INTERDISCIPLINARY CARE PLANNING FOR COMPREHENSIVE CARE IN HIP AND KNEE REPLACEMENT
A VALUE BASED MEDICINE CARE COORDINATION MODEL

UDSmr® ANNUAL CONFERENCE    Niagara Falls 8.11.2017

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Learning Objectives

- Review forecast of projected healthcare expenditures and impact of ACA
- Define CMS BPCI & CCJR performance and reimbursement metrics
- Identify appropriate clinical assessment & outcome instruments for CJR
- Define CJR Interdisciplinary team participants and roles
- Review design of a successful CJR Clinical Care Plan
- Review methods for team communication
- Smartphone technology to enhance outcomes

By 2050, 88.5 million Americans will be age 65 & older, accounting for 20% of the U.S. population.
United States birth rate (births per 1,000 population) 1946 to 1964 is highlighted in red, with birth rates peaking in 1949, dropping steadily around 1958 and reaching pre-war depression era levels in 1963. Attributed to US optimism & prosperity following 16 years of depression and war. Stimulated by GI Bill funding veteran graduate education and suburban mortgages, teenager autonomy, consumerism, and Sinatra.

Source: MetLife Mature Market Institute Analysis
Population Projections Program
US Census Bureau, 2000
American Silver Tsunami = U.S. Elder Wave

The American Elder Wave continues. 2050 projection: 19 million persons 85 and older.

People ages 80 and older accounted for 24 percent of the Medicare population and 33 percent of Medicare spending in 2011.

Distribution of traditional Medicare beneficiaries and Medicare spending, 2011

- **Share of beneficiaries**
  - Total number of beneficiaries in traditional Medicare: 38.3 million
  - Age 80+: 24%
    - Age 70-79: 32%
    - Age 65-69: 26%
    - Under age 65: 18%
  - Age 80+: 33%
    - Age 70-79: 30%
    - Age 65-69: 15%
    - Under age 65: 22%

- **Share of spending**
  - Total spending for beneficiaries in traditional Medicare: $375 billion

**NOTE:** Analysis excludes beneficiaries with Medicare Advantage.
**SOURCE:** Kaiser Family Foundation analysis of a 5 percent sample of Medicare claims from the Chronic Conditions Data Warehouse, 2011.

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Happy New Year 2017

U.S. POPULATION

324,310,011

WORLD POPULATION

7,362,350,168

Visit <a href="census.gov/popclock">census.gov/popclock</a> for more information.


Population estimates as of Jan. 1, 2017
Source: Vintage 2016 Population Estimates and International Data Base census.gov/popclock
Twelve largest economies by share of world GDP

Source: ICP 2011

Exhibit 1. Health Care Spending as a Percentage of GDP, 1980–2013

Notes: GDP refers to gross domestic product. Dutch and Swiss data are for current spending only, and exclude spending on capital formation of health care providers.

Source: OECD Health Data 2015
Multiple comorbid conditions increase expenditure

**Figure 2:** Annual health care costs per person by number of chronic conditions (Boomer and Non-Boomer)

Adapted from *When I'm 64: How Boomers Will Change Health Care*, American Hospital Association, 2007.
Post-Acute Care costs
Medicare Payment Advisory Commission (MED-PAC data)
Healthcare expenditure tsunami..
OSTEOARTHRITIS (OA)

CDC/HSS 2011

16% of U.S. adults (37.5 million persons) have significant disability. Arthritis is a leading cause of disability.
Falton Community Health Plan study: Symptomatic OA
BOX 1. COMMON RISK FACTORS FOR OSTEOARTHRITIS OF THE KNEE AND HIP\textsuperscript{9,10}

- Age \( \geq 50 \) years
- Obesity (knee osteoarthritis)
- Being female (especially for knee osteoarthritis)
- Family history
- History of immobilization
- Injury to the joint
- Prolonged occupational or sports stress
Kellgren–Lawrence grade (or K-L system) is a scoring tool used to assess the severity of knee osteoarthritis on a plain weight bearing radiograph. First proposed in 1957.

### Kellgren-Lawrence Grading System for Osteoarthritis

<table>
<thead>
<tr>
<th>Grade</th>
<th>Radiologic Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Doubtful narrowing of joint space and possible osteophytic lipping</td>
</tr>
<tr>
<td>II</td>
<td>Definite osteophytes and possible narrowing of joint space</td>
</tr>
<tr>
<td>III</td>
<td>Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis, and possible deformity of bone contour</td>
</tr>
<tr>
<td>IV</td>
<td>Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone contour</td>
</tr>
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</table>

### Radiographic Findings

<table>
<thead>
<tr>
<th>Grade</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
</tr>
<tr>
<td>I</td>
<td>Doubtful</td>
</tr>
<tr>
<td>II</td>
<td>Mild</td>
</tr>
<tr>
<td>III</td>
<td>Moderate</td>
</tr>
<tr>
<td>IV</td>
<td>Severe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No features of OA</td>
</tr>
<tr>
<td>1</td>
<td>Minute osteophyte; doubtful significance</td>
</tr>
<tr>
<td>2</td>
<td>Definite osteophyte; normal joint space</td>
</tr>
<tr>
<td>3</td>
<td>Moderate joint-space reduction</td>
</tr>
<tr>
<td>4</td>
<td>Joint space greatly reduced; subchondral sclerosis</td>
</tr>
</tbody>
</table>
New understanding of the molecular pathogenesis of osteoarthritis provide opportunity to slow (and eventually perhaps reverse) the progression to joint degeneration through the use of biologic pharmacology and patient derived growth factor injections (PRP)
RISK FACTORS
- Genetics
- Age
- Gender
- Race
- Hormonal status
- Joint trauma
- Misalignment
- Overuse
- Immobilization
- Obesity

OUTCOMES
- Joint destruction
- Severe pain
- Loss of function
- Disability
- Social Isolation
- Depression
- Reduced Quality of Life
- Major Economic Burden

Total knee arthroplasty volume, utilization, and outcomes among Medicare beneficiaries, 1991–2010

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Abstract

Context—Total Knee Arthroplasty (TKA) is one of the most common and costly surgical procedures performed in the United States (U.S.).

Objective—To examine longitudinal trends in volume, utilization and outcomes for primary and revision TKA between 1991 and 2010 in the U.S. Medicare population.

