3 – 3:45pm

Comprehensive Management of Injury and Chronic Pain

SPEAKER
James Atchison, DO

Presenter Disclosure Information

The following relationships exist related to this presentation:
► James Atchison, DO, receives honoraria as a consultant for Mallinckrodt and Janssen. Also receives grant support from Parexel/Pfizer.

Off-Label/Investigational Discussion
► In accordance with pmICME policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.

THE COMPREHENSIVE MANAGEMENT OF CHRONIC PAIN AND INJURY

DISCLOSURES
- Principle Investigator for RIC participation in multicenter research project for Paraxel/Pfizer,
- Advisory Board for Mallinkrodt
- Advisory Board for Janssen

THE COMPREHENSIVE MANAGEMENT OF CHRONIC PAIN and INJURY

LEARNING OBJECTIVES
- Initiate a plan for rational use of drug therapy following injury
- Recognize psychological “yellow flags” that suggest a patient is developing a chronic pain syndrome
- Identify the merits of an interdisciplinary approach to chronic pain management

INSTITUTE OF MEDICINE (IOM)
- June 2011 Briefing
- Chronic pain affects 116 million Americans
- Annual cost: $635 billion/year
- Foster cultural transformation
- Individualizing care, focus on self-management
- Incentivize at primary care and foster collaboration
- Research and educational focus
**Indirect Costs**
- Lost Work Days
- Disability Payments

**Direct Costs**
- Physician Visits
- Therapy
- Diagnostic Tests
- Medications

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**BIOMEDICAL MODEL FOR ACUTE PAIN MANAGEMENT**
- Concentrates on physical disease mechanism
- Accentsuates peripheral perception of pain
  - Nociception
- Approach to treating pain is reductionistic
- Relies on medical management approaches

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**THE BIOMEDICAL MODEL**
Pain as a sensory event reflecting underlying disease or tissue damage

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**CHRONIC PAIN**
- Pain continues past the time of healing for the initial injury
- Additional challenges/Issues:
  - Guarding of the injured area
  - Fear of movement and reinjury
  - Adoption of the sick role
  - Cultural belief about pain
  - The loss of productivity and/or income
  - Decrease in beneficial leisure activities
  - Change in family and community roles

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**MANAGEMENT OF CHRONIC PAIN**
- Chronic pain is a disease of the person, and that a traditional biomedical approach cannot adequately address all of the pain-related problems of this patient population.

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**CONTINUUM OF TEAM MODELS**
- Parallel Practice
- Coordinated
- Interdisciplinary

- Collaborative
- Multidisciplinary
- Integrative
MANAGEMENT OF CHRONIC PAIN

- Of all the approaches to the treatment of chronic pain, none has a stronger evidence basis than interdisciplinary care for:
  - Efficacy
  - Cost-effectiveness
  - Lack of iatrogenic complications

INTERDISCIPLINARY PROGRAMS

- U.S. 1999 – OVER 1000 PROGRAMS
- U.S. 2011 – ~ 150 PROGRAMS
  - 60 OF THESE ARE VHA
- 1 PROGRAM FOR EVERY 670,000 PATIENT IN CHRONIC PAIN
- All countries except U.S. have increased the number of programs in the last decade

RISK FOR TRANSITION TO CHRONIC PAIN

- Unresponsiveness to traditional therapies normally effective for that diagnosis
- Considerable psychosocial factors which negatively impact recovery
- Unemployment or lengthy absence from work
- Employer not supportive or accommodating to the needs of the individual
- History of prior delayed recovery or rehabilitation
- History of childhood abuse: verbal, physical or mental

“YELLOW FLAGS”

- Maladaptive beliefs
- Heightened emotional activity
- Expectations and pain behavior
- Reinforcement of pain
- Job dissatisfaction
- Poor social support
- Compensation

New Zealand Accident Comp Corp, 1997;23-66.

