Pre-Surgical Psychological Screening For Compensated Surgery Candidates

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Utah State University
Clinical Background

• Associate Professor of Psychology Utah State University Combined Psychology Ph.D. Program
• Trained in Health, Chronic Pain, & Primary Care Psychology
• Train/supervise students in primary care and specialty medical settings
• Consultant Federal Disability Determinations
Collaborated with WCFU since 1994 and conducted numerous studies (Lumbar Fusion, Discectomy, Rhizotomy, CTS)
Examine clinical, quality of life, and cost outcomes
Identifying pre-surgery factors that predict outcomes
Identify high risk patients and intervene to hopefully optimize outcomes
Background Information: Facts Regarding Low Back Pain

• 31 million Americans have back pain at any given time

• 8 million Americans are partially or totally disabled because of chronic LBP

• 63% of Permanent Total Cases in Utah involve back injury/surgery
TREATING CHRONIC LOW BACK PAIN

• Most Acute/Chronic LB Pain Treated Conservatively (5-10% don’t respond)

• 5-10% of Persons With Chronic LBP have some type of surgery (Laminectomy, Discectomy, Fusion)

• 10-20% of Lumbar Spine Surgeries are Lumbar Fusions (Most invasive/expensive and typically last surgical option)
Costs of Spine Treatment

• 1998 US Med. Treatment = $1.2 trillion
• Total Spine Treatment = $91 billion
  – Inpatient Spine care = $27.9 billion
• Spine Treatment = 1% of GDP
• 25% of patients = 75% of costs

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Year</th>
<th>Rate (per 1000)</th>
<th>Cost (adjusted $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lami/Disc</td>
<td>1992</td>
<td>1.7</td>
<td>$342M</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>2.1</td>
<td>$306M</td>
</tr>
<tr>
<td>Fusion</td>
<td>1992</td>
<td>0.3</td>
<td>$75M</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>1.1</td>
<td>$482M</td>
</tr>
</tbody>
</table>

Weinstein et al., 2006
Changes in Number Lumbar Fusion Procedures

2000: 210,682

2011: 465,070

Agency Health Care Research and Quality
Regional Variation in Spine Surgery Rates

Inpatient Back Surgery Rate per 1,000 Medicare Enrollees (2010)

U.S. National Average (4.7)
10th Percentile (2.9)
90th Percentile (6.2)

Highest: Wyoming (8.9)
Lowest: Hawaii (1.5)

Dartmouth Atlas of Health Care
Regional Variation in Spine Surgery Rates

Montana (6.1); Utah (6.0); Idaho (6.7)

(Hospital Referral Region in MT)

Casper (10.1)
Billings (7.3)
Missoula (6.1)
Great Fall (5.3)

Dartmouth Atlas of Health Care
Spine Surgery is Not Always Effective in Reducing Pain and Improving Function, Even when Pathology is Corrected
Discectomy

Published review of 81 studies found
65%-75% successful outcome
10% re-operation rate
(Hoffman et al, 1993)

Recent analysis of insurance claims on 494 discectomy patients:
28% unfavorable outcome
(Sherman et al, 2010)
Spinal Fusion

Review of all extant studies found:
65%-75% success rate, depending on type of fusion and number of levels

...Turner et al, 1992

In recent study of surgery (mostly fusion) outcome, using 4 measures of Health-Related Quality of Life:
47%-61% clinically sig improvement on any measures
27% clinically sig improvement on all 4 measures

...Copay et al, 2010
Consequences of Failed Back Surgery

- Majority never return to work
- Anger, depression, loss of independence
- Additional surgery or conservative treatment
- Iatrogenic problems
- Financial disincentives to recovery increase
- Total cost of case rises dramatically
- Drug addiction
Psychosocial factors are associated with reduced effectiveness of spine surgery
PRESURGICAL
PSYCHOLOGICAL
SCREENING
Presurgical Psychological Screening (PPS)

- Identifies empirically-determined risk factors for reduced spine surgery outcome, through:
  - Semi-Structured Psychological Interview
  - Psychometric Testing
  - Review of Medical Chart

