MAYO CLINIC

Caught in the Middle:
Divergent Care Perspectives in the Return to Work Process

Russell Gelfman, MD, MS, FACOEM, FAAPMR
Assistant Professor, Physical Medicine and Rehabilitation
Medical Director, Mayo Clinic Work Rehabilitation

Minnesota Department of Labor and Industry
2020 Rehabilitation Update: Changing Times
September 22, 2020

Disclosure

Relevant Financial Relationship(s)

Medical Director of Work Rehabilitation

Off Label Usage

None

Learning Objectives

At the conclusion of this activity, participants should be able to:

1. Gain perspective on medical care options for an injured worker with chronic low back pain through a case example.
2. Describe how clinician/insurance/legal/client attitudes and beliefs affect the medical treatment and outcomes of chronic low back pain.

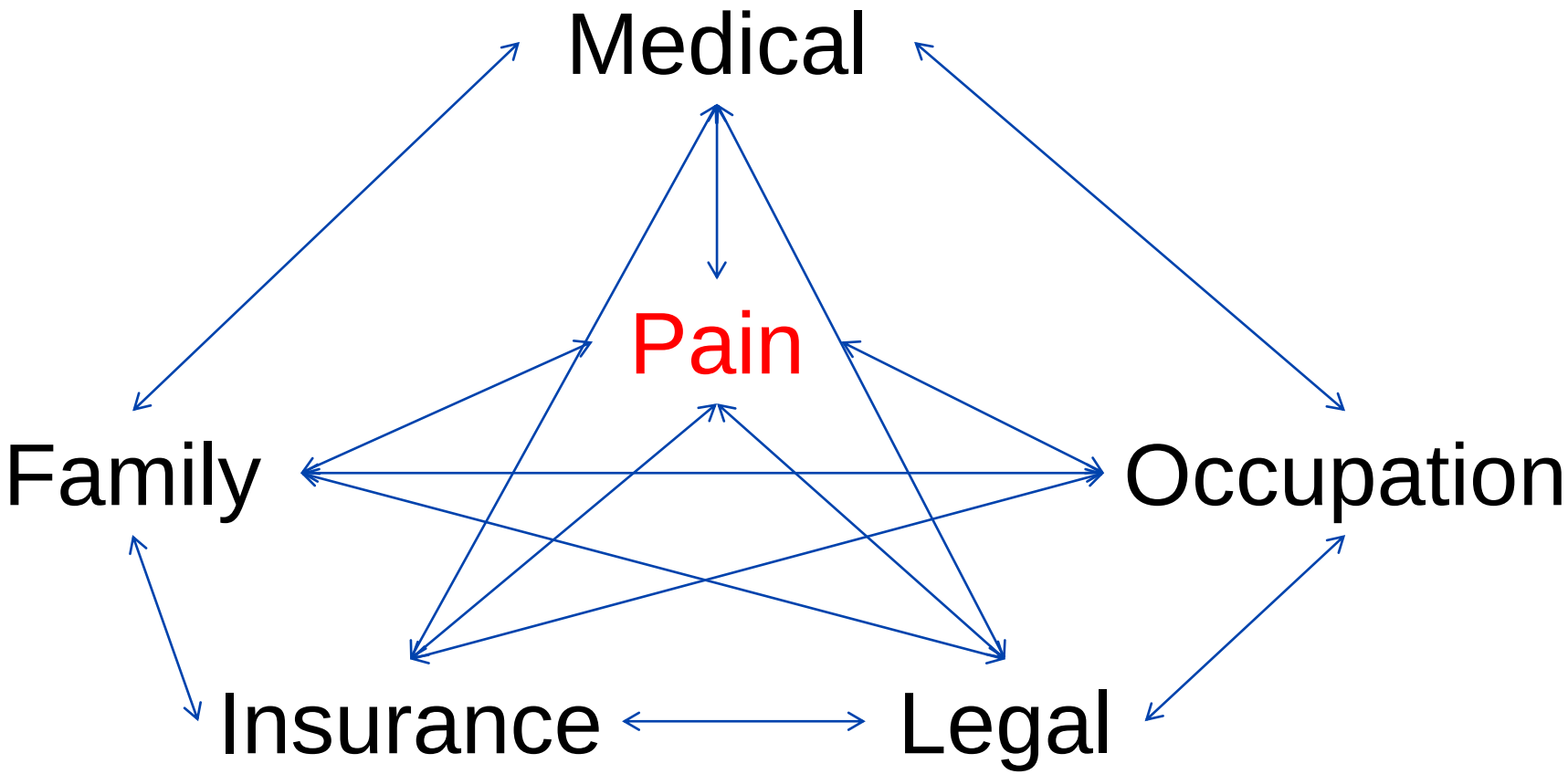
Biography:
Background For My Beliefs

- Varied Experiences
  - On-site / Occupational Health Clinic / Academic Center
  - Acute Care / Spine Center / Tertiary Work Rehab
  - Papers / Chapter / Reviewer Medical Care Guidelines
- Clinical Observations - Acute conditions
  - MSK treatments (chiropractic/pills)
  - Minimal physical therapy (watchful waiting/few visits)
- Clinical Observations - Chronic conditions
  - MSK treatments (pills/injections/surgery)
  - Physical therapy (modalities/exercise)

Perspectives - Not About “Bad Actors”

- Medical
  - Role of technology and culture
  - Different outcomes under workers’ compensation
  - Different perspectives among providers
- Administrative
  - Medical experts (IMEs)
  - Treatment guidelines
  - Delays in care
- Legal
  - Why clients consult with attorneys
  - Perceived or Social Injustice

“Pain” for the Injured Worker



Medical Culture/Technology Beliefs

- Americans believe in “fighting” disease aggressively
- Their doctors have a highly-technical “no-holds-barred” approach to treating disease
- Science and medicine has a reductionist “machine” approach
  - Single painful generator → magic bullet / “fix”

    Vs
  - Multifactorial pain network → dynamics / adaptation

Deborah Lupton.
Medicine as Culture: Illness, Disease and the Body, 3rd revised edition. Sage, 2012.

Ahn AC, Tewari M, Poon CS, Phillips RS (2006).
The limits of reductionism in medicine: Could systems biology offer an alternative?
PLoS Med 3(6): e208. DOI: 10.1371/journal.pmed.0030208

Technology and Cultural Beliefs

https://www.youtube.com/watch?v=0CPJ-AbCsT8

The Untold Medical History

- Once completing rehabilitation, Steve has a post-offer medical evaluation prior to starting his job as a secret agent with the Office of Scientific Intelligence (OSI)
- The Occ Med provider notes a history of PTSD and depression from the accident with improvement to the extent that no prescription medication or ongoing therapy is necessary
