

# **Risks Associated with Patient Handling in Physical Therapists**

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# My Story

# Introduction

- Impact of WMSDs (any body region) in PTs
  - 1 in 6 reported change settings or leaving profession  
(Cromie, et al. 2000)
  - 32% reported losing work time (Glover, et al. 2005)
- Impact of WMSDs (low back only)
  - 18% lost work time, 12% reduced patient care (Molumphy, et al. 1985)
- Exposure
  - Established risk factors

# WMSDs in Nursing

- Among highest rates of non – fatal occupational injuries
- Risk Factors
  - Patient handling
  - Awkward, cramped, bent postures
  - Shift work
  - Psychosocial work stress
  - Staffing issues
  - Etc.

# Statistics

- One in three nurses becomes injured in the course of patient handling
- Cost to employers of \$35,000/nurse
- Blevins

# Questions

- Do PTs share risks with nurses?
  - Patient transfers
  - Repositioning in bed or chair
  - Ambulation training and guarding
- Do PTs have unique risks?
  - Matt work
  - Functional training
  - NDT/PNF
  - Etc.

# Cultural Risk Factors

- In what ways would the professional culture of PTs affect the risk for WMSDs?
  - -
  - -
  - -
  - -
  - -

# Overview of Literature

- WMSDs (any body region) in PTs
  - One year prevalence
    - 40% – 80% (work related ache, pain, discomfort)
    - Low back most prevalent
    - Wrist and Hand second
  - Risk factors cited as problematic
    - Patient lifting/handling
    - Manual therapy
    - Awkward postures
    - Treating too many patients in one day

Bork, et al. 1996, Cromie, et al. 2000, West and Gardner, 2001. Glover, et al. 2005

# Continued

- WMSDs (low back only)
  - One year prevalence - 29% to 57%
  - Lifting, bending and twisting frequently cited as mechanisms
  - Molumphy 1985, Mierzejewski 1987, Scholey 1989, van Dorn, 1995, Rujelj 2003
- Acute work related injuries
  - 1 study
  - 33% reported traumatic incident at work
  - Holder, 1999

# Cultural Factors

- Therapists are supposed to be caring
  - Always there for patients
- Therapist training
  - Believed to prevent and/or handle injury
- Embarrassment
  - Ashamed to admit injuries
- Keep working
  - Don't seek treatment
  - Don't stop working

Cromie, et al. 2002

# Limitations

- Cross sectional designs
- Broad case definitions
- Limited analysis of associations
- Limited psychosocial assessment

# WMSDs in PTs

- Campo, et al.
- Prospective cohort study
- NYU
- *Physical Therapy*, May 2008

# Methods - Design

- Non experimental, prospective cohort study
- One year follow-up
- Validated self report questionnaire
  - 4 pages (baseline and follow up)

# Research Questions

1. What are the one year prevalence and incidence of WMSDs in PTs?
2. What are the effects of physical exposures on WMSDs in PTs?
3. What are the effects of specific physical therapy tasks on WMSDs in PTs?
4. What are the effects of psychosocial job strain on WMSDs in PTs?

# Subjects

- Randomly selected members of the APTA
- National sample
- Selected by computerized random selection without stratification

# Inclusion Criteria

- Licensed PTs
- APTA members
- Working at Baseline
- One hour of clinical work

# Exposure

- Background factors
  - Age, experience, gender, hours worked per week, hours of patient care, total work hours, holding a second job, setting, health
- Physical factors
  - Kneeling, bent postures, awkward postures, static postures, repetition
- Specific tasks
  - Transfers and repositioning
  - Manual therapy
- Psychosocial Risk Factors
  - Job Strain

# Outcomes

- 1 year prevalence and incidence of WMSDs
- Physician visits
- Lost work time
- Change settings due to WMSDs
- Left profession due to WMSDs

# Definitions

- Prevalence
  - Case at any time during previous 12 months
  - Any body region
- Incidence
  - New case developed at any time - previous 12 months
  - Free of the disorder for 8 weeks prior to baseline
- Case Definition
  - Work related ache pain or discomfort
  - $\geq 4/10$  on 0-10 scale
  - Lasting at least once/week or greater than once/month

# Analysis

- Missing Values
  - Frequency statistics
- Background, Exposure and Outcomes
  - Descriptive and Frequency statistics
  - Prevalence and Incidence rates
- Association between predictors and outcome
  - Unconditional Logistic Regression
  - Multivariate Unconditional Logistic Regression

# Results

- Response - Baseline
  - 1,444 potential subjects
  - 1,021 responded (71%)
  - 952 met inclusion criteria
- Follow - up
  - 952 potential subjects
  - 882 responses (93%)

# Sample

- Similar to APTA profile
  - Age, gender, experience, practice setting distributions
- Hours per week
  - mean = 36.9 +/- 10.3 yrs
- Age
  - mean = 40.2 years +/- 10.3 yrs
- Experience
  - mean = 14.2 years +/- 10.8 yrs

# Outcomes

- 57% work related ache, pain or discomfort
- One year incidence and prevalence
  - Case Definition
    - 27% prevalence
    - 20.1% incidence
  - Low back, wrist/hands, neck

# Impact – Follow Up

- MD visits
  - 13.0%
- Lost work time
  - 7.0%
- Changed setting due to WMSDs
  - 2.0%
- Left profession due to WMSDs
  - 0.2%

# Risk Factors

- General
  - Age
  - Self - rated health
  - Prior complaint in same body region

# Odds

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1-P

# Odds Ratio

- Increase in odds of outcome associated with exposure
- Interpretation varies with study design
  - Case control
  - Cohort study
- Can approximate relative risk