- Risk factors quantified and combined to determine psychosocial outcome prognosis
PPS Risk Factor Domains

• Psychosocial
  – Factors in the patient’s current and past environment and personality

• “Medical”
  – Factors in the patient’s medical history and proposed treatment
Psychosocial Influences on Pain

- Personality and Emotional Factors
  – enduring traits and acute reactions
- Pain Coping Skills
  – how the patients views and handles pain
- Behavioral Factors
  – incentives for disability and disincentives for recovery
- Historical Factors
  – influence of past problems on recovery
Examples of Psychosocial Risk Factors Identified in Prior Research Studies
PERSONALITY AND EMOTIONAL FACTORS
MMPI & MMPI-2 studies

<table>
<thead>
<tr>
<th>Description</th>
<th>Scale</th>
<th># Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Sensitivity</td>
<td>Hs &amp; Hy</td>
<td>11</td>
</tr>
<tr>
<td>Depression</td>
<td>D</td>
<td>9</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Pt</td>
<td>5</td>
</tr>
<tr>
<td>Anger</td>
<td>Pd</td>
<td>5</td>
</tr>
</tbody>
</table>
Worker’s Compensation

• Post laminectomy/discectomy Worker’s Comp patients less likely to report pain relief and to be working than are non-compensation patients (DeBerard et al., 2009)

• Similar results in many studies:
  --Carreon et al, 2010
  --Davis, 1994
Interview Based Psychosocial Risk Factors

- Job Dissatisfaction (2 points)
- Worker’s Compensation (2 points)
- Litigation (2 points)
- Spousal Solicitousness (1 point)
- No Spousal Support (1 point)
- Abuse/Abandonment (1 point)
- Substance Abuse-Current/Remote (1-2 points)
- Psychological History (Inpatient-Long Term versus Outpatient Short-Term (1-2 points)
Test-Based Psychosocial Risk

- Pain Sensitivity ($\geq 70t$ on MMPI-2 Hs or Hy; 1-2 points)
- Depression-Chronic ($\geq 70t$ on MMPI-2 D or elev. BDI; 2-points)
- Depression-Reactive ($\geq 70t$ on MMPI-2 D, acute; 1-point)
- Anger ($\geq 70t$ on MMPI-2 Pd; 2 points)
- Anxiety ($\geq 70t$ on MMPI-2 Pt; 2 points)
- Depressed-Pathological Profile (Hs and Hy + multiple other scale elevations; 4-points)
- Catastrophizing (PCS $> 38$; above 80%)

(Maximum 4 points for MMPI-2 items and 2 Points PCS)
Total Points for Psychosocial Risk & Risk Level Assessment

• Total Points Possible For Psychosocial Risk = 19

No or Minimal Risk for Poor Outcome (0-3)

Medium Risk Poor Outcome (4-7)

High Risk Poor Outcome (8-19)
MEDICAL RISK FACTORS
PPS Medical Risk Factors

- Pain Duration-6-12 Months (1-point)
- Pain Duration > 12 Months (2-points)
- Highly Destructive Surgery (2-points)
- Non-Organic Signs (2-points)
- Abnormal Pain Drawing (2 points)
- Prior Spine Surgeries 2 or More (2 points)
  1 (1-point)
- Prior Medical Problems (2-points)
- Smoking (2-points)
- Obesity (2-points)
Total Points for Medical Risk & Risk Level Assessment

• Total Points Possible For Medical Risk = 15

No or Low Risk for Poor Outcome (0-5 points)

