

Helping the Hurting: Chronic Pain Management in Primary Care

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Table of Contents

Table of Contents 1

Introduction 2

Review of Literature..... 4

 Fibromyalgia..... 4

 Low Back Pain 10

 Osteoarthritis 14

Interviews..... 20

Focus Group 22

Practice Assessment Survey..... 22

 Demographics 23

 Fibromyalgia..... 27

 Low Back Pain 38

 Osteoarthritis 50

Medscape Activity..... 62

Implications for Future Continuing Education 68

Educational Partners..... 72

Appendix 1: Survey Instrument 75

Bibliography 84

Introduction

Chronic pain is one of the most common and challenging management issues in primary care. In the United States, up to 40 percent of the adult population suffers from moderate to severe chronic pain.¹ Especially when untreated and under-treated, chronic pain is associated with depression, unemployment, and significantly lower quality of life. Pain lasting months or years has a major negative impact not only on physical health but also on employment, social and family life, emotions, and psychological well-being.

Fibromyalgia, low back pain, and osteoarthritis, while distinct disease states, share characteristics in how they are managed in primary care. Diagnosis can be uncertain; treatment focuses not on curing these conditions, but on long-term symptom management and maintenance of function. Systems barriers preclude the comprehensive, multi-disciplinary model of care proven to be optimal for managing chronic pain. As the population ages, chronic pain conditions — which already constitute a significant segment of primary care — are becoming an even more widespread and vital concern for health.

Current research focusing on how clinicians change behavior to improve patient health highlights the complex interaction among patients, practice systems, and clinicians' knowledge, attitude, and skills. Addressing only one component of health care professional behavior compromises the potential impact of education and reduces the likelihood that practice changes will occur. Yet, understanding these complex and interrelated areas requires a thorough understanding of the gap between current clinician behavior and best practices. Developing a thorough needs assessment prior to educational design results in an evidence-driven foundation for identifying and closing practice gaps.

The University of Cincinnati Center for Continuous Professional Development, the Office of Continuing Medical Education of the University of Virginia School of Medicine, Healthcare Performance Consulting, and Interstate Postgraduate Medical Association have joined in collaboration to assess educational needs surrounding primary care management of fibromyalgia, low back pain, and osteoarthritis. Funded through an independent educational grant from Pfizer, *Helping the Hurting: Chronic Pain Management in Primary Care* aims to assess and analyze needs assessment data in order to present implications and recommendations for developing continuing education in primary care.

Objectives

The project objectives for *Helping the Hurting: Chronic Pain Management in Primary Care* include:

- Research and report current resources on pain in each clinical area, including published literature, clinical guidelines, regulatory agency publications, quality metrics, and government resources

- Describe the current practices and strategies clinicians use to classify and manage chronic pain in their patients
- Identify and quantify educational needs and practice gaps of primary care physicians in osteoarthritis, chronic back pain, and fibromyalgia
- Identify learning preferences, including educational interventions preferred by primary care physicians
- Quantify the forces, images, attitudes and barriers to practice improvement focused on chronic pain management and the corresponding readiness to change
- Propose, design, and implement educational interventions that will target specific practice gaps and strategies for implementation

Methodology

The methodology of the *Helping the Hurting* needs assessment was designed to inform the development of educational interventions to provide optimal impact on educational, behavioral, and clinical outcomes. To best define, describe, assess, and analyze the educational needs of health care professionals, quantitative and qualitative data have been collected via the following methods:

- Review of evidence-based literature, clinical practice guidelines, and other published resources
- Consult with clinical expert
- Interviews with physicians
- A focus group of physicians
- A quantitative survey distributed to family medicine and internal medicine physicians
- An enduring activity hosted on Medscape's online learning platform

Data from each of the needs assessment components were analyzed and reported independently. Individually, each data source provided insight into actual and perceived needs and barriers faced by clinicians. Additionally, a master analysis utilized the concept of "triangulation" to compare data from different components and develop overall findings and recommendations. This systematic and integrated evaluation identified and validated additional needs, attitudes, competencies, clinical practices, and external systems in the management of chronic pain conditions.

Needs assessment methods were designed to reflect the diversity of patient populations and clinical practices that manage pain. The project methodology was submitted to the University of Cincinnati Institutional Review Board and determined to be exempt from review.

Review of Literature

The process of data collection for the needs assessment began with a thorough review of the clinical literature in each disease state. Project partners surveyed clinical practice guidelines from the United States and other nations, peer-reviewed journals, governmental publications, performance metrics, and other sources of published literature. The literature review served to define standards of best practice and identify areas in assessment, diagnosis, and treatment where guidelines and practices are unclear.

Fibromyalgia Literature Review

Fibromyalgia is a condition characterized by chronic pain and a variety of other symptoms, including abnormal pain responses, fatigue, cognitive dysfunction, and high likelihood of certain co-morbidities. Previously referred to as fibrositis, the name was changed to fibromyalgia or fibromyalgia syndrome (FMS) as researchers came to realize the disease was not associated with inflammation.^{2,3} Fibromyalgia is a medically unexplained syndrome; no objective diagnostic tests exist, and the etiology of the disease is not fully understood. Additionally, presentation varies widely between patients, making diagnosis challenging at times. There is no cure for fibromyalgia and prognosis is often poor, so health care providers struggle to develop a treatment plan that maximizes function and quality of life.

Current epidemiological data on the prevalence of fibromyalgia are sparse, although it is a relatively common condition. It is estimated that 2 percent of U.S. patients have fibromyalgia; it is the third most common rheumatologic condition in the country.^{4,5,6} Fibromyalgia syndrome is seven to nine times more common in women. Symptoms usually manifest between the ages of 30 and 55 and peak between ages 60 and 70.^{5,7,8} Approximately 5 percent of primary care visits and 15 percent of rheumatology visits are attributed to fibromyalgia.⁹

Clinical Guidelines for Diagnosis and Treatment

Year	Organization	Title
1990	American College of Rheumatology (ACR)	The American College of Rheumatology 1990 Criteria for the Classification of Fibromyalgia: Report of the Multicenter Criteria Committee ¹⁰
2005	American Pain Society (APS)	Guideline for the management of fibromyalgia syndrome pain in adults and children ¹¹
2005	University of Texas School of Nursing	Fibromyalgia Treatment Guideline ¹²
2005/2006	Expert Consensus Panel selected by Health Canada, spearheaded by the National Myalgic Encephalomyelitis/Fibromyalgia (ME/FM) Action Network of Canada	Fibromyalgia Syndrome: a Clinical Case Definition and Guidelines for Medical Practitioners ¹³
2007	The European League Against Rheumatism (EULAR)	EULAR Evidence-Based Recommendations for the Management of Fibromyalgia Syndrome ¹⁴
2010	American College of Rheumatology (ACR)	The American College of Rheumatology Preliminary Diagnostic Criteria for Fibromyalgia and Measurement of Symptom Severity ¹⁵

Difficulties in Diagnosis

Brain imaging and other clinical tests show that patients with fibromyalgia tend to show some physiological abnormalities, such as changes in neurotransmitter activity, higher concentration of some cerebrospinal fluids, and evidence of altered neurological processing of pain.^{8,16} However, fibromyalgia cannot be detected through physical signs or lab tests, so initial assessment can be challenging. After ruling out alternative potential conditions, diagnosis is based on subjective patient signs and symptoms. For many years, the American College of Rheumatology (ACR) criteria, published in 1990, have served as the standard for diagnosis and the basis of several treatment guidelines.^{10,17} These criteria include:¹⁰

1. History of widespread pain, located on the right and left sides of the body, above and below the waist, and in axial skeletal area (cervical spine, thoracic spine, low back, or anterior chest).
2. Pain in 11 of 18 specified “tender point sites” when palpated with a pressure of approximately 4 kilograms.

Over time, several issues with these criteria became apparent. First, health care providers rarely performed the tender point site exam in the clinical setting; some lacked the confidence to perform it correctly, while others simply refused to do it outright.^{18, 19} Second, this method made it difficult to

assess changes in the course of the disease over time. Third, the criteria discounted many of the other symptoms that had become recognized as indicative of fibromyalgia, such as fatigue, sleep disturbance, and neurological or neurocognitive manifestations.¹⁵ Finally, the ACR definition was not sufficiently broad; by one estimate, 46 percent of patients with fibromyalgia did not meet the criteria.²⁰

Consequently, in May of 2010 the ACR released a new set of provisional criteria suitable for primary care that do not require a tender point exam and can easily track disease progression over time. The new criteria utilize a combination of scores from two assessment scales: the Widespread Pain Index (WPI) measures the areas in which the patient has experienced pain during the previous week, and the Symptom Severity Score (SSS) assesses fatigue, cognitive symptoms and sleep dysfunction.¹⁵ The clinical diagnostic criteria for fibromyalgia include a WPI >7 and SS >5 or WPI 3–6 and SS >9, as well as symptoms that persist for three months or more.¹⁵

Risk Factors, Symptoms, and Co-Morbidities

The causes and etiology of fibromyalgia are not fully understood, but several factors place patients at higher risk for developing the syndrome.²¹ As previously stated, prevalence is far higher in females. This disparity may be partially attributable to physical differences, such as narrower spinal canals in women that make them more susceptible to a triggering injury. Additionally, men and women produce different amounts of neurotransmitters. Fibromyalgia is also partially hereditary; first-degree relatives of fibromyalgia patients have eight times the normal risk of developing the disease.²² A number of environmental triggers have been associated with onset of symptoms, including:^{13,21}

- Physical trauma, such as whiplash or spinal injury
- Psychological trauma
- Surgery
- Repetitive strain
- Childbirth
- Viral infection (Hepatitis B, Hepatitis C, HIV)
- Exposure to chemicals

Additionally, many cases manifest with no identifiable cause.¹³

The defining symptom of fibromyalgia syndrome is widespread pain. This includes allodynia (pain resulting from a stimulus that would not normally be painful), hyperalgesia (heightened sensitivity to a stimulus that would normally be mildly painful), and persistent pain (pain sensation lasting longer than normally expected).¹³ Pain is usually accompanied by fatigue, sleep problems, and cognitive impairment, but the presentation and symptoms of fibromyalgia vary considerably between patients. Other symptoms that have been identified include, among others:¹³

- Chest pain and shortness of breath
- Leg cramps
- Stiffness, especially in the morning

- Chronic headache or migraine
- Hypersensitivity to vibration
- Numbness
- Visual, temporal, and spatial instability
- Confusion, forgetfulness, short-term memory loss, and problems concentrating and speaking (these symptoms are commonly referred to as “fibro fog”)
- Dizziness and vertigo
- Edema
- Dry eyes and mouth
- Muscle shortening and posture abnormalities
- Scoliosis

Because fibromyalgia involves a wide spectrum of symptoms and disease presentation, it can be difficult to draw the line between symptoms and co-morbidities. Complaints such as headache, depression, and sleep disturbances can be considered either symptoms of fibromyalgia or discrete diagnoses. Notwithstanding, it is clear that fibromyalgia syndrome is likely to occur concomitantly with a number of other clinical conditions and diseases.

- Patients with rheumatologic diseases have a considerably higher incidence of fibromyalgia than the general population; in fact, up to half of patients with Sjögren’s Syndrome and 25 percent of patients with rheumatoid arthritis and systemic lupus erythematosus (SLA) have the disease.²³ In some of these cases, patients are considered to have “secondary fibromyalgia,” which can have a detrimental effect on the prognosis of the primary disease.^{24,25}
- The symptoms for Chronic Fatigue Syndrome (CFS) overlap considerably with those of fibromyalgia.²⁶ In general, pain is the main symptom for fibromyalgia while fatigue is the chief complaint in CFS, but a number of patients meet the diagnostic criteria for both conditions.²¹
- About 25 percent of fibromyalgia patients also have a major depressive disorder or anxiety disorder.²⁷ Evidence suggests that in patients with chronic pain syndromes, psychological co-morbidities are under-diagnosed and under-treated.²⁸
- Irritable Bowel Syndrome (IBS) is quite common in fibromyalgia patients.²⁹
- Bladder symptoms, dysmenorrhea, premenstrual syndrome, restless leg syndrome, temporomandibular joint pain, noncardiac chest pain, mitral valve prolapse, thyroid problems, bursitis, diarrhea, and Raynaud’s disease are also associated with fibromyalgia.^{28,30}

Management of Fibromyalgia

The prognosis for fibromyalgia syndrome can be disheartening; the condition has no cure, progression can be difficult to predict, and only one in four patients will experience improvement in symptoms even with appropriate treatment.^{13,31} Nevertheless, a number of non-pharmacological, pharmacological, lifestyle, and psychosocial therapies can make a significant difference in the health outcomes of some patients.¹¹ Early detection is important; in past years, an average delay of five to seven years before fibromyalgia was diagnosed contributed to sub-optimal disease management.²⁴

Because the presentation and symptoms of fibromyalgia vary widely, treatment must be individualized to each patient based on levels of pain, symptoms, and co-morbidities.³² Management centers on treatment of symptoms. In addition to minimization of pain, desired patient outcomes include improved sleep, muscle strength, mobility, day-to-day function, and quality of life.¹² A wide range of therapies are potentially effective in treating fibromyalgia; unfortunately, many widely-used treatment modalities lack evidence from clinical trials, are expert opinion based on clinical observation or experience, or have not been adequately evaluated in a broad clinical context.¹⁶

As in many chronic diseases, multi-disciplinary therapy incorporating a range of treatments is optimal in the management of fibromyalgia syndrome.

Non-Pharmacological Therapy

Education. There is strong evidence that intensive patient education via lectures, group discussions, print materials, and demonstrations is an effective and crucial part of disease management.^{33,16}

Exercise. Exercise has been widely found to be an effective treatment for fibromyalgia. The benefits of cardiovascular exercise have long been recognized, while the benefits of muscle-strengthening and aerobic exercise have also been proven.¹⁶ Pool exercise may be especially appropriate for fibromyalgia patients.¹⁴ However, many patients find it difficult to begin exercise due to fatigue or continue the exercise program when it results in post-exertional pain.⁶

Cognitive Behavioral Therapy. Evidence indicates that cognitive behavioral therapy is effective in decreasing pain and fatigue and improving function.¹⁶

Other Treatments. Fibromyalgia patients who do not attain relief of symptoms via mainstream medical treatment often turn to complementary and alternative therapy.⁶ Other treatments include:^{6,16}

- Relaxation
- Physiotherapy
- Biofeedback
- Hypnosis
- Acupuncture
- Massage
- Chiropractic manipulation
- Hypnotherapy
- Balneotherapy
- Ultrasound
- Tender point injections

Pharmacological Therapy

The list of potential pharmacological treatments for fibromyalgia symptoms is long and complex. Single medications are unlikely to be effective, but drug combinations may have some positive effect on patient outcomes.⁸

- Tramadol has been shown to be effective in treating fibromyalgia pain, either alone or in conjunction with acetaminophen.^{34,35,33}
- Tricyclic antidepressants can improve symptoms of sleep, pain, fatigue, and stiffness.³⁶
- Selective serotonin reuptake inhibitors (SSRIs) may improve fibromyalgia pain, especially in combination with tricyclic antidepressants.³³ It is often necessary for these medications to be used in higher doses than are usually prescribed for depression.⁸
- Duloxetine and milnacipran, serotonin-norepinephrine reuptake inhibitors (SNRIs), are both FDA-approved for the treatment of fibromyalgia syndrome.^{37, 38}
- Non-steroidal anti-inflammatory drugs (NSAIDs) should not be used as primary pain medication in fibromyalgia, but can be effective when used in conjunction with other medications such as acetaminophen.³³
- Some guidelines recommend that opioid medications be used for pain relief only after all other options have been exhausted;³³ others recommend against them due to adverse effects and regulatory issues.¹² Some evidence shows that in patients with fibromyalgia, the μ -opiate receptor may be decreased, potentially contributing to lack of effectiveness of opioids.³⁹
- Other pharmacological treatments include sleep and anti-anxiety medications;³³ cyclobenzaprine or low dose benzodiazepines to treat muscle spasms; and other treatments for individual symptoms.