PROPOSED MEDICATION “YELLOW FLAGS”

- Continued use of meds w/o pain reduction or improved function
  - Despite continuation of side effects
  - Beyond the natural history of recovery
- Escalating doses w/o benefit
- Multiple opioids
- Early use of long acting opioids
- Use of opioids w/ benzodiazepines
- Intolerance of PT w/ medications
WORLD HEALTH ORGANIZATION PAIN REHABILITATION GOALS

- Functional Improvement
- Improvement in activities of daily living
- Relevant psychosocial improvement
- Rational pharmacologic management
  - Analgesia, mood, sleep
- Return to leisure, sport, work, or other productive activity

BEHAVIORAL APPROACHES

Operant conditioning

“Pain behavior”
1. Factors that maintain pain problem can be different from those that initiated it
2. Pain behaviors subject to shift from structural/mechanical to functional/environmental control

PROCESSING OF PAIN IN THE BRAIN OCCURS IN SEVERAL REGIONS

- Somatosensory cortex
- Insular cortex
- Thalamus
- Hippocampus
- Amygdala
- Prefrontal cortex
- Anterior cingulate cortex

Pain + emotion
Pain only

Increased:
- Pain
- Psychological distress
- Physical disability

Helplessness
Self-efficacy
Pain coping strategies
Readiness to change
Acceptance

Decreased:
- Pain
- Psychological distress
- Disability

PHYSICAL ISSUES

- Postural training
- Movement
- Fears/Flares
- Stretching
- Aerobic conditioning
- Strengthening
- Pacing techniques
  - Functional activities
    - Home, community, work

NON-PHARMACOLOGIC MANAGEMENT

- Strengthening
- ROM
- Posture
- Body mechanics
- Relaxation techniques
- Endurance
- Biofeedback
- Mindfulness
- Pacing techniques
- Increase function
- Decrease pain
A PATIENT-SPECIFIC BIOPSYCHOSOCIAL EXPERIENCE

PHASES OF TREATMENT
- Educational
- Skills training
- Application and relapse prevention

- Individual Goal Setting
- Monitor
- Reassess & Readjust

DIFFERENCES IN PROGRAMS
Adult Programs (Daily census 15-25)
- FULL - 4 wk, 8 hrs per day = 140 hrs
- MODIFIED – 4 wk, 4 d/wk, 4 hrs per day = 72 hrs
- HALF – 2 half days/week, 4 wks, 1-5pm = 32 hrs
  - OR – 1 half day/week, 4 wks, 1-5pm = 16 hrs

Adolescent Program (6-10)
- 2- half days per week/ 4-8 wks, 8-12 = 30-50hrs
  - More flexible program scheduling

RIC’S CPM PROGRAM COMPONENTS
- Physical therapy
- Occupational therapy
- Recreation Therapy
- Psychology (CBT)
- Relaxation Training
- Nurse Education
- Vocational Therapy
- Mind Body Treatment/ Feldenkrais

PHYSICAL THERAPY
- Comprehensive assessment
- “Active” instead of “Passive”
- Movement based
- Strengthening
- Aerobic conditioning
- Home exercise plan

OCCUPATIONAL THERAPY
- Positioning/Posture
- Pacing Techniques
- Body mechanics
- Stress Loading
- Desensitization
- Graded Motor Imagery (Left/Right discrimination; Mirror Therapy)
- Graded Activity Exposure
- Functional Capacity Evaluation (FCE)

Activity Pyramid

- Can change all lines by 5 minutes in either direction

- Flare Up / Inflammation
  1. Pain spikes during the activity
  2. Pain persists after activity for __________
  3. No change in range of motion or strength (ability)
  Plan: SEEK MEDICAL ATTENTION

- NO HARM
  1. Pain/spikes during the activity
  2. Pain NO worse in ______________
  3. No change in range of motion OR strength
  Plan: Activity Pyramid

- GREEN LIGHT

- YELLOW-RED LIGHT
  1. Pain/spikes during the activity
  2. Pain persists for more than 3 days to weeks
  3. Change in range of motion or strength (ability)
  Plan: REST, ice, medication as needed for 72 hours.