- He continues to have phantom limb pain, but has been able to function relatively well with distraction, aspirin or acetaminophen

Re-Entry into the Workforce

- Steve is found to be fit for duty
  - Biological - No “loose parts”
  - Psychosocial - PTSD/depression/body image
- He undertakes several successful missions using his “superhuman” abilities
- His missions, occasionally fictionalized, are chronicled on TV from 1973-1978
  - With Jaime Sommers 1975-1994
  - “Jaime” became one of the 100 most popular names of the year in every state in 1976

Subsequent “Physical” Problems

- He is involved in many altercations, including encounters with Bigfoot, and frequently jumps up to, down from and over high buildings and other barriers—he develops an L5 disc “bulge” followed by episodic low back pain
- He finally retires from OSI due to the inability to continue to work at this level of physical performance—he has no formal restrictions

After His Career at OSI

- Takes a position as an Agent with the Minnesota Bureau of Criminal Apprehension
- One day he is lifting a box of case files and develops an L5 disc protrusion followed by worsening LBP, but no leg pain
- He seeks medical treatment

Steve's
Low Back Pain (Disc Disease)

- Chiropractic – No help
- Physical Therapy – No help
- Ibuprofen (1974) – No help
- Vicodin (1978) – Less effective over time
- Lumbar injections (1953) – epidural injections – No help
- Switches to OxyContin (1996) – No additional help
- He is unable to sit at a desk – Off work
- Qualifies for QRC services

Steve's Downward Spiral

- Steve is sent for an IME:
  - Back to pre-existing self—No further treatment needed
  - No physical restrictions
- He sees his treating provider:
  - Pain "12/10" severity despite OxyContin
  - PHQ-9 = 20, wants to work but feels worthless until "fixed"
  - No pay for 3 months—considering bankruptcy
  - His surgeon offers lumbar discectomy and fusion
- Claims adjuster sees requests for:
  - Surgery, more injections—$$$
- Gets an attorney
  - Push for the surgery
  - If still can't work—PTD

The Downward Spiral

- 50 injured workers in a New York occupational health clinic
- 2/3 lost their health insurance
- Many reported their treating physician did not want to become involved in WC despite feeling that the health condition was work-related
- Significant financial stress from direct medical costs and reduced income – depleted savings, borrowing money, taking out retirement funds, declaring bankruptcy
- Almost universally, diagnosis and related issues were associated with depression, anxiety, loss of identity and self-worth

Lax MB, Klein R.
More than meets the eye: Social, economic, and emotional impacts of work-related injury and illness.
New Solut 2008;18(3):343-60. doi: 10.2190/NS.18.3.i.