Issues in Fibromyalgia Management

Although fibromyalgia has been identified as a distinct clinical condition for many years, controversy continues about its legitimacy as a disease. This is partially due to the fact that little is yet known about the causes, symptoms, progression, or best treatment for fibromyalgia, and that its manifestations are largely subjective. Some medical professionals question whether fibromyalgia is a valid clinical entity, especially considering its significant overlap with other disputed conditions such as fatigue and social anxiety.⁴⁰ Patients seeking treatment are often misdiagnosed, accused of fraudulently seeking drugs or disability payment, or told that the symptoms are “all in your head”.^{41,24} As recently as 2008, the New York Times published an article about a recent FDA approval for fibromyalgia medication, questioning whether the disease is real and concluding that pharmaceutical companies “are going to make a fortune.”⁴² As an important part of the patient education process, patients diagnosed with fibromyalgia and their families should be reassured that the illness is indeed real.¹²

Fibromyalgia syndrome is a particularly challenging condition in school-aged children due to the effects on concentration, cognition, and energy levels.¹³ One study of middle- and high-school students revealed that they were perceived as isolated, less popular, and less well liked, with a potential negative impact on the students’ psychological development.⁴³

There is controversy over whether fibromyalgia syndrome should be classified as a rheumatologic disease. Nevertheless, patients are often referred to rheumatologists and much of the fibromyalgia literature is published in rheumatologic journals. As of 2007, rheumatologists diagnosed more cases than primary care providers and other specialists. However, most patients initially present to primary care physicians.⁴⁴ Because early diagnosis and intervention is key to effective treatment, it is crucial for primary care physicians to be competent in assessing and managing fibromyalgia.⁴⁴

Low Back Pain Literature Review

Low back pain, also called lumbar back pain, is a very common complaint that usually self-resolves; however, more serious cases can present definite treatment challenges for health care providers. The condition is categorized by duration, location, and cause.⁴⁵ Although the duration categories are not clearly defined, pain lasting less than four weeks is considered acute, while long-lasting symptoms are defined as chronic low back pain.^{45, 46}

In the United States, it is estimated that frequent low back pain occurs in 26 million working-age patients as well as 60 million patients over the age of 65.⁴ In the past three months, approximately one quarter of adults experienced low back pain lasting at least a day.⁴⁷ The condition is the fifth most common reason for physician visits.^{47, 48}

Low back pain is also the most common cause of sick leave and job-related disability.⁴⁹ Twenty-eight percent of the U.S. industrial population will experience disabling low back pain at some point, resulting in 250 million lost workdays annually, or 40 percent of total lost work days.^{50, 51}

The economic impact of low back pain is considerable as well. Health care expenditures for patients with low back pain are 60 percent higher than for patients without.⁵² More than 90 billion dollars is spent in direct health care every year.⁵³ The total economic impact of low back pain is comparable to that of coronary heart disease, diabetes, or depression.⁵⁴

Key Organizations and Guidelines

A number of organizations, including the Institute for Clinical Systems Improvement (ICSI), the American College of Physicians, and the American Pain Society, have published guideline recommendations on the assessment and management of low back pain. A selection of recent guideline publications is included below.

A 2009 analysis of the quality of low back pain clinical guidelines concluded that in general, recommendations were clear and well presented with satisfactory scope, purpose, and stakeholder involvement. Publications scored lower, on average, in the areas of applicability and editorial independence.⁵⁵

Year	Organization	Title
2007	American College of Occupational and Environmental Medicine (ACOEM)	Low Back Disorders. Occupational Medicine Practice Guidelines: Evaluation and Management of Common Health Problems and Functional Recovery in Workers. ⁵⁶
2007	American College of Physicians, American Pain Society	Diagnosis and Treatment of Low Back Pain ⁵⁷
2008	Council on Chiropractic Guidelines and Practice Parameters (CCGPP)	Chiropractic Management of Low Back Disorders: Report From a Consensus Process ⁵⁸
2009	National Institute for Health and Clinical Excellence (UK)	Early Management of Persistent Non-Specific Low Back Pain: NICE Guideline ⁵⁹
2009	American Osteopathic Association (AOA)	American Osteopathic Association Guidelines for Osteopathic Manipulative Treatment (OMT) for Patients with Low Back Pain ⁶⁰
2009	Institute for Clinical Systems Improvement (ICSI)	Health Care Guideline: Adult Low Back Pain ⁶¹
2010	Michigan Quality Improvement Consortium	Management of Acute Low Back Pain ⁶²

As a whole, the recommendations presented in the clinical guideline documents are relatively consistent. There is particularly clear consensus on the assessment and diagnosis of low back pain.⁵⁵ Best management strategies, however, are less clear.^{55,63} Interventional techniques — specifically, infiltration of trigger points, epidural steroids, and acupuncture — are the most inconsistently recommended treatment modalities.⁵⁵

The major weakness of literature outlining the treatment of low back pain originates in the wide variety of treatment options. Studies clearly define the efficacy of individual treatment modalities, but evidence does not exist to recommend one approach over another, or guide best choice of treatment in specific scenarios.⁶⁴

Assessment of Low Back Pain

In 85 percent of patients, no identifiable cause for low back pain is present; in fact, the act of diagnosing symptoms by attributing them to a physical condition or abnormality has no effect on patient clinical outcomes.⁵⁷ However, for a small number of patients with low back pain, symptoms are caused by a specific disorder. The most common of these are cancer, compression fracture, spinal infection, ankylosing spondylitis, spinal stenosis, symptomatic herniated disc, tumor, or the cauda equine syndrome.⁵⁷ Consequently, assessment of low back pain focuses on ruling out the possibility of these rare but serious conditions rather than pinpointing a diagnosis.

Initial assessment of low back pain should incorporate a detailed history and physical exam.^{45,57,61}

- Location, duration, and frequency of symptoms
- History of previous low back pain, including symptoms and response to treatment
- Impact of pain on patient functionality
- Co-morbidities
- Neurological deficits, including motor deficits and incontinence
- Psychosocial risk factors
- Risk factors for cancer or infection
- Symptoms of radiculopathy or spinal stenosis

Patients with low back pain are often categorized into three groups: those with non-specific low back pain, those with low back pain associated with radiculopathy or spinal stenosis, or back pain associated with a different cause.⁵⁷

Literature and guideline recommendations are very clear that diagnostic or imaging tests should not be used for the *routine* diagnosis of non-specific low back pain. There is no evidence indicating that imaging tests impact clinical outcomes, and the American College of Radiology states that diagnostic tests do not “hold any value in the decision-making process before offering a treatment” for chronic low back pain.^{57, 64} Even when diagnostic tests identify a physical abnormality, it is not always possible to attribute it as the cause of symptoms, because these same abnormalities commonly occur in asymptomatic patients.⁶⁵ Additionally, pain radiography of the lumbar spine is of particular concern to women due to high levels of gonadal radiation — the equivalent of one chest radiograph every day for a year.⁶⁶

Treatment of Low Back Pain

The majority of patients who experience episodes of acute low back pain find that their symptoms resolve quickly. It is estimated that in 80-90 percent of cases, the pain concludes within about six weeks.^{67, 68} Many of these patients never see a health care provider; for those that do, it is common to recommend watchful waiting and self-management, with reassessment of pain upon follow-up. Unfortunately, many patients who present with short-lived, self-resolving acute low back pain relapse or experience multiple episodes.^{46, 50}

Treatment goals for low back pain include increased function, reduced pain, and decreased utilization of healthcare resources. Complete relief of pain is often not feasible.⁴⁵ A number of treatment modalities — including self treatment strategies, non-pharmacological management, surgical intervention, and medication — are indicated for low back pain and are often used concurrently as part of a multidisciplinary treatment plan.

Self-Management

Health care providers should encourage patients with non-specific low back pain to remain active and continue their daily routine as normal; activity results in better patient outcomes than bed rest or back mobilizing exercises.^{46, 57, 69, 70} Hot or cold packs can be applied to the painful area, although there is insufficient evidence to support the efficacy of cold packs.⁷¹ Other self-care suggestions include

educational books, email discussion groups, classes, modified work, and sleeping on a medium-firm (not firm) mattress.⁵⁷

Non-Pharmacological Therapy

Non-pharmacological therapies for low back pain include the following:⁵⁷

- acupuncture
- back schools
- psychological therapies
- exercise therapy
- functional restoration
- interdisciplinary therapy
- massage
- physical therapies (interferential therapy, low-level laser therapy, lumbar supports, shortwave diathermy, superficial heat, traction, transcutaneous electrical nerve stimulation [TENS], and ultrasonography)
- spinal manipulation
- yoga

Non-pharmacological therapies produce best results in patients with sub-acute or chronic low back pain. Evidence is strongest to suggest cognitive behavioral therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation.⁷² For patients with acute low back pain, there is good evidence to support the use of heat and moderate evidence to support spinal manipulation.⁷²

Pharmacological Therapy

A number of medication classes have been shown to be moderately effective in the short-term treatment of low back pain.^{57, 73}

- acetaminophen
- non-steroidal anti-inflammatory drugs (NSAIDs)
- antidepressants
- benzodiazepines
- antiepileptic drugs
- skeletal muscle relaxants
- opioid analgesics
- tramadol

Evidence suggests that NSAIDs, acetaminophen, and skeletal muscle relaxants are moderately effective in the treatment of chronic low back pain, while tricyclic antidepressants are the best choice for acute low back pain.⁷² Opioids, tramadol, and benzodiazepines have also been shown to be effective, although the evidence base for these drug classes is less clear. Corticosteroids are not an effective therapy.⁷²

For most patients, acetaminophen or non-steroidal anti-inflammatory medications are the first choice of treatment for low back pain. However, there is no clear benefit of one medication over another; instead, physicians and patients must weigh the relative risks and benefits of each to determine the best therapy plan.⁵⁷

When prescribing medication to treat low back pain, health care providers often choose drugs that are indicated for other conditions. There is no evidence to determine the frequency of this practice or the efficacy of off-label pharmaceutical treatment.⁶⁴

Interventional Therapy

Although a full review of interventional therapies is beyond the scope of this literature review, a number of interventional diagnosis and treatment techniques are available and indicated for patients with low back pain. These include controlled diagnostic blocks, discography, intraarticular injections, epidural injections, adhesiolysis, intradiscal therapies, disc decompression, nucleoplasty, and spinal cord stimulation.⁵⁰

Osteoarthritis Literature Review

Osteoarthritis, also called degenerative arthritis or degenerative joint disease, is the most common form of arthritis. It is a syndrome of articular, or joint, pain caused by the degeneration of cartilage combined with osteophytes (bone spurs) and limited functionality. The weight-bearing joints, such as hips, knees, and lower back, are most commonly affected; hands, shoulders and other joints can be affected as well.⁷⁴

Osteoarthritis is the single leading cause of chronic disability in the United States.^{75, 76} It affects 27 million Americans, and prevalence is rising; between 1995 and 2005, rates increased by almost 30 percent.^{77, 78} Because prevalence increases with age, it is estimated that by the age of 65, 80 percent of Americans will have developed clinical signs of osteoarthritis.^{79, 80} Although not all will exhibit symptoms, more than half of these experience symptomatic knee or hip osteoarthritis.⁷⁴ Women have a higher prevalence of the condition, especially after age 50.⁷⁹

Osteoarthritis was the primary diagnosis in 1.1 million ambulatory care visits in 2004 as well as 50 percent of hip replacement surgeries and 90 percent of knee replacement surgeries in 2006.^{81, 82} Half of NSAID prescriptions and a quarter of primary care visits can be attributed to osteoarthritis.⁸⁰ Hospitalization rates for osteoarthritis more than doubled between 1993 and 2006, largely due to an increase in knee replacement surgery.³

The direct costs of osteoarthritis have been estimated at between \$1750 and \$2800 per patient annually; total annual costs per patient are approximately \$5700.^{77, 83, 84} Overall, the annual cost of medical care and indirect expenses of arthritis conditions, including osteoarthritis, in the United States totals approximately \$128 billion.⁸⁵

Organizations and Guidelines

Key organizations and societies involved in osteoarthritis treatment, advocacy and research include:

- The American College of Rheumatology (ACR)
- The European League Against Rheumatism (EULAR)
- The Osteoarthritis Research Society International (OARSI)
- The National Institute of Arthritis and Musculoskeletal Skin Diseases (NIAMS) (a division of the National Institutes of Health)
- The Arthritis Foundation
- The Arthritis Research Institute of America (ARIA)

These and other institutions have published a number of guidelines and consensus statements that address the diagnosis, treatment, and overall management of osteoarthritis. Some documents address the disease as a whole, while others are specific to the knee, hip, or hand joints; of the three, literature on knee osteoarthritis is most prevalent. Approximately half of publications are intended for specific user groups, such as primary care, rheumatology, and physiotherapy, while others do not specify target audience.⁷⁴ There is no gold standard in the care of osteoarthritis, but the OARSI 2008 document stands out as an exceptionally well-researched review of 23 existing recommendation statements. Key clinical guidelines include:

