In Search of Excellence: A Program, Protocols and Software For a Total Joint Center With Outcomes

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Medical Director
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What We’ll Cover

• How did Long Beach Memorial Joint Replacement Center move from two distinct levels of care?

• How are measurement, outcomes, and effective leadership used to change surgeons’ practices?

• What’s the latest in the JR literature and how does our study on surgeon volume and protocols enhance it?
I have no relevant financial or nonfinancial relationships in the outcomes, research, or services described, reviewed, evaluated or compared in this presentation. I have no financial arrangements with any medical companies to include: stocks, stock options, consulting fees or patents.

~Dr. Douglas E. Garland
Who We Are

Long Beach Memorial, Long Beach, CA

- 462 licensed beds
- More than 20,000 discharges per year
- More than 990 board-certified physicians providing expert care
- One of the largest joint replacement centers in the west
Joint Replacement at LBM

• Competitive analysis through 2012: Long Beach Memorial has a 27% market share, #1 amongst competitors.

• Long Beach performs more than 550 total joint replacements annually and continues to grow.

• Addition of MAKOplasty® Robotics has recruited additional surgeons.
So What is the Problem?

Two Levels of Care

“We cannot become what we need to be by remaining who we are.”

~Max DePree, Leadership Coach
Reasons for Surgeon Non-Performance

- “There are too many obstacles beyond my control.”
- “There’s no positive benefit for ME.”
- “Efficiency is more work.”
- “My way is better.”
- “It won’t work.”
“A captain of a large vessel with a large hole must learn to bail faster than the incoming water.”

~Douglas E. Garland
“Larger-than-life celebrity leaders who ride in from the outside are negatively correlated with taking a company from good to great. 10 of 11 ‘good to great’ CEOs came from inside the company, whereas the comparison companies tried outside CEOs six times more often.”

~Jim Collins, “Good to Great”
5 Critical Reads

- The 7 Habits of Highly Effective People ~Stephen Covey
- Good to Great ~Jim Collins
- In Search of Excellence ~Tom Peters
- Raving Fans ~Ken Blanchard
- The Peter Principle ~Lawrence J. Peter
Joint Replacement Center

- Program launched September 2009
- Design based on Marshall Steele and Associates research/recommendations
- Offers a dedicated, multidisciplinary team

- Surgeon
- Anesthesiologist
- Joint Care Coordinator
- Admissions Staff
- Therapy Team (PT, OT)
- Specially Trained Nursing
- OR and PACU staff
- Dietician
Our Mission
Replacing arthritic joints with artificial joints using precision surgery with minimal complications in a wellness environment.
Journey of the JRC

PHASE I
Launch of the JRC
9/9/2009

PHASE II
Focus on Rapid Rehab
(The whole is > than the sum of its parts)
11/16/2011

PHASE III
Jill Roberston, PA hired
2/26/2012

PHASE IV
Recruitment and Robotics
9/9/2013

12/1/11
Dr. Douglas Garland Assumes
JRC Medical Director
“Begin with the end in mind”

12/1/2010
Dr. Douglas Jackson retires
as JRC Medical Director

12/5/2014
MAKOplasty®
Robotics
Program Enhancements

1/1/2011
Dr. Douglas Garland Assumes JRC Medical Director
“Begin with the end in mind”

8/8/2011
1st Same-Day Total Hip (Male)

5/2/2012
Marketing Increases Promotion of JRC

2/2/2011
OR Conversion to 3 Total Joint Rooms
Spinal Anesthesia Standard

7/18/2013
First Outpatient Total Hip

5/2/2013
First Same-Day Total Joint (Female)

9/9/2013
Diabetes Service Joins JRC

4/24/2013
7 day “waves” for JRC patient surgical process flow
(Jump on the Wave of Excellence)

12/9/2013
First Same-Day Total Knee

7/21/2014
Diabetes Service Joins JRC
Patient Experience:
The whole is greater than the sum of its parts

Patient Engagement:
- Pre-operative class
- Establish coach
- Understand pain management
- Feedback and reunion lunches