Design, Setting, and Participants—Observational cohort of 3,271,851 patients who underwent primary TKA and 318,563 who underwent revision TKA identified in Medicare Part A data files.

Outcomes—We examined changes in primary and revision TKA volume, per-capita utilization, hospital length of stay (LOS), readmission rates, and adverse outcomes.
The Healthcare ‘Triple Aim’
Institute for Healthcare Improvement (IHI)
Healthcare expenditure associated with CJR
Bundled Payments for Care Improvement (BPCI)

- Developed by the Center for Medicare and Medicaid Innovation (Innovation Center).
- Under the initiative, organizations enter into payment arrangements that include financial and performance accountability for episodes of care.
- These models may lead to higher quality and more coordinated care at a lower cost to Medicare.
- Payment rewards the quality of services offered by providers rather than the quantity of care furnished.
Bundled Payments for Care Improvement (BPCI)

- Research has shown that bundled payments can align incentives for providers (hospitals, post-acute care providers, physicians, and other practitioners) allowing them to work closely together across all specialties and settings.

- Participation in bundling initiatives reduces care fragmentation.
CMS is deploying an array of voluntary and mandatory payment innovation programs to accelerate the transition to accountable payment models. This field guide details the 12 highest profile programs as of November 2015. Learn how these programs disrupt the traditional fee-for-service business model.

**HHS’s Payment Goals**

**Percentage of Medicare Payments Tied to Alternative Payment Models**
- 20% in 2015
- 30% in 2016
- 50% in 2018

**Percentage of Medicare Payments Tied to Quality or Value**
- 80% in 2015
- 85% in 2016
- 90% in 2018

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**Joint Replacement Bundle**

**Bundled Payments for Care Improvement Initiative**
- Center for Medicare and Medicaid Innovation (CMMI) program offering providers four bundled payment models for treating Medicare fee-for-service beneficiaries
- Models vary by scope of service included, duration, minimum discount required, and use of either prospective or retrospective bundling methodology
- All four models enable hospitals to gainshare with physicians
- 2K+ Organizations participating in the program CY 2012

**Comprehensive Care for Joint Replacement Model**
- CMMI program creating mandatory bundled payments with up to 3% episode discount for lower extremity joint replacement procedures in 67 select markets
- Retrospective bundled payment model holds hospitals accountable for episodes of care extending 90 days post-discharge; bundle includes all related Part A and Part B services
- Hospitals may enter into financial arrangements with other providers—including physicians and post-acute care providers—to share downside risk and/or upside rewards
- 789 Hospitals required to participate in the program CY 2016
<table>
<thead>
<tr>
<th>Program Structure</th>
<th>BPCI</th>
<th>CCJR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>Voluntary – Only entities that have elected to participate</td>
<td>Mandatory – Entities that have not chosen to voluntarily participate</td>
</tr>
<tr>
<td>Episode Initiators</td>
<td>Acute Care hospitals or Physician Group Practices</td>
<td>Acute Care Hospitals Only</td>
</tr>
<tr>
<td>Program Term</td>
<td>3 years – July 2015 (Model 2 &amp;3)</td>
<td>5 years – Jan 2016</td>
</tr>
<tr>
<td>Target Price Cost Efficiencies</td>
<td>Reconciliation payment if below target price</td>
<td>Reconciliation payment if below target price and meet all 3 quality measures</td>
</tr>
<tr>
<td>Target Price Calculation Basis</td>
<td>3 year historical hospital spend by CMS</td>
<td>Blended 3 year historical hospital CMS with increasing % based on regional pricing</td>
</tr>
<tr>
<td>CMS Reconciliation Frequency</td>
<td>Quarterly</td>
<td>Annually</td>
</tr>
<tr>
<td>High Episode Risk Adjustment</td>
<td>1/99th percentile 5/95th percentile 5/75th percentile</td>
<td>Actual episode payments capped at 2 standard deviations above regional mean episode payments</td>
</tr>
</tbody>
</table>

**CJR Provides Framework to Measure Quality Under Bundled Payment**

**Key Metrics to Measure Progress against Bundled Payment Goals**

- **Inpatient Cost Control**
  - Length of stay
  - Implant cost
  - Direct cost variation per case
  - Percentage of physicians achieving savings targets

- **Clinical Quality**
  - Risk-standardized, 30-day all-cause readmissions rate
  - 90-day readmissions rate
  - Risk-standardized complications rate
  - Patient-reported outcomes
    - CAHPS process metrics

- **Post-Acute Cost Control**
  - Post-acute length of stay
  - Percentage of patients discharged to home
  - Percentage of patients discharged to SNF
  - Percentage of patients discharged to IRF

- **Service Excellence**
  - HCAHPS patient satisfaction score
  - Percentage of patients receiving pre-surgical education
  - Percentage of patients adhering to follow-up appointments
CMS CJR Payment Model

- Under CJR, participation is mandatory for 791 hospitals in 67 geographic areas.
- These hospitals are held accountable for the quality and total Medicare cost of care provided to Medicare fee-for-service beneficiaries for lower extremity joint replacement (LEJR) procedures and recovery, including all hip and knee replacement surgeries, some of the most common inpatient surgeries for Medicare beneficiaries.

CMS CJR Payment Model

- The hospitals will be held accountable for CMS defined episode target prices for all Medicare FFS Part A and B costs of care during the hospital stay as well as all Medicare costs for 90 days post hospital discharge including all SNF care (e.g., the episode of care)
CMS CJR Payment Model

• The episode will include the LEJR procedure and related hospital costs, the inpatient stay, as well as all related care covered under Medicare Parts A and B within the 90 days after discharge, including:
  – hospital care
  – post-acute care (PAC) (including the skilled nursing facility (SNF) stay)
  – outpatient care including physical and occupational therapy visits
  – related readmissions
  – physician services

CMS CJR Target Pricing

• Episode target costs of care will be established based initially on a mix of both hospital-specific and regional historic spending eventually transitioning to only regional.

• Early PYs 90 day target costs of care will be established based primarily on hospital-specific historic spending during the 90 day episode, but in later Pys 90 day target costs of care will be established based solely on regional historic spending.
CMS CJR Downside Risk  
(effective 1.1.2017)

• CMS will make reconciliation payments to participant hospitals that achieve quality outcomes and cost efficiencies relative to the established CJR target prices in all performance years of the model.

• CMS will also phase in the requirement that participant hospitals whose actual episode payments exceed the applicable CJR target price pay the difference back to Medicare..