Year	Organization	Title
2000	American College of Rheumatology	Recommendations for the Medical Management of Osteoarthritis of the Hip and Knee ⁸⁶
2003	The European League Against Rheumatism (EULAR)	EULAR Recommendations 2003: An Evidence Based Approach to the Management of Knee Osteoarthritis ⁸⁷
2005	The European League Against Rheumatism (EULAR)	EULAR Evidence Based Recommendations for the Management of Hip Osteoarthritis ⁸⁸
2005	The Ottawa Panel	Ottawa Panel Evidence-Based Clinical Practice Guidelines for Therapeutic Exercises and Manual Therapy in the Management of Osteoarthritis ⁸⁹
2006	The European League Against Rheumatism (EULAR)	EULAR Evidence Based Recommendations for the Management of Hand Osteoarthritis ⁹⁰
2007	Osteoarthritis Research Society International (OARSI)	Recommendations for the Management of Hip and Knee Osteoarthritis, Part I: Critical Appraisal of Existing Treatment Guidelines and Systematic Review of Current Research Evidence ⁷⁴
2008	American Academy of Orthopedic Surgeons (AAOS)	Treatment of Osteoarthritis of the Knee (Non-Arthroplasty) ⁸¹
2008	National Institute for Health and Clinical Excellence (NICE)	Osteoarthritis: the Care and Management of Osteoarthritis in Adults ⁹¹
2008	The European League Against Rheumatism (EULAR)	EULAR Evidence Based Recommendations for the Diagnosis of Hand Osteoarthritis ⁹²
2008	Osteoarthritis Research Society International (OARSI)	Recommendations for the Management of Hip and Knee Osteoarthritis, Part II: OARSI Evidence-Based, Expert Consensus Guidelines ⁹³
2009	Michigan Quality Improvement Consortium	Medical Management of Adults with Osteoarthritis ⁹⁴
2009	Orthopaedic Section of the American Physical Therapy Association (APTA)	Hip Pain and Mobility Deficits – Hip Osteoarthritis ⁹⁵
2009	Royal Australian College of General Practitioners	Guideline for the Non-Surgical Management of Hip and Knee Osteoarthritis ⁹⁶
2010	The European League Against Rheumatism (EULAR)	EULAR Evidence Based Recommendations for the Diagnosis of Knee Osteoarthritis ⁹⁷
2010	Osteoarthritis Research Society International (OARSI)	Recommendations for the Management of Hip and Knee Osteoarthritis, Part III: Changes in Evidence Following Systematic Cumulative Update of Research Published Through January 2009 ⁹⁸

Overall, there is considerable consensus among guideline recommendations. However, one 2007 review of guideline publications concludes that “the overall quality of existing guidelines is suboptimal” and that recommendations do not always align with best evidence.⁷⁴ Although most recommendations for pharmaceutical and non-pharmaceutical therapies are supported by evidence from randomized controlled trials, this is not always the case in recommendations for surgical treatment. For example, a number of guidelines recommend total joint replacement and osteotomy, although clinical evidence does not support their use.⁷⁴

Symptoms, Risk Factors, and Diagnosis

Pain is the main cause of morbidity in osteoarthritis. Patients experience tenderness and stiffness of the joint; pain may be worse immediately after awakening, following excessive use or exercise, or after periods of immobility. Other symptoms include bony growths in the joint, limited range of motion, and crepitus (a cracking, grating or popping sensation). Inflammation may occur, but unlike in rheumatoid arthritis, it is generally mild and restricted to the immediate joint area.⁸⁶

There is no single known cause of osteoarthritis, but a number of factors increase the likelihood of developing the disease. These include:^{79, 81}

- Genetics
- Excessive weight
- Female sex
- Repetitive actions such as knee bending or heavy lifting, often associated with occupation
- Joint injury
- Nerve injury
- Sedentary lifestyle
- Advanced age

Radiography is commonly used to diagnose osteoarthritis, but there are no standardized diagnostic criteria (which can make prevalence data difficult to analyze). The diagnostic process differs according to joint. The European League Against Rheumatism (EULAR) identified a series of symptoms and signs to diagnose knee osteoarthritis with considerable confidence:⁹⁷

Symptoms: knee pain, short-lived morning stiffness and functional limitation

Signs on examination: crepitus, restricted movement and bony enlargement

The Orthopedic Section of the American Physical Therapy Association (APTA) has identified similar criteria for the diagnosis of hip osteoarthritis.⁹⁵ Diagnosis based on signs and symptoms is useful in primary care because it does not necessitate expensive tests. However, in atypical presentation, radiography may also be used as a diagnostic tool.⁹⁷

Treatment of Osteoarthritis

There is no cure for osteoarthritis. Major goals for treatment include reducing pain, improving or maintaining mobility, limiting loss of function, and improving quality of life while minimizing adverse effects of treatment.⁸⁶ Ideally, a treatment plan should incorporate a variety of multimodal therapies, which might include non-pharmacologic devices and lifestyle changes, medication, or surgical intervention.

Non-pharmacologic therapies are the first choice of treatment; the American College of Rheumatology recommends them as the “cornerstone of OA management” in hip and knee osteoarthritis.

- Weight loss. The load borne by the knee joint during daily activities decreases by four pounds for every one pound of weight lost.⁹⁹ In some patients, a weight loss of 15 pounds can result in a 50 percent improvement in knee pain.¹⁰⁰
- Exercise. Low-impact aerobic exercises, muscle-strengthening exercises, and range-of-motion exercises are recommended.⁸⁹ Quadriceps-strengthening exercises can be particularly helpful in treating osteoarthritis of the knee.^{81, 86}
- Physical therapy. Like exercise programs, physical therapy can improve muscle strength, mobility, and coordination; physical therapists can provide counseling for exercise programs and assistive devices.⁷⁷
- Assistive devices. Patellar taping in knee osteoarthritis can provide short-term pain relief and improved function.⁸¹ Appropriate footwear is key and may involve shoe inserts and insoles, heel wedges. These and other devices such as knee braces, splints, crutches, and walkers can be useful for patients, although not all devices are universally recommended in clinical guidelines.^{77, 81}
- Heat therapy, acupuncture, and transcutaneous electrical nerve stimulation (TENS). These therapies are used to treat osteoarthritis, but evidence to support them is inconclusive.

Pharmacologic therapy on an as-needed or long-term basis can be a useful addition to the treatment plan when non-pharmacologic therapies are insufficient. In many cases, a combination of medications is recommended.⁸⁶ Pharmacologic treatment for osteoarthritis may include:^{77,101}

- Acetaminophen. This is the first-line medication for treatment of osteoarthritis.¹⁰²
- Non-steroidal anti-inflammatory drugs (NSAIDs).
- Cyclooxygenase (COX)-2 inhibitors.
- Intraarticular (IA) medications. IA drugs such as corticosteroids are injected directly into the joint.
- Topical analgesics. These include capsaicin and methylsalicylate. They are not appropriate for hip osteoarthritis due to the depth of the joint.⁸⁶
- Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs). Duloxetine hydrochloride was approved for treatment of chronic musculoskeletal pain, including osteoarthritis, in 2010.¹⁰³
- Opioids.

Acetaminophen (paracetamol) in doses up to 4 grams per day is the first choice of medication to treat osteoarthritis.⁹³ If pain persists, NSAIDs can be used in place of or adjunctive to acetaminophen; however, although effective, they are associated with a significant risk of harmful gastrointestinal effects, particularly in elderly patients.⁸⁶ If these medications are insufficient or contraindicated, COX-2 inhibitors, intraarticular treatment, and topical analgesics can be used as well.

Opioid medication should be used only when other drug classes have failed; strong opioids should be used only with severe pain that cannot be treated via other modalities.⁷⁷ Physicians who prescribe opioids to osteoarthritis patients should be alert for common side effects such as nausea, constipation, and dizziness.⁹⁸ Unlike other osteoarthritis drug classes, opioids can be used or abused recreationally; many health care providers are concerned with issues of safety, abuse, and diversion in their practices. Nevertheless, for some patients opioids are the most appropriate and efficacious therapy choice.¹⁰¹

Patients whose osteoarthritis cannot be managed adequately with non-pharmacological treatment, lifestyle interventions, and medication, and whose quality of life is significantly impaired, may be referred for surgical intervention.⁹¹ While a full review of surgical therapies is beyond the scope of this needs assessment, treatment options include arthroscopic debridement, lavage, or joint irrigation; osteotomy; and arthroplasty. A number of guidelines suggest that joint replacement surgeries are effective and cost-efficient for patients with serious symptoms of osteoarthritis.⁹³

Regardless of whether a patient's osteoarthritis is treated with pharmacological, non-pharmacological, or surgical therapies — or a combination — it is crucial that the treatment plan also incorporates education of the patient as well as family or caregivers.⁸⁶ Patients who are actively involved in their own care via self-management programs report decreased joint pain, fewer office visits, and increased activity and quality of life.¹⁰⁴ Skilled, ongoing communication between the patient and health care professional is also key in decreasing pain and improving function in osteoarthritis.⁸⁶

Issues and Challenges in Osteoarthritis Management

A large portion of literature on the management of osteoarthritis is published in specialty journals, such as *Osteoarthritis and Cartilage* or the *Journal of Rheumatology*, and addresses patients with severe symptoms who are treated in specialty settings. However, most osteoarthritis patients do not fit this description; many are working-age or elderly adults with mild-to-moderate joint pain. Unfortunately, there is a lack of literature in primary care journals on the treatment of this population.

The incidence of osteoarthritis is strongly associated with age. The aging population of the United States, together with other demographic shifts such as growing obesity rates and increased recreational activity among older adults, contribute to the current and expected rise in osteoarthritis among elderly patients.⁸¹ The physical and psychological costs of osteoarthritis can be particularly burdensome in the geriatric population as patients experience loss of independence and may need assistance to carry out everyday activities. Hip and knee osteoarthritis presents an additional safety concern for older adults due to risk of falls.¹⁰⁵ Exercise and physical therapy as treatment for osteoarthritis can present challenges in elderly patients due to sedentary lifestyle, obesity, and co-morbidities such as cardiovascular disease.¹⁰⁶

A significant number of patients with osteoarthritis are undertreated in the primary care setting.¹⁰⁷ Issues that may contribute to this gap include the low priority of osteoarthritis treatment compared to more serious co-morbidities and physician lack of faith that treatment will prove successful.¹⁰⁷ Because osteoarthritis is often characterized as “wear-and-tear” on the joints, patients may mistakenly believe that the condition is an unavoidable symptom of age or that exercise can wear out joints.¹⁰⁷

Interviews

After the literature reviews were complete, project partners used the resulting data to create an interview guide which was subsequently reviewed by a clinical expert. Partners interviewed ten primary care physicians about their experience treating chronic pain patients, particularly patients with fibromyalgia, low back pain, and osteoarthritis. Interviews were conducted by telephone and lasted approximately one hour; participants were compensated for their time. Access to interview participants was gained through existing partner relationships.

The in-depth interviews were designed to assess key issues and influences on clinical behavior and practice management. They identified key points in the diagnosis and treatment of chronic pain conditions, explored clinician attitudes toward pain patients, and pinpointed practice management issues that impact therapeutic decision-making in the three target therapy areas.

Interview Findings

Interviewees stated that chronic pain is challenging, time-consuming, and often requires extensive testing to determine diagnosis. Low back pain was the most commonly identified chronic pain condition, while fibromyalgia and osteoarthritis were mentioned as well. The conditions have certain similarities, but usually are immediately differentiated by symptom presentation; of the three disease states, fibromyalgia was seen as most difficult to manage, while osteoarthritis was the most straightforward.

Key themes revealed through the physician interviews included the following:

Fibromyalgia

- Fibromyalgia is difficult to diagnose because there are no objective tests
- Diagnosis criteria are vague or subjective, while variance in presentation makes management challenging
- Fibromyalgia patients are time-consuming and frustrating to manage
- Patients are often negative
- Patient motivation and adherence present barriers to best care
- Medication for fibromyalgia is often ineffective or not covered by insurance

When asked about recent changes they had made in their practice, interviewees stated that they were using newer medications (including fewer opioids) and were adding more non-pharmacological approaches to treatment. Educational needs cited included diagnosis, medication, and non-pharmacologic treatment as well as statistics and facts about fibromyalgia to reinforce that it is indeed a real disease.

Low Back Pain

- It is challenging to distinguish run-of-the-mill low back pain with other more serious issues
- Some patients are seeking secondary gain (e.g., drug-seekers, workers' compensation)
- It is difficult to relieve low back pain
- Surgery is rarely successful
- Insurance does not always cover tests or non-pharmacologic treatments
- Tolerance, addiction, and diversion are issues

Interviewees noted that they had recently been more diligent about prescribing opioids and had been using newer opioids available. They cited both increased and decreased referral to pain management specialists, and increased and decreased use of imaging. When asked about educational needs, participants listed: the causes and physical diagnosis of low back pain, indications for referral and imaging, how to manage medication and prescribe opioids safely, non-pharmacologic treatment approaches, and how to individualize treatment to best meet the needs of the patient.

Osteoarthritis

- It is challenging to differentiate osteoarthritis from other forms of arthritis
- Medication use in older patients can be complex
- There is no cure for osteoarthritis
- Patient adherence is a problem
- Some patients cannot or will not exercise
- Referrals take too much time
- Prior authorization is needed for some medications
- Physicians are unfamiliar with non-pharmacologic treatments

Interviewees who were asked about recent changes in their practice stated that they were more likely to use topical medications, chondroitin, and glucosamine. They were less likely to use imaging and were becoming more cautious with the use of NSAID medications. Educational needs in the management of osteoarthritis included communication with patients, including articulating goals; topical medications and injection; non-pharmacologic treatments; safe prescribing; and joint replacement recommendations.

Focus Group

Following physician interviews, a group of nine physicians participated in a focus group discussing the management of fibromyalgia, low back pain, and osteoarthritis. Nine participants were recruited during the University of Virginia's annual Recent Advances in Clinical Medicine conference in Charlottesville, Virginia on October 28, 2010. The diverse group represented primary care perspectives from across the United States, including the medical director for a hospice, a medical student educator who works in a free clinic, a primary care provider for HIV-positive patients, and a physician who is the only health care provider in a small town.

Helping the Hurting partners facilitated the 90-minute small-group discussion. Participants explored treatment choices, communication, challenges, relationships, and assumptions about how chronic pain patients are managed. The focus group served to echo and validate the issues that were revealed through the interviews and provide additional perspective to inform the later development of the survey instrument.

Topics of discussion during the focus group included the following:

- Varied definitions of chronic pain
- Pain patients are difficult to manage (especially fibromyalgia patients)
- Education and communication between patients and health care providers
- Lifestyle and psychosocial components of chronic pain therapy
- Identifying and managing drug-seekers
- Patients' differing treatment goals
- Physicians' differing treatment strategies

Practice Assessment Survey

Findings from the literature assessment, physician interviews, and focus group were applied to design a quantitative practice assessment survey to identify gaps in knowledge, skill, and practice in the management of patients with fibromyalgia, osteoarthritis, and chronic low back pain. The survey measured physician attitudes, knowledge, competence, clinical practice parameters, barriers to best practices, and learning style preferences related to chronic pain management. The survey was developed in collaboration with one content expert and validated by another. The full survey instrument can be viewed in Appendix 1 on page 75.

