐ Unable</td>
</tr>
</tbody>
</table>

Walking aids used

☐ None used
### Instrument Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal Detectable Change (MDC)</td>
<td>N/A</td>
</tr>
<tr>
<td>Minimally Clinically Important Difference (MCID)</td>
<td>N/A</td>
</tr>
<tr>
<td>Sensitivity/Specificity</td>
<td>N/A</td>
</tr>
<tr>
<td>Likelihood Ratios (LR)</td>
<td>N/A</td>
</tr>
<tr>
<td>Standard Error of Measurement (SEM)</td>
<td>N/A</td>
</tr>
<tr>
<td>Reliability</td>
<td>N/A</td>
</tr>
<tr>
<td>Validity</td>
<td>N/A</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Reference values for interpretation in target population:**
Best score is 100. This measure has been shown to be less responsive to change than the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).
# Knee Society Score

## Clinician's name (or ref)

### During the past 4 weeks....

#### Part 1 - Knee Score

<table>
<thead>
<tr>
<th>Pain</th>
<th>Flexion Contracture (if present)</th>
<th>Extension Lag</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
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<td>16°-20°</td>
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#### Total Range of Flexion

<table>
<thead>
<tr>
<th>Range</th>
<th>Score</th>
</tr>
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<tbody>
<tr>
<td>0-5</td>
<td>0-10</td>
</tr>
<tr>
<td>6-10</td>
<td>11-15</td>
</tr>
<tr>
<td>16-20</td>
<td>21-25</td>
</tr>
<tr>
<td>26-30</td>
<td>31-35</td>
</tr>
<tr>
<td>36-40</td>
<td>41-45</td>
</tr>
<tr>
<td>46-50</td>
<td></td>
</tr>
<tr>
<td>51-55</td>
<td>56-60</td>
</tr>
<tr>
<td>61-65</td>
<td>66-70</td>
</tr>
<tr>
<td>71-75</td>
<td></td>
</tr>
<tr>
<td>76-80</td>
<td>81-85</td>
</tr>
<tr>
<td>86-90</td>
<td>91-95</td>
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<td>96-100</td>
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</table>

#### Alignment (Varus & Valgus)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>Out</td>
</tr>
</tbody>
</table>

### Stability (Maximum movement in any position)
Discharge Planning

• Conclusion of Care
• Setting up for success
• Scheduling
• Communication
  – Patient & Family/caregiver
  – Physician & staff
Medicare Part A Requirements

• OASIS
  – ICD Coding
  – Functional Assessment
  – Falls Assessment
• Functional Reassessment
• Face-to-Face
• Restorative or Skilled Maintenance
• Competitive bidding (DME)
Home Care Diagnosis

• Primary Diagnosis
  – Aftercare codes, not the procedure
    • Except non-routine post op situations
  – Therapy case V57.X
    • Utilized when a therapy case

• Secondary Diagnosis
  – After care following THA/TKA
  – Symptoms and diseases that impact care
Functional Assessment

• Start of Care (SOC)
  – Initial Assessment
  – Integrating multiple disciplines

• Functional Reassessment (April, 2011)
  – 13th, 19th visit or 30 days
  – Common clinical practice
  – Implementation challenges:

• Competitive bidding
Home Health, Hospice and DME Open Door Forum

- Please go to: [https://www.cms.gov/Outreach-and-Education/Outreach/OpenDoorForums/ODF_HHDME.html](https://www.cms.gov/Outreach-and-Education/Outreach/OpenDoorForums/ODF_HHDME.html)

Home Health Face-to-Face

- MLN Matters® SE1405: Documentation Requirements for Home Health Prospective Payment System (HH PPS) Face-to-Face Encounter
- MLN Matters® MM8444: Clarification of the Definition of "Confined to the Home"
- [Home Health Face-to-Face Encounter Question & Answers](#) (05/09/14)
- MLN Matters® SE1219: A Physician’s Guide to Medicare’s Home Health Certification, including the Face-to-Face Encounter
- MLN Matters® SE1038: Home Health Face-to-Face Encounter - A New Home Health Certification Requirement

Therapy and Skilled Nursing

- [Therapy Questions and Answers](#) (03/01/13)

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Welcome

News

- Office of the Inspector General Reports Limited Compliance with Face-to-Face Documentation Requirements

Website Resources

- The Home Health Section Toolbox of Standardized Tests & Measures
  - Members, Get it FREE here
  - Non-Members, Order here
- CMS Issues Clarification on Coverage Pursuant to Jimmo vs. Sebelius
- The Quarterly Report, Fall 2013 (Vol. 48 N. 4)
- Listen & Learn - podcasts on reassessments, objective testing, wound care, and more
- PTNow - Tools for Advancing Physical Therapist Practice
F2F and Skilled Maintenance

• Face-to-Face (F2F)
  – Physician attestation
    • Additional to physician orders/Plan of Care/”485”
    • Physician designee may see the person
    • Physician must complete the document
      – Specific to each patient,
      – Same primary diagnosis/reason for care

• Skilled Maintenance Therapy
  – Uncommon in arthroplasty population
Summary

ANY QUESTIONS?
Discussion & Questions

• Submit questions to “Teresa Lee” at the Fuze Chat Box.

• Presentation slides will be available at: http://ahhqi.org/education/webinars
Speaker Contact Information

If you have additional questions regarding today’s webinar, please feel free to contact the speakers via email.

Lisa Culver
lisaculver@apta.org

Roger Herr
rogerherr@apta.org
Thank You!