CMS CJR Program Quality

• **THA/TKA Complication Rate** (NQF #1550):  
  Hospital level risk-standardized complication rate (RSCR) following elective primary THA and/or TKA.

• **HCAHPS Survey** (NQF #0166):  
  Hospital Consumer Assessment of Healthcare Provider and Systems Survey.

• **THA/TKA Patient-Reported Outcomes** (PRO)  
  Focus on pain management and a set of information about the patient termed Risk Variable Data (pre- and post-operative data elements).
CMS CJR Quality Composite Score

- CMS will assign each CJR acute care hospital a quality composite score based on the three quality measures and how the hospital ranks on the program’s quality measures relative to other CJR hospitals in the program.
- The measures are weighted into the composite score as follows:
  - THA/TKA Complications (NQF #1550): 50%
  - HCAHPS Survey (NQF #0166): 40%
  - PRO Data (Reporting Only): 10%

THA/TKA Complication Rate (NQF #1550)

The measure includes complications that are clinically significant, attributable to the THA/TKA procedure, and identifiable in claims data.

Identified during index admission or within 7 days of admission date:
- acute myocardial infarction (AMI)
- pneumonia
- sepsis/septicemia/shock
THA/TKA Complication Rate (NQF #1550)

Identified during index admission or within 30 days of admission date:
• surgical site bleeding
• pulmonary embolism
• death

Identified during index admission or within 90 days of admission date:
• mechanical complications
• periprosthetic joint infection
• wound infection

The Charlson co-morbidity measure typically uses inpatient hospitalisations over a specified time period to identify the presence of 17 conditions and calculate an overall comorbidity score [21, 26]. The Charlson score was originally developed to predict mortality and assist with case mix adjustment in regards to this outcome, but has been applied to several other outcomes now, including some surgical outcomes [16, 27].

The Elixhauser co-morbidity measure also typically uses inpatient hospitalisations during a specific period to calculate co-morbidities. The most common form of this measure identifies the presence of 30 conditions and has been evaluated as a predictor of blood transfusions, length of stay, and mortality [26, 28]. This measure was developed by the Agency for Healthcare Research and Quality (AHRO) Healthcare Cost and Utilisation Project and is widely used in health services research [18, 29].
Frailty

- A heterogeneous group of characteristics related to individual comorbidities, physical function, physiological age, psychosocial function, and environment

- Increasing frailty is associated with dependency, institutionalization, and mortality

- Important to identify associated with diminished resilience to physiologic stressors

- Considered to be a potentially reversible state

Box 1: The CSHA Clinical Frailty Scale

1. Very fit — robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age
2. Well — without active disease, but less fit than people in category 1
3. Well, with treated comorbid disease — disease symptoms are well controlled compared with those in category 4
4. Apparently vulnerable — although not frankly dependent, these people commonly complain of being “slowed up” or have disease symptoms
5. Mildly frail — with limited dependence on others for instrumental activities of daily living
6. Moderately frail — help is needed with both instrumental and non-instrumental activities of daily living
7. Severely frail — completely dependent on others for the activities of daily living, or terminally ill

Note: CSHA = Canadian Study of Health and Aging.
Comparative assessment of two frailty instruments for risk-stratification in elderly surgical patients: study protocol for a prospective cohort study


Abstract

Background: Frailty is an aggregate expression of susceptibility to poor outcomes, owing to age-, and disease-related deficits that accumulate within multiple domains. Older patients who are frail before surgery are at an increased risk of morbidity and mortality, and use a disproportionately high amount of healthcare resources. While frailty is now a well-established risk factor for adverse postoperative outcomes, the perioperative literature lacks studies that (1) compare the predictive accuracy of different frailty instruments; (2) consider the impact of frailty on patient-reported outcome measures; and (3) consider the acceptability and feasibility of using frailty instruments in clinical practice.

Methods: We will conduct a multicenter prospective cohort study comparing the predictive accuracy of the modified Fried Index (mFI) with the Clinical Frailty Scale (CFS) among consenting patients aged 65 years and older having elective major non-cardiac surgery. The primary outcome will be disability-free survival at 90 days after surgery; a patient-reported outcome measure. Secondary outcomes will include complications, length of stay, discharge disposition, readmission and total health system costs. We will compare the accuracy of frailty instruments using the relative true positive rate and relative false positive rate. These measures can be interpreted as the relative difference in the probability of one instrument identifying a true case of death or new disability compared to another instrument, or the relative difference in the probability of one instrument identifying a false case of death or new disability, respectively. We will also assess the acceptability and feasibility of each instrument.

Discussion: Frailty is an important prognostic factor in the growing population of older patients having surgery. This study will provide novel findings regarding the choice of an accurate, clinically useful frailty instrument in predicting patient reported outcomes, as well as morbidity, mortality and resource use. These findings will inform current practice and future research.

Keywords: Geriatrics, Surgery, Prognosis, Disability, Patient reported outcome measures, Epidemiology, Frailty, Outcomes
Hospital Consumer Assessment of Healthcare Provider and Systems Survey

0166 HCAPS

Single-item
1. Cleanliness of hospital environment
2. Quietness of the hospital environment
3. Overall rating of the hospital
4. Recommendation of the hospital

Multi-item
5. Communication with doctors
6. Communication with nurses
7. Responsiveness of hospital staff
8. Pain control
9. Communication about medicines
10. Discharge information
11. Care transition

THA/TKA Patient-Reported Outcomes
AHRQ 6.15.2016 Treatment of Knee OA
Evidence-based Practice Center Systematic Review

Evidence-based Practice Center Systematic Review Protocol
Project Title: Treatment of Osteoarthritis of the Knee: An Update

1. Background and Objectives for the Systematic Review
Osteoarthritis (OA) of the knee is a condition characterized by the progressive destruction of the articular cartilage that lines the knee joints, the subchondral bone surfaces, and synovium, accompanied by pain, immobility, and reduction in function and the ability to complete activities of daily living (ADL). Two types of OA of the knee are recognized: the more prevalent primary OA of the knee is considered to be a natural consequence of aging, whereas secondary OA of the knee can be caused by trauma, inactivity, overweight, or a disease process such as rheumatoid arthritis. No evidence suggests that the two types are treated differently or respond differently to treatments. In 2005, the estimated prevalence of osteoarthritis among adults in the United States (US), the number of individuals who had ever been told by a doctor that they had the condition, was approximately 27 million cases. Prevalence rates vary by the joint involved and the method of ascertainment (clinical vs. radiographic): symptomatically, the knee is the most frequently affected joint. The prevalence of osteoarthritis of the knee is increasing rapidly because of aging and obesity epidemics. The overall risk factors for osteoarthritis of the knee are...
THA/TKA Patient-Reported Outcomes
AHRQ 6.15.2016 Treatment of Knee OA

- Tools specifically developed and validated to assess pain and functioning associated with osteoarthritis of the knee as well as treatment outcomes:
  - Western Ontario-McMaster Universities Arthritis Index (WOMAC)
  - Lequesne Index
  - Knee Injury and Osteoarthritis Outcomes Score (KOOS)
  - Animated Activity Questionnaire

WOMAC
KOOS jr.