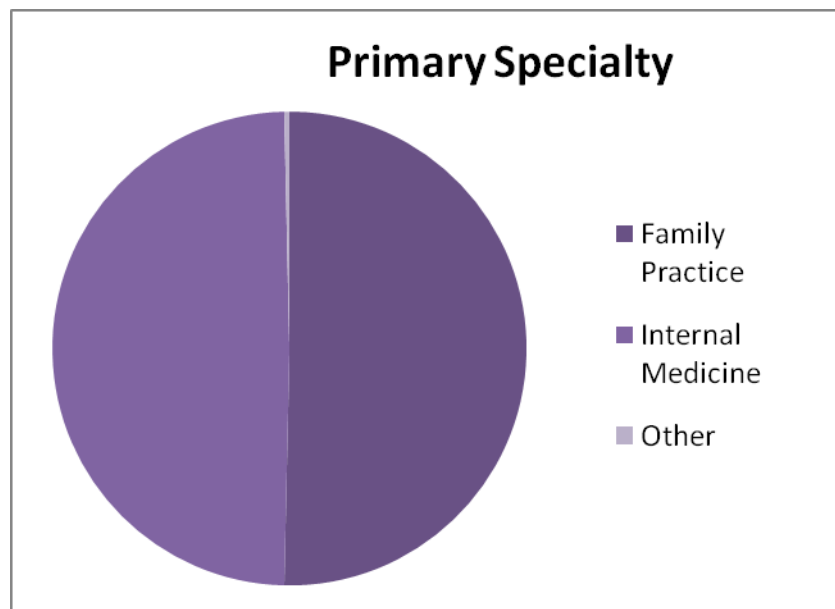
Project partners distributed the survey via email blast to a purchased list of primary care physicians. The survey took approximately 30 minutes to complete and participants were compensated for their time. Each survey included one section assessing each of the clinical areas, as well as a section on

demographic information. The order of the three clinical practice areas was randomized; in other words, some respondents answered fibromyalgia questions first, while others answered low back pain or osteoarthritis first.

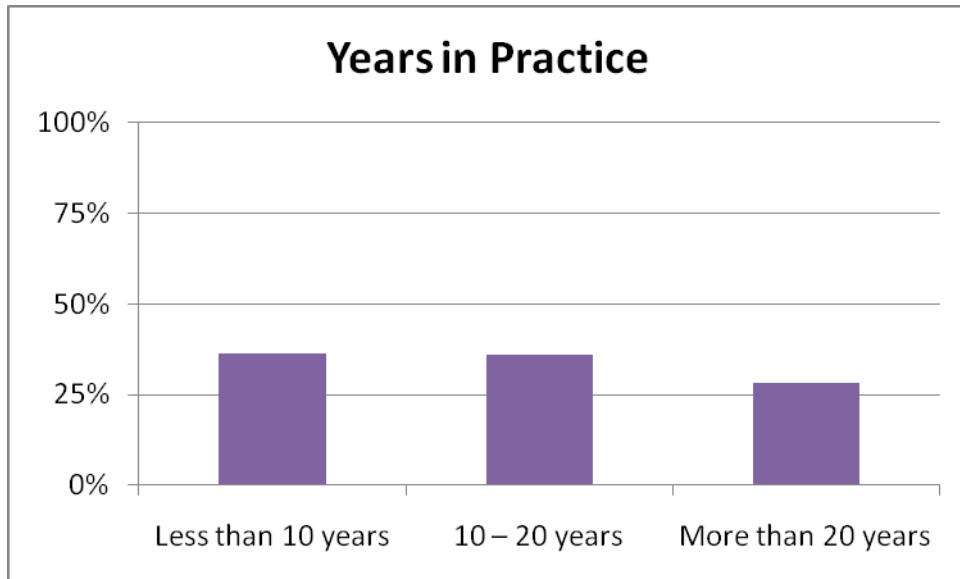
One hundred forty-five individuals provided usable data for the initial survey, distributed in December of 2010. Analysis revealed that virtually all respondents identified themselves as family physicians. Because project partners desired data from a range of primary care providers, the decision was made to redistribute the survey to a population of internal medicine physicians. This was done in March of 2011 and garnered an additional 137 participants, for a total response number of 282. Analysis revealed no significant differences between the answers of the family medicine and internal medicine participants.

Demographics

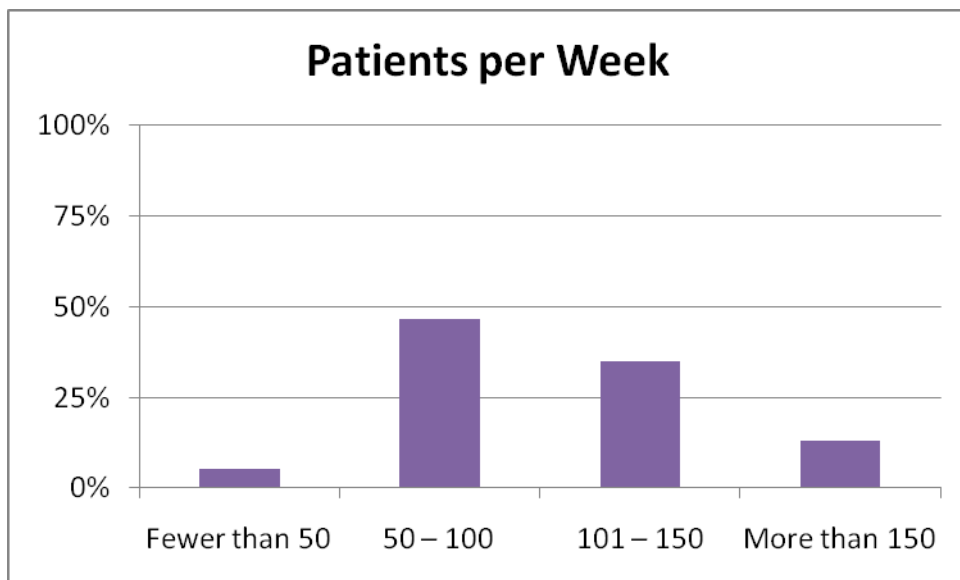
Respondents were asked to note their primary specialty. Responses were split almost evenly between family practice and internal medicine physicians; the single respondent who chose “other” listed him- or herself as a cardiologist.



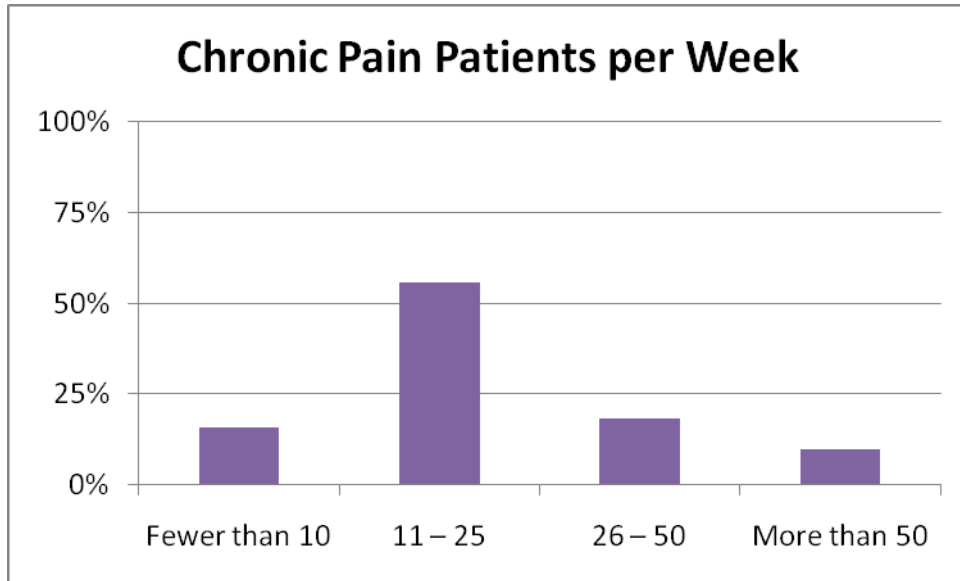
Respondents were asked how long they had been in practice: less than 10 years, 10–20 years, or more than 20 years. Physicians from all three groups were relatively equally represented in the survey.



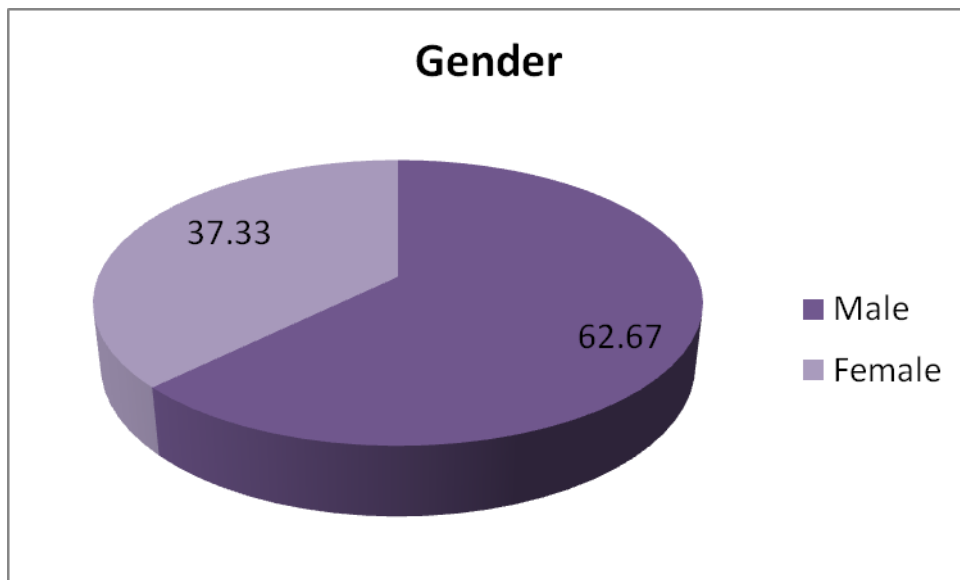
Almost half of respondents reported seeing 50 to 100 patients in a typical week. The second most popular response was 101 to 150 patients per week, while fewer respondents saw more than 150 or fewer than 50 patients in a typical week.



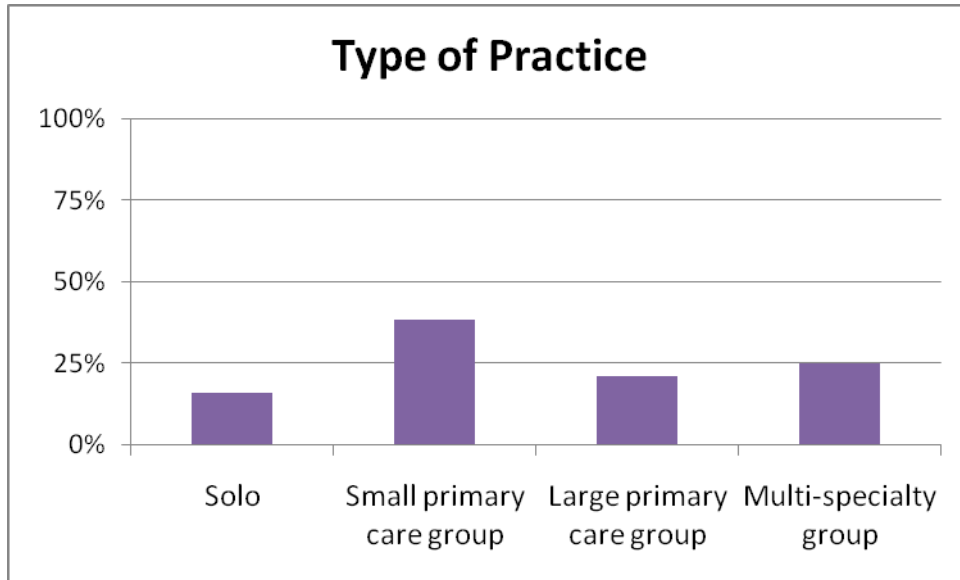
Respondents also reported how many *chronic pain* patients they see in a typical week. The majority reported seeing 11–25 chronic pain patients.



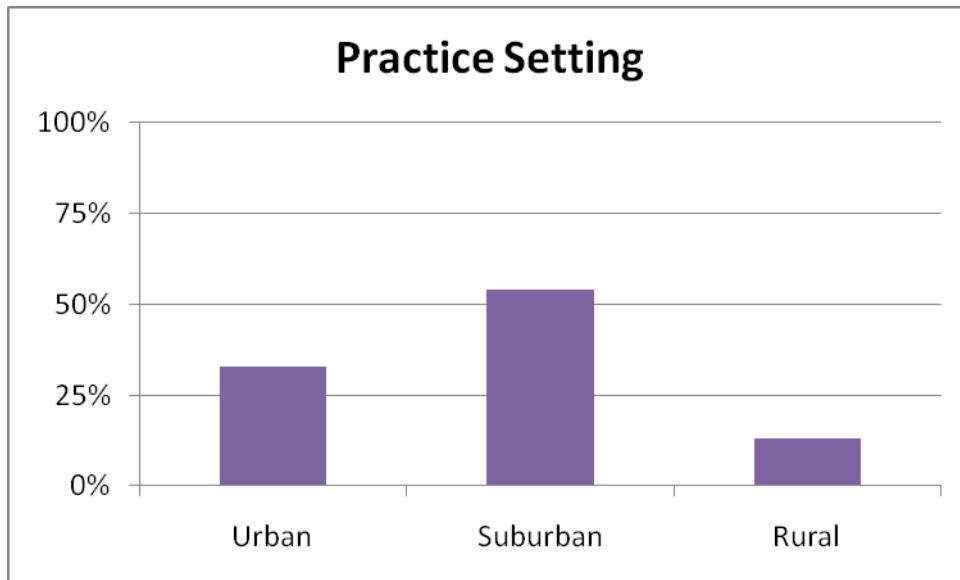
Approximately two-thirds of physicians who responded to the survey were male.



Survey respondents were queried about their type of practice. The most common response was “a small primary care group,” while physicians in solo practice, large primary care groups, and multi-specialty groups were also represented.



Finally, respondents reported on their practice setting. More than half of respondents practiced in a suburban area, while the fewest practiced in a rural setting.

