Welcome!

5th Annual ORA Orthopedics Conference for Primary Care
Measuring Outcomes in Orthopedic Care

J.C. Clark, M.D.

ORA Orthopedics
Father of Shoulder Surgery

“End Result Idea”

"The common sense idea that every hospital should follow every patient it treats, long enough to determine whether or not the treatment has been successful, and then to inquire, 'If not, why not?' with a view to prevent similar failures in the future."

- E. Amory Codman

circa 1905
What does it mean to be “the best”? 
It's Easy in Sports

Jordan Spieth: 68.946 stroke average

Bryce Harper: .338 batting average
What about medicine?
How do we determine it?

- Nicest, most friendly
- Quickest, fastest
- Sees the most/least clinic patients
- Performs the most/least surgeries
- Has the greatest patient satisfaction
- Holds the most noble hospital positions
- Word of mouth/reputation . . .
<table>
<thead>
<tr>
<th>Good Bedside Manner</th>
<th>Good Bedside Manner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Surgeon</td>
<td>Bad Surgeon</td>
</tr>
<tr>
<td>Bad Bedside Manner</td>
<td>Bad Bedside Manner</td>
</tr>
<tr>
<td>Good Surgeon</td>
<td>Bad Surgeon</td>
</tr>
<tr>
<td>Good Bedside Manner</td>
<td>Good Bedside Manner</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Good Surgeon</td>
<td>Good Surgeon</td>
</tr>
<tr>
<td>Bad Bedside Manner</td>
<td>Bad Bedside Manner</td>
</tr>
<tr>
<td>Good Surgeon</td>
<td>Good Surgeon</td>
</tr>
</tbody>
</table>

- Good Bedside Manner and Good Surgeon are desirable combinations.
- Bad Bedside Manner and Bad Surgeon are undesirable combinations.

The diagram illustrates the relationship between bedside manner and surgical skills.
<table>
<thead>
<tr>
<th>Good Bedside Manner</th>
<th>Good Bedside Manner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Surgeon</td>
<td>Bad Surgeon</td>
</tr>
<tr>
<td>Bad Bedside Manner</td>
<td>Bad Bedside Manner</td>
</tr>
<tr>
<td>Good Surgeon</td>
<td>Bad Surgeon</td>
</tr>
</tbody>
</table>

**Diagram:**
- From Good Bedside Manner, Good Surgeon to Good Bedside Manner, Bad Surgeon.
- From Bad Bedside Manner, Good Surgeon to Bad Bedside Manner, Bad Surgeon (with cross symbol).
Good Bedside Manner
Good Surgeon

Bad Bedside Manner
Good Surgeon

Good Bedside Manner
Bad Surgeon

Bad Bedside Manner
Bad Surgeon
This is How We Determine

- **Patient-Reported Outcome Measures (PROMs):**
  - Method or questionnaire used in a clinical setting, where the responses are collected directly from the patient

- **Patient Reported Experience Measures (PREMs):**
  - Focuses more on a patient's experience versus outcomes
  - Shows how satisfied they are
What are these PROMs/PREMs?

- **Questionnaires**
  - aka: instruments, measures, scales, tools
  - Psychometric properties: valid, reliable, responsive

- **Characteristic being measured**
  - aka: constructs
  - i.e. shoulder, knee, hip function...

<table>
<thead>
<tr>
<th>Examples</th>
<th>Western Ontario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WOSI</td>
</tr>
<tr>
<td></td>
<td>WORC</td>
</tr>
<tr>
<td></td>
<td>WOMAC</td>
</tr>
<tr>
<td></td>
<td>Constant Score</td>
</tr>
<tr>
<td></td>
<td>ASES scores</td>
</tr>
<tr>
<td></td>
<td>SF-12</td>
</tr>
<tr>
<td></td>
<td>DASH</td>
</tr>
<tr>
<td></td>
<td>HOOS/KOOS</td>
</tr>
<tr>
<td></td>
<td>IKDC</td>
</tr>
</tbody>
</table>
Currently at ORA
Patient Related Outcome Measure (PROMs)

- Hip replacement: HOOS
- Knee replacement: KOOS

Central Region
Missouri Orthopaedic Institute
Hinsdale Orthopaedics
The Orthopaedic Center of St. Louis
Midwest Orthopaedics at Rush
Michigan Orthopaedic Institute
Union Memorial Hospital
Tennessee Orthopaedic Clinics
Rockford Orthopaedic
A.T. Still University
American Shoulder & Elbow Surgeons Shoulder Score