Medium-High Risk Poor Outcome (6-15 points)
<table>
<thead>
<tr>
<th>Medical</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronicity</strong></td>
<td></td>
</tr>
<tr>
<td>6-12 mos</td>
<td>med</td>
</tr>
<tr>
<td>&gt; 12 mos</td>
<td>high</td>
</tr>
<tr>
<td><strong>Prev. Spine Surg.</strong></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>med</td>
</tr>
<tr>
<td>Two +</td>
<td>high</td>
</tr>
<tr>
<td><strong>Destructiveness</strong></td>
<td></td>
</tr>
<tr>
<td>Min-Mod</td>
<td>med</td>
</tr>
<tr>
<td>Highly</td>
<td>high</td>
</tr>
<tr>
<td>Salvage</td>
<td>high</td>
</tr>
<tr>
<td><strong>Non-Organic</strong></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>high</td>
</tr>
<tr>
<td><strong>Non-Spine Med</strong></td>
<td></td>
</tr>
<tr>
<td>moderate</td>
<td>med</td>
</tr>
<tr>
<td>multiple</td>
<td>high</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 pack/ day</td>
<td>med</td>
</tr>
<tr>
<td>&gt; 1 pack/ day</td>
<td>high</td>
</tr>
<tr>
<td><strong>Obesity</strong></td>
<td></td>
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<tr>
<td>&gt;50% over</td>
<td>med</td>
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<tr>
<td><strong>Med Total</strong></td>
<td></td>
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<tr>
<td><strong>Threshold</strong></td>
<td>8</td>
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<td><strong>MED RISK</strong></td>
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<table>
<thead>
<tr>
<th>Interview</th>
<th>Risk</th>
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<tbody>
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<td><strong>Litig./SSDI</strong></td>
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<tr>
<td>present</td>
<td>high</td>
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<tr>
<td><strong>Work Comp</strong></td>
<td></td>
</tr>
<tr>
<td>working</td>
<td>med</td>
</tr>
<tr>
<td>non-working</td>
<td>high</td>
</tr>
<tr>
<td><strong>Job Disatis</strong></td>
<td></td>
</tr>
<tr>
<td>moderate</td>
<td>med</td>
</tr>
<tr>
<td>extreme</td>
<td>high</td>
</tr>
<tr>
<td><strong>Heavy Job</strong></td>
<td></td>
</tr>
<tr>
<td>&gt;50 lb lift</td>
<td>high</td>
</tr>
<tr>
<td><strong>Sub. Abuse</strong></td>
<td></td>
</tr>
<tr>
<td>pre-injury</td>
<td>med</td>
</tr>
<tr>
<td>current</td>
<td>high</td>
</tr>
<tr>
<td><strong>Family Rein.</strong></td>
<td></td>
</tr>
<tr>
<td>moderate</td>
<td>med</td>
</tr>
<tr>
<td>extreme</td>
<td>high</td>
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<tr>
<td><strong>Mar. Disatis.</strong></td>
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</tr>
<tr>
<td>present</td>
<td>med</td>
</tr>
<tr>
<td><strong>Abuse</strong></td>
<td></td>
</tr>
<tr>
<td>pre-injury</td>
<td>med</td>
</tr>
<tr>
<td>current</td>
<td>high</td>
</tr>
<tr>
<td><strong>Pre-Injury Psy</strong></td>
<td></td>
</tr>
<tr>
<td>outpatient</td>
<td>med</td>
</tr>
<tr>
<td>inpatient</td>
<td>high</td>
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<tr>
<td><strong>INTER TOT.</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Testing</th>
<th>Risk</th>
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<tr>
<td><strong>MMPI (T&gt;70)</strong></td>
<td></td>
</tr>
<tr>
<td>Hs</td>
<td>high</td>
</tr>
<tr>
<td>D (pre-inj.)</td>
<td>high</td>
</tr>
<tr>
<td>D (reactive)</td>
<td>med</td>
</tr>
<tr>
<td>Hy</td>
<td>high</td>
</tr>
<tr>
<td>Pd</td>
<td>high</td>
</tr>
<tr>
<td>Pt</td>
<td>med</td>
</tr>
<tr>
<td><strong>CSQ</strong></td>
<td></td>
</tr>
<tr>
<td>low self-rel</td>
<td>high</td>
</tr>
<tr>
<td>low cont.</td>
<td>high</td>
</tr>
</tbody>
</table>

| Test Total                      |      |
| **Psych total** (Int. + Test)   |      |
| **Threshold**                   | 10   |
| **PSYCH RISK**                  |      |
Research: Use of Presurgical Psychological Screening