General tools that have been adapted for use in assessing osteoarthritis of the knee

AHRQ 6.15.2016 Treatment of Knee OA

- Short form (SF)-36 (including the Physical Functioning Scale [PF-10])
- EuroQuol, EQ-5DTM
- Activities of Daily Living (ADLs) and IADLs assessment
- Patient Reported Outcomes Measurement Information System (PROMIS) for health-related quality of life
- OA-Function-CAT (Computer Adaptive Test)
RAND 36 Item Short Form Survey (SF-36)

- 36 item measure divided into 8 subscales and 2 composite domains
- The 8 subscales are:
  - (1) Physical Functioning
  - (2) Role Limitations due to Physical Problems
  - (3) General Health Perceptions
  - (4) Vitality
  - (5) Social Functioning
  - (6) Role Limitations due to Emotional Problems
  - (7) General Mental Health
  - (8) Health Transition
- Respondents are asked to answer items referring to the past 4 weeks
Osteoarthritis Research Society International (OARSI) developed a consensus set of guidelines to assess the outcomes of research trials on products intended to treat osteoarthritis:

- the chair test
- fast-paced walk test
- stair climb test
- timed up-and-go
- 6-minute walk test

**TUG**

**The Timed Up and Go (TUG) Test**

**Purpose:** To assess mobility

**Equipment:** A stopwatch

**Directions:** Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters or 10 feet away on the floor.

**Instructions to the patient:**

When I say “Go,” I want you to:

1. Stand up from the chair
2. Walk to the line on the floor at your normal pace
3. Turn
4. Walk back to the chair at your normal pace
5. Sit down again.

On the word “Go” begin timing.

Stop timing after patient has sat back down and record.

**Time:** _______ seconds

*An older adult who takes ≥12 seconds to complete the TUG is at high risk for falling.*

Observe the patient’s postural stability, gait, stride length, and sway.

**Circle all that apply:**
- Slow tentative pace
- Loss of balance
- Short strides
- Little or no arm swing
- Steadying self on walls
- Shuffling
- En bloc turning
- Not using assistive device properly

**Notes:**
6 Minute Waking Distance

**Table 3. 6MWD Sources of Variability**

Factors reducing the 6MWD
- Shorter height
- Older age
- Higher body weight
- Female sex
- Impaired cognition
- A shorter corridor (more turns)
- Pulmonary disease (COPD, asthma, cystic fibrosis, interstitial lung disease)
- Cardiovascular disease (angina, MI, CHF, stroke, TIA, PVD, AAI)
- Musculoskeletal disorders (arthritis, ankle, knee, or hip injuries, muscle wasting, etc.)

Factors increasing the 6MWD
- Taller height (longer legs)
- Male sex
- High motivation
- A patient who has previously performed the test
- Medication for a disabling disease taken just before the test
- Oxygen supplementation in patients with exercise-induced hypoxemia

Definition of abbreviations: COPD = chronic obstructive pulmonary disease; 6MWD = 6-minute walking distance.
CJR True North Metrics

- NQF #0166
- NQF #1550
- Discharge patients on or before post-operative day # 3
- 80% of all CJR patients discharged to home
- Maintain metrics on patients discharged to SNF / SAR
- Maintain metrics on patients discharged to IRF
- 90 day all-cause readmission rate
- Assess target price vs. actual price.

Results  Overall predictive accuracy was 78%. RAPT scores < 6 and > 10 (of 12) predicted with > 90% accuracy discharge to inpatient rehabilitation and home, respectively. Predictive accuracy was lowest for scores between 7 and 10 at 65.2% and almost 50% of patients received scores in this range. Based on our findings, the risk categories in our populations should be high risk < 7, intermediate risk 7 to 10, and low risk > 10.
Risk Assessment and Prediction Tool (RAPT)
Scoring: 11-12 = low risk, discharge to home; 7-10 = intermediate risk, discharge to home or SAR; 1-6 = high risk, discharge to SAR

Table 1. Items included in the Risk Assessment and Prediction Tool (RAPT) and the score for each item

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Score</th>
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<tbody>
<tr>
<td>Age group (years)</td>
<td>50–65</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>66–75</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt; 75</td>
<td>0</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>Walking distance</td>
<td>Two blocks or more</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1–2 blocks</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Housebound</td>
<td>0</td>
</tr>
<tr>
<td>Use of gait aid</td>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Single-point stick</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Crutches/frame</td>
<td>0</td>
</tr>
<tr>
<td>Use of community supports</td>
<td>None or one per week</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Two or more per week</td>
<td>0</td>
</tr>
<tr>
<td>Caregiver at home</td>
<td>Yes</td>
<td>3</td>
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<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>
AHRQ Clinical Practice Guideline for Knee CJR
Adopted the endorsed American Academy of Orthopaedic Surgeons (AAOS) consensus statement:

Surgical management of osteoarthritis of the knee: evidence-based clinical practice guideline.
Rosemont (IL): American Academy of Orthopaedic Surgeons (AAOS); 2015 Dec 4. 657 p
AAOS / AHRQ CJR Major Outcomes

- Complications after surgery
- Length of stay
- Functional status (including range of motion and ambulation)
- Stiffness
- Pain relief
- Patient satisfaction / well being
- Quality of life
- Reoperation
- Mortality

