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Perioperative Essentials for Early Discharge and Outpatient Total Joint Arthroplasty

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Disclosures

- **Consulting Payments / Royalties**
  - **DJO**
  - OsteoRemedies
- **Ownership Shares**
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- **Editorial Boards**
  - Journal of Arthroplasty

Outpatient TJA Demand

- **Multiple Factors Fueling Interest**
  - Surgeon investment in ASC's
  - Surgeon Control of OR Environment
- **Potential Benefits**
  - Patient Demand ?
  - Better Patient Outcomes and Satisfaction ?
  - Cost Reduction ?

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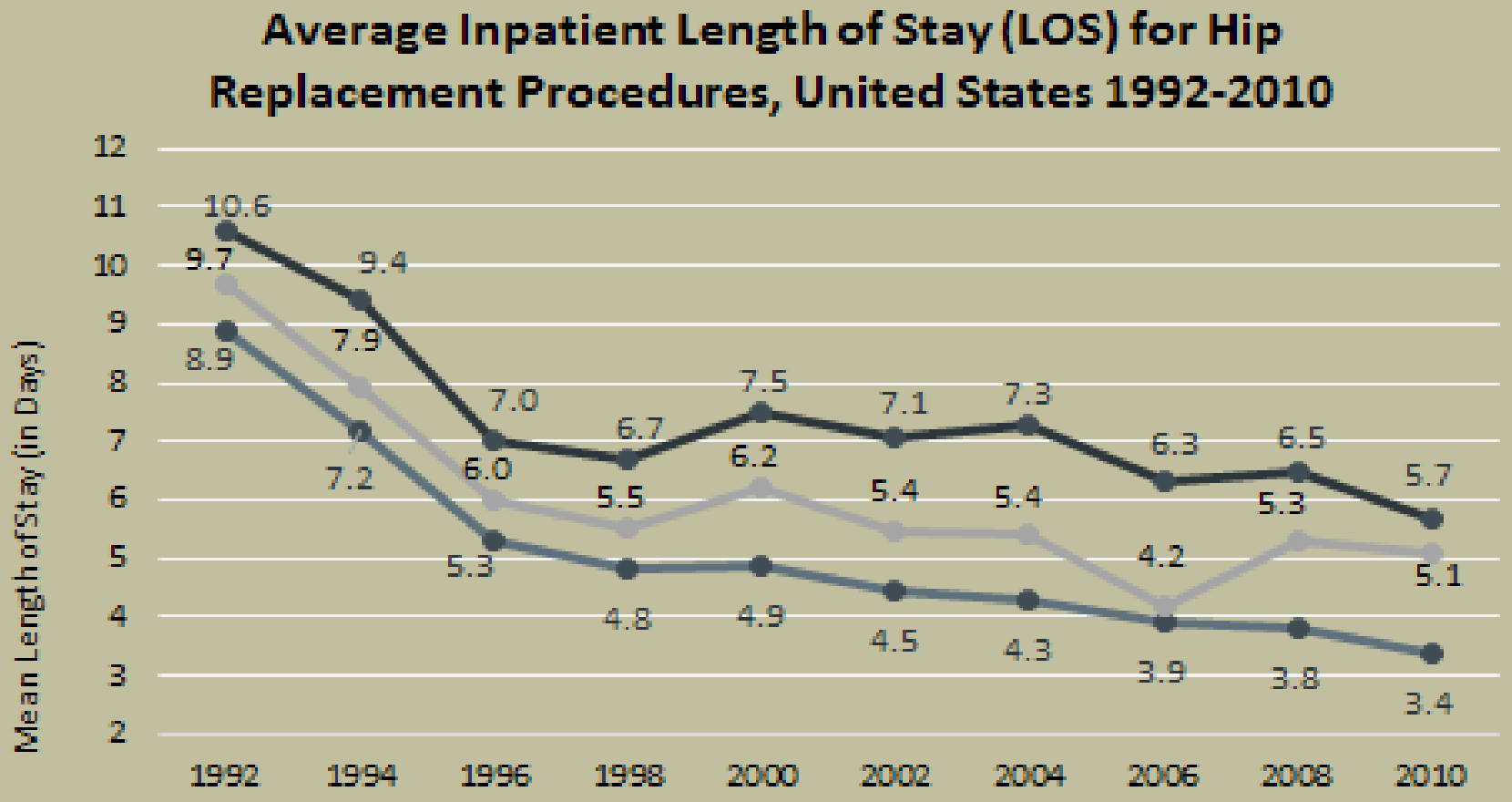
THA LENGTH OF STAY