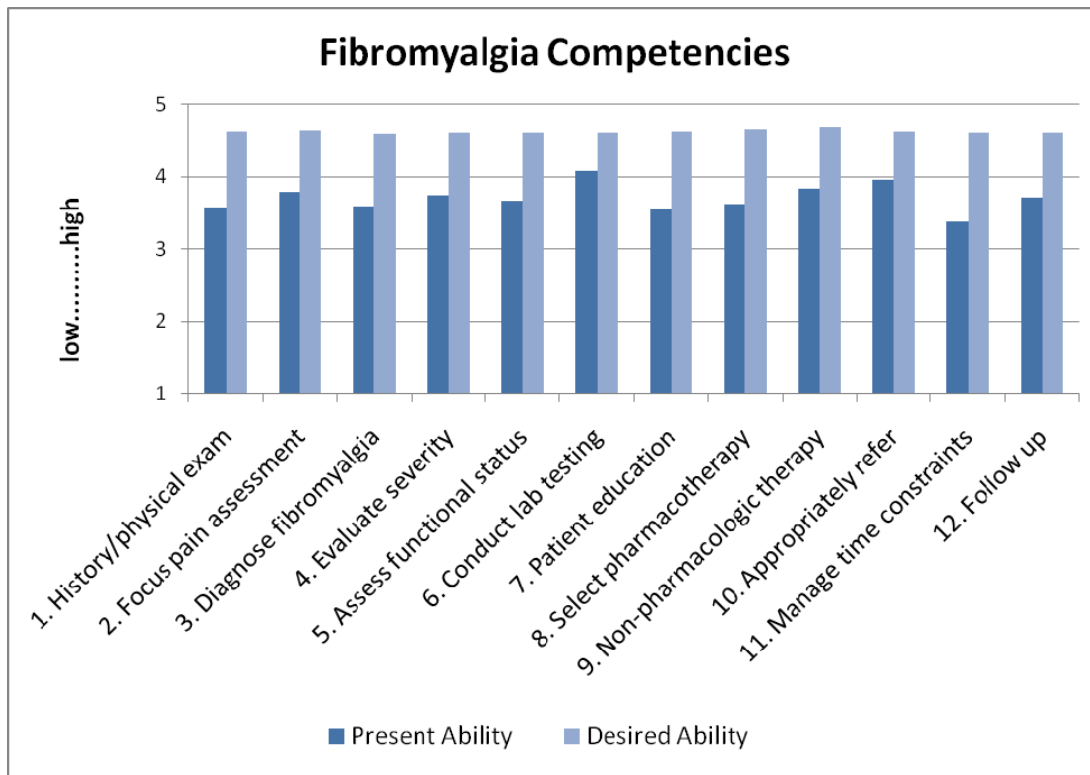


Fibromyalgia

Clinical guidelines, literature, and expert opinion were used to create a list of evidence-based, measurable competencies for each of the three disease areas. Clinical competencies identified in the area of fibromyalgia included the following:

1. Perform a complete history & physical examination focusing on illnesses that may mimic or complicate fibromyalgia.
2. Focus pain assessment on type and quality of pain, source, location, duration, time course, pain affect and effects on quality of life.
3. Base the clinical diagnosis of fibromyalgia on the presence of widespread pain, defined as pain in all four body quadrants and axial pain, for at least 3 consecutive months.
4. Evaluate the severity of other fibromyalgia symptoms including fatigue, sleep disturbance, and mood and cognitive disturbance.
5. Assess functional status in the initial and subsequent patient visits.
6. Obtain a complete blood count and conduct erythrocyte sedimentation rate, muscle enzymes, liver function, and thyroid function tests in a new patient with probable fibromyalgia.
7. Provide education about the causes, course, prognosis, and treatment of fibromyalgia to the patient.
8. Select appropriate pharmacotherapy for fibromyalgia and associated symptoms.
9. Select appropriate non-pharmacologic therapies such as exercise and counseling.
10. Appropriately refer to specialists.
11. Manage time constraints associated with the diagnosis, treatment, and management of fibromyalgia.
12. Follow-up with patients to assess progress and compliance and then adjust the treatment plan accordingly.

In the survey, respondents were asked to rate their present and desired levels of ability for each competency. Average responses are presented below:

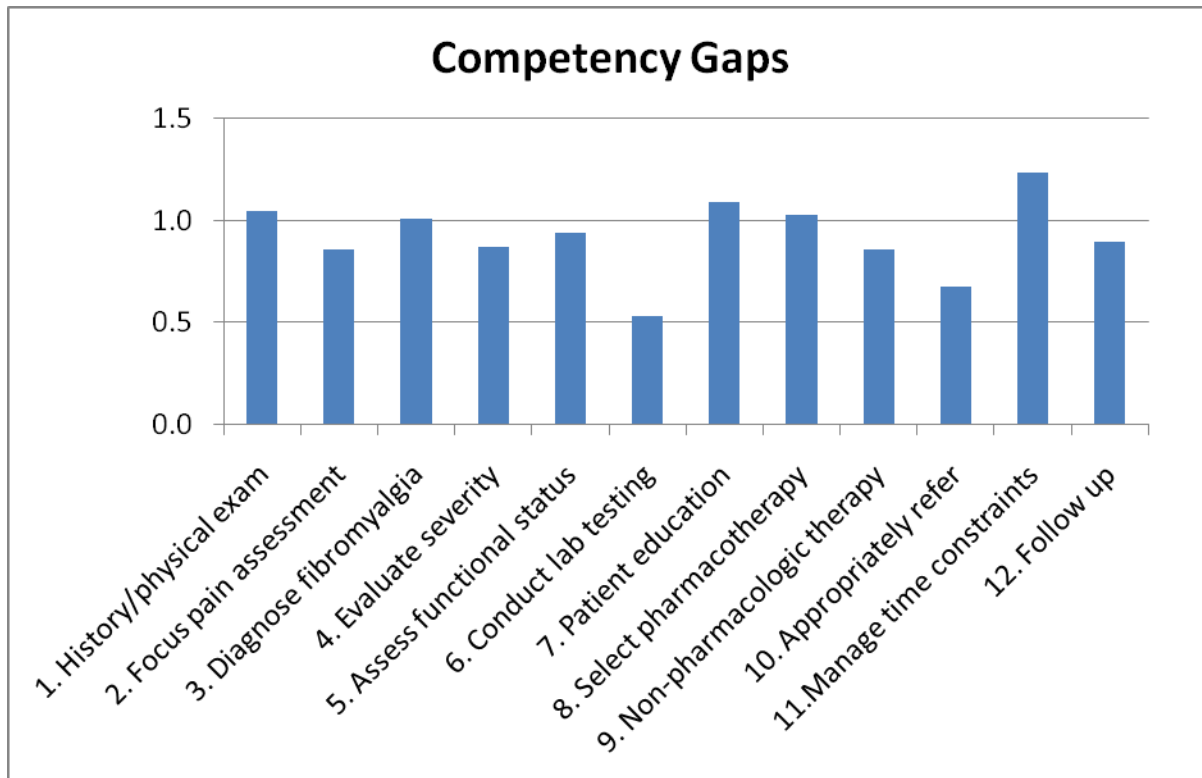


The dark bar on the left represents participants’ perceived present ability for each competency. The highest-rated current competency was “Obtain a complete blood count and conduct erythrocyte sedimentation rate, muscle enzymes, liver function, and thyroid function tests in a new patient with probable fibromyalgia,” while the lowest was “Manage time constraints associated with the diagnosis, treatment, and management of fibromyalgia.”

The right-hand bar, representing participants’ desired level of ability for each competency, exhibits less variation; respondents feel that all these competencies represent skills needed in the management of fibromyalgia.

The average difference, or gap, between the present perceived and desired levels of competency indicates the perceived need of the learners. This gap between the perception of “what is” and “what ought to be” predicts physician motivation to learn and change. A gap of 0.5 or higher is considered to be meaningful, while a gap of 1.0-2.0 is ideal for clinician education; this cutoff threshold is based on previous research on forces for change and learning in the lives of physicians.

The following section represents the fibromyalgia competency gaps for survey respondents.



Gaps for all 12 competencies fall above 0.5 and are thus considered meaningful, while five lie above 1.0 and are thus considered prime areas for education. The highest gap was “Manage time constraints associated with the diagnosis, treatment, and management of fibromyalgia,” which corresponds to respondents’ lowest rated current competency. Other large competency gaps included:

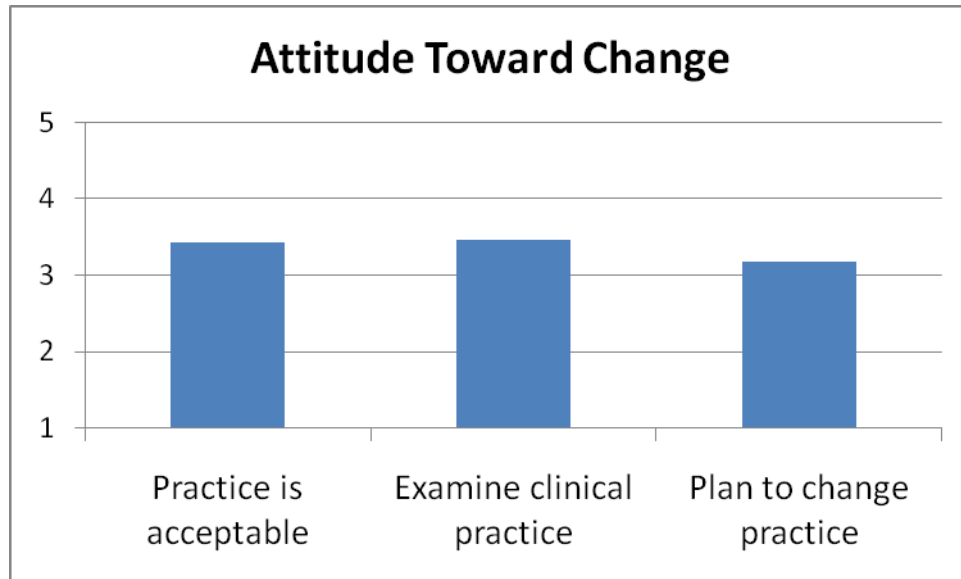
- Perform a complete history & physical examination focusing on illnesses that may mimic or complicate fibromyalgia.
- Base the clinical diagnosis of fibromyalgia on the presence of widespread pain, defined as pain in all four body quadrants and axial pain, for at least 3 consecutive months.
- Provide education about the causes, course, prognosis, and treatment of fibromyalgia to the patient.
- Select appropriate pharmacotherapy for fibromyalgia and associated symptoms.

To assess attitude toward practice change, respondents were asked to indicate their level of agreement with three statements, from 1 (low agreement) to 5 (high agreement).

With regard to fibromyalgia...

- 1. The way I practice in this clinical area is acceptable to me.**
- 2. I may need to examine one or more of my clinical practices in this area.**
- 3. I plan to change the way I practice in this area in the near future.**

Project partners routinely include this question in needs and outcomes assessment questionnaires. In clinical areas with moderate practice gaps, the response pattern typically appears as a downward-sloping stair-step pattern. Normally, “the way I practice in this clinical area is acceptable to me” is rated highest and “I plan to change the way I practice in this area in the near future” is rated lowest, with “I may need to examine one or more of my clinical practices in this area” falling somewhere in the middle.

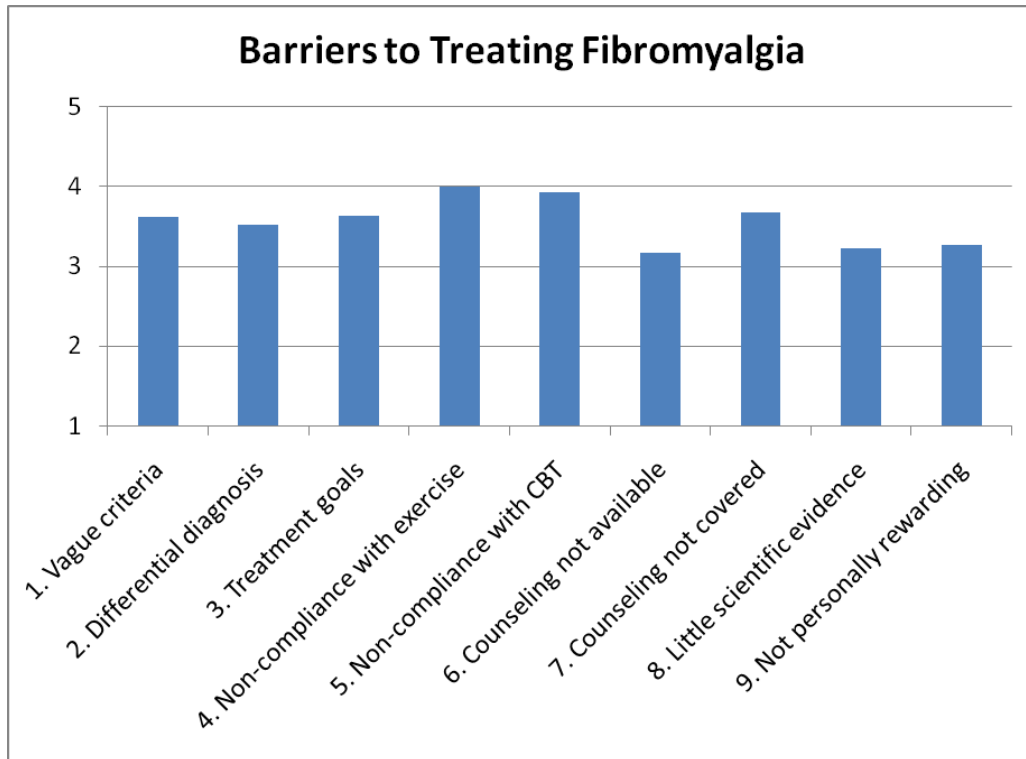


Contrary to the typical stair-step pattern, the distribution of responses appears remarkably flat. These results reveal that survey respondents are less likely to find their fibromyalgia practice acceptable than in other clinical areas. Additionally, they are quite likely to plan on changing their practice in fibromyalgia in the near future. Overall, these responses suggest that primary care physicians find their current practices unacceptable and are open to the possibility of practice change.

In order to assess the impact of barriers on best practice in fibromyalgia, respondents were asked to rate the extent to which they saw each item as a barrier to best practice, from 1 (low) to 5 (high):

1. Criteria are vague for diagnosing fibromyalgia.
2. Distinguishing fibromyalgia from other conditions is extremely difficult.
3. Patients do not have the same treatment goals that I have.
4. Patients are non-compliant with recommendations for exercise.
5. Patients are non-compliant with cognitive behavioral therapy.
6. Counseling services are not available in my area.
7. Counseling services are not covered by insurance.
8. There is little scientific evidence for medication selection for fibromyalgia patients.
9. It is not personally rewarding to work with fibromyalgia patients because they never seem to get better.

Average responses are depicted below.