A R Block, D D Ohnmeiss, R D Guyer, R F Rashbaum, S H Hochschuler

The Spine Journal, 2001, 1, 274-282
Sample/Method/Procedure

• Sample: 204 Spinal Surgery Patients
• Laminectomy/Discectomy (58%), Fusion (42%)
• All underwent PPS at least 1 month prior to surgery
• Clinical cutoffs established for Low v. High Psychosocial and Medical Risk
• Outcomes (ODI & VPAS) assessed at least 6 months post-surgery
Medical and Psychological Risk Points and N in the Four Groups

<table>
<thead>
<tr>
<th>PSYCH RISK</th>
<th>MED RISK</th>
<th>GOOD PROGNOSIS</th>
<th>FAIR PROGNOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (P-)</td>
<td>Low (M-)</td>
<td>n = 77 (38%)</td>
<td>n = 65 (32%)</td>
</tr>
<tr>
<td>High (P+)</td>
<td>High (M+)</td>
<td>n = 26 (13%)</td>
<td>n = 36 (18%)</td>
</tr>
</tbody>
</table>

PROGNOSIS
Figure 2
Oswestry Scores at Baseline and Follow-up

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-M- GOOD</td>
<td>p&lt;.01</td>
<td></td>
</tr>
<tr>
<td>P+M- FAIR</td>
<td>p&lt;.05</td>
<td></td>
</tr>
<tr>
<td>P-M+</td>
<td>p&lt;.01</td>
<td></td>
</tr>
<tr>
<td>P+M+ POOR</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>
Pain Levels

<table>
<thead>
<tr>
<th>VPAS</th>
<th>P-M-</th>
<th>P+M-</th>
<th>P-M+</th>
<th>P+M+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GOOD</td>
<td>FAIR</td>
<td>POOR</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>ns</td>
</tr>
</tbody>
</table>
OVERALL OUTCOME

• Single outcome measure created
  – Oswestry < 40
  – Pain Report < 4
  – Medication = No medication or non-narcotic

• Poor Outcome = none above criteria met

• Fair Outcome = 1 of above criteria met

• Good Outcome = 2 or 3 criteria met
# RELATIONSHIP OF PROGNOSIS TO OVERALL OUTCOME

<table>
<thead>
<tr>
<th>PROGNOSIS</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>24</td>
<td>4</td>
<td>3</td>
<td>37 (77%)</td>
</tr>
<tr>
<td>Fair</td>
<td>19</td>
<td>78</td>
<td>23</td>
<td>120 (65%)</td>
</tr>
<tr>
<td>Poor</td>
<td>6</td>
<td>3</td>
<td>44</td>
<td>53 (83%)</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>85</td>
<td>70</td>
<td>204</td>
</tr>
</tbody>
</table>

**ACCURACY RATE: 72%**
Revision of PPS Procedures: Improving accuracy and efficiency

• Creation of an algorithm rather than 2 X 2 Matrix

• Addition of third set of risk factors
  – Adverse Clinical Features

• More distinct levels of psychosocial risk
Adverse Clinical Features

- Inconsistency
- Medication Seeking
- Staff Splitting
- Compliance Issues
- Threatening
- Resignation
- Deception
- Personality Disorders
PPS Algorithm

Total Psychosocial Risk

Total Medical Risk

Adverse Clinical Features

Present

Poor Discharge Recommended

Poor-Fair Non-invasive Treatment

Fair Compliance & Motivation Measures

Good-Fair Post-Op Psych Treatment

Good No psych Treatment

Cat.

5
4
3
2
1
Presurgical Psychological Screening in Artificial Disc Replacement

- 128 consecutive patients undergoing ADR
- All patients received PPS
- 17 patients given poor or fair-poor prognosis, did not receive surgery
- 5 patients lost to follow-up
- Data reported for 106 surgical patients at 12 months post-op
- Patients received no presurgical psych tx
PPS in Artificial Disc Replacement:
Reported Functional Ability by PPS Prognosis

Oswestry Results

- Good
- Fair - Good
- Fair
PPS in Artificial Disc Replacement: Pain Report by PPS Prognosis

VAS scores (1-100)