[1] An unknown error in the partial hip replacement data occurred in the NHDS 2004 data file. A correction for total partial hip cases was made by excluding cases with diagnosis of spine (720-724, 737, 756, 805, 806)

Source: National Hospital Discharge Survey (NHDS), 1992-2010.

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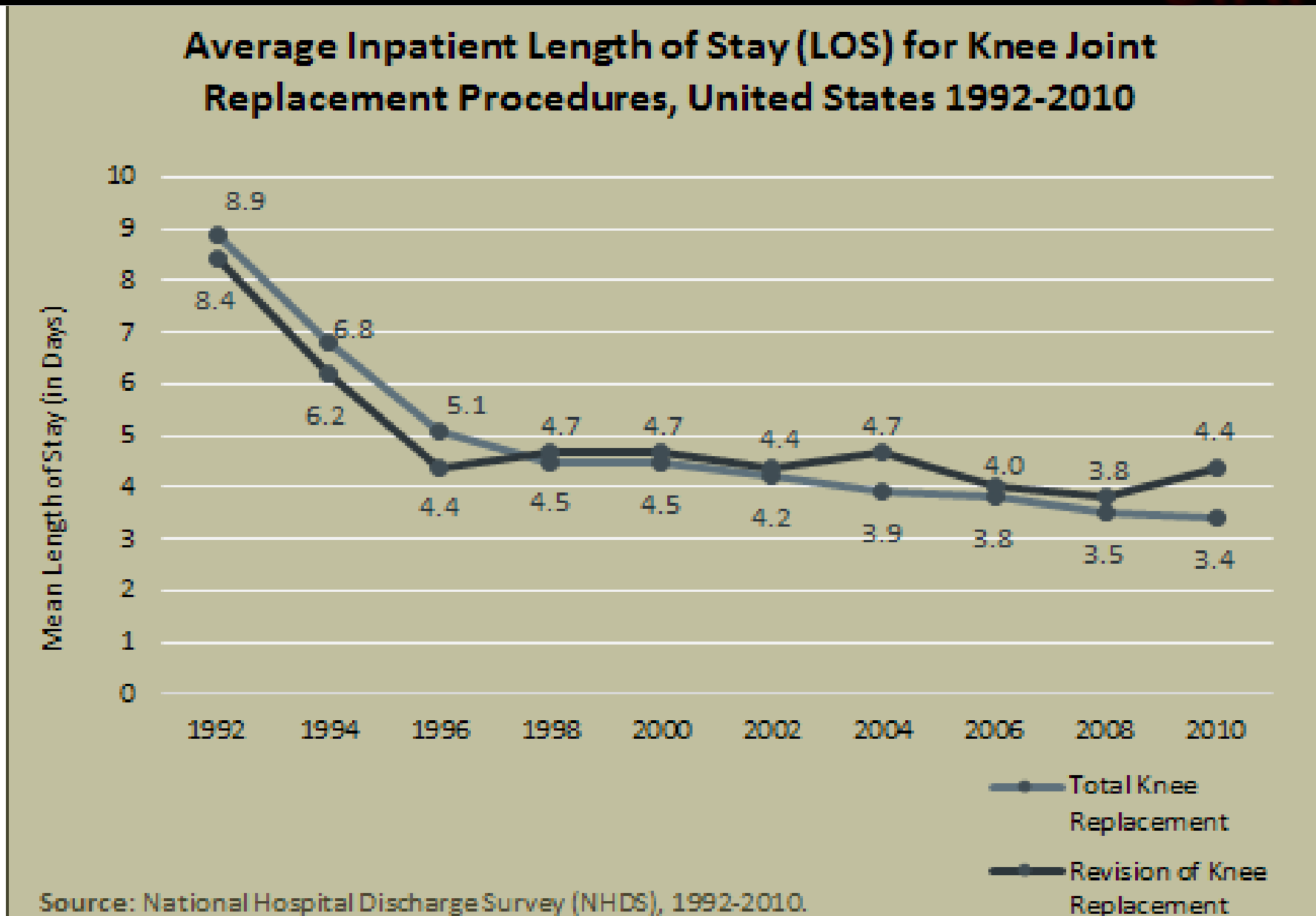
TKA LENGTH OF STAY



Source: National Hospital Discharge Survey (NHDS), 1992-2010.

