Improving Care for Low Back Pain

by
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Today's Discussion

I. Low Back Pain Burden & Navistar Overview
   William B. Bunn MD

II. Navistar's Experience Measured & Managed
    Harris Allen PhD

III. Implications for Care Guidelines
     Michael Erdil MD

IV. Panel Q&A

I. Burden of Low Back Pain & Navistar Overview

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Former VP of Health, Safety, Security & Productivity
Navistar, Inc.
Professor
Northwestern University School of Medicine
Economic Burden of Back Pain

- 80% of all worker compensation claims are musculoskeletal sprain/strain injuries with lower back injury accounting for 33% of WC dollars.
- Back Pain causes more than 313 million bed days and 187 million lost work days annually.
- Employers lose 5.9 hours of productivity per week/employee from musculoskeletal pain (“Presenteeism”)
- Total cost of low back pain est. $39 to $78 Billion in direct costs and $62 Billion in indirect costs (adjusted to 2014 dollars)
Overview at Navistar
Largest US maker of trucks and engines
- Global population 17,000, US 11,000
- Retiree to active ration 3:1
- Older, mostly male, large union representation
- History of high health costs

Navistar Health & Productivity
- Measure and manage with monthly analysis
- Manage both supply and demand
- All sites with “Vital Lives” health promotion programs
- Focus on primary, secondary and tertiary prevention
- On site medical facilities, 16 Disease Management Programs
- Evidence Based Health Benefits Management
- 12 Studies published in JOEM alone

Health Care Cost Trend per Employee/Retiree
Combined Workers’ Comp & Disability Cost National Trends vs. Navistar Actual

Controllabe Absenteeism Cost Savings: Navistar 1999-2010

Conclusions
Controllable absenteeism dropped from 5.0% to 1.8%. Annual savings exceeded $2 million per 1000 EEs in 2010.

Back / Musculoskeletal Programs

- Aggressive Management of ergonomics integrated with health promotion/wellness
- Work hardening, transitional exercise programs
- Traditional programs for medication review
- Ongoing review of Health & Productivity and specific diseases
- Results drive health benefits design and prevention efforts
Musculoskeletal Disability Management
*Intervention based on Guidelines, 2002-4*

- High M/S costs in W/C and Disability
- Three-stage Process
  - Physicians Report
  - Implement Clinic Practice Guidelines
  - Guidelines mandatory / implemented
- Prompt clinician response (1-3 days)
- Key issues for success
  - Union Support
  - Effective Physician Education
  - Clear guidelines and expectations

**Intervention Results**

- Results for back injuries and costs
  - Injuries from 125 to 16
  - Mean days lost 52.6 to 24.3 per injury
  - Indemnity costs: from $14,192 to $2565 per injury
  - Medical Costs: from $6322 to $1670 per injury
  - W/C costs lowered $1500 per FTE
- ROI of intervention at least 40:1

**Impact of Study Results**

- Use and compliance with guidelines
- Case management
- Disease management
- Refocus site health unit efforts
- Integrate with wellness, on site clinics, PT and ergonomics efforts
- Communications
- Continue measure and manage
II. Navistar’s Experience Measured & Managed

Harris Allen PhD
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Harris Allen Group, LLC
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Rationale

Zeroing in on Low Back Pain (LBP)

- Burden
  - Prevalence in general population over lifetime: up to 84%
  - 2nd most common symptom driving clinician visits in U.S.
  - #1 cause of worker compensation

- Clinical uncertainty
  - Sharp increase in use of imaging, surgery, medications, etc.
  - No evidence of improved functional status
  - No evidence of declining work disability

Objectives

- Characterize burden of – and treatment patterns for – LBP
- Assess care in relation to published guidelines

Methods

- 30% of 21,080 EEs w/ >=1 back prob episodes (n=14,787), 2001-9
- LBP: Neurologic (n=1,837) / Non-neurologic (n=8,569) episodes
- Identified 5 treatment approaches based on first 6 wks of claims
- Tracked total cost outcomes for up to 3 yrs / episode
- Assessed via guidelines for imaging/surgery/med use/OP visits
- Used propensity-based methods to adjust for demos & episode chars