Caught in the Middle – What Would You Do?

- Continue to use opioids and/or injections?
- Push for a lumbar discectomy and fusion?
- Give up on working – PTD and SSDI?
- Or
- What about physical rehabilitation or functional restoration options?

Bio-Medical Advances
Rehabilitative Options to Evaluate and Treat

- Regen 1930s – “Squat Exercises”
  - ↑ lordosis for disk space narrowing (DDD)
- Williams 1937 - Flexion Exercises
  - ↓ lordosis to relieve posterior elements
  - Pelvic tilt, single knee-to-chest, double knee-to-chest, partial sit-up, hamstring stretch, hip flexor stretch, squat
- Kennedy 1957
  - Dynamic Abdominal Bracing (DAB)
  - Standing NM re-ed. oblique abdominal muscles, then with lifting, pushing, carrying
- McKenzie 1956
  - Often thought of as “extension-biased” exercises
  - MDT (Mechanical Diagnosis and Therapy) 1981

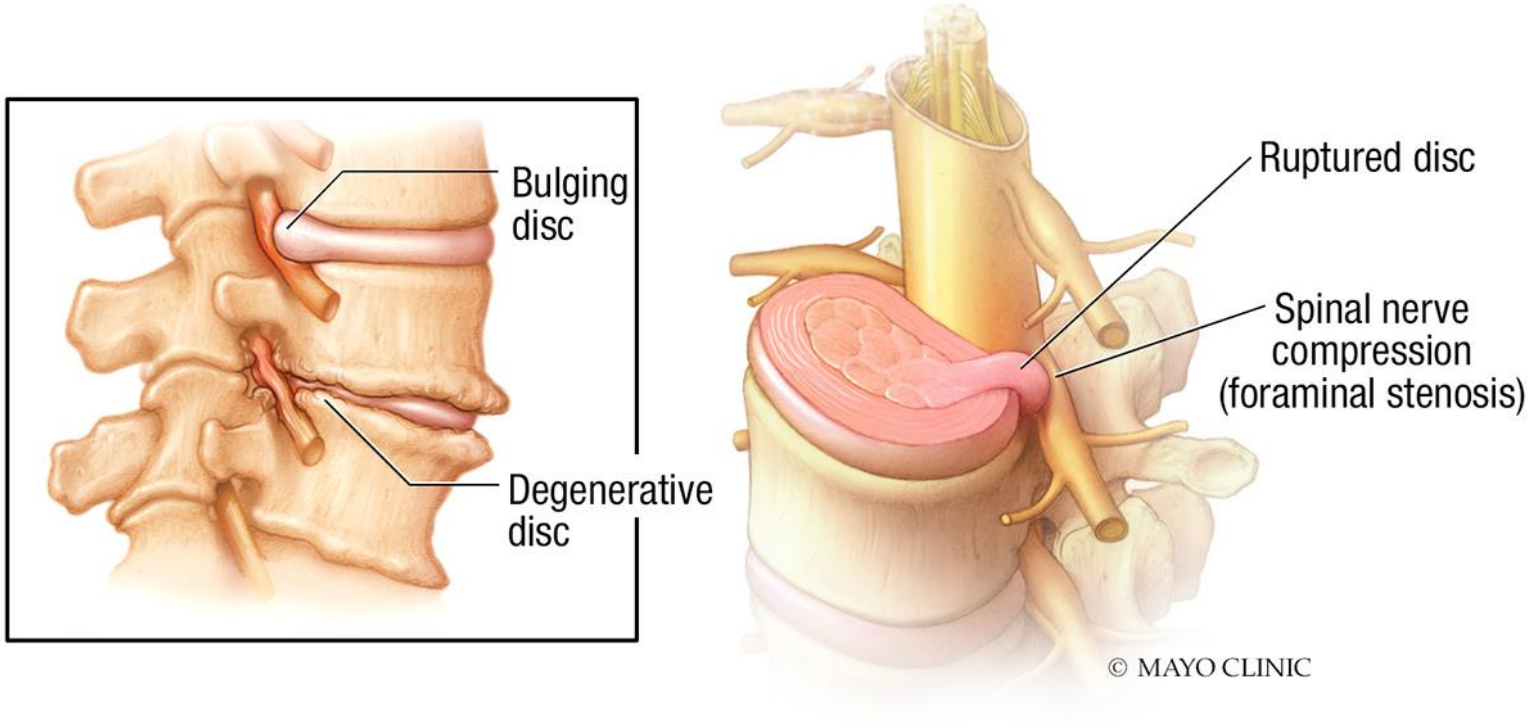
Back Schools (Education & Ergonomics)