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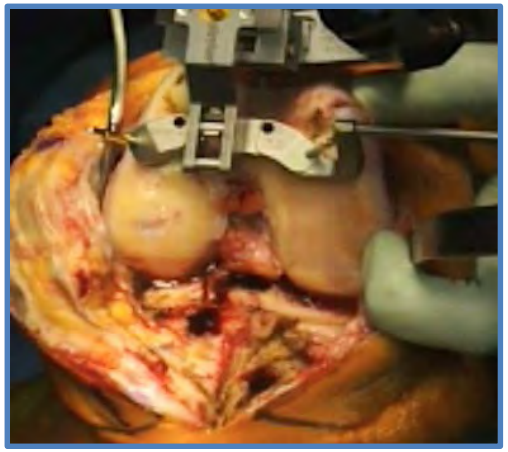
Outpatient Arthroplasty

- Can decreasing LOS transition safely to outpatient hip and knee arthroplasty?
- Safely performed in an ASC?
- Essential Perioperative Program Elements?
- How are patients safely selected?

Outpatient TJA Essentials

- Trained Peri-operative Staff (OR, PACU)
- Partnership / Coordination with Anesthesia
- Multi-Modal Pain Control Program
- **Peri-Operative Medical Program / Specialist**
- Patient & Family Education
- Office Staff / Nursing Support
- Optimized Surgical Techniques
- **Proper Patient Selection !!**



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Perioperative/OR Staff

- Preoperative & PACU
  - Essential for perioperative management
  - Competence in postoperative pain control, fluid resuscitation, monitoring, etc
- OR Staff
  - Must have competence and excellence in hip and knee arthroplasty
  - Critical for **efficient** surgery
  - Critical for **SAFE** surgery

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Anesthesia Partnership

- Coordination of multiple facets:
  - Perioperative medical conditions
  - Minimizing postoperative hypotension, nausea, urinary retention, etc. that may delay discharge
  - Expedited anesthesia recovery
- Cooperation in multi-modal pain program
  - Regional analgesia
  - Technique and dosing of anesthetic agents critical to efficacy and side-effect mitigation

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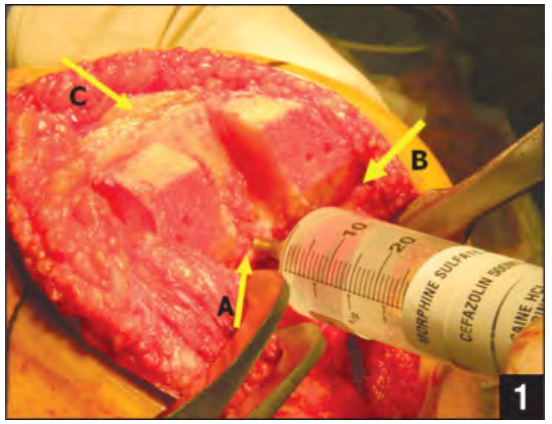
Multi-Modal Pain Program

- Pre-emptive analgesic modalities
- Regional anesthetic techniques
  - Technique and anesthesiologist dependent
- Peri-articular injections
- Postoperatively
  - Multiple non-opiod medications of different clinical pathways
  - Minimization of opiods



Periop Medical Program

- **Preoperative:**
  - Consistent high-quality medical risk stratification
  - Medical condition optimization
  - **Standardization possible?**
- **Postoperative:**
  - Medical optimization avoids discharge delay and minimizes readmissions
  - Glucose control, fluid resuscitation, etc