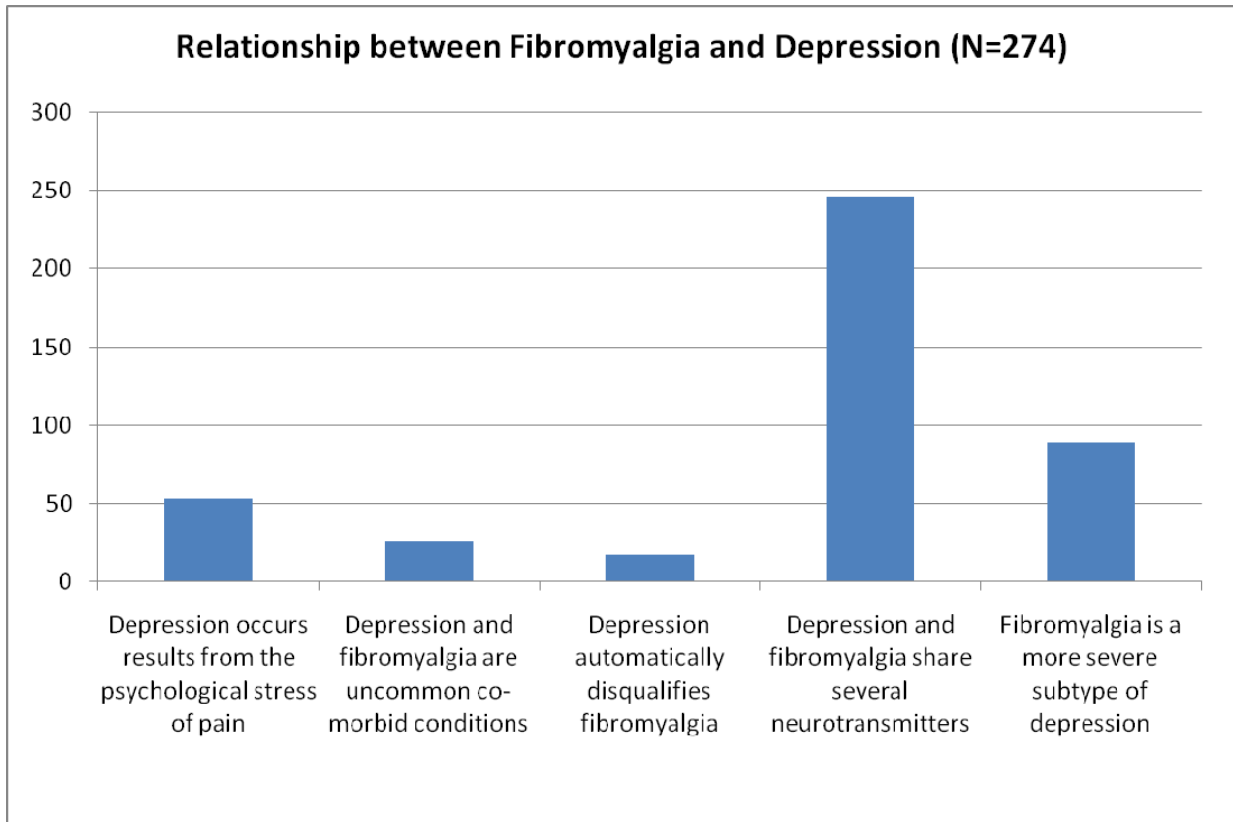
Each of these barriers rated above the midpoint of 3, suggesting that these particular issues present barriers to best care of fibromyalgia patients. The highest rated items were “Patients are non-compliant with recommendations for exercise” and “Patients are non-compliant with cognitive behavioral therapy,” suggesting that patient adherence is a significant issue in fibromyalgia care.

Next, survey participants were asked a series of practice assessment questions. All of the following questions noted “choose all that apply.” Correct answers are marked with asterisks.

A 35 year old married female comes to see the clinician because of a two-year history of progressively worsening generalized aches and pains in her muscles with concurrent depression and anxiety. She reports reading an article on fibromyalgia and identifies a great deal of her difficulties in the description she read. She is asking for your opinion and requesting help.

Question 1: Which of the following offer(s) explanation of the relationship between fibromyalgia and depression?

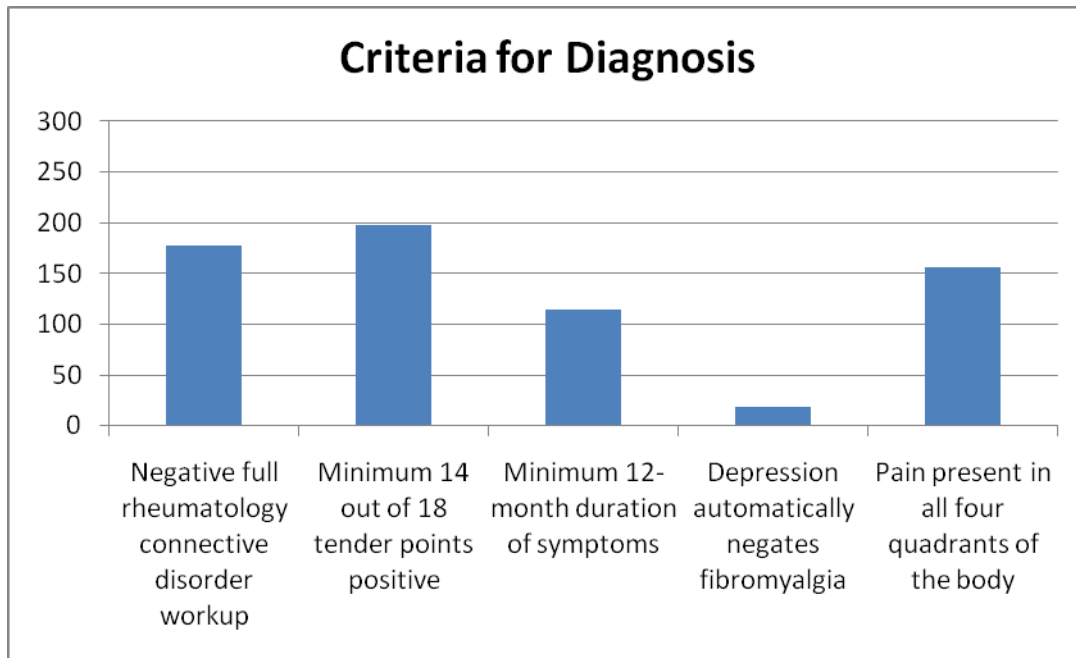
1. Depression occurs only as a result of the psychological stress of being in pain
2. Depression and fibromyalgia are uncommon co-morbid conditions
3. According to American College of Rheumatology criteria, presence of depression automatically disqualifies a diagnosis of fibromyalgia
4. * Depression and fibromyalgia appear to share several neurotransmitters as part of their pathophysiology *
5. Because depression is often accompanied by somatic symptoms, fibromyalgia is thought to be a more severe subtype of depression



Most respondents correctly chose “depression and fibromyalgia appear to share several neurotransmitters as part of their pathophysiology.” Additionally, 89 respondents incorrectly answered “because depression is often accompanied by somatic symptoms, fibromyalgia is thought to be a more severe subtype of depression.”

2. The American College of Rheumatology Criteria for the diagnosis of fibromyalgia include:

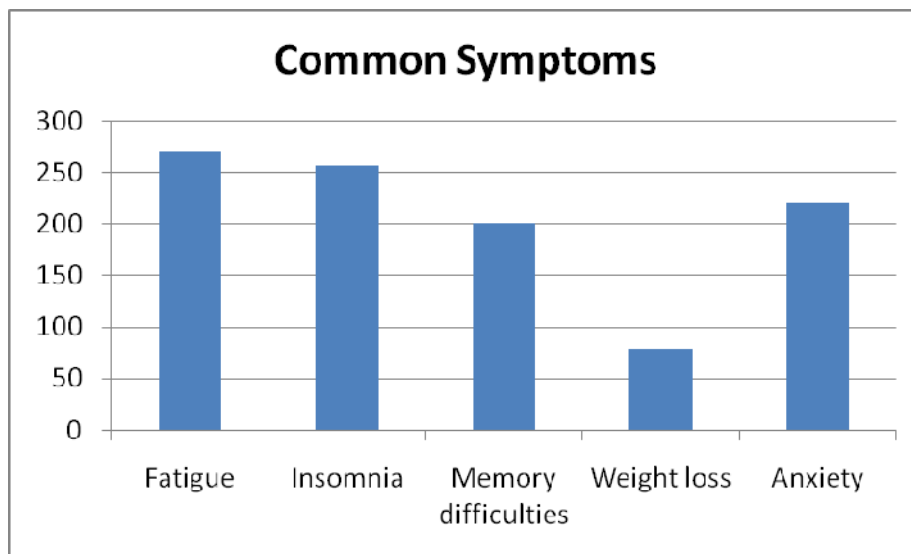
1. **A negative full rheumatology connective disorder workup**
2. **A minimum 14 out of 18 tender points are positive**
3. **A minimum 12 month duration of symptoms is required**
4. **Presence of depression automatically negates a diagnosis of fibromyalgia**
5. *** Pain should be present in all four quadrants of the body ***



More than half of respondents incorrectly thought that a negative full rheumatology connective disorder workup is a criterion for fibromyalgia diagnosis, and that 14 of 18 tender points must be positive (the correct criterion is 11 out of 18 positive points).¹⁰ Additionally, almost half of respondents did not think that pain must be present in all four quadrants of the body. Overall, this question indicates that primary care physicians are unclear on the specific diagnostic criteria for fibromyalgia.

3. Common symptoms accompanying fibromyalgia include:

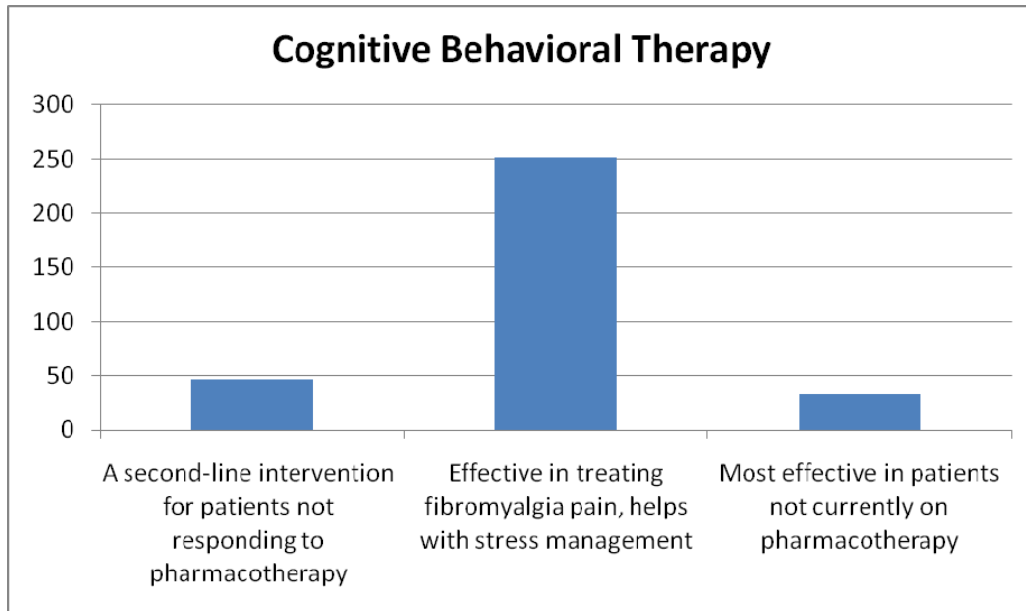
1. * Fatigue *
2. * Insomnia *
3. * Memory difficulties *
4. Weight loss
5. * Anxiety *



The majority of respondents recognized that fatigue, insomnia, memory difficulties, and anxiety are symptoms of fibromyalgia; however, 79 individuals incorrectly listed “weight loss” as a symptom when weight *gain* is in fact an indication of the disease.

4. Cognitive behavioral therapy (CBT) is often recommended for fibromyalgia. Which of the following is/ are true?

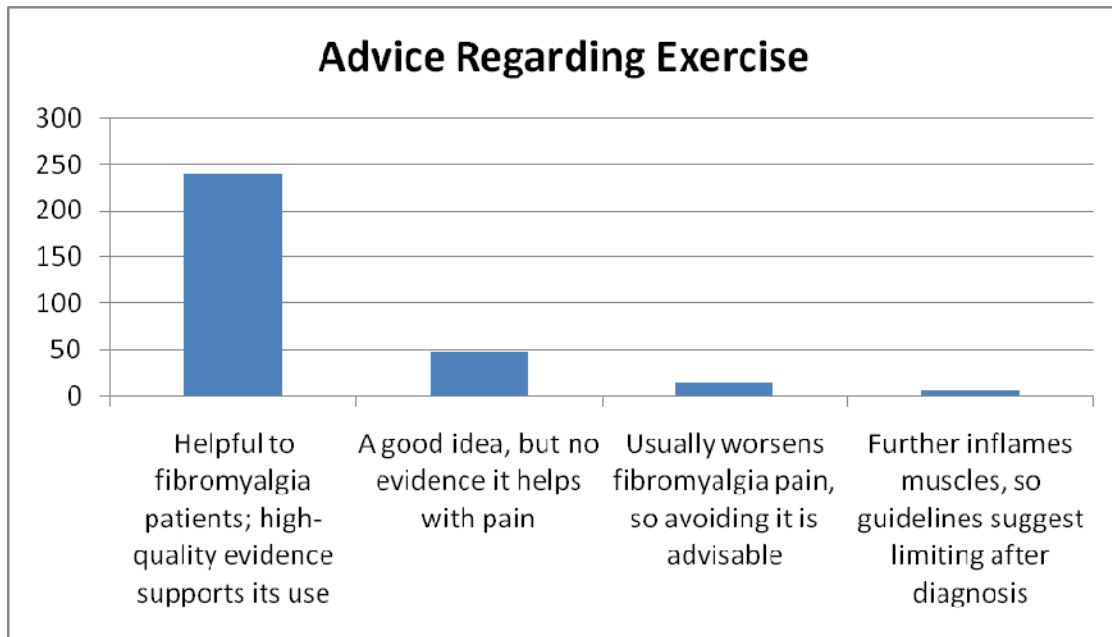
1. CBT is a second line intervention, reserved for patients not responding to pharmacotherapy
2. * CBT is effective in treating fibromyalgia pain and helps with stress management *
3. CBT is most effective in patients not currently on pharmacotherapy



Most survey respondents recognize that cognitive behavioral therapy is effective in treating fibromyalgia pain and helps with stress management.

5. This patient mentions physical exercise, and asks if it will help or harm her pain. Which of the following do you think is/are reasonable advice to give her?

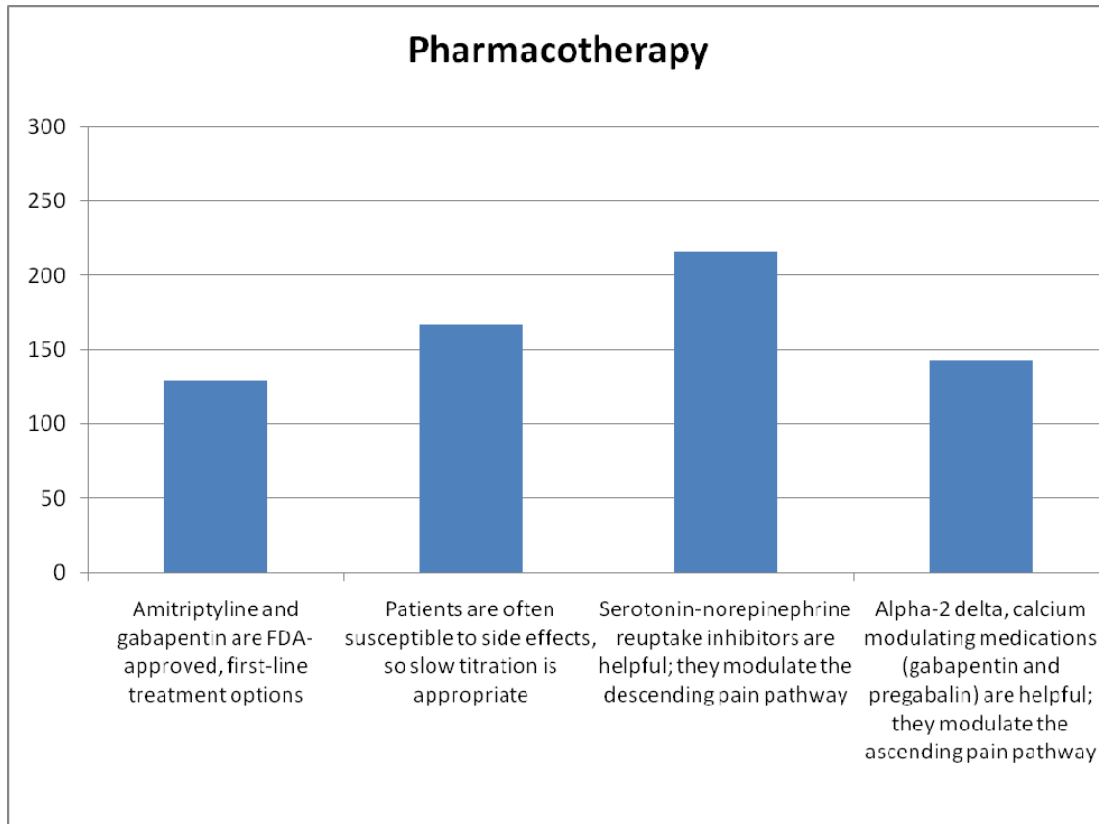
1. * Exercise is helpful to patients with fibromyalgia with high quality evidence supporting its use *
2. Exercise is a good idea, but there is no evidence it helps with pain
3. Exercise usually worsens pain of fibromyalgia so avoiding it until the pain improves is advisable
4. Exercise further inflames muscles so treatment guidelines suggest limiting exercising for a year after diagnosis



Most respondents correctly recognized that good evidence supports guideline recommendations for physical exercise in fibromyalgia patients. A smaller number (47) were unaware of the evidence underlying the recommendation.