- Good
- Fair - Good
- Fair

Baseline
12 Months
Example—Poor Prognosis Pt

32 year old man, 2 year old injury, No work since injury/receiving comp benefits
Lawyer involved with compensation case
10-years as miner/disgruntled with employer
History of panic attacks, depression
3-level cervical disc disease
considered for 3-level ACF
8-12 Hydrocodone per day
Hx of “stolen” medication & ETOH abuse
Presurgical Psychological Screening—MALE

Patient: Poor Prognosis

Date: 10-20-14
Referral Source: Surgeon
Surgery Type: Anterior Cervical Fusion

Interview Risk Factors (max 13 points)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Dissatisfaction</td>
<td>2</td>
</tr>
<tr>
<td>Worker's Comp</td>
<td>2</td>
</tr>
<tr>
<td>Litigation</td>
<td>2</td>
</tr>
<tr>
<td>Spousal Solicitousness</td>
<td>1</td>
</tr>
<tr>
<td>No Spouse Support</td>
<td>1</td>
</tr>
<tr>
<td>Abuse &amp; Abandon</td>
<td>1</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>2</td>
</tr>
<tr>
<td>Remote (older than 2 years)</td>
<td>1</td>
</tr>
<tr>
<td>Psych History</td>
<td></td>
</tr>
<tr>
<td>Inpatient or long-term</td>
<td>2</td>
</tr>
<tr>
<td>Outpatient or short-term</td>
<td>1</td>
</tr>
</tbody>
</table>

Testing Risk Factors (max 6 points)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Sensitivity</td>
<td>2</td>
</tr>
<tr>
<td>Hs &gt;/= 70, Hy &gt;/= 70</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td></td>
</tr>
<tr>
<td>D &gt;/= 70, BDI-2 &gt; 19</td>
<td>2</td>
</tr>
<tr>
<td>CHRONIC</td>
<td></td>
</tr>
<tr>
<td>REACTIVE</td>
<td>1</td>
</tr>
<tr>
<td>Anger</td>
<td></td>
</tr>
<tr>
<td>Pd &gt;/= 70</td>
<td>2</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
</tr>
<tr>
<td>Pt &gt;/= 70</td>
<td>2</td>
</tr>
<tr>
<td>Depressed-Pathological</td>
<td></td>
</tr>
<tr>
<td>4 MMPI-2 scales &gt; 1 sd above mean</td>
<td>4</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td></td>
</tr>
<tr>
<td>PCS &gt; 38 (&gt;80%)</td>
<td>2</td>
</tr>
</tbody>
</table>

Medical Risk Factors (max 16 points)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain 6-12 months</td>
<td>1</td>
</tr>
<tr>
<td>Pain &gt; 12 months</td>
<td></td>
</tr>
<tr>
<td>Highly Destructive Surgery</td>
<td></td>
</tr>
<tr>
<td>Nonorganic Signs</td>
<td></td>
</tr>
<tr>
<td>Abnormal Pain Drawing</td>
<td></td>
</tr>
<tr>
<td>Prior Spine Surgeries</td>
<td></td>
</tr>
<tr>
<td>2 or more</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prior Medical Problems</td>
<td>2</td>
</tr>
<tr>
<td>Smoking</td>
<td>1</td>
</tr>
<tr>
<td>Obesity</td>
<td>1</td>
</tr>
</tbody>
</table>

Adverse Clinical Features

- Inconsistency
- Medication Seeking
- Staff Splitting
- Compliance Issues
- Threatening
- Resignation
- Deception
- Personality Disorders

Recommendations for elective spine surgery

- Proceed with surgery
- Delay Surgery Pending Psych Intervention
- Avoid Surgery if not medically required

©Andrew R Block, Ph.D 2009 (rev 4)
Example—Fair Good Prognosis

Pt

50-year-old school teacher (loves his work)
Slipped ice and 12 months discogenic pain
Receiving comp benefits
Remote ETOH & depression hx (outpatient)
1 prior discectomy 5 years ago (hx DDD)
2-level HNP and planned microdiscectomy
Current reactive depression and anxiety
Smoking ½ pack per day
100 pounds overweight
Presurgical Psychological Screening—MALE