Collaborative Risk Sharing

- CMS will allow CJR hospitals to execute risk-sharing agreements with other direct care providers and suppliers. Providers who partner with hospitals in risk-sharing arrangements under CJR will be termed “Collaborators.” CJR Collaborators may be:
  - Physicians or non-physician practitioners
  - Physician group practices
  - Inpatient rehab facilities
  - Long-term care hospitals
  - Skilled nursing facilities
  - Home health agencies
  - Provider/supplier of outpatient therapy services
Total knee arthroplasty volume, utilization, and outcomes among Medicare beneficiaries, 1991–2010

Peter Cram, MD, MBA¹,², Xin Lu, MS¹, Stephen L. Kates, MD³, Jasvinder A. Singh, MD MPH⁴, Yue Li, PhD⁵, and Brian R. Wolf, MD MS⁶

Length of Stay

Primary TKA
Revision TKA
Unadjusted
Adjusted

Year

Total knee arthroplasty volume, utilization, and outcomes among Medicare beneficiaries, 1991–2010

Peter Cram, MD, MBA¹,², Xin Lu, MS¹, Stephen L. Kates, MD³, Jasvinder A. Singh, MD MPH⁴, Yue Li, PhD⁵, and Brian R. Wolf, MD MS⁶

Primary TKA Discharge Disposition

- Home
- Inpatient Rehabilitation
- Skilled or Intermediate Care
- Other

Year
Total knee arthroplasty volume, utilization, and outcomes among Medicare beneficiaries, 1991–2010

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All-cause Readmission Rate

Year

Primary TKA

Revision TKA

Unadjusted

Adjusted

---

30-day Composite Adverse Outcome

Year

Primary TKA

Revision TKA

Unadjusted

Adjusted
Tactics for Success Under Joint Replacement Bundled Payment

1. Multidisciplinary Leadership Infrastructure
2. Physician Gainsharing
3. Data Transparency
4. Frontline Staff Education
5. Implant Negotiation
6. Care Protocol Standardization
7. Patient Education
8. Patient Navigation
9. Discharge Planning
10. SNF Coordination
Lean Healthcare – what is it?

• Lean healthcare is:
  – An integrated philosophy, set of principles and tools
  – Based on principles of the Toyota Production System and focused on understanding and eliminating process “waste” by:
    • Stabilizing / leveling work load
    • Standardizing how work is performed
    • Identifying and solving problems daily
    • Engaging everyone in process improvement
    • Valuing a common way of performing work
    • Focusing on system effectiveness, rather than functional efficiency

• Waste and value
  – Value is judged only by the customer (patient)
  – Value adding activities in a process change the form, fit or function of the product or service
  – Activities that do not add value are waste; all they add is cost
The value of Lean methodology

- Develop a plan for measurement that includes outcome measures, key process measures, and balancing measures in an integrated, efficient measurement strategy.
- Use structured thinking to develop practical production system and management system measures.
- Use improvement science principles and methods to identify measures that track improvement initiatives.
- Create a measurement plan, including: operational definitions, data collection methods, reporting, and goals.
Patient Engagement

- Patient engagement is critical to improving satisfaction and meeting patient expectations.
- Patients who participate in preoperative education have better functional outcomes.
- Patient education should stress pain management, early mobility and physical therapy compliance, and preparing for discharge to home, which has been linked to reduced hospital readmissions.
Health Literacy:
the degree to which an individual has the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

- Only 12 percent of adults have “proficient health literacy”, according to the National Assessment of Adult Literacy. In other words, nearly nine out of ten adults may lack the skills needed to manage their health and prevent disease.

- Fourteen percent of adults (30 million people) have “below basic health literacy”. These adults were more likely to report their health as poor (42 percent) and are more likely to lack health insurance (28 percent) than adults with proficient health literacy.

The NAAL gives us a snapshot of literacy and health literacy in the United States (Kutner et al., 2006).

- Individuals who struggle the most with understanding healthcare information (those with the lowest literacy / health literacy) are:
  - 65 years or older
  - Male
  - Black or Hispanic
  - Spoke another language prior to formal education
  - Have less than a high school diploma
  - Live at or below the poverty line
  - Rate their overall health as poor
  - Have Medicare, Medicaid, or no insurance
  - Do not seek health information (“none”) from print or nonprint sources more often than individuals with higher levels of health literacy
Development and validation of a short-form, rapid estimate of adult literacy in medicine.

Awokeisham M1*, Yamoid PR, Bennett CL, Soysik RC, Wolf MS, Feneira RM, Lee SY, Costello S, Shaker A, Denwood C, Bryant FB, Davis T.

Author information

Abstract

BACKGROUND: Although prior studies used the 66-item Rapid Estimate of Adult Literacy in Medicine (REALM instrument) for literacy assessment, researchers may require a shorter, validated instrument when designing interventions for clinical contexts.

OBJECTIVE: To develop and validate a very brief literacy assessment tool, the REALM-Short Form (REALM-SF).

PATIENTS: The model development, validation, and field testing validation samples included 1336, 164, and 50 patients, respectively.

SETTING: General medicine and subspecialty clinics and medicine inpatient wards.

DESIGN: For development and validation samples, indicator variables for REALM instrument items were evaluated as potential predictors of REALM instrument score by stepwise multiple regression analysis with subsequent bootstrap and confirmatory factor analysis of selected items. Pearson correlations compared REALM-SF and REALM instrument scores and kappa analyses compared grade level assignments. For the field testing validation sample, Pearson correlations compared Wide Range Achievement Test and REALM-SF scores.

RESULTS: The REALM-SF included 7 items with stable model coefficients and 1 underlying linear factor. REALM-SF and REALM instrument scores were highly correlated in development ($r = 0.95$, $P < 0.001$) and validation ($r = 0.94$, $P < 0.001$) samples. There was excellent agreement between REALM-SF and REALM instrument grade-level assignments when dichotomized at the 9th grade (development: 97% agreement, $k = 0.88$, $P < 0.001$; validation: 88% agreement, $k = 0.75$, $P < 0.001$) and 8th grade levels (development: 94% agreement, $k = 0.78$, $P < 0.001$; validation: 84% agreement, $k = 0.67$, $P < 0.001$). REALM-SF and Wide Range Achievement Test scores were highly correlated ($r = 0.83$, $P < 0.001$) in field testing validation.