- Swedish 1970
  - Avoid therapeutic nihilism, but decrease individual PT with group education about ergonomics and back care
- Canadian Back Education Units 1974
  - Education - misconceptions about causes, natural history and treatment role for physical therapy
- California Back School 1976 (3 visits)
  - Obstacle course
  - Education
  - Work activities/body mechanics

Multidisciplinary Pain Programs

- Fordyce 1968
  - Application of behavior modification for the problem of chronic pain
- Mayer and Gatchel 1980
  - Functional Restoration Program
  - Geared toward chronic disabling occupational musculoskeletal disorders

Degenerative Disk Disease



Bio-Medical Advances
Medical Options to Evaluate and Treat

- Surgical Perspectives
  - Spine DDD treated by Cloward with PLIF in 1952
  - Yasargil first microdiscectomy in 1977
  - Harms and Rolinger TLIF in 1982
- Non-Invasive or Minimally-Invasive Diagnostic Tests
  - Digital EMG machines from 1973 to 1982
  - The first CT scanners installed in the US in 1973
  - MRIs became commercially available in the 1980s
- Opioid Pain Management Options
  - Vicodin introduced in 1978
  - OxyContin introduced and marketed in 1996

EBM for Orthopedic Conditions

- EBM defined by Sackett in 1996
- RCT provides the least biased evidence for safety and efficacy of an intervention
- RCT evidence supports
  - >50% of medical decisions
  - ~25% of surgical decisions
- In orthopedics, ~20% of procedures have one “low risk of bias” RCT showing operative superior to non-operative alternatives

Lim HC, Adie S, Naylor JM, Harris IA.
Randomized Trial Support for Orthopaedic Surgical Procedures.
Plos ONE (2014) 9(6): e96745.

SPORT (Discectomy vs Non-Operative)

- Lumbar disk herniation and radiculopathy
  - Randomized 501 patients
  - Open diskectomy vs nonoperative treatment
- Intent-to-treat analysis
  - 1^0 and 2^0 outcomes mostly equivalent
  - Except sciatica symptoms favor surgery
- Some argue results favor surgery
  - Focus on the “as-treated” group
- Many criticisms
  - High cross-over rates
  - No placebo control arm

Weinstein JN, et al.
Surgical vs nonoperative treatment for lumbar disk herniation: the Spine Patient Outcomes Research Trial (SPORT): a randomized trial.
JAMA (2006) 296:2441–2450.

Weinstein JN, et al.
Surgical vs nonoperative treatment for lumbar disk herniation: the Spine Patient Outcomes Research Trial (SPORT) observational cohort.
JAMA (2006) 296:2451–2459.

SPORT – Expectations (*Beliefs*)

- IDH observational cohort, 67% elected surgery
  - Younger, lower levels of education, higher unemployment/disability, higher pain, more opiate use, worse functional scores, back pain-related disability, longer duration of symptoms
- High expectations–surgery 63% vs nonsurgical 16%
  - Expectation of potential benefit from non-operative care was the strongest predictor of treatment preference
  - High expectations with nonsurgical treatment associated with better non-operative outcomes

Lurie JD, et al.
Patient preferences and expectations for care: determinants in patients with lumbar intervertebral disc herniation.
Spine (2008). 33:2663–2668.
Lurie JD, et al.
Effect of expectations on treatment outcome for lumbar intervertebral disc herniation.
Spine (2016) 41:803–809.

What Did We Learn From SPORT?

- Real-world outcomes
- Informed patients can choose their treatment
- Surgery is not a minor procedure
  - Surgeons were experienced and respected
  - 4% reoperation within one year
  - 4% frequency of dural tear
  - 2% blood transfusion (25% EBL > 1500 mL)

Mirza, S K, et al.
What patients know.
Surgical Neurology. (2008);70:5-7.