Patient: Good Prognosis

Date: 10-20-14

Referral Source: Surgeon

Surgery Type: Discectomy

**Interview Risk Factors (max 13 points)**

<table>
<thead>
<tr>
<th>Factor</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Job Dissatisfaction</td>
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<td>1</td>
</tr>
<tr>
<td>Psych History Inpatient or long-term</td>
<td>2</td>
</tr>
<tr>
<td>Outpatient or short-term</td>
<td>1</td>
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</table>

**Testing Risk Factors (max 6 points)**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pts</th>
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</thead>
<tbody>
<tr>
<td>Pain Sensitivity Hs&gt;/=70, Hy&gt;/=70</td>
<td>2</td>
</tr>
<tr>
<td>Depression D&gt;/=70, BDI-2 &gt; 19 CHRONIC</td>
<td>2</td>
</tr>
<tr>
<td>Anger Pd&gt;/=70</td>
<td>2</td>
</tr>
<tr>
<td>Anxiety Pt&gt;/=70</td>
<td>2</td>
</tr>
<tr>
<td>Depressed-Pathological 4 MMPI-2 scales &gt; 1 sd above mean</td>
<td>4</td>
</tr>
<tr>
<td>Catastrophizing PCS &gt; 38 (&gt;80%)</td>
<td>2</td>
</tr>
</tbody>
</table>

**PPS Algorithm**

- Present
- Absent
- Total Medical Risk
- Adverse Clinical Features
- Total Psychosocial Risk
- 0-3
- 4-7
- 0-5
- 6+
- 8+

**Medical Risk Factors (max 16 points)**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain 6-12 months</td>
<td>1</td>
</tr>
<tr>
<td>Pain &gt;12 months</td>
<td>2</td>
</tr>
<tr>
<td>Highly Destructive Surgery</td>
<td>2</td>
</tr>
<tr>
<td>Nonorganic Signs</td>
<td>2</td>
</tr>
<tr>
<td>Abnormal Pain Drawing</td>
<td>2</td>
</tr>
<tr>
<td>Prior Spine Surgeries 2 or more</td>
<td>2</td>
</tr>
<tr>
<td>Prior Medical Problems</td>
<td>1</td>
</tr>
<tr>
<td>Smoking</td>
<td>1</td>
</tr>
<tr>
<td>Obesity</td>
<td>1</td>
</tr>
</tbody>
</table>

**Adverse Clinical Features**

- Inconsistency
- Medication Seeking
- Staff Splitting
- Compliance Issues
- Threatening
- Resignation
- Deception
- Personality Disorders

**Recommendations for elective spine surgery**

- Proceed with surgery
- Delay Surgery Pending Psych Intervention
- Avoid Surgery if not medically required

Encourage smoking cessation + Weight Loss

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EXHIBIT 6.3
Presurgical Psychological Screening Summary Form

Patient: ____________________________

Referring MD: ____________________________ Surgery Type: ____________________________

Our evaluation of this patient reveals the following level of psychosocial risk for reduced outcome of spine surgery:

<table>
<thead>
<tr>
<th>Low Risk</th>
<th>Medium Risk</th>
<th>High Risk</th>
</tr>
</thead>
</table>

Major identified risk factors are (4 maximum):

1. ____________________________________________

2. ____________________________________________

3. ____________________________________________

4. ____________________________________________

Recommendation for surgery (if being performed primarily for pain relief):

- Proceed with surgery, no need for psychological treatment
- Proceed with surgery, psychotherapy: pre-op ____, post-op ____
- Hold on surgery pending outcome of psychotherapy
- Hold on surgery, with following recommendations:

- Avoid surgery if possible.