CONCLUSIONS: The REALM-SF provides researchers a brief, validated instrument for assessing patient literacy in diverse research settings.
realmsf_score_sheet.png

Scores and Grade Equivalents for the REALM-SF

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Third grade and below; will not be able to read most low-literacy materials; will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes</td>
</tr>
<tr>
<td>1-3</td>
<td>Fourth to sixth grade; will need low-literacy materials, may not be able to read prescription labels</td>
</tr>
<tr>
<td>4-6</td>
<td>Seventh to eighth grade; will struggle with most patient education materials; will not be offended by low-literacy materials</td>
</tr>
<tr>
<td>7</td>
<td>High school; will be able to read most patient education materials</td>
</tr>
</tbody>
</table>
Orthopedic Surgeon Documentation of Medical Necessity for Total Joint Replacement

- Medical necessity documentation should demonstrate that one or more of the following criteria for advanced joint disease have been met (CMS):
  - Radiographic-supported evidence (KL score)
  - Pain or functional disability (WOMAC, SF-36)
  - Documented history of unsuccessful conservative therapy
  - If conservative therapy is not appropriate, the medical record must clearly document why such approach is not reasonable
Pre-operative “Joint Camp” Interdisciplinary Assessments

**Physiatrist:**
- Comorbid Conditions (Elixhauser, Charlson)
- Bleeding Risk
- VTE Risk Assessment (Padua, Caprini)
- Frailty (CHSA); Modified Rankin Scale
- Hospital Readmission Risk (RAPT, LACE)
- Health Literacy (REALM-SF)
- Discuss pre- and post-operative care plan, including LOS target
- Confirm available caregiver support
- Confirm preferred post-surgical discharge preference
- Reinforce smoking cessation as indicated
- Confirm planned appointments for PCC & scheduled surgery date

**Physical Therapy:**
- Mobility and balance assessment
  (Berg Balance, Timed Up and Go)
- BUE & BLE MMT assessment
- Knee/hip ROM assessment
- Home exercise instruction
- Reinforce importance of post-operative early mobilization on POD #0
Begin pre-operative exercise program

- It is important that you begin an exercise program as soon as possible before surgery to begin to strengthen your muscles. You will be educated by the Rehabilitation team on how to perform these exercises.
- Make every effort to begin these exercises as early as possible before your surgery. The more that you can do these prior to surgery, the stronger you and your leg will be afterwards.
- Only do what you are able to do without increasing your pain. It is important that you not exacerbate your pain prior to surgery.

Pre-Surgery Exercise Plan for Total Knee Replacement

1. Ankle Pump Exercise 20 reps 2 times/day

2. Quad Sets (Knee Push-downs) Exercise 20 reps 2 times/day
Pre-operative “Joint Camp”
Interdisciplinary Assessments

- **Occupational Therapy:**

- FIM® interview - burden of care
- CARE Tool interview – mobility, selfcare (PAC ‘rosetta’)
- Cognitive assessment (MOCA)
- Grasp strength assessment (Jamar dynometer)
- Home configuration review
- Review anticipated MAE and DME
- Confirm caregiver availability to assist with PADLs, IADLs
- Confirm community transport plans
Part I: Before Your Surgery (cont.)

2 Days Before Surgery

- Prepare your home for your return
  A few simple changes in your home can go a long way towards making your transition home easier for you and your family and prevent injury to your new joint.
  Becoming aware of and removing hazards in your home can help make your recovery easier and safer. If necessary, get help rearranging furniture to make it easier to walk around safely.
### Table 3. Options for Components of Multimodal Therapy for Commonly Performed Surgeries

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Systemic Pharmacologic Therapy</th>
<th>Local, Intra-articular or Topical Techniques*</th>
<th>Regional Anesthetic Techniques*</th>
<th>Neuromuscular Anesthetic Techniques*</th>
<th>Nonpharmacologic Therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoracotomy</td>
<td>Opioids: NSAIDs and/or acetaminophen, Gabapentin or pregabalin</td>
<td>Paravertebral block</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
<td>TENS</td>
</tr>
<tr>
<td>Open laparotomy</td>
<td>Opioids: NSAIDs and/or acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td>Local anesthetic at incision</td>
<td>Transversus abdominis plane block</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
</tr>
<tr>
<td>Total hip replacement</td>
<td>Opioids: NSAIDs and/or acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td>Intra-articular local anesthetic and/or opioid</td>
<td>Site-specific regional anesthetic technique with local anesthetic</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
</tr>
<tr>
<td>Total knee replacement</td>
<td>Opioids: NSAIDs and/or acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td>Intra-articular local anesthetic and/or opioid</td>
<td>Site-specific regional anesthetic technique with local anesthetic</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
</tr>
<tr>
<td>Spinal fusion</td>
<td>Opioids: Acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td>Local anesthetic at incision</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
<td>TENS</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>Opioids: NSAIDs and/or acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td>Local anesthetic at incision</td>
<td>Transversus abdominis plane block</td>
<td>Epidural with local anesthetic (with or without opioïd), or intrathecal opioid</td>
<td>Cognitive modalities</td>
</tr>
<tr>
<td>CABG</td>
<td>Opioids: Acetaminophen, Gabapentin or pregabalin, I.v. ketamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Summary of Interventions for Management of Postoperative Pain

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Suggested Use</th>
<th>Common Comments</th>
<th>Communication and Cautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonpharmacologic therapies</td>
<td>Consider as an adjunct to other postoperative pain management treatments</td>
<td>Typically applied at incision site</td>
<td>Possible side effects include nausea, vomiting, and diarrhea.</td>
</tr>
<tr>
<td>Cognitive modalities</td>
<td>Consider as an adjunct to other postoperative pain management treatments</td>
<td>Includes guided imagery and other relaxation methods, hypnosis, andafferent suggestions, and music</td>
<td>Might require prescriptive education and patient training for optimal results</td>
</tr>
<tr>
<td>Systemic pharmacologic therapies</td>
<td>Use as component of multimodal analgesia</td>
<td>No clear difference between i.v. and oral administration</td>
<td>Acetaminophen hepatotoxicity, NSAIDs, gastrointestinal bleeding and ulceration, cardiovascular events, renal dysfunction</td>
</tr>
<tr>
<td>Oral opioids</td>
<td>Use as component of multimodal analgesia</td>
<td>Oral is the preferred route for patients who can take oral medications</td>
<td>Respiratory depression, potential for addiction and alcohol, sedation, nausea and vomiting, constipation with oral opioids</td>
</tr>
<tr>
<td>Patient-controlled i.v. analgesia</td>
<td>Use when the parental route is needed for postoperative systemic analgesia for more than a few hours</td>
<td>Opioid doses vary, in trials usually started at 100 to 1200 mg 1 to 2 hours preoperatively, 400 mg postoperatively (single or multiple doses)</td>
<td>Depression, sedation, reduced dose with renal dysfunction</td>
</tr>
<tr>
<td>Gabapentin and pregabalin</td>
<td>Use as a component of multimodal analgesia, primarily studied in patients who underwent major surgery, opioid-sparing</td>
<td>Gabapentin doses vary, in trials usually started at 100 or 300 mg postoperatively, or 150 to 360 mg preoperatively followed by the same dose 12 hours later</td>
<td></td>
</tr>
</tbody>
</table>