Education Program

Two aspects: Patients and Stakeholders

1. Patients
   - Include caregivers/family
   - Appropriate expectations must be clearly communicated
2. **Stakeholders in Patient Care**
   - All must communicate ***identical message*** to patients
   - Preop, surgery day and postop
   - Frequent meetings with all stakeholders

Office/Practice Staff

- Burden of transition from inpatient to outpatient setting
- More frequent interaction postop
- Competence must be maintained
- Expedited patient access to nurses and physicians
  - May require expanded office resources

Patient Selection

- **Likely Mostly Critical and Multi-Factorial**
- Motivated patient
  - Apprehension a predictor of potential failure
- Family / home support
- Pre-operative physical / mental condition
- Minimal if any pre-operative narcotics
- **Medical Risk Stratification**

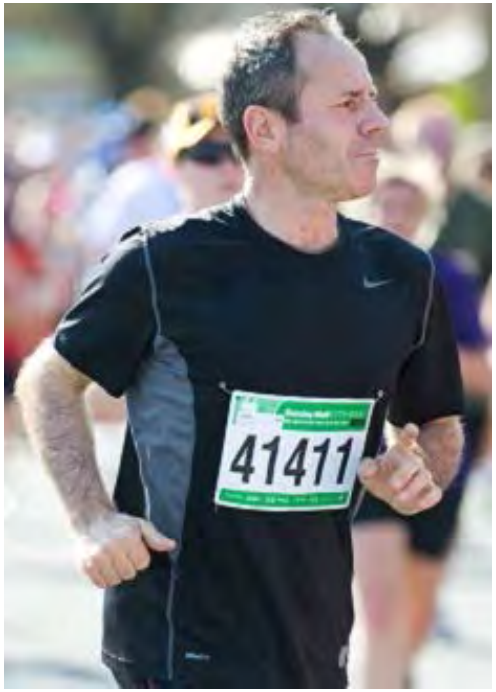
Length of Stay Predictors

Predictors with "Large" Effect

Meta-Analysis Past 10-Year Data

- Bilateral TKA
- Comorbidities
  - EtOH / Drug Abuse
  - Hematologic Disorder
  - CAD
  - Diabetes
  - Chronic Renal Failure
  - Respiratory / Pulmonary
- Hypoalbuminemia
- Mental Health
- Minority Race
- Smoking
- Hospital Volume
- Surgeon Volume
- Operative Time

Selection: Medical Risk



- **Selecting "young healthy patients"**
  - Straightforward, relatively small %
- **True <u>transformation</u> to outpatient?**
  - Much larger segment of population with medical co-morbidities
- **Medical Risk Assessment**
  - ASA / CCI not sensitive or specific
  - Newly developed "OARA Score"

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Risk Assessment: ASA

- **ASA not sensitive/specific (whole numbers)**

ASA PS Classification	Definition	Examples, including, but not limited to:
ASA I	A normal healthy patient	Healthy, non-smoking, no or minimal alcohol use
ASA II	A patient with mild systemic disease	Mild diseases only without substantive functional limitations. Examples include (but not limited to): current smoker, social alcohol drinker, pregnancy, obesity (30 < BM < 40), well-controlled DM/HTN, mild lung disease
ASA III	A patient with severe systemic disease	Substantive functional limitations; One or more moderate to severe diseases. Examples include (but not limited to): poorly controlled DM or HTN, COPD, morbid obesity (BMI ≥40), active hepatitis, alcohol dependence or abuse, implanted pacemaker, moderate reduction of ejection fraction, ESRD undergoing regularly scheduled dialysis, premature infant PCA < 60 weeks, history (>3 months) of MI, CVA, TIA, or CAD/stents.
ASA IV	A patient with severe systemic disease that is a constant threat to life	Examples include (but not limited to): recent (< 3 months) MI, CVA, TIA, or CAD/stents, ongoing cardiac ischemia or severe valve dysfunction, severe reduction of ejection fraction, sepsis, DIC, ARD or ESRD not undergoing regularly scheduled dialysis
ASA V	A moribund patient who is not expected to survive without the operation	Examples include (but not limited to): ruptured abdominal/thoracic aneurysm, massive trauma, intracranial bleed with mass effect, ischemic bowel in the face of significant cardiac pathology or multiple organ/system dysfunction
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes	