What About Fusion?
3 RCTs – Spinal Fusion vs CBT + Exercise

- Multicenter, 473 patients with CLBP ≥ 1 year
- Outcome – ODI, VAS, pain frequency, pain medication use, work status, QOL, satisfaction with care and global treatment outcome
- After 11 years of follow-up, no clinically relevant differences in patient self-rated outcomes

Mannion AF, et al.
Comparison of spinal fusion and nonoperative treatment in patients with chronic low back pain: Long-term follow-up of three randomized controlled trials.
The Spine J (2013) 13:1438-1448.

RCT Lumbar Fusion vs Cognitive Intervention + Exercises (CI+E)

- 64 patients, 25-60 years old with LBP >1 year and evidence of DDD at L4-L5 and/or L5-S1
- Lumbar fusion and postoperative physiotherapy
- Cognitive intervention with a lecture to give understanding that ordinary physical activity would not harm the disc and a recommendation to use the back and bend it reinforced by three daily physical exercise sessions for 3 weeks

Brox JI, et al.
Randomized clinical trial of lumbar instrumented fusion and cognitive intervention and exercises in patients with chronic low back pain and disc degeneration.
Spine (2003) Sep 1;28(17):1913-21.

Results

- At the 1-year follow-up visit:
  - ODI 41→26 after surgery, 42→30 after CI+E
  - Success rate 70% after surgery, 76% after CI+E
- Improvements in back pain, use of analgesics, emotional distress, life satisfaction, and return to work were not different
- Fear-avoidance beliefs and fingertip-floor distance were reduced more after non-operative treatment
- Lower limb pain was reduced more after surgery
- Early complication rate in the surgical group was 18%

Brox JI, et al.
Randomized clinical trial of lumbar instrumented fusion and cognitive intervention and exercises in patients with chronic low back pain and disc degeneration.
Spine (2003) Sep 1;28(17):1913-21.

Systematic Review
Opioids Acute or Chronic LBP

- 14 studies met inclusion/exclusion criteria
- All trials involved short-term management
- A high percentage of harms were identified across most studies
- Opioids were not shown to be superior to other medications, only superiority to placebos
- Higher percentages of severe harms in opioid arms for the management of subacute and chronic LBP
- The majority of trials that demonstrated benefits with opioids also had potential conflicts of interest

Tucker H-R, et al.
Harms and benefits of opioids for management of non-surgical acute and chronic low back pain: a systematic review.
Br J Sports Med (2019);0:1–13.

Opioids

- Prescription of opioids for more than 7 days for workers with acute back injuries is a risk factor for long-term disability
- Chronic opioid use is a predictor of less successful outcomes after a work-related injury
- Higher dose levels are associated with progressively greater indemnity and medical costs for ongoing disability (delayed recovery)

Spine Volume 32, Number 19, pp 2127-2132.
Spine Volume 33, Number 3, pp 199-204.

Injections For Chronic LBP

- LDH or radiculitis is Level II for long-term improvement either with caudal, interlaminar, or transforaminal epidural injections with no significant difference among the approaches
- Axial or discogenic pain without facet arthropathy or disc herniation is Level II for treatment with caudal or lumbar interlaminar injections in the lumbar region
- Post lumbar surgery syndrome is Level II with caudal epidural
- Even though there were 52 RCTs, the paucity of high quality randomized trials continues to confound the evidence

Kaye AD, et al.
Efficacy of Epidural Injections in Managing Chronic Spinal Pain: A Best Evidence Synthesis.
Pain Physician (2015); 18:E939-E1004.

What is different about worker's compensation patients?

- Lower educational achievement
- Longer work hours
- Fewer weeks worked in last year
- Higher physical demands
- More involved in legal actions
- Less financial resources
- Feel less able to work without surgery
- Utilization rates of opiates and antidepressants 50% higher
- Do you believe that lumbar discectomy and fusion would be a good option for these patients?

Atlas S, et al.
What Is Different About Worker's Compensation Patients?: Socioeconomic Predictors of Baseline Disability Status Among Patients With Lumbar Radiculopathy.
Spine (2007) 32(18):2019-2026.

Cummins, J, et al.
Descriptive Epidemiology and Prior Healthcare Utilization of Patients in the Spine Patient Outcomes Research Trial's (SPORT) Three Observational Cohorts: Disc Herniation, Spinal Stenosis, and Degenerative Spondylolisthesis.
Spine. (2006) 31(7):806-814.