COGNITIVE REVOLUTION

- BioPsychoSocial approach
- Attributions, efficacy, expectations
- Personal control, problem solving within cognitive-behavioral perspective


PAIN PSYCHOLOGY

- Mind-Body Connection
- Coping Skills Training
- Emotion Regulation
- Cognitive Restructuring
- Stress Management
- Family Education

MINDFULNESS MEDITATION:

Process of pain reduction occurring by . . .
"an attitude of detached observation toward a sensation when it becomes prominent in the field of awareness, and to observe with similar detachment the accompanying but independent cognitive processes which leads to evaluation and labeling of the sensation as painful, as hurt."
- Kabat-Zinn

RELAXATION TRAINING/ BIOFEEDBACK

- Deep Breathing
- Imagery and Visualization
- Progressive Muscle Relaxation (PMR)
- Biofeedback

BIOFEEDBACK AS A “PHYSIOLOGICAL MIRROR”

Stress level

Respiratory

Muscle tension

Skin temperature

FULL DAY PROGRAM SCHEDULE

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
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<tr>
<td>8a</td>
<td>Weekend review</td>
<td>Gym</td>
<td>Feldenkrais</td>
<td>Relax (G)</td>
<td>Psych</td>
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<td>9</td>
<td>Nursing lecture</td>
<td>OT tolerance</td>
<td>Psych</td>
<td>Biofeedback</td>
<td>MD visit</td>
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<td>10</td>
<td>PT</td>
<td>OT tolerance</td>
<td>Conditioning/Gym</td>
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<td>Pool</td>
<td>Conditioning/Gym</td>
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<td>Lunch</td>
<td>Feldenkrais</td>
<td>Lunch</td>
<td>Lunch</td>
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<td>1</td>
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<td>Biofeedback</td>
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<td>Psych (G)</td>
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<td>2</td>
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<td>OT (G)</td>
<td>Relax (G)</td>
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<td>3</td>
<td>Nursing</td>
<td>Psych</td>
<td>OT (G)</td>
<td>OT (G)</td>
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<tr>
<td>4</td>
<td>Relax (G)</td>
<td>Wii Group</td>
<td>Mindfulness (G)</td>
<td>Family meeting (G)</td>
<td>OT (G)</td>
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**HALF DAY PROGRAM**

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<th>Time</th>
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<th>Time</th>
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<tr>
<td>12:30</td>
<td>Feldenkrais/ Nursing Lecture (GROUP)</td>
<td>1:00</td>
<td>PT</td>
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<tr>
<td>1:00</td>
<td>OT</td>
<td>1:00</td>
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<td>2:00</td>
<td>PT</td>
<td>2:00</td>
<td>OT</td>
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<td>3:00</td>
<td>Pain Psychology</td>
<td>3:00</td>
<td>Pain Psychology</td>
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<tr>
<td>4:00</td>
<td>Relaxation Training</td>
<td>4:00</td>
<td>Relaxation Training</td>
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<tr>
<td>5:00</td>
<td>Team Conference</td>
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**MEDICAL MANAGEMENT**

- Team lead by a psychiatrist, pain medicine specialist
- Nursing monitoring and education
- Inpatient or outpatient detoxification incorporated into program as needed
- Medication adjustments
  - Sleep Assistance
  - Nerve Pain
  - Myofascial Pain

**COORDINATE THE MEDICATIONS!**

- Antispasmodics
- Analgesics
- Antiepileptics
- Anti-depressants
- Anti-anxiety
- NSAIDs