Study Design
Describing LBP Episodes
Type & Duration by Initial Treatment Strategy

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<tr>
<th>Type of LBP</th>
<th>Initial Treatment Strategy</th>
<th>Duration</th>
<th>TalkInfo n=6,171</th>
<th>Dabble n=960</th>
<th>Complex MM n=187</th>
<th>Chiro n=1,089</th>
<th>PT n=1,230</th>
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<td>10.9%</td>
<td>6,324</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

LBP Guideline Measures

- 11 measures
  - 3 imaging
  - 2 surgery
  - 1 provider
  - 5 medication

- Characterized
  - Based on claims, identified by incurred date
  - Differentiated by duration

- e.g., MRI/CT scan (non-neuro)
  1=Had first MRI / CT between days 1-84 from episode start date
  0=Did not have any MRIs or CTs during this first 84-day period

Observed Guideline Inconsistencies

Finding: High prevalence of guideline inconsistency except for surgery. Even without surgery, inconsistency rates for all episodes having procedure or med were 17% to 61%.
Guideline Inconsistencies & Total Costs

Finding
Inconsistency was linked to greater total costs on 10 of 11 guidelines. But, on PT/Chiro w/i 2 wks, inconsistency was linked to savings.

Guideline Inconsistencies by Initial Treatment Patterns

Finding
Complex MM & PT reported highest rates of guideline-inconsistent use of imaging, surgery & med use regardless of episode type; Chiro, the lowest.

Initial Treatment Patterns by Total Costs at Year 1

Finding
These 2 approaches, whose more intensive use of resources was compounded by inconsistency on these 10 guidelines, were linked to greatest total costs.
Finding
Guideline-inconsistent imaging, surgery & med use linked to major STD losses, while guideline-inconsistent PT/Chiro visits linked to major STD gains.

Finding
NonNeuro pattern replicated the neuro pattern, with MRI/CT and surgery effects being even stronger.

Conclusions for Employers
Managing their Value/Sustainability Challenge

- High rates of guideline-inconsistent use of imaging/surgery meds observed
  - Improved adherence will lead to greater savings
- High rates of guideline-inconsistent “first visits” to PTs and chiropractors observed
  - Greater non-adherence will lead to greater savings
- These distinctions had parallel impacts on disability and other drivers of lost productivity
  - Guidelines: a new lever for management
Conclusions for Guideline Updating

Maximizing their Impact

- Total costs not more important than improved clinical processes
- But, purchaser priorities no less important than other groups
- Employers have strong reasons to want to ensure that guidelines are exerting optimal impacts
- By virtue of their database and analytic assets, they can make unique contributions to guideline improvement

Implication

Employers belong at the “guideline 2.0” table alongside – and in collaboration with – providers and plans

Taking the Two Studies Together

What Do They Show?

- Guidelines are vital to an overall approach to back and musculoskeletal injury, prevention and treatment
  - Guideline-inconsistent care augments effects of treatment patterns
  - Aggressive use of clinical practice guidelines work
- Ongoing assessment of guidelines and costs needed
  - Even with aggressive programs and excellent short term experience, further cost savings and better health outcomes are possible
- Measurement and management of guidelines can improve health plan design and reduce costs
  - Cost reductions were not marginal; ROI of 40:1 or more possible

III. Implications for Guidelines

Michael Erdil, MD, FACOEM

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Management & Treatment of Back Pain

Worsening Trends

- Outpatient neck / back visits (National Ambulatory Medical Care Survey & NHAMCS 1999-2010)
- Excluded “red flags”
- NSAID acetaminophen ↓ 36.9%-24.5%
- Opioids ↑ 19.3%-29.1%
- PT utilization 20%
- MRI/CT ↑ 7.2%-11.3%
- Specialty referrals ↑ 6.8%-14%