Lumbar Fusion Work Outcomes

- 1037 subjects (Ohio Bureau of Workers' Compensation database) who underwent fusion for DDD between 1993 and 2013 with at least 3 years follow-up
- Excluded those with:
  - History of other lumbar surgery
  - Smoking
  - Failed back syndrome
- Only 23.2% (n=241) made a sustained return-to-work within 2 years after fusion

Lumbar Fusion Work Outcomes (2)

- Poor outcome predictors (RTW%)
  - Prolonged time out of work (10.4%)
  - Psychiatric history (2.0%)
  - Prolonged use of opioid analgesics (11.9%)
  - Male sex (21.1%)
  - Legal representation (20.7%)
- 76.8% (n=796) did not return to work
  - Chronic opioid dependence
  - Failed back syndrome
  - Additional surgery
  - New psychiatric co-morbidity

Anderson, JT; Haas, AR; Percy, R; Woods, ST; Ahn, UM; Ahn, NU. **Return to Work After Diskogenic Fusion in Workers' Compensation Subjects.** Orthopedics. 2015;38(12):e1065-e1072. https://doi.org/10.3928/01477447-20151120-02

Why Do Work-Disabled Patients Have Worse Outcomes? - “Biopsychosocial Model”

- Biological
  - Age, gender, co-morbidities, poor general health
- Psychological
  - Depression, stress, pain perception, motivation
  - Fear-avoidance, catastrophizing, expectations
- Social
  - Administrative, legal, delayed intervention
  - Educational attainment, perceived injustice
  - Cultural beliefs

DeBerard MS, LaCaille RA, Spielmans G, Colledge A, Parlin MA.
Outcomes and presurgery correlates of lumbar discectomy in Utah Workers' Compensation patients.
Spine J. (2009) 9(3):193-203.

Higher Costs of Care Associated With Biopsychosocial Factors

- Pre-surgical biopsychosocial variables predict medical, compensation, and aggregate costs of lumbar discectomy and fusion in workers' compensation patients
- Cost reduction programs might benefit from identifying biopsychosocial factors related to increased costs

DeBerard, M.S., Mastera, K.S., Colledge, A.L., Holmes, E.B.
Presurgical biopsychosocial variables predict medical and compensation costs of lumbar fusion in Utah workers' compensation patients. Spine J. (2003) 3(6):420-9.

DeBerard, M.S., Wheeler, A.J., Gundy, J.M., Stein, D.M., Colledge, A.L.
Presurgical biopsychosocial variables predict medical, compensation, and aggregate costs of lumbar discectomy in Utah workers' compensation patients. Spine J. (2011) 11(5):395-401.

Early Screening

Nicholas MK, Linton SJ, Watson PJ, Main CJ; "Decade of the Flags" Working Group. **Early identification and management of psychological risk factors ("yellow flags") in patients with low back pain: a reappraisal.** Phys Ther. (2011) May;91(5):737-53.

Summary of Different Types of Flags

Flag	Nature	Examples
Red	Signs of serious pathology	Cauda equina syndrome, fracture, tumor
Orange	Psychiatric symptoms	Clinical depression, personality disorder
Yellow	Beliefs, appraisals, and judgments	Unhelpful beliefs about pain: indication of injury as uncontrollable or likely to worsen Expectations of poor treatment outcome, delayed return to work
	Emotional responses	Distress not meeting criteria for diagnosis of mental disorder Worry, fears, anxiety
	Pain behavior (including pain coping strategies)	Avoidance of activities due to expectations of pain and possible reinjury Over-reliance on passive treatments (hot packs, cold packs, analgesics)
Blue	Perceptions about the relationship between work and health	Belief that work is too onerous and likely to cause further injury Belief that workplace supervisor and workmates are unsupportive
Black	System or contextual obstacles	Legislation restricting options for return to work Conflict with insurance staff over injury claim Overly solicitous family and health care providers Heavy work, with little opportunity to modify duties

Early Intervention in Work Injury Patients Interdisciplinary Approaches

- Interdisciplinary approach in patients at risk to develop persistent NSLBP is justified in both sub-acute and chronic disease stages
- Psychosocial interventions might be more effective in sub-acute stages since a higher proportion of modifiable risk factors were identified in that group

Comparison of risk factors predicting return to work between patients with subacute and chronic non-specific low back pain: systematic review. Eur Spine J 2009, 18:1829-1835.