Physician:
- Discuss options
- Check Hg
- Schedule Surgery
- Schedule Pre-Op Class
- Medical Clearance
- Consent
- Pre-Emptive Meds
- Minimally Invasive Surgery

Peri-operative Services:
- OR
  - Anesthesia Tech
  - Dedicated Joint Team
  - Room Turnover Team
  - PACU
  - Designated Space and team
  - Anesthesia
  - Multimodal
  - Pre-emptive meds

Hospital:
- Pre-op class
- Pre-admission
  - MRSA and MSSA Screen
- Nursing
  - Out of bed most of day
  - Group lunches
- Therapies
  - Walk Day of Surgery
  - Twice Daily
  - Set Schedule
  - Group Sessions
Patient Spotlights

Meet Tom. His total hip replacement only took ONE day.

Here’s His Story:
Two weeks before surgery, Tom met with the joint care coordinator and the physical therapy team for a pre-operative education session.

5:30 a.m.
Tom woke up, excited for surgery with Dr. Garland.

6:30 a.m.
Arrived in pre-op, prepared and ready to begin!

7:30 a.m.
Surgery begins.

9 a.m.
Tom snores in the recovery room wigging his toes and recuperating from surgery!

5 p.m.
Tom arrives home, raves dinner and lounges on his lazy boy, pain-free. This was the best sleep he’s ever experienced.

Tom Today:
Just four weeks after hip replacement surgery, Tom is back to work and treats himself to square dancing.

We had Tom on his feet the same day of hip replacement surgery!

Tom Pellenwessel, 60
Long Beach Memorial
Hip Replacement Patient

MemorialCare.org/LBJJointReplacement

Goodbye, pain.
Hello, hope.
Since Launch*

- 2301 hip/knee replacements
- Went from 8 to 21 participating surgeons
- 37% increase in volume
- 2.18 day stay in hospital (reduction of .71 days)
- Blood transfusion rate reduced from 33.3% to 5.7% estimating an overall savings of $582,818
- 5.6% reduction in direct costs
- Improved average margin by $2,831 per patient (76% increase)
- Standardized protocols for all team members
- Incorporated best practice in anesthesia type selection

* Data summary from Marshall Steele Joint Replacement database from CY2010 through CY2014
Select Key Metrics & Drilldown

![Clinical Performance Chart]

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current</th>
<th>Change</th>
<th>Goal</th>
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</thead>
<tbody>
<tr>
<td>Complication Rate</td>
<td>1.1%</td>
<td>-1.7% ▼</td>
<td>0.0%</td>
</tr>
<tr>
<td>Blood Transfusions</td>
<td>8.8%</td>
<td>-1.1% ▼</td>
<td>10.0%</td>
</tr>
<tr>
<td>Readmission Rate</td>
<td>1.1%</td>
<td>1.1% ▲</td>
<td>2.0%</td>
</tr>
<tr>
<td>Flexion</td>
<td>96°</td>
<td>-4° ▼</td>
<td>90°</td>
</tr>
<tr>
<td>Extension</td>
<td>5°</td>
<td>0°</td>
<td>2°</td>
</tr>
<tr>
<td>Distance Walked</td>
<td>306 ft.</td>
<td>-1 ft. ▼</td>
<td>250 ft.</td>
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Drill Down Last 4 Quarters

Blood Transfusion (%)

Launch Month (Sep - 2009)

MJS Top scores for Q3-14 to Q2-15 (Average for Time Period)

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Score</th>
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<tbody>
<tr>
<td>Hospital A</td>
<td>1.6%</td>
</tr>
<tr>
<td>Hospital B</td>
<td>2%</td>
</tr>
<tr>
<td>Hospital C</td>
<td>2.1%</td>
</tr>
<tr>
<td>Hospital D</td>
<td>2.4%</td>
</tr>
<tr>
<td>Hospital E</td>
<td>2.5%</td>
</tr>
<tr>
<td>LONGBEACH (Hospital)</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile Name</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Setting</td>
</tr>
<tr>
<td>Bed Size</td>
</tr>
<tr>
<td>Annual Volume</td>
</tr>
</tbody>
</table>
### Blood Transfusion by Surgeon