• Introduced in 1994 by ASES
• 2 major sections
  – Patient reported section
  – Physician reported section
• Has been modified over the years
• Patient reported section most commonly used (pASES)
• 0 (worst) → 100 (best)
# Modified ASES Questionnaire

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes, no trouble</th>
<th>Slight trouble</th>
<th>Moderate trouble</th>
<th>No, I can't</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you throw a ball overhand?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you sleep on your shoulder comfortably?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you put on your coat unassisted?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you wash your back/fasten your bra?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you use toilet tissue?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you comb/wash your hair?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you lift ten pounds (a full gallon container) above the level of your shoulders?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Can you reach a shelf over your head?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Does your shoulder allow you to work full time at your regular job (or regular activities if you are not working)?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Does your shoulder allow you to do your regular sports?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**On Average, How much shoulder pain have you experienced in the last weeks?**

| No Pain | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Extreme Pain |

(Score) = (1.65) + ((10-Pain) x 5)
What's Normal?
Normal shoulder outcome score values in the young, active adult

LCDR Michael G. Clarke, MD, MC, USN<sup>a</sup>, LCDR David T. Schroder, MD, MC, USNR<sup>b</sup>, CDR Daniel J. Solomon, MD, MC, USN<sup>a,∗</sup>, LCDR Matthew T. Provencher, MD, MC, USNR<sup>a</sup>

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Total performed</th>
<th>Percent from perfect</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>95% Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASES pain subscale (visual analog score)</td>
<td>192</td>
<td>1.5%</td>
<td>49.27</td>
<td>2.84</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>ASES functional subscale</td>
<td>192</td>
<td>0.75%</td>
<td>49.62</td>
<td>1.41</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td>ASES total</td>
<td>192</td>
<td>1.1%</td>
<td>98.90</td>
<td>3.27</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>
The measurement of normative American Shoulder and Elbow Surgeons scores

185 male and 158 female subjects

Figure 3 ASES score versus age by decade.

mean ASES score was 92.2
# Arthroscopic Repair of Small-Medium (<3cm) Cuff Tear

<table>
<thead>
<tr>
<th>Mean Pre-op ASES</th>
<th>Duration of Follow-up</th>
<th>Mean Post-op ASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-45</td>
<td>&gt;1 year</td>
<td>85-90</td>
</tr>
</tbody>
</table>

Averages taken from meta-analyses and systematic reviews
Steve Snyder, M.D.
Van Nuys, CA
ASES: 92.9
Bob Burks, M.D.
Salt Lake City, UT
ASES: 85.9
Peter Millet, M.D.
Vail, CO
ASES: 90.3
Tony Romeo, M.D.
Chicago, IL
ASES: 91.5
Richard Hawkins, M.D.
Greenville, SC
ASES: 88.0
Hiroyuki Sagaya, M.D.
Japan
ASES: 92.9
Currently at ORA
Patient Related Experience Measures (PREMs)

- Patients fill out satisfaction form
- Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CGCAHPS)
  - Standardized tool to measure patient perceptions of care delivered by a provider in an office setting
- Part of the requirements for Physician Quality Reporting System (PQRS) participants
PREM Questions

- What was your wait time in the clinic after your scheduled appointment time to see the provider?
- Was the person who scheduled your appointment as helpful as you thought that they should be?
- Did the person who scheduled your appointment treat you with courtesy and respect?
- How would you rate your ability to get an appointment within the timeframe you needed to be seen?
- Were front desk receptionists as helpful as you thought they should be?
- Did the front desk receptionists treat you with courtesy and respect?
- Were the clinical staff as helpful as you thought they should be?
- Did the clinical staff treat you with courtesy and respect?
- Did the provider explain things in a way that was easy to understand?
- Did the provider listen carefully to you?
- Did the provider give you easy to understand information about your health questions and concerns?
- Did the provider seem to know the important information about your medical history?
- Did the provider show respect for what you had to say?
- Did the provider spend enough time with you?
- Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate your provider?
  - 0  Worst provider possible
  - 10 Best provider possible
### Institution Rank: 3rd / 24
Overall Full Compliance: 11.29%

Threshold: 10 Filled Forms

<table>
<thead>
<tr>
<th>Last 12 Months</th>
<th>93%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Month (Mar)</td>
<td>96%</td>
</tr>
<tr>
<td>Overall</td>
<td>93%</td>
</tr>
</tbody>
</table>