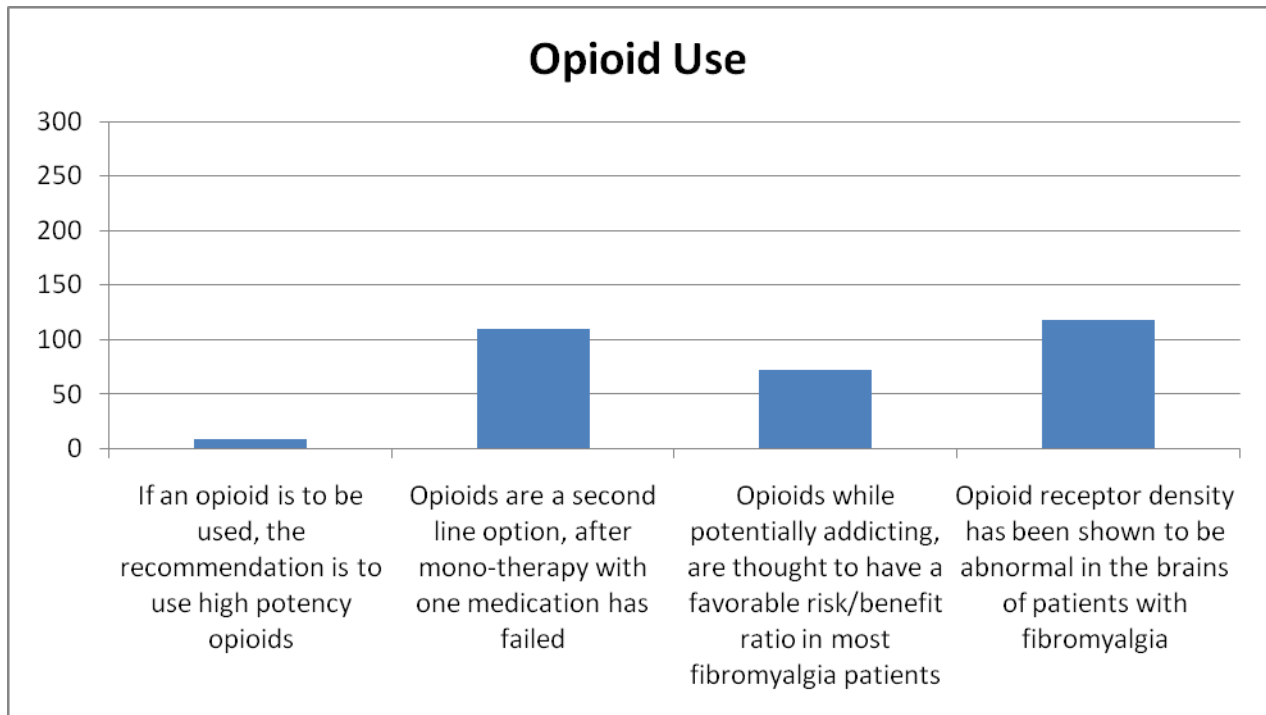
6. Which of the following statements regarding pharmacotherapy of fibromyalgia is/are correct?

1. Amitriptyline and gabapentin are FDA-approved for the treatment of fibromyalgia and are first line treatment options
2. * Patients with fibromyalgia are often susceptible to medication side-effects, so slow titration is often appropriate *
3. * Serotonin-norepinephrine reuptake inhibitors are helpful as they modulate the descending pain pathway *
4. * Alpha-2 delta, calcium modulating medications (gabapentin and pregabalin) are helpful as they are thought to modulate the ascending pain pathway *



Answers to this question indicate a lack of understanding of some pharmacologic treatments for fibromyalgia. Approximately half of respondents thought that amitriptyline and gabapentin are FDA-approved for the treatment of fibromyalgia, which is incorrect; other responses indicate that physicians do not recognize the importance of slow titration and do not fully understand the pharmacological mechanism of medication for fibromyalgia.

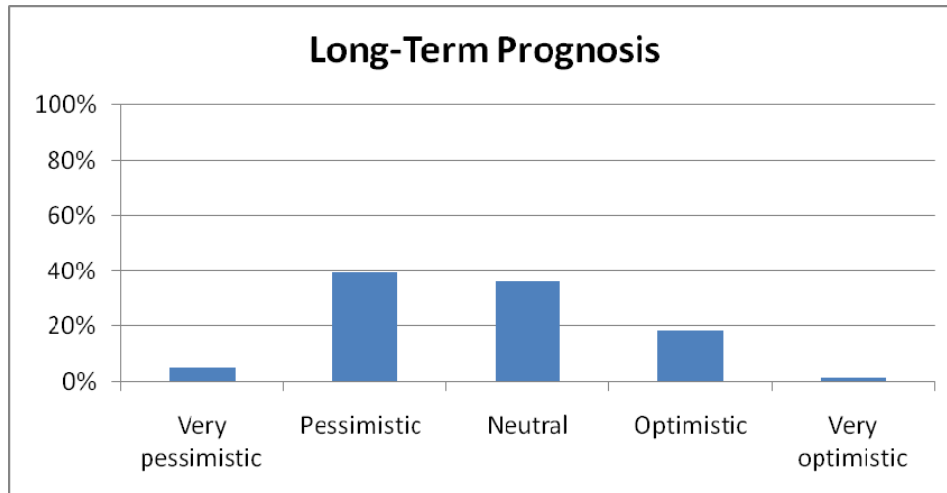
- 7. Which of the following do you believe to be true regarding the use of opioids in patients with fibromyalgia?**
- 1. If an opioid is to be used, the recommendation is to use high potency opioids**
 - 2. Opioids are a second line option, after mono-therapy with one medication has failed**
 - 3. Opioids while potentially addicting, are thought to have a favorable risk/benefit ratio in most fibromyalgia patients**
 - 4. * Opioid receptor density has been shown to be abnormal in the brains of patients with fibromyalgia ***



Fewer than half of respondents knew the correct answer to this question (“Opioid receptor density has been shown to be abnormal in the brains of patients with fibromyalgia”.) Additionally, a significant number of physicians answered that opioids are appropriate as a second-line therapy option and that they have a favorable risk/benefit ratio in most fibromyalgia patients. In fact, some guidelines recommend against opioids altogether, while others recommend that they only be tried after all other options have been exhausted.^{12, 33}

8. Based on your experience dealing with other patients with fibromyalgia, how do you feel about her long term prognosis? (Choose one answer only)

1. Very pessimistic
2. Pessimistic
3. Neutral
4. Optimistic
5. Very optimistic



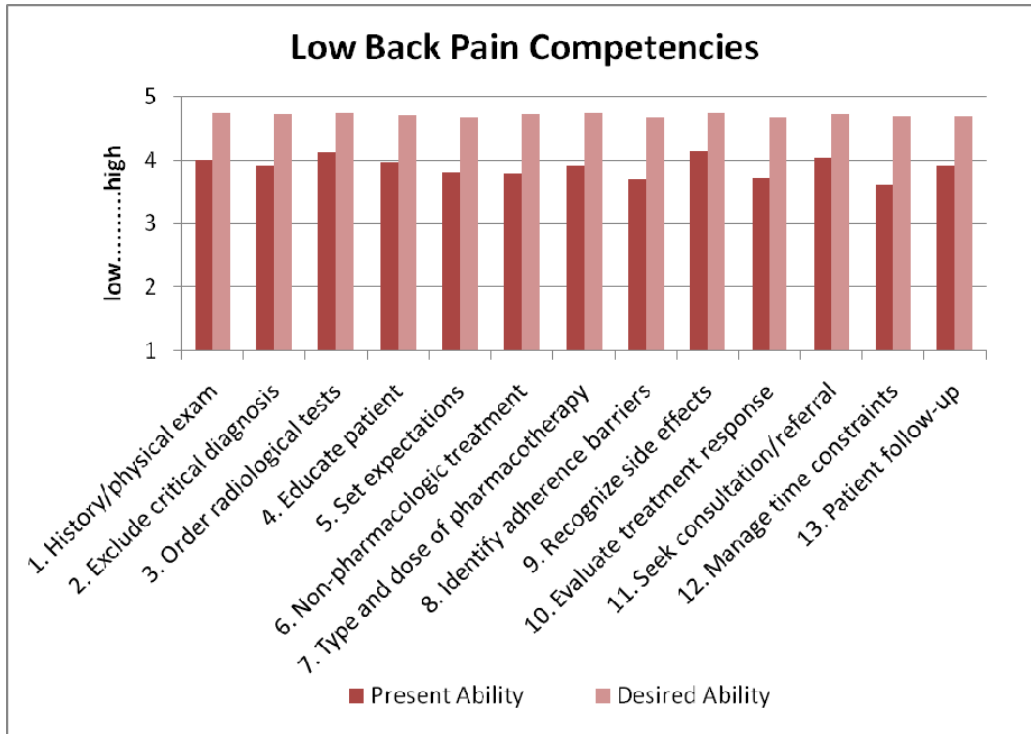
When asked about this patient’s long-term prognosis, 39 percent of respondents rated their feeling as *pessimistic* and 36 percent chose *neutral*.

Low Back Pain

Clinical guidelines, literature, and expert opinion were used to create a list of evidence-based, measurable competencies for each of the three disease areas. Clinical competencies identified in the area of low back pain included the following:

1. Conduct a significant history and physical examination (including mechanism of onset, description of pain, neurological history, inspection of posture and gait, ROM testing).
2. Exclude critical diagnoses (including Cauda Equina Syndrome, neurological deficits and progressive changes, fracture, neoplasms)
3. When indicated, order appropriate radiological tests.
4. Educate the patient and caregivers on the condition.
5. Help patients to set reasonable expectations for services and outcomes.
6. Select the most appropriate non-pharmacological therapy.
7. Select the type and dose best suited to the patient for those patients who are candidates for pharmacological management.
8. Identify patient barriers to adhering to treatment instructions.
9. Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy.
10. Evaluate the treatment response and patient’s ability to return to work or ADL’s.
11. Seek interventional pain management, surgical consultation or referral when appropriate.
12. Manage time constraints associated with the diagnosis, treatment, and management of low back pain.
13. Follow-up with patients to assess progress and compliance and then adjust the treatment plan accordingly.

In the survey, respondents were asked to rate their present and desired levels of ability for each one of the competencies. Average responses are presented below:



The dark bar on the left represents participants’ perceived present ability for each competency. The highest-rated current competencies for low back pain include:

- “When indicated, order appropriate radiological tests,”
- “Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy,” and
- “Seek interventional pain management, surgical consultation or referral when appropriate.”

The lowest perceived competencies were:

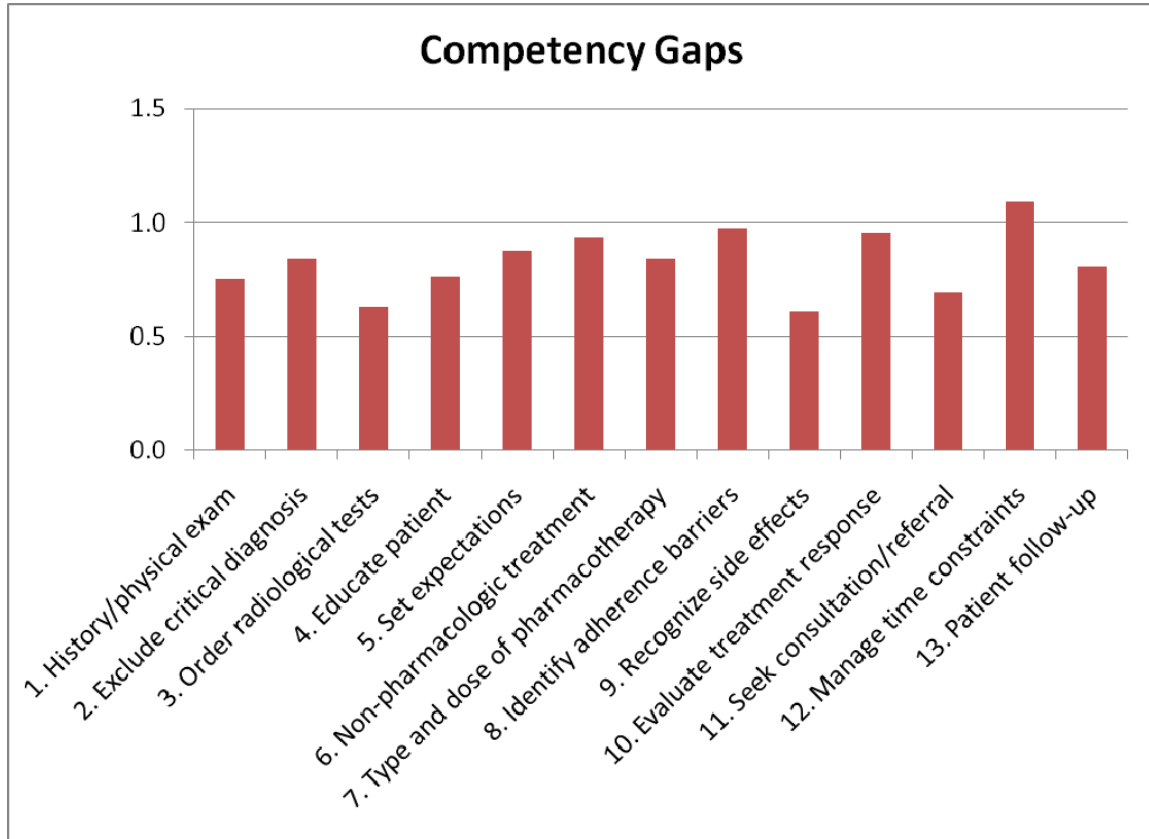
- “Manage time constraints associated with the diagnosis, treatment, and management of low back pain”,
- “Identify patient barriers to adhering to treatment instructions,” and
- “Evaluate the treatment response and patient’s ability to return to work or ADLs.”