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OARA Score

Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Original Article

Safe Selection of Outpatient Joint Arthroplasty Patients With Medical Risk Stratification: the "Outpatient Arthroplasty Risk Assessment Score"

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"OARA Score"

- **Outpatient Arthroplasty Risk Assessment Score**
- Developed via partnership between:
  - **Perioperative Medical Specialist**
    - **Dr. Pete Caccavallo, MD**
  - Arthroplasty Surgeon
- **Medically-based risk assessment for rapid discharge**

OARA Score: *JOA* 2017

- 1120 consecutive THA and TKA patients
  - **N = 979 after exclusions**
  - 61% Female
  - Mean Age 62.3 yrs
  - Mean BMI 32.4
  - 521 knees (53.2%) / 458 hips (46.8%)

- **264 patients (27%) DC same day or next AM**
- 715 patients (76%) discharged ≥ POD 2

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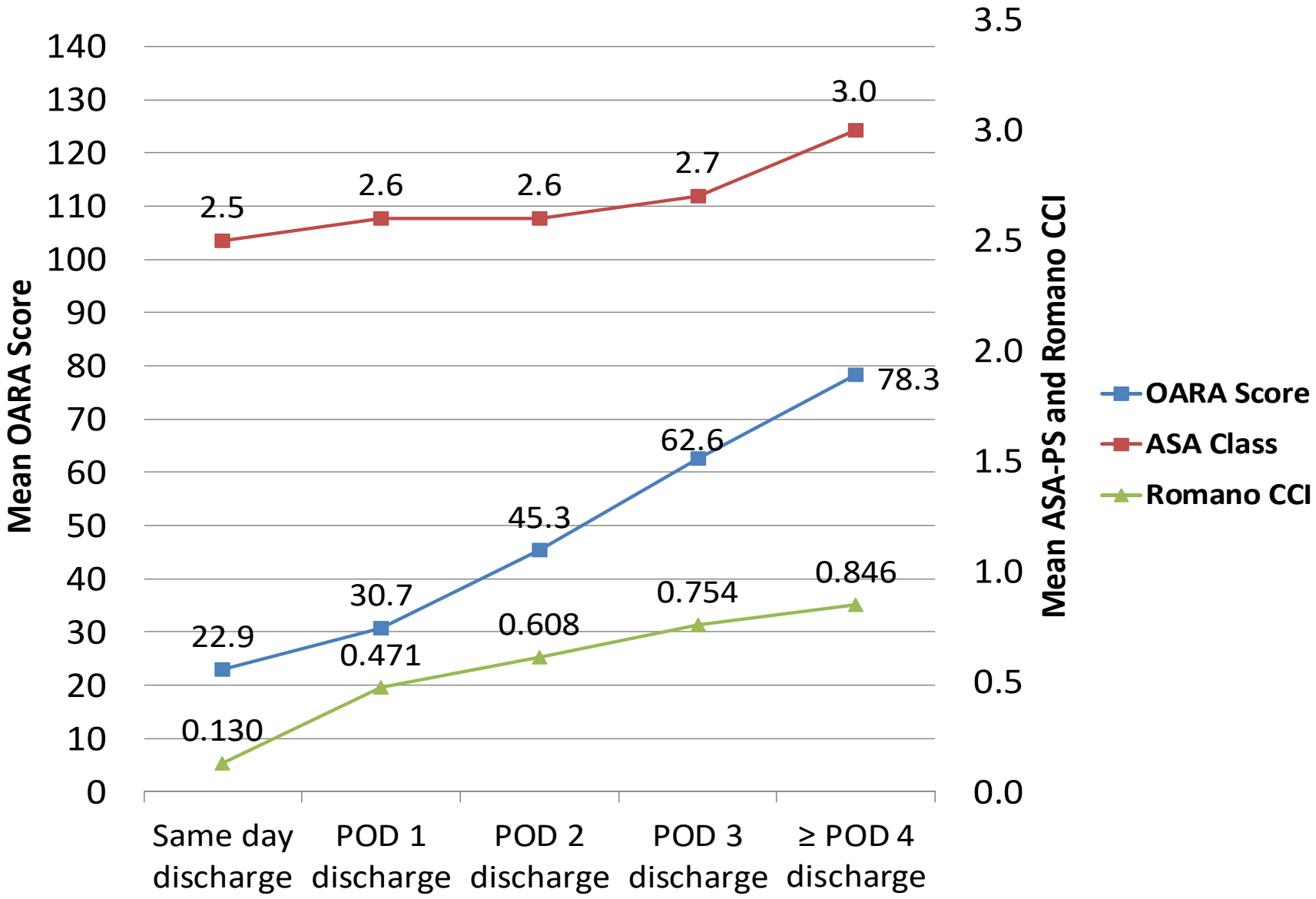
OARA Score: Results