<table>
<thead>
<tr>
<th>Surgeon</th>
<th>Case Volume</th>
<th>Q3-14</th>
<th>Q4-14</th>
<th>Q1-15</th>
<th>Q2-15</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr.</td>
<td>1</td>
<td>0.0%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dr.</td>
<td>80</td>
<td>6.4%</td>
<td>0.0%</td>
<td>-</td>
<td>-</td>
<td>3.8%</td>
</tr>
<tr>
<td>Dr.</td>
<td>26</td>
<td>-</td>
<td>-</td>
<td>0.0%</td>
<td>5.3%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Dr.</td>
<td>19</td>
<td>33.3%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Dr.</td>
<td>50</td>
<td>0.0%</td>
<td>21.4%</td>
<td>6.7%</td>
<td>0.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Dr.</td>
<td>57</td>
<td>13.3%</td>
<td>8.3%</td>
<td>0.0%</td>
<td>26.7%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Dr. Sğ</td>
<td>42</td>
<td>54.5%</td>
<td>60.0%</td>
<td>26.7%</td>
<td>16.7%</td>
<td>40.5%</td>
</tr>
<tr>
<td>Average</td>
<td>533</td>
<td>7.8%</td>
<td>7.3%</td>
<td>4.1%</td>
<td>5.0%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>
Data Yearly Since Launch

Blood Transfusion Rate

Graph showing the blood transfusion rate from 2008 to 2015, with a significant decrease from 49.1% in 2008 to 4.6% in 2015.
Review of Literature

- Total Joint Arthroplasty is the single largest Medicare cost—$40.8 billing annually.¹
- Higher volume surgeons (>50 surgeries annually) and hospitals with >100 surgeries annually have better outcomes with fewer adverse events.²,³
52% of primary THA are done by surgeons doing 10 or fewer cases/year (n=58,212)^2
THA Revision and dislocation rates increase in surgeons doing <12 cases/year (n=57,488)^4
Hospitals with >100 THA cases/year had less adverse events that hospitals with fewer than 25 cases/year.\(^5\)
Surgeon volume is the most important determinant of orthopedic complications.\(^5\)
Review of Literature

• Bozic (2010)
  – Surgeons in the lowest quartile for THA had higher complication rates, readmission rates, re-operation rates, and longer hospital stays.⁶
• Katz: “However, the data we have suggests that experience and developing systematized approaches….can lead to better patient outcomes.” 7
## Readmission Rates

<table>
<thead>
<tr>
<th></th>
<th>Readmission Rate</th>
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<tbody>
<tr>
<td><strong>THA</strong></td>
<td></td>
</tr>
<tr>
<td>30 Days</td>
<td>5.6%</td>
</tr>
<tr>
<td>90 Days</td>
<td>7.7%</td>
</tr>
<tr>
<td><strong>TKA</strong></td>
<td></td>
</tr>
<tr>
<td>30 Days</td>
<td>3.3%</td>
</tr>
<tr>
<td>90 Days</td>
<td>9.7%</td>
</tr>
</tbody>
</table>
Meta-Analysis

Transfusion Rate Trends

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>THA</td>
<td>11.2%</td>
<td>19.1%</td>
</tr>
<tr>
<td>TKA</td>
<td>7.7%</td>
<td>12.4%</td>
</tr>
<tr>
<td>All Joint Repl</td>
<td>19.4%</td>
<td>24.5%</td>
</tr>
</tbody>
</table>
In Search of Excellence: A Program, Protocols and Software For a Total Joint Center With Outcomes
Beginning with the End in Mind

• We agree with Katz to a point in that high volume surgeons and systematic approaches lead to better outcomes..... **BUT** effective leader implementation and data collection with continuous review improves performance for all, especially for the low volume surgeons.