NYU Langone Health
### Optimal Perioperative Management of the Geriatric Patient:

**Best Practices Guideline from ACS NSQIP®/American Geriatrics Society**

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**Alterations to Physiology and Clinical Implications for Anesthesia**

<table>
<thead>
<tr>
<th>Physiologic Alterations</th>
<th>Clinical Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td></td>
</tr>
<tr>
<td>1. Decreased sympathetic response</td>
<td></td>
</tr>
<tr>
<td>2. Decreased venous compliance</td>
<td></td>
</tr>
<tr>
<td>3. Decrease in preload</td>
<td></td>
</tr>
<tr>
<td>4. Baroreceptor response impaired</td>
<td></td>
</tr>
<tr>
<td>5. Cardiac diastolic dysfunction</td>
<td></td>
</tr>
<tr>
<td>Pulmonary</td>
<td></td>
</tr>
<tr>
<td>1. Increased pulmonary arterial pressures</td>
<td></td>
</tr>
<tr>
<td>2. Decreased response to hypoxia and hypercarbia</td>
<td></td>
</tr>
<tr>
<td>3. Decreased muscle mass and lung elasticity</td>
<td></td>
</tr>
<tr>
<td>4. Decreased cough reflex and esophageal motility</td>
<td></td>
</tr>
<tr>
<td>Nervous System</td>
<td></td>
</tr>
<tr>
<td>1. Decreased neurotransmitters</td>
<td></td>
</tr>
<tr>
<td>Endocrine System</td>
<td></td>
</tr>
<tr>
<td>1. Impaired glucose tolerance</td>
<td></td>
</tr>
<tr>
<td>2. Altered drug metabolism</td>
<td></td>
</tr>
<tr>
<td>3. Decreased renal mass</td>
<td></td>
</tr>
<tr>
<td>4. Decreased muscle mass</td>
<td></td>
</tr>
<tr>
<td>5. Decreased vascular reactivity</td>
<td></td>
</tr>
<tr>
<td>Hepatic/Renal System</td>
<td></td>
</tr>
<tr>
<td>1. Increased intra-op hyperglycemia</td>
<td></td>
</tr>
<tr>
<td>2. Decreased drug clearance</td>
<td></td>
</tr>
<tr>
<td>3. Susceptible to acute kidney injury</td>
<td></td>
</tr>
<tr>
<td>4. Increased risk of hypothermia</td>
<td></td>
</tr>
<tr>
<td>Thermoregulation</td>
<td></td>
</tr>
</tbody>
</table>

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NYU Langone Health
<table>
<thead>
<tr>
<th>Scenario</th>
<th>Recommendation</th>
<th>Potential benefits of regional anesthesia</th>
</tr>
</thead>
</table>
| Repair of hip fracture           | In appropriate patients undergoing surgery for hip fractures, patients should be offered regional anesthesia or general anesthesia after discussing the risks and benefits | • Reduced 30-day mortality  
• Reduced requirement of sedatives  
• Absence of airway instrumentation  
• Decreased risk of thrombosis and blood loss  
• Reduced postoperative confusion |
| Elective hip and knee arthroplasty| In appropriate patients undergoing elective joint replacements, regional anesthesia should be considered after discussing the risks and benefits | • Reduced mortality  
• Better pain scores  
• Reduced sedation frequency  
• Reduced use of critical care  
• Reduced systemic infection  
• Increased urinary retention  
• Increased pruritus  
• Increased frequency of low BP |
| Lower limb revascularization     | In appropriate patients undergoing lower limb revascularization, regional anesthesia should be considered after discussing the risks and benefits | • Reduced risk of pneumonia |

Postoperative Rounding Checklist:

<table>
<thead>
<tr>
<th>Daily Evaluation For</th>
<th>Prevention/Management Strategies</th>
</tr>
</thead>
</table>
| Deficits and impairments          | - Pain control  
- Optimise physical environment  
- For example, high hygiene, restless patient, minimise stress,  
- Monitor vital signs  
- Monitor for postoperative ileus  
- Monitor for postoperative ileus |
| Perioperative acute pain           | - Ongoing education regarding safe and effective use of analgesics, sedatives, and antiemetics  
- Monitor sedation level  
- Monitor for postoperative ileus |
| Pulmonary complications            | - Oxygen therapy  
- Postoperative ventilatory support  
- Early mobilisation |
| Fall risk                          | - Universal fall precautions  
- Monitor postoperative ileus  
- Monitor for postoperative ileus |
| Ability to maintain adequate nutrition | - Nutritional support  
- Early mobilisation |
| UTI prevention                     | - Daily documentation of Foley catheter insertion  
- Catheter care bundles, Hartmann bags, bladder catheters |
| Functional decline                 | - Early mobilisation  
- Early intervention if indicated  
- Early mobilisation |
| Pressure ulcers                    | - Early mobilisation  
- Early intervention if indicated  
- Early mobilisation |

*See Section 1.8 in these guidelines and the ASA Practice Guideline for Acute Pain Management in the Perioperative Setting.*
PHASE I: EARLY FUNCTION

PREPARATION FOR HOSPITAL DISCHARGE

Goals for hospital discharge:

• 1. demonstrate safe and independent transfers from bed and various surfaces.
• 2. demonstrate safe and independent ambulation with appropriate assistant device.
• 3. negotiate steps safely with appropriate assistant device (rolling walker, wide based/ narrow based quad cane, or crutches).
• 4. demonstrate fair to good static and dynamic balance with appropriate assistive device.
• 5. attain full extension (0°) and 90° flexion of the involved knee.
• 6. demonstrate home exercise program (HEP) accurately.