**PHARMAKOLOGIC TREATMENT OPTIONS**

**PHARMAKOLOGIC PAIN MANAGEMENT**

**OPTION 1**
- AVOID ALL OPIOID ANALGESICS
- COMBINE ALL CATEGORIES OF ADJUVANT MEDS

**OPTION 2**
- MAXIMIZE OPIOID ANALGESICS
- USE ONLY ESSENTIAL ADJUVANT MEDS

**PHARMAKOLOGIC PAIN MANAGEMENT**

- WHICH HAS THE MOST:
  - SIDE EFFECTS?
  - MEDICATION-MEDICATION INTERACTION
  - COMPLIANCE ISSUES
    - MEAS GIVEN AT DIFFERENT TIME INTERVALS
  - IMPROVEMENT IN FUNCTION
  - PATIENT SAFETY/SATISFACTION
<table>
<thead>
<tr>
<th>PHARMACOLOGIC CATEGORIES FOR PAIN MANAGEMENT</th>
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<tbody>
<tr>
<td>• ANTISPASMODICS</td>
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<tr>
<td>• ANTIINFLAMMATORIES</td>
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<tr>
<td>• ANTINEUROPATHICS</td>
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<tr>
<td>• ANTIDEPRESSANTS</td>
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<tr>
<td>• ANTIANXIETY</td>
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<tr>
<td>• SLEEP ASSISTANCE</td>
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<tr>
<td>• ANALGESICS</td>
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<thead>
<tr>
<th>PHARMACOLOGIC PAIN MANAGEMENT</th>
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<tbody>
<tr>
<td>• MUSCLE RELAXANTS</td>
</tr>
<tr>
<td>• CONCERNS FOR SEDATION</td>
</tr>
<tr>
<td>• MAY BE USED TO ASSIST WITH SLEEP</td>
</tr>
<tr>
<td>• MORE USEFUL IN ACUTE INJURY</td>
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<tr>
<td>• ESPECIALLY FOR CNS INJURIES</td>
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<tr>
<td>• LIMITED RESPONSE IN CHRONICS</td>
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<thead>
<tr>
<th>PHARMACOLOGIC PAIN MANAGEMENT</th>
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<tbody>
<tr>
<td>• ANTIINFLAMMATORIES (NSAIDs)</td>
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<tr>
<td>• SHORT BURSTS FOR SPECIFIC INFLAMMATORY EPISODES</td>
</tr>
<tr>
<td>• SOFT TISSUE INJURIES</td>
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<td>• MAY RETARD SOME HEALING EFFECTS</td>
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<tr>
<td>• NOT INDICATED FOR CONTINUOUS USE</td>
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<tr>
<td>• MAY REQUIRE GI PROTECTION</td>
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<td>• PPI, H2 BLOCKERS?</td>
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<thead>
<tr>
<th>PHARMACOLOGIC PAIN MANAGEMENT</th>
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<tbody>
<tr>
<td>• ANTINEUROPATHIC AGENTS</td>
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<tr>
<td>• ANTIEPILEPTICS</td>
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<tr>
<td>• GABAPENTIN, PREGABALIN</td>
</tr>
<tr>
<td>• TOPIRAMATE, CARBAMAZEPINE, VALPROIC ACID*</td>
</tr>
<tr>
<td>• ANTIDEPRESSANTS</td>
</tr>
<tr>
<td>• TRICYCLICS*</td>
</tr>
<tr>
<td>• AMITRIPTYLINE, DESIPRAMINE, NORTRIPTYLINE</td>
</tr>
<tr>
<td>• SNRIs</td>
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<tr>
<td>• DULOXETINE, VENLAFEXINE*</td>
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*Not FDA approved for treatment of pain

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<thead>
<tr>
<th>DO THESE PREDISPOSE A PERSON TO CHRONIC PAIN?</th>
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<tr>
<td>TX OF DEPRESSION</td>
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<tr>
<td>• TRICYCLICS</td>
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<tr>
<td>• SSRIs</td>
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<tr>
<td>• SNRIs</td>
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<tr>
<td>• DOPAMINERGIC AGONISTS</td>
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<th>TX OF ANXIETY</th>
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<tbody>
<tr>
<td>• SSRIs</td>
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<td>• SNRIs</td>
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<tr>
<td>• BENZODIAZEPINES</td>
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<tr>
<td>• BUSPIRONE</td>
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<td>• OPIOIDS?*</td>
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*Not FDA approved for treatment of anxiety