**Sharpen the Saw**
(Stephen Covey’s 7th habit)
Methods

• During the 2012 calendar year, data of key outcomes for all total hip and knee arthroplasty cases performed at a large community hospital were collected and analyzed.

• The cases were performed by two groups of surgeons: Those participating in the JRC program (Group I) and those who declined to participate in the program (Group II).
  – Further analysis divided Group I cases into those performed by surgeons with greater or less than 50 annual cases.
Key outcomes measured included *blood transfusion rate*, *complication rate*, *mortality rate*, *30-day readmission rate*, *discharge location*, and *length of hospital stay*.

Statistics: These outcomes were compared across each of the groups.
- For categorical data, a Chi-Squared Test was performed.
- For numerical data (length of stay), an independent samples t-test was performed.
- Significance was determined by a p-value < 0.05.
Materials

- **Group I (JRC Surgeons):** 499 cases
  - Group IA (JRC Surgeons with > 50 annual cases): 341 cases
  - Group IB (JRC Surgeons with < 50 annual cases): 158 cases
- **Group II (Non-JRC Surgeons):** 96 cases
Blood Transfusion Rates

- Group I (JRC Surgeons) vs. Group II (Non-JRC Surgeons): 13.4%(67) vs. 52.1%(50) (p<0.001, SS)
- Group IA vs. Group IB: 10.0%(5) vs. 20.9%(20) (p<0.001, SS)
- Significantly less transfusions in Group IB vs. Group II (p<0.001, SS)

Lower volume JRC surgeons performed better than NON-JRC surgeons
Results: Discharge to Home

- Group I vs. Group II: 83.0%(439) vs. 53.1%(51) (p<0.001, SS)
- Group IA vs. Group IB: 88.6%(302) vs. 70.9%(112) (p<0.001, SS)
- Significantly more patients discharged to home in Group IB vs. Group II (p=0.004, SS)

Lower volume JRC surgeons performed better than NON-JRC surgeons
Results: Length of Stay

- Group I vs. Group II: 2.4 vs. 4.0 (p<0.001, SS)
- Group IA vs. Group IB: 2.3 vs. 2.6 (p=0.005, SS)
- Significantly more patients discharged to home in Group IB vs. Group II (p<0.001, SS)

Lower volume JRC surgeons performed better than NON-JRC surgeons.
Results: Readmission Rate

- Group I vs. Group II: 3.2%(16) vs. 6.3%(6) (p=0.148, NS)
- Group IA vs. Group IB: 3.5%(12) vs. 2.5%(4) (p=0.560, NS)

Lower volume JRC surgeons performed better than NON-JRC surgeons.
Results: Complication Rate

- Group I vs. Group II: 0.60%(3) vs. 1.04%(1) (p=0.629, NS)
- Group IA vs. Group IB: 0.60%(1) vs. 0.60%(1) (p=0.950, NS)

Both JRC surgeon groups performed equally better than NON-JRC surgeons

In-house complications include:
- UTI
- SSI
- Hematoma
- DVT
- PE
Results: 30-day Mortality

- Group I vs. Group II: 0.20% (1) vs. 0% (p=0.661, NS)
- Group IA vs. Group IB: 0% vs. 0.60% (1) (p=0.141, NS)

1 Patient expired within 30 days post-surgery in JRC Group 1B
Conclusion

- Participation in JRC was the major determinant for positive patient outcomes.
- Active/high volume JRC surgeons had the best outcomes.
- Low volume JRC surgeons far outperformed non-JRC surgeons.
- Low volume surgeons (who perform the majority of joint replacements in the U.S.) can significantly improve certain clinical outcomes and cost savings to the hospital by participating in a well-functioning JRC program.
Summary

We agree with Katz to a point in that high volume surgeons and systematic approaches lead to better outcomes….. **BUT** effective leader implementation and data collection with continuous review improves performance for all, especially the low volume surgeons.

**Sharpen the Saw** - Stephen Covey’s 7th habit


Thank You