**Specialties [1] & Ranking:**

General | 3 / 24

#### Highlight Questions (11/01/2014 - 04/13/2015):

<table>
<thead>
<tr>
<th>Question</th>
<th>Provider Average</th>
<th>Institution Average</th>
<th>Threshold Difference</th>
<th>Previous Quarter</th>
<th>Current Quarter</th>
<th>Quarterly Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>During your most recent visit, did this provider explain things in a way that was easy to understand? Yes, definitely</td>
<td>92% (12 / 13)</td>
<td>87% (674 / 771)</td>
<td>Λ 5%</td>
<td>100% (7 / 7)</td>
<td>100% (1 / 1)</td>
<td>0%</td>
</tr>
<tr>
<td>During your most recent visit, did this provider spend enough time with you? Yes, definitely Yes, somewhat</td>
<td>100% (13 / 13)</td>
<td>95% (728 / 765)</td>
<td>Λ 5%</td>
<td>100% (7 / 7)</td>
<td>100% (1 / 1)</td>
<td>0%</td>
</tr>
<tr>
<td>Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider? 8 9 10-Best provider possible</td>
<td>100% (13 / 13)</td>
<td>87% (661 / 762)</td>
<td>Λ 13%</td>
<td>100% (7 / 7)</td>
<td>100% (1 / 1)</td>
<td>0%</td>
</tr>
<tr>
<td>Would you recommend this provider's office to your family and friends? Yes, definitely Yes, somewhat</td>
<td>100% (13 / 13)</td>
<td>95% (728 / 764)</td>
<td>Λ 5%</td>
<td>100% (7 / 7)</td>
<td>100% (1 / 1)</td>
<td>0%</td>
</tr>
</tbody>
</table>
Does Patient Volume Match PREM?

- We have satisfaction scores
  ....AND....
- We know patient volume
Draw a Best Fit Line

\[ y = -0.0006x + 87.344 \]
2013

NPS score vs. Yearly Patient Volume for 2013

Equation:
\[ y = -0.0018x + 94.063 \]
2014

\[ y = -0.0018x + 94.864 \]

NPS Score vs. Yearly Patient Volume for 2014.
y = -0.0018x + 90.925
Equations for Each Line

- 2013: \[ y = -0.0018x + 94 \]
- 2014: \[ y = -0.0018x + 95 \]
- 2015: \[ y = -0.0018x + 93 \]

Slope = -0.0018

- Negative correlation between patient satisfaction and number of patients seen
- For every 1000 patients you see, a provider will drop 1.8 points on NPS scale
What does that tell us?

Clinics run 8am-12pm and 1-5pm
Drawbacks/Cons to Measuring Outcomes

• Cost to medical practice
  – Direct cost of outcome measures/IT
  – Indirect cost of time to collect & synthesize data

• Time for patients to fill out forms
  – Response rates

• Rationing of healthcare
  – Obese
  – Diabetic
  – Worker's comp
  – Smoking

• Greater physician risk
So What, Clark, Who Cares?

\[ V = \frac{Q + S}{\$} \]

PROMs

PREMs
Pay for Volume vs. Pay for Value

Expected evolution of contracting and reimbursement models from pay for volume to pay for value

- **High Provider risk**
  - Discounted fee-for-service (DFFS)
  - DFFS with performance incentives
  - Bundled payments
  - Pay-for-performance shared risk shared savings
  - Global or partial capitation

- **Current provider market readiness**
  - Limited

By 2015, potentially 30% of reimbursement models will have evolved beyond DFFS (and some suggest up to 60%).
A diagram illustrates the relationship between cost and quality in healthcare. The x-axis represents quality, while the y-axis represents cost. Two quadrants are depicted: one labeled 'Volume-Driven Healthcare' and another labeled 'Value-Driven Healthcare.' An arrow points from the 'Volume-Driven Healthcare' quadrant to the 'Value-Driven Healthcare' quadrant, indicating a shift in focus from cost to quality-driven healthcare.
Ideally
Rapid Access
High Quality
Low Cost
thank you!

J.C. Clark, M.D.

ORA Orthopedics
"I prefer to win titles with the team ahead of individual awards or scoring more goals than anyone else. I'm more worried about being a good person than being the best football player in the world. When all this is over, what are you left with? When I retire, I hope I am remembered for being a decent guy."

-Lionel Messi