Additional Recommendations: ____________________________________________

__________________________________________    ____________________________
Psychologist                                     Date
Summary And Conclusions
Surgical Outcome Prognosis
Approximate Distribution

- Good (Category 1) 25%
- Fair-Good (Category 2) 25%
- Fair (Category 3) 25%
- Fair-Poor (Category 4) 15%
- Poor (Category 5) 10%
When considering elective spine surgery with primary goal of pain relief

- Good, fair-good prognosis patients should obtain satisfactory results without need for behavioral treatment (pre or post)

- Fair prognosis patients should have surgery delayed pending outcome of psych intervention
FAIR PROGNOSIS PATIENTS
Reducing Risk for Poor Surgery Results

• Motivation and Compliance
  – Narcotic reduction, smoking cessation

• Expectation and Pacing

• Pain Control
  – Hypnosis, Biofeedback

• Emotional Stability
  – Antidepressant, cognitive-behavioral

• Dealing with Disincentives
  – Appropriate anger expression
If the primary goal of surgery is pain relief

- Fair prognosis patients should have surgery delayed pending outcome of psych intervention
  - Approximately $\frac{1}{2}$ are successful and can go on to surgery, but are still likely to have less success than Category 1 & 2 patients
  - If psych TX is unsuccessful but patient has been compliant consider referral to multidisciplinary chronic pain management program (CPMP)
Chronic Pain Management Programs (CPMP)

• Interdisciplinary Program
• Address physical, emotional and vocational needs
• Establish clear goals and monitor progress
• Gains in one area lead to gains in others
• Overall goal is independence and self-responsibility
Chronic Pain Management Programs as Alternative to Spine Surgery

• Brox et al (2003): 64 Patients with DDD randomly assigned to surgery or CPMP
• Both groups improved significantly
• No sig diff in outcome between groups in Oswestry score, analgesics, emotional distress or Return to work
• 20% assigned to CPMP went on to surgery
• COSTS: CPMP = £4526; Surgery = £7830
When considering elective spine surgery with primary goal of pain relief

• Fair-Poor prognosis patients:
  – CPMP
  – Non-narcotic medication management
  – No further treatment

• Poor Prognosis patients:
  – Non-narcotic medication management
  – No further treatment
PPS BENEFITS

• Use of PPS helps:
  – PHYSICIAN-improve overall results, tailor treatments to pts, and avoid problem pts
  – PATIENT-avoid ineffective surgery and continued slide into disability
    • Can direct pt to viable alternative treatments
  – INSURER-reduce medical costs and disability payments
Examples of Surgery Outcome Studies Conducted with Utah Compensation Patients
COMPUTER MODEL PREDICTING POST-SURGICAL DISABILITY

- 25-Year-Old
- $1000/Week
- No Lawyer
- Non-Smoker
- No Depr.

No Prior Operation
6 mo. Since Injury
1-Level Fusion
Low Imaging Severity

Probability of Disability
At 2-Year Follow-Up
1.82%/$38k
COMPUTER MODEL PREDICTING POST-SURGICAL DISABILITY

- 55-Year-Old
- ≤ H.S./Miner
- $150/Week
- Lawyer
- Smoker
- Depress.
- 2 Yrs. Since Injury
- 2 Prior Operation
- 2-Level Fusion
- High Imaging Sev.

Probability of Disability At 2-Year Follow-Up

99.76%/$89k
COMPUTER MODEL PREDICTING POST-SURGICAL DISABILITY

- 39-Year-Old
- H.S/Mason
- $400/Week
- No Lawyer
- Smoker
- No Depr.

1 Prior Operation
<1 Yr. Since Injury
1-Level Fusion
Low Imaging Severity

Probability of Disability
At 2-Year Follow-Up
25.46%/$59K
Predicting Compensation and Medical Costs of Lumbar Fusion Patients Receiving Workers’ Compensation in Utah Using Presurgical Biopsychosocial Variables

Anthony J. Wheeler, BA, Jessica M. Gundy, MA, and M. Scott DeBerard, PhD

Study Design. A retrospective-cohort investigation (N = 245) utilizing a review of patient medical records and costs accrued through the Workers’ Compensation Fund of Utah.

Objective. To replicate a previous study of compensation and medical costs in compensated lumbar fusion patients, to identify changes in costs across time, and to identify biopsychosocial variables predictive of current costs.

Summary of Background Data. Previous studies have demonstrated that medical costs associated with lumbar fusion have been rising drastically. It is unclear whether rising fusion costs are occurring in compensation populations. Prior studies have also demonstrated that costs can be predicted on the basis of presurgical biopsychosocial variables, and there is a need to determine whether such variables are still relevant.