Administrative Issues

- IME (Not a treating provider)
  - Causality
    - Did work cause condition
    - Pre-existing condition
  - Reasonable and necessary care
    - Diagnosis
    - Other tests or treatments
    - MMI
    - Temporary aggravation or permanent
    - Should have healed

Administrative Issues (2)

- Treatment Guidelines
  - Nothing inherently wrong with medical treatment guidelines, but they are “guidelines”
  - Insurance adjusters do not have clinical expertise and are not treating the individual
  - Often, “guidelines” become inflexible rules

WC Treatment Guidelines

- Based upon previous research, which is often limited
- Do not necessarily apply to an individual patient
- Focus on a single body part
- Save money, but very little evidence they improve patient care

Legal

- Reasons why clients get attorneys
- Perceived or Social Injustice

Reasons Injured Workers Retain Attorneys

Claim denied	Lawyer advertising
No contact by employer or insurer	Lack of modified work/harassment after RTW
Bills unpaid	Worker dissatisfaction
Accident should have never happened	Loss of health insurance/benefits
Overbearing or intrusive contact by employer	Advice of friends/family/medical provider

http://www.ppnlaw.com/attorney-profiles/alan-s-pierce/papers/injured-retain-attorneys.html

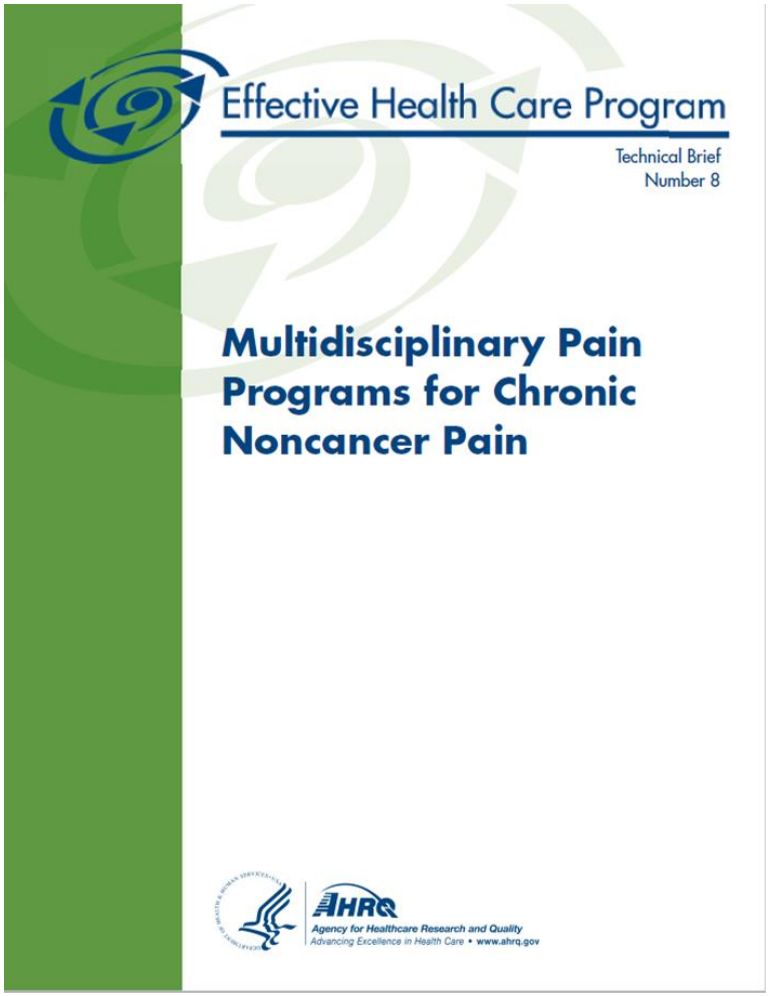
Major Concerns In Treatment of Work-Disabled Patients