# Associations between Risk Factors and WMSDs

<b>Risk Factor</b>	<b>Number with/without Low Back WMSDs</b>	<b>Univariate OR (95% CI)*</b>	<b>Test for Trend (p value)</b>
<b>Patient transfers</b>			0.02
0x/day	17/346	1.00	
1-5x/day	19/256	1.57 (0.79 - 3.10)	
6-10x/day	10/82	2.40 (1.03 - 5.62)	
>10x/day	5/39	2.55 (0.88 - 7.42)	
<b>Positioning</b>			0.07
0x/day	18/323	1.00	
1-5x/day	19/266	1.30 (0.66 - 2.54)	
6-10x/day	8/94	1.48 (0.61 - 3.57)	
>10x/day	6/39	2.61 (0.96 - 7.08)	

<b>Risk Factor</b>	<b>Number with/without Low Back WMSDs</b>	<b>Univariate OR (95% CI)*</b>	<b>Test for Trend (p value)</b>
<b>Bent or Twisted Postures</b>			0.02
Almost never/not at all	3/129	1.00	
About 10% of the day	22/290	3.46 (1.01 - 11.81)	
About 25% of the day	12/193	2.83 (0.78 - 10.27)	
Half of the workday or more	14/110	5.74 (1.60 - 20.65)	
<b>Job Strain</b>			
No	31/580	1.00	
Yes	20/133	2.52 (1.38 - 4.61)	

<b>Risk Factor</b>	<b>Number with/without Wrist &amp; Hand WMSDs</b>	<b>Univariate OR (95% CI)*</b>	<b>Test for Trend (p value)</b>
<b>Joint Mobilization</b>			<0.01
0 patients/day	3/160	1.00	
1-5 patients/day	14/283	2.92 (0.82 - 10.42)	
6-10 patients/day	10/162	4.51 (1.20 - 17.00)	
> 10 patients/day	15/147	7.95 (2.18 - 29.04)	

<b>Risk Factor</b>	<b>Number with/without Wrist &amp; Hand WMSDs</b>	<b>Univariate OR (95% CI)*</b>	<b>Test for Trend (p value)</b>
<b>Soft Tissue Work</b>			<0.01
0 patients/day	2/165	1.00	
1-5 patients/day	15/326	4.29 (0.96 - 19.10)	
6-10 patients/day	13/157	9.22 (2.01 - 42.23)	
> 10 patients/day	12/103	13.62 (2.91 - 63.81)	

# Limitations

- Exposure Assessment
- Job instability
- Multicollinearity and Confounding

# Conclusions

- WMSDs are prevalent in PTs
  - >1/2 Complaint
  - 1/4 Prevalence
  - 1/5 Incidence
- Impact
  - 7% lost work time
  - Therapists don't take off time or seek Rx
- Factors
  - Age
  - Patient handling
  - Manual therapy
  - Postures

# PT Reaction to SPHM Programs

- Depends on:
  - Setting
  - Program Intent
  - Culture of Facility
  - Clinicians involved

# Darragh A, Campo M & Olson, D

- Qualitative study
  - PTs and OTs who use equipment
  - Focus groups
- Rural Health System
  - Recently initiated minimal lift policy
- Perceptions of minimal lift policy
  - Rehab staff
- Accepted for publication
  - *Work*

# Minimal Lift Program – Algorithms

- Mechanical lifting equipment
  - sit-to-stand devices and floor lifts, etc.
  - other
    - gait belts, sliding transfer boards, and pivot discs
- Required for use with:
  - patients who cannot bear weight
  - require more than one person to bear weight during transfer
  - require maximal assist during transfer
  - cannot assist when repositioning or boosting in bed
  - some degree of manual assistance is required during ambulation.

# Exceptions

- Rehabilitation goals
  - related to mobility
- Staff
  - **all therapy staff**
  - rehabilitation and orthopaedic nurses
  - second person recommended
    - Not required in that case
- Exemptions requested
  - therapy staff

# Findings

- Generally favorable impressions
  - Viewed themselves as trainers and facilitators
- Equipment viewed as essential for nursing
  - But not for therapy
- Equipment useful for rehabilitation
  - Low level and bariatric patients
  - Not seen as useful for higher functioning patients
- Saw themselves as at risk
  - Bariatric patients increasing in size and number
  - Risk is seen as part of the job

# Studies Underway

- Presenteeism
  - Pilot project
  - Develop an instrument for use with health care workers
- Outcome study
  - Therapist and patient outcomes
  - After initiation of SPHM program

# Solutions - Profession

- Continued Collaboration with nursing
  - SPMC, Orlando
- Establishment of minimum content for entry level education
  - APTA task force
- State and Federal initiatives

# Solutions - Facility

- SPHM programs
  - Low or no lift policy, lift teams, equipment, incentives, facility wide participation, program monitoring
- Involve the rehabilitation staff
  - May not view equipment as needed for rehab
  - Work with vendors, consultants and/or staff to change that mindset
  - Prior to program implementation

# Nursing

- Vertical transfers
  - Sit to stand
  - Chair to bed/toilet
- Lateral transfers
  - Bed to gurney
  - Gurney to OR/imaging table
- Bed mobility
  - Rolling and positioning

# PT

- Transfers
  - Lateral/vertical
  - Training for transfers
  - Toilet/Tub/Shower/Car
- Facilitation
  - Matt work
  - PWBTT
  - Ambulation
- Bed Issues
  - PROM
  - Bed mobility
- Manual therapy

# Diversity of Exposure

PT = Technophobe?

# The Pace of Technology

**Thank You!**