OARA Score: PPV (60 Cutoff)

- **Positive Predictive Value**
- **OARA SCORE ≤ 59 discharge home POD 0 or next day: 81.4%**
- **ASA SCORE ≤ 2 discharged home POD 0 or next day: 56.5%**
- **p < 0.001**

OARA Score: Summary

- Current medical selection criteria for outpatient TJA, such as ASA, are crude
- OARA Score represents a more sensitive medical risk stratification for outpatient TJA
- Improved predictive value for discharge home same or next day
- **Future Work:**
  - **Refine/Enhance OARA with large data sets**
  - **Analysis of Psychosocial Factors**

Psychosocial Criteria

- Smoking actually not contra-indication
- Depression / Anxiety / etc
- Inadequate Home Support
  - No spouse, family or friends to assist at home
- **Excessive** Home Support
  - **>35 years old and lives with parents!**

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Peri-Op Optimization

- **Team Developed Standardized Protocols**
  - Anesthesia / Medical MD / Surgeon
- **Surgeon Component**
- Consistent Surgical Care:
  - Operative Time
  - Blood Loss
  - Approach / Trauma

- **Consistent “product” must arrive in PACU**

Our Current Program

- Patient chooses hospital or ASC
- **Rigorous Patient Education**
  - Starts in Office
  - Teaching Class
  - Expectation Management
- All patients seen by perioperative medical specialist
  - Screened with OARA Score
  - **Robust Medical Optimization**

Our Current Program

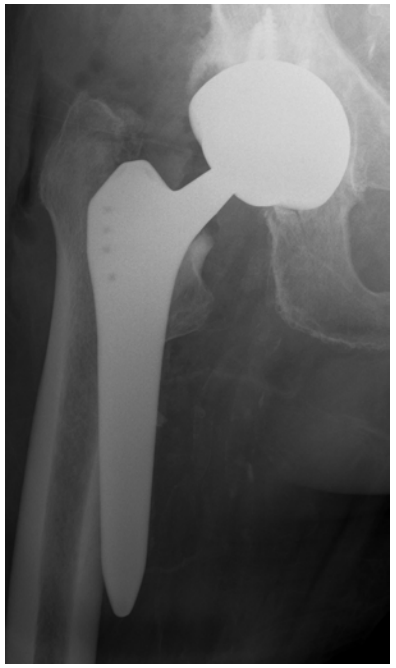
- **Preoperative Multi-Disciplinary Conference**
- Multi-Modal Pain Program
  - Pre-Operative Oral Meds
  - Single Shot Spinal
  - Adductor Canal Block (TKA)
  - PAI (TKA)
  - Postop Oral Meds
- **Surgical Optimization**

Our Current Program

- Prior to discharge, ALL patients MUST be seen by:
  - Physical Therapy
  - Orthopaedic Surgeon
  - Perioperative Medical MD
- All patients given perioperative medical MD cell phone and number to reach surgeon overnight
- **All patients receive phone call next morning**

Starting Outpatient Program

- **Where is your program currently?**
  - **Surgical times and LOS**
  - **Anesthesia / Medical / Hospital Partnership**
- **Monitor metrics closely and often**
  - **Be prepared to act on the data analysis**
- **If considering an ASC**
  - **Be honest with yourself**
  - **Patient safety is top priority**
  - **Increase slowly / gradually**



Summary

- **Can be performed safely**
- **Optimize Essential Perioperative Elements**
- **Patient Selection is critical**
  - To successfully decrease LOS
  - To avoid readmissions

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Thank You