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<tr>
<td>• SLEEP ASSISTING MEDICATIONS</td>
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<tr>
<td>• ANTIDEPRESSANTS*</td>
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<tr>
<td>• TRICYCLICS MOST TESTED AND EFFECTIVE</td>
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<tr>
<td>• ANTISPASMODICS*</td>
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<tr>
<td>• ONLY AT NIGHT OR HIGHER DOSE AT NIGHT</td>
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<tr>
<td>• ANTIEPILEPTICS*</td>
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<tr>
<td>• HIGHER DOSE AT NIGHT</td>
</tr>
<tr>
<td>• ANTIANXIETY*</td>
</tr>
<tr>
<td>• NOT EFFECTIVE FOR PAINFUL SLEEP</td>
</tr>
<tr>
<td>• BENZOs DO NOT INCREASE STAGE III OR IV</td>
</tr>
<tr>
<td>• SEDATIVE/HYPNOTICS</td>
</tr>
<tr>
<td>• BENZODIAZEPINE-LIKE MEDS</td>
</tr>
<tr>
<td>• NOT FOR CONTINUOUS USE</td>
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*Not FDA approved for treatment of sleep disorder
COORDINATE THE MEDICATIONS!

ANTISPASMODICS

DECREASE PAIN

ANTALGESICS

INCREASE FUNCTION

ANTIEPILEPTICS

SLEEP ASSISTANCE

ANTI-DEPRESSANTS

ANTIDEPRESSANTS

ANXIETY

NSAIDs

WHO IS GETTING OPIOIDS?

IS OPIOID RX ASSOCIATED WITH DISABILITY AT 6 MONTH FOLLOW-UP?

- PATIENTS PRESCRIBED OPIOIDS
- MORE LIKELY TO BE FEMALE
- HIGHER MEAN USUAL PAIN INTENSITY
- HIGHER DISABILITY ON RMDQ
- HIGHER DISTRESS - ANXIETY AND DEPRESSION SCORES
- GREATER FEAR OF MOVEMENT
- GREATER TENDENCY TO CATASTROPHIZE
- LOWER SELF EFFICACY
- MORE LIKELY TO RECEIVE NSAID AND OTHER MEDICATIONS
- THESE MEASURES INCREASE PROPORTIONALLY WITH INCREASING DOSES

RMDQ = Roland-Morris Disability Questionnaire

CORRELATES OF PRESCRIPTION OPIOID INITIATION AND LONG-TERM OPIOID USE IN VETERANS WITH PERSISTENT PAIN

- PSYCHIATRIC AND SUBSTANCE USE DISORDERS ARE ASSOCIATED WITH RECEIVING CHRONIC OPIOID THERAPY
- 5% WITH CHRONIC OPIOID THERAPY; 35% WITH RX
  - YOUNGER AND HIGHER BASELINE PAIN INTENSITY
  - HIGHER MAJOR DEPRESSION AND NICOTINE DEPENDANCE
- 24% RECEIVED BENZODIAZEPINE PRESCRIPTIONS
- ONLY 37% RECEIVED URINE TESTING

PROPOSED MEDICATION "YELLOW FLAGS"

- CONTINUED USE OF MEDS W/O PAIN REDUCTION OR IMPROVED FUNCTION
- DESPITE CONTINUATION OF SIDE EFFECTS
- BEYOND THE NATURAL HISTORY OF RECOVERY
- ESCALATING DOSES W/O BENEFIT
- MULTIPLE OPIOIDS
- EARLY USE OF LONG ACTING OPIOIDS
- USE OF OPIOIDS W/ BENZODIAZEPINES
- INTOLERANCE OF PT W/ MEDICATIONS

WHEN THE MEDICATIONS DON'T WORK?
INTERDISCIPLINARY TEAM APPROACH

Psych RN Physician OT PT Voc Rehab Case Management PATIENT RN Physician Relaxation Training

RIC OUTCOMES: PAIN

Severity Interference No Pain Very Intense Extreme 6 5 4 3 2 1 No Interference

RIC OUTCOMES: PHYSICAL FUNCTIONING

0=Never 1.8 1.9 2 2.1 2.2 2.3 2.4 2.5 6=Always Gen Activity Baseline Discharge

SUMMARY

- Monitor patients for various warning signs or “flags” for developing chronic pain
- Lack of response to treatments/medications
- Psychosocial factors may be strong predictors of chronicity in chronic pain
- Anxiety, depression, catastrophizing, anger, maladaptive beliefs and poor coping skills lead to limited recovery
- Interdisciplinary treatment leads to improvement in physical functioning
- Combining physical and cognitive treatment most effective
- Medications should help treatment and function