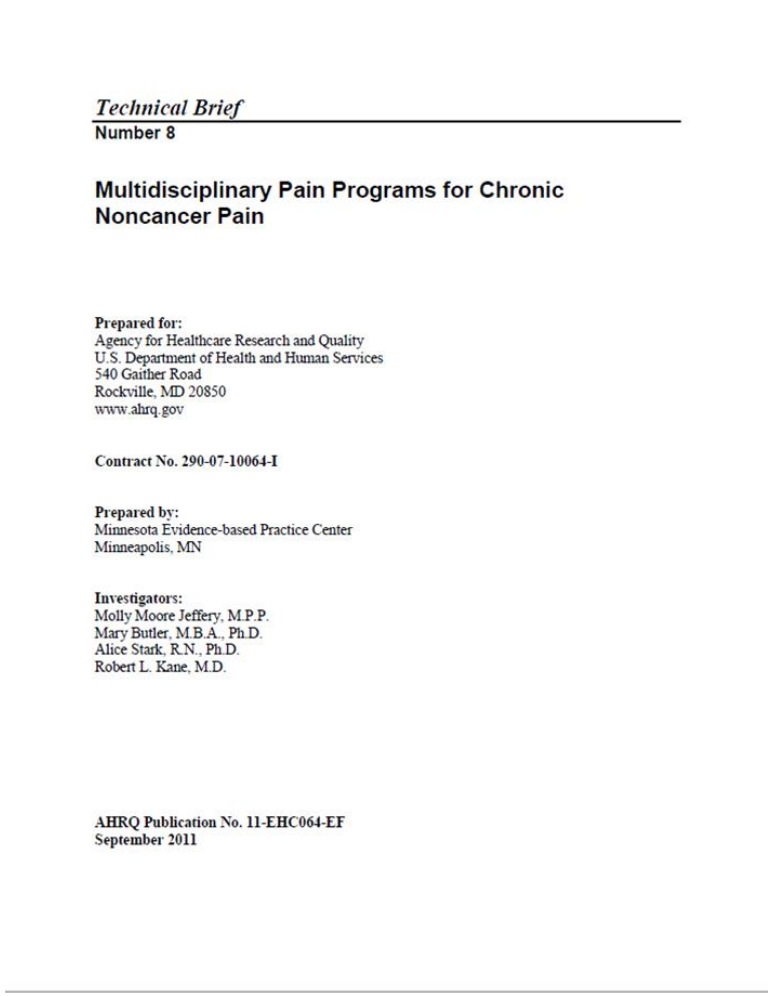
- Failure to address biopsychosocial factors
- Limited focus on compensable condition
- Administrative and clinical iatrogenesis
- Medically unexplained symptoms

You will not have optimal outcomes if you only address the physical!

Caruso, G.M. Biopsychosocial considerations in unnecessary work disability. Psychol Inj and Law (2013) 6:164-182.

Functional Restoration Works For Persistent Pain





Technical Brief
Number 8

Multidisciplinary Pain Programs for Chronic Noncancer Pain

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. 290-07-10064-I

Prepared by:
Minnesota Evidence-based Practice Center
Minneapolis, MN

Investigators:
Molly Moore Jeffery, M.P.P.
Mary Butler, M.B.A., Ph.D.
Alice Stark, R.N., Ph.D.
Robert L. Kane, M.D.

AHRQ Publication No. 11-EHC064-EF
September 2011

https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0091306/pdf/PubMedHealth_PMH0091306.pdf

Why Not A Standard of Care in US?

- Disciplinary collaboration vs discipline-segmented healthcare organization
- Collaborative care vs fee-for-service model of healthcare payments
- Beliefs about rehabilitative treatment (functional restoration focused on individualized assessment and behavior change) vs curative model of treatment

https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0091306/pdf/PubMedHealth_PMH0091306.pdf

Cognitive Behavioral Therapy (CBT)

- A short-term, goal-oriented treatment regimen that takes a hands-on, practical approach to problem-solving
- Goal is to change patterns of thinking or behavior - “the beliefs” that are behind people's difficulties, and so change the way they feel and behave
- In the setting of chronic pain, this addresses thoughts regarding fear of activity, catastrophic thinking and expectations

Risk Factors for Failure to RTW at Claim Closure

- Medical
  - Higher level of permanent impairment
  - Injury affecting the head and neck or back
- Non-Medical
  - Attorney involvement
  - Shorter job tenure
  - Lower pre-injury average weekly wage
  - Lower level of educational attainment

Hankins AB, Reid CA.
Development and validation of a clinical prediction rule of the return-to-work status of injured employees in Minnesota.
J Occup Rehabil (2015) 25:599-616.

Summary

- In a culture where:
  - Patients/physicians/insurers believe in the efficacy of medical technology (pills, injections and surgery) to "fix" common MSK pain conditions,
- It follows that:
  - Beliefs about the appropriateness and efficacy of behaviorally-based, non-operative physical rehabilitative treatments or "functional restoration" for persistently painful MSK conditions are under-appreciated by patients/physicians/insurers.
- But, without neurologic involvement:
  - If we change beliefs, CBT + exercise achieves equivalent or better outcomes (work/$) than "high tech" alternatives

Questions?

Contact Information
gelfman.russell@mayo.edu
507-266-0940