Day of Surgery  POD #0 (1 session/day)

• CPM 0-70° started in Recovery Room for minimum of 4 hours. If no CPM, then perform manual PROM 0-70°
• Ice for 20 minutes every 1-2 hours, for a minimum of 3 times per day
• Review and perform all bedside exercises which include ankle pumps, quadriceps sets, gluteal sets, and heel slides.
• Sit at the edge of bed with necessary assistance.
• Perform sit to bedside stand transfer with moderate assist.
• A towel roll should be placed under the ankle when the CPM is not in use to promote knee extension.
CJR POC PT continues

- POD #1 (2 sessions/day: AM & PM)
  - Increase CPM to 0-80° (more if tolerated). If no CPM, then perform manual PROM 0-80°. Continue daily until patient achieves 100° of active knee flexion.
  - Ice involved knee for 15 minutes for minimum of 3 times per day (more if necessary).
  - Review and perform all bedside exercises which include ankle pumps, quadriceps sets, gluteal sets, heel slides, and SLR.
  - Sit at the edge of bed with necessary assistance.
  - Ambulate with standard walker/rolling walker 15-50’ with moderate assistance.
  - Sit in a chair for 15 minutes, twice per day.
  - Actively move knee 0-70°.
  - Notify physician for any delay in functional progression as outlined.

CJR POC PT continues

- POD #2 (2 sessions/day: AM & PM)
  - Increase CPM to 0-90° (more if tolerated). If no CPM, then perform manual PROM 0-90°. Continue daily until patient achieves 100° of active knee flexion.
  - Ice involved knee for 15 minutes for minimum of 3 times per day
  - Continue as above with emphasis on improving ROM, performing proper gait pattern with assistant device, decreasing pain and swelling, and promoting independence with functional activities.
  - Perform bed exercises independently 5 times per day.
  - Perform bed mobility and transfers with minimum assistance.
  - Ambulate with standard walker/rolling walker 75-100’ with contact guard.
  - Ambulate to the bathroom and review toilet transfers.
  - Sit in a chair for 30 minutes twice per day, in addition to all meals.
  - Actively move knee 0-80°.
  - Instruct superficial massage of knee joint to minimize post-operative hypersensitivity.
  - Notify physician for any delay in functional progression as outlined.
CJR POC PT continues

- POD #3 (2 sessions/day: AM & PM)
  - Continue as above.
  - Ice involved knee for 15 minutes for minimum of 3 times per day (more if necessary).
  - Continue CPM 0-90°, if previously ordered. Perform manual PROM 0-100°
  - Perform bed mobility and transfers with contact guarding.
  - Ambulate with standard walker / rolling walker 150’ with supervision.
  - Ambulate with NBQC/ WBQC 150’ with contact guarding.
  - Negotiate 4-8 steps with necessary assistance.
  - Begin standing hip flexion and knee flexion exercises.
  - Sit in a chair for most of the day, including all meals. Limit sitting to 45 minutes in a single session.
  - Use bathroom with assistance for all toileting needs.
  - Actively move knee 0-90°.
  - Instruct superficial massage of knee joint to minimize post-operative hypersensitivity.
  - Discharge from the hospital to home if ambulating and negotiating stairs with supervision or independently.
  - Notify physician for any delay in functional progression as outlined.
Team STEPPS - Communication

Team Events

Sharing the Plan

• Brief - Short session prior to start to share the plan, discuss team formation, assign roles and responsibilities, establish expectations and climate, anticipate outcomes and likely contingencies

Monitoring and Modifying the Plan

• Huddle - Ad hoc meeting to re-establish situational awareness, reinforce plans already in place, and assess the need to adjust the plan

Reviewing the Team’s Performance

• Debrief - Informal information exchange session designed to improve team performance and effectiveness through lessons learned and reinforcement of positive behaviors

Alignment with PAC providers

• Care plan developed with HHC Homecare, including Physical Therapy Plan of Care

• For patients requiring SAR, we endorse plan for discharge home, without homecare services, prior to 21 days post op.

• Thus HHA and SAR treatments are completed prior to 3 week post-op Orthopedic follow-up visit for staple removal

• Outpatient Physical Therapy POC initiates within 48 hours of Ortho visit, total of 8 visits: TIW x 2 weeks, BIW x 1 week, then discharge

• At 6 week post-op: Lovenox discontinued, outpatient therapies completed, analgesics minimized or discontinued, modified independence with PADLs and IADLs

• Orthopedic follow-up at 90 days- complete follow-up outcome assessment (SF 36, WOMAC)
Rehabilitation Medicine Consultant:
participate in diagnosis and management, prevent complications, prognosticate functional outcome, define rehabilitation needs to minimize disability, coordination of interdisciplinary care, educate and support patients and families, manage expectations…

In the context of acute care, the core activities of a Consultant in RM include:
- Diagnosis and medical management of conditions causing complex disability from a rehabilitation perspective. These include any newly acquired neurological, musculoskeletal or other impairment. Also any pre-existing physical, psychological or mental health conditions and their combined impact on disability and participation.
- Anticipation and prevention of physical, psychological and social complications, based on knowledge of a condition’s natural history and prognosis.
- Evaluation of potential to gain from rehabilitation and prognosis for recovery.
- Informing the acute medical and therapy teams about probable function outcomes.
- Defining rehabilitation needs and directing patients to appropriate rehabilitation services.
- Coordinating care and collaborating with other medical and therapy teams.
- Communicating with families to provide information, support them in distress and manage expectations.
- Provision of rehabilitation follow-up after discharge and involvement in ongoing community-based rehabilitation.

Quantitative assessment and outcome measurement

Rehabilitation clinicians are experienced in the administration and interpretation of many outcome instruments

- Outcome measures are used to evaluate individuals, groups and healthcare provider / system of care performance.
- Assess current and anticipated future function.
- To plan specific interventions to enhance care.
- Provide quantitative method to evaluate effectiveness of treatments.
General categories of outcome measures

- Acute Injury scales
- General Assessment Scales
- Neurological Deficit Stroke Scales
- Global Outcome Scales
- Activities of Daily Living Scales
- Balance and Postural Control Scales
- Upper Extremity Functional Status Scales
- Dysphagia Scales
- Depression Scales
- Cognitive Assessment Scales
- Quality of Life Scales
- Instrumental ADL Scales
- Community Discharge / Readmission Risk Tools
- Caregiver Readiness Scales
THANK YOU