Methods. A retrospective review of patient medical records and compensation and medical costs paid by the Workers’ Compensation Fund of Utah was performed.

Results. Since the mid-1990s, medical costs for compensated lumbar fusion patients in Utah have risen approximately 174%, whereas compensation costs have increased roughly with the pace of inflation. Wage and assignment to nurse case management whereas compensation costs have not. Biopsychosocial variables continue to be predictive of these costs, although to a more modest degree than in prior studies. Further investigations should look at other factors leading to increased medical costs.

Key words: biopsychosocial, compensation costs, lumbar fusion, medical costs. Spine 2012;37:605-611

Low back pain (LBP) is a remarkably common problem in the United States, with approximately 80% of Americans reporting at least 1 episode of LBP in their lifetime. LBP is the most common cause of physical disability and the most frequent reason for filing a workers’ compensation claim. Annual spending related to LBP in the United States is estimated between $20 billion and $50 billion.

The rates of lumbar fusion surgery continue to rise in the United States, with Medicare estimates indicating an increase of 0.3 per 1000 enrollees in 1992 to 1.1 per 1000 enrollees in 2003. The growth in these rates accelerated in 1996, coinciding with the approval of lumbar fusion cages. Likewise, medical costs for lumbar fusion have increased approximately 5-fold. Lumbar fusion costs represented 14% of back surgery in 1992 and over 47% in 2002.
Clinical Study

Presurgical biopsychosocial variables predict medical, compensation, and aggregate costs of lumbar discectomy in Utah workers’ compensation patients

M. Scott DeBerard, PhD\textsuperscript{a,\!*}, Anthony J. Wheeler, BS\textsuperscript{a}, Jessica M. Gundy, PhD Candidate\textsuperscript{a}, David M. Stein, PhD\textsuperscript{a}, Alan L. Colledge, MD\textsuperscript{b}

\textsuperscript{a}Department of Psychology, Utah State University, 2810 Old Main Hill, Logan, UT 84322-2810, USA
\textsuperscript{b}Utah Labor Commission, 160 East 300 South, Suite 300, Salt Lake City, UT 84111, USA

Received 18 October 2010; revised 14 January 2011; accepted 23 March 2011

Abstract

BACKGROUND CONTEXT: Elective lumbar discectomy among injured workers is a prevalent spine surgery that often requires a lengthy rehabilitation. It is important to determine presurgical biopsychosocial predictors of compensation and medical costs in such patients.

PURPOSE: To determine if presurgical biopsychosocial variables are predictive of compensation and medical costs in a cohort of Utah patients who have undergone open or microlumbar discectomy that are receiving workers’ compensation.

STUDY DESIGN/SETTING: A retrospective cohort study consisting of a review of presurgical medical records and accrued medical and compensation costs.

PATIENT SAMPLE: A consecutive sample of 266 compensated workers from Utah who had undergone either open discectomy or microlumbar discectomy from 1994 to 2000. All patients were at least 2 years postsurgery at the time of follow-up.

OUTCOME MEASURES: Total accrued medical, compensation, and aggregate costs.

METHODS: A retrospective review of presurgical biopsychosocial variables and total accrued medical, compensation, and aggregate costs.

RESULTS: Presurgical variables were statistically significantly correlated with medical and compensation costs. Multiple linear regression models accounted for 31\% of variation in compensation costs, 32\% in medical costs, and 43\% in total aggregate costs.

CONCLUSIONS: Presurgical biopsychosocial variables are important predictors of compensated lumbar discectomy costs. Medical cost control programs might benefit from identifying biopsychosocial variables related to increased costs. Published by Elsevier Inc.

Keywords: Biopsychosocial; Costs; Lumbar discectomy; Workers’ compensation

Introduction

Approximately 326,000 patients undergo spinal discectomy surgery annually [1]. Lumbar discectomy rates have increased to 77\% from 1992 to 2003 in the United States, accounting for approximately one-third of Medicare spending on spine surgery in 2003 [2]. The central foundation for discectomy is the belief that a bulging or herniated disc can apply pressure on nerve roots in the spine, and this may result in low back/extremity pain and/or neurological symptoms. Discectomy allows for removal of bulging or
Thank You!