Guideline Recommendations and Allen et al. JOEM 2014 Key Findings & Implications

- Early PT/chiro (< 2wks) ↓ cost
- Confirmed early MRI (< 4 wks) ↑ cost
- Confirmed opioids before and after 12 weeks ↑ cost
- Observed benzodiazepines before and after 4 weeks ↑ cost
- Considerations:
  - Further analysis of synergistic effects
  - PT / chiro research and guideline implications
  - Integration of cost / benefit considerations into guidelines, patient-evidence based & shared decision making

Medications and ALBP

- Acetaminophen or NSAIDs
- Muscle relaxants: short term, sedation
  - Benzodiazepines generally addressed under chronic pain, caution short term 2-4 weeks if used
- Opioid caution, severe pain, night, limit 2-3 weeks
  - No more effective than acetaminophen, NSAIDs APS Eval and Mgt Guidelines 2009, ACOEM, ODG
Opioids and LBP, MSDs

- > 16,000 fatal OD from prescribed opioids 2010 CDC Health E-stats 2014
- ↑ OD risk for > 50-100 MED Dunn Ann IM 2010, Bonhert JAMA 2011
- Chronic opioid prescription
  - MSDs only 27% significant pain reduction, 16% significant functional improvement WA Dept of Labor & Industries Franklin Clin J Pain 2009
  - > 20% d/c secondary to side effects

Schedule II Opioids and WC LBP Claim Impact

- Claim cost
  - $20K ↑ claim cost LBP treated with Sch II opioids > 90 days WC Fund of Utah Vollin Pain 2009
  - ↑ risk $100k claim cost (SA OPR 1.8x, LA OPR 3.9x); ↑ claim cost (SA OPR 2.6x, LA OPR 9.3x); Opioids cost driver independent of severity MI Accident Fund White JOEM 2012
- Work loss Sch II opioids > 90 days Vollin Pain 2009
  - 11-14 ↑ odds ratio work loss
  - 6x ↑ # work loss days

PT / Exercise and ALBP

- There is no one superior treatment or combination of treatments for acute LBP
- Exercise generally beneficial
- Benefit of PT for acute LBP with fear avoidance Fritz Pain 2001, George Spine 2003, otherwise inconsistent evidence for early referral
- Retro review early PT (<2d vs 2-7d vs > 8 d) for acute LBP (< 3wks) assoc with ↓ provider visits, mod duty days, case duration Zigenfus JOEM 2000
- Retro review early PT (< 4 wks vs > 3 mo) ↓ provider visits, injections, surgery Gehorn Spine 2012
- Inconsistent literature on specific rehab protocols; directional preference? Surkatt PT 2012
- ACOEM, ODG options
Manipulation and ALBP

- Better outcome positive clinical prediction rule pain < 16d, no distal leg pain, no fear avoidance Flynn Spine 2002
- However, inconsistent benefit vs. other treatments
- ACOEM, ODG options

Appropriate Use MRI for LBP

- Early imaging to rule out cancer, infection, fracture, cauda equina, severe or progressive neuro deficit, inflammatory back disease
- Option after 4-6 weeks non-response to conservative care if potential red flags, interventional considerations

MRI for ALBP and Potential Harm

- Early MRI vs x-ray ↑ consults (73% vs 49%), ↑ surgery (6% vs 2%), ↑ cost but equivalent 12 mo symptoms, function, satisfaction Jarvik JAMA 2003
- Early MRI assoc with ↑ medical utilization, surgery and disability Webster JOEM 2010
- Early MRI 2x disability WA WC at 1 yr Graves Spine 2012
- Early MRI assoc with lower sense of well being Ash AJNR 2008
IV. Panel Q&A

References for This Presentation


References for this Presentation

- ACOEM Occupational Medicine Practice Guidelines. Low Back Disorders. 2008
Publications

Navistar, Inc. Health & Productivity Database

Burden of Disease


Impact of Overtime


\[P = \text{peer-reviewed}\]
Methodological / Validation


Evidence-based Benefit Design


Workplace Culture of Health


Aggregate Level / Summary