The right-hand bar, representing participants’ desired level of ability for each competency, exhibits less variation than present perceived competency; respondents feel that all of these competencies represent needed skills in the management of low back pain.

The average difference, or gap, between the present perceived and desired levels of competency indicates the perceived need of the learners. This gap between the perception of “what is” and “what ought to be” predicts physician motivation to learn and change. A gap of 0.5 or higher is considered to

be meaningful, while a gap of 1.0-2.0 is ideal for clinician education; this cutoff threshold is based on previous research on forces for change and learning in the lives of physicians.

The following section represents the low back pain competency gaps for survey respondents.



Gaps for all twelve competencies fall above 0.5 and are thus considered meaningful. Additionally, “Manage time constraints associated with the diagnosis, treatment, and management of low back pain” was rated above the 1.0 cutoff level considered ideal for health care professional education.

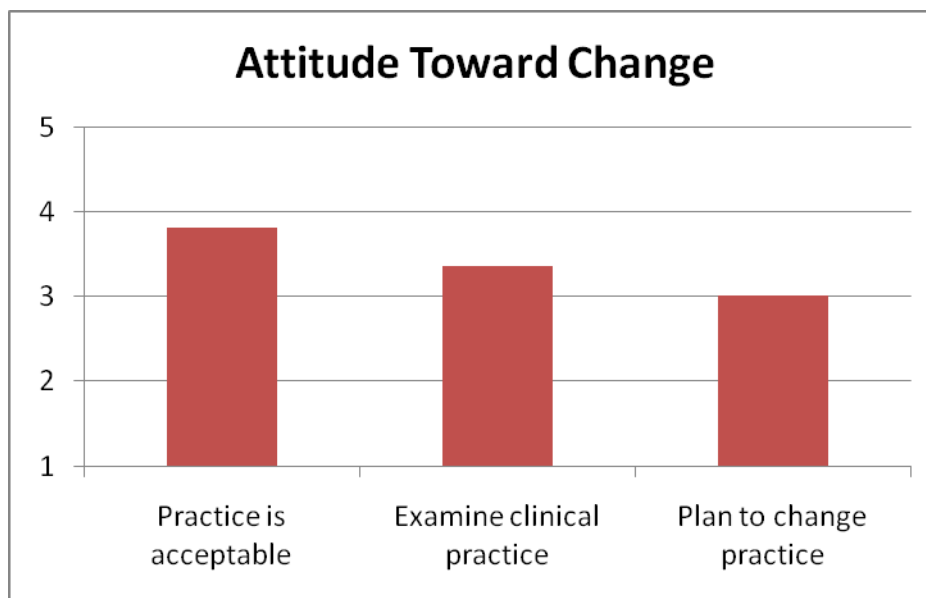
To assess attitude toward practice change, respondents were asked to indicate their level of agreement with three statements, from 1 (low agreement) to 5 (high agreement).

With regard to low back pain...

- 1. The way I practice in this clinical area is acceptable to me.**
- 2. I may need to examine one or more of my clinical practices in this area.**
- 3. I plan to change the way I practice in this area in the near future.**

Project partners routinely include this question in needs and outcomes assessment questionnaires. In clinical areas with moderate practice gaps, the response pattern typically appears as a downward-sloping stair-step pattern. Normally, “the way I practice in this clinical area is acceptable to me” is rated

highest and “I plan to change the way I practice in this area in the near future” is rated lowest, with “I may need to examine one or more of my clinical practices in this area” falling somewhere in the middle.

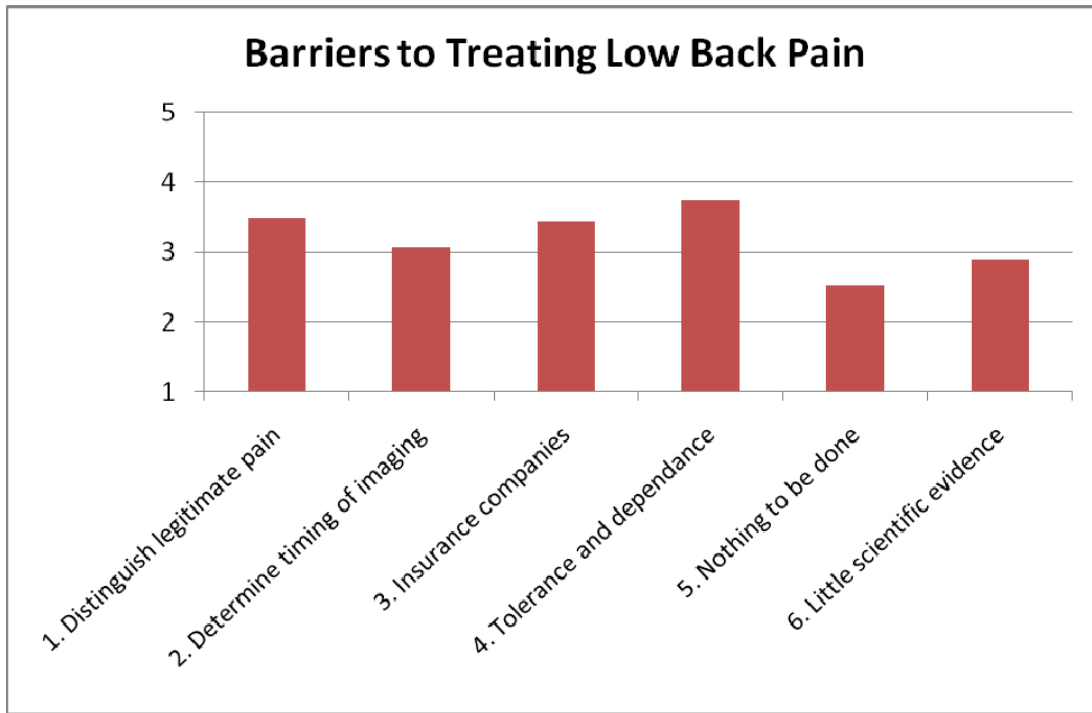


This graph distribution demonstrates the typical downward stair-step pattern. Compared to fibromyalgia, physicians are slightly more likely to rate their current low back pain practice as acceptable, and are slightly less likely to plan on changing practice in the near future. Overall, the graph suggests that primary care physicians are moderately open to changing their practice in the care of low back pain.

In order to assess the impact of barriers on best practice in low back pain, respondents were asked to rate the extent to which they saw each item as a barrier to best practice, from 1 (low) to 5 (high):

1. It is difficult to distinguish those who truly suffer from low back pain from those who are seeking drugs or other secondary gain (time off, workers compensation, etc)
2. Determining the appropriate time to order imaging is a problem.
3. Insurance companies make obtaining imaging difficult.
4. Tolerance and dependence on medication is common.
5. There is rarely anything that can be done to help low back pain patients.
6. There is little scientific evidence for medication selection for low back pain patients.

Average responses are depicted below.



The most significant barriers to best care included:

“Tolerance and dependence on medication is common”;

“It is difficult to distinguish those who truly suffer from low back pain from those who are seeking drugs or other secondary gain (time off, workers compensation, etc.”; and

“Insurance companies make obtaining imaging difficult.”

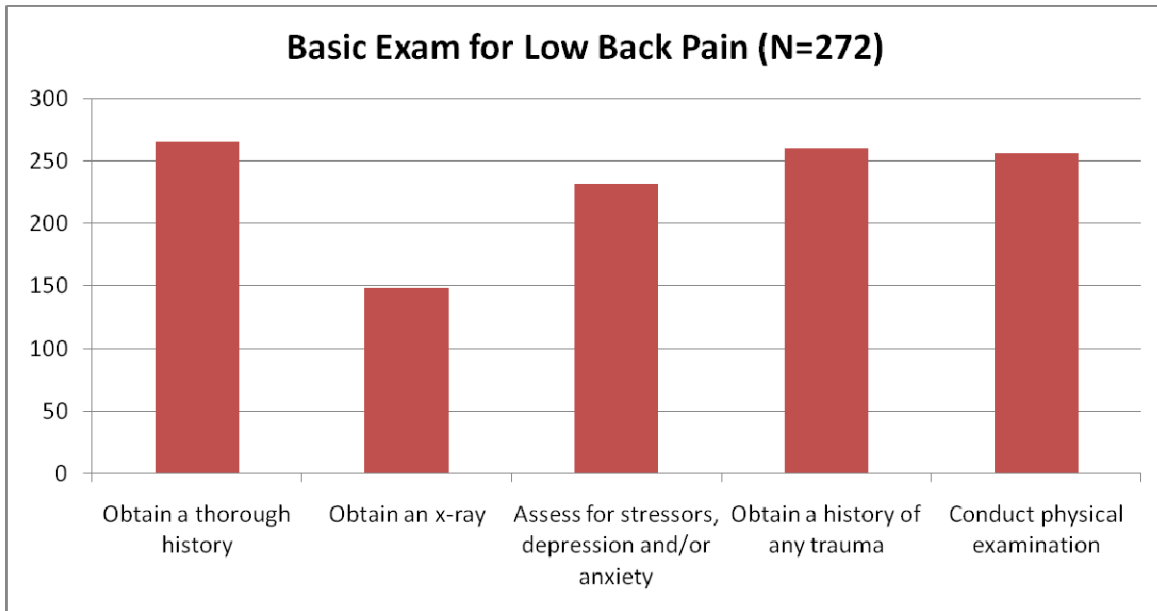
The lowest ranked barrier was “There is rarely anything that can be done to help low back pain patients.”

Next, survey participants were asked a series of practice assessment questions. All of the following questions were noted “choose all that apply.” Correct answers are marked with an asterisk.

A 55-year-old, married male comes to clinic for yearly follow up of his long-standing diabetes and hypertension. He is doing well with both. He adds that his lower back has been hurting for 6 months and now it’s affecting his sleep and his functioning as an accountant. He asks for your thoughts and recommendations.

1. Which of the following would be part of a basic exam for a patient presenting with a low back pain?

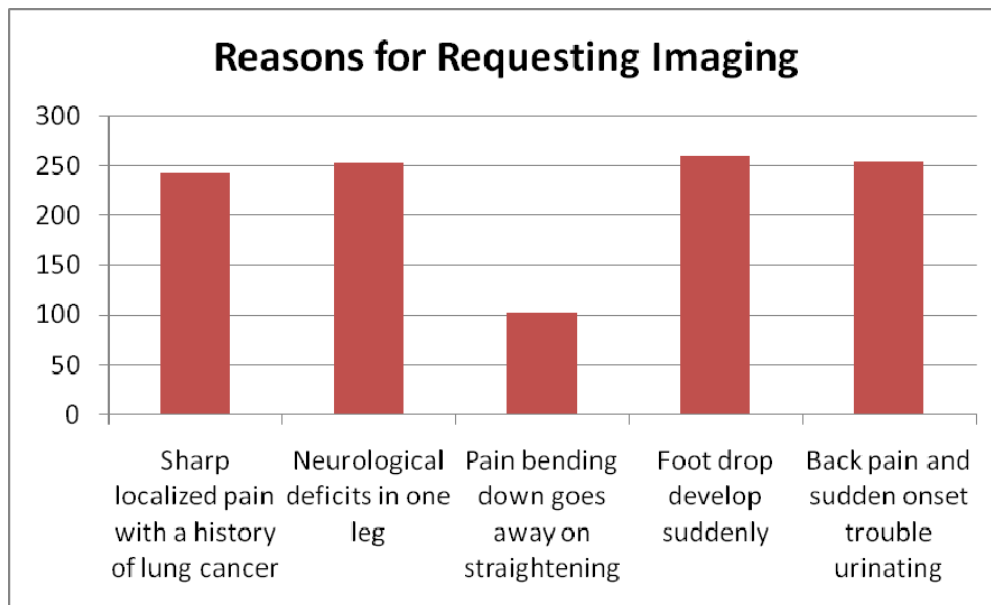
- 1. * Obtain a thorough history of back pain ***
- 2. Obtain an x-ray**
- 3. * Assess for psycho-social stressors, and presence of depression and/or anxiety ***
- 4. * Obtain a history of any trauma to the low back ***
- 5. * Conduct a physical examination of the back ***



Most respondents correctly chose answers 1, 3, 4, and 5. However, 148 respondents indicated that they would obtain x-ray imaging, which is not recommended in the routine assessment of low back pain.^{57, 64}

2. Which of the following are appropriate reasons for requesting immediate imaging studies (X-Rays or MRI) of the lower back?

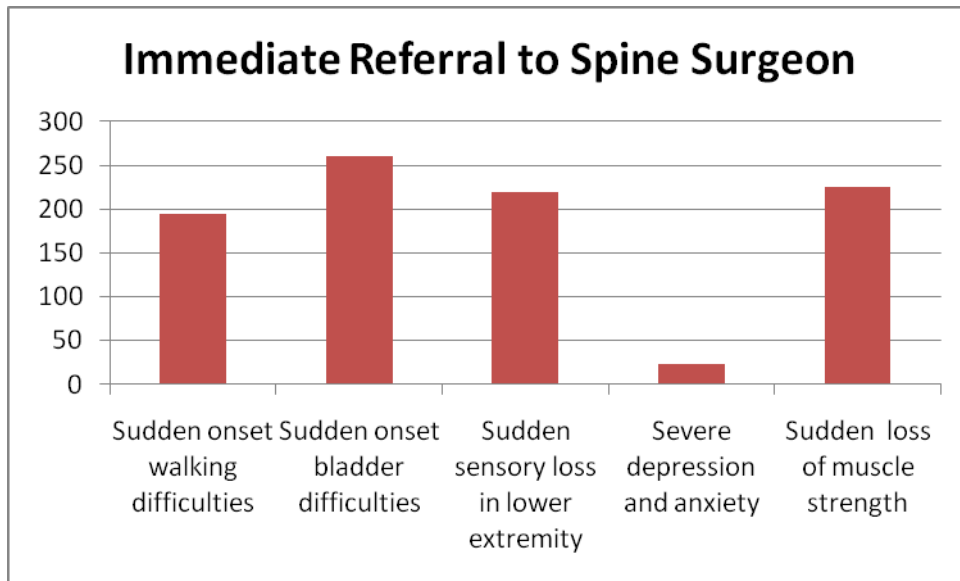
1. * Sharp localized pain in a person with a history of lung cancer *
2. * Neurological deficits present in one leg *
3. Trouble bending down due to pain that then goes away on straightening
4. * Patient had a foot drop develop suddenly along with back pain *
5. * Patient has back pain and sudden onset trouble with urinating *



The majority of respondents correctly chose answers 1, 2, 4, and 5. Additionally, 102 physicians chose “Trouble bending down due to pain that then goes away on straightening,” which would likely indicate a muscular issue unlikely to appear on an x-ray.

3. Which of the following findings should trigger an immediate referral of a back pain patient to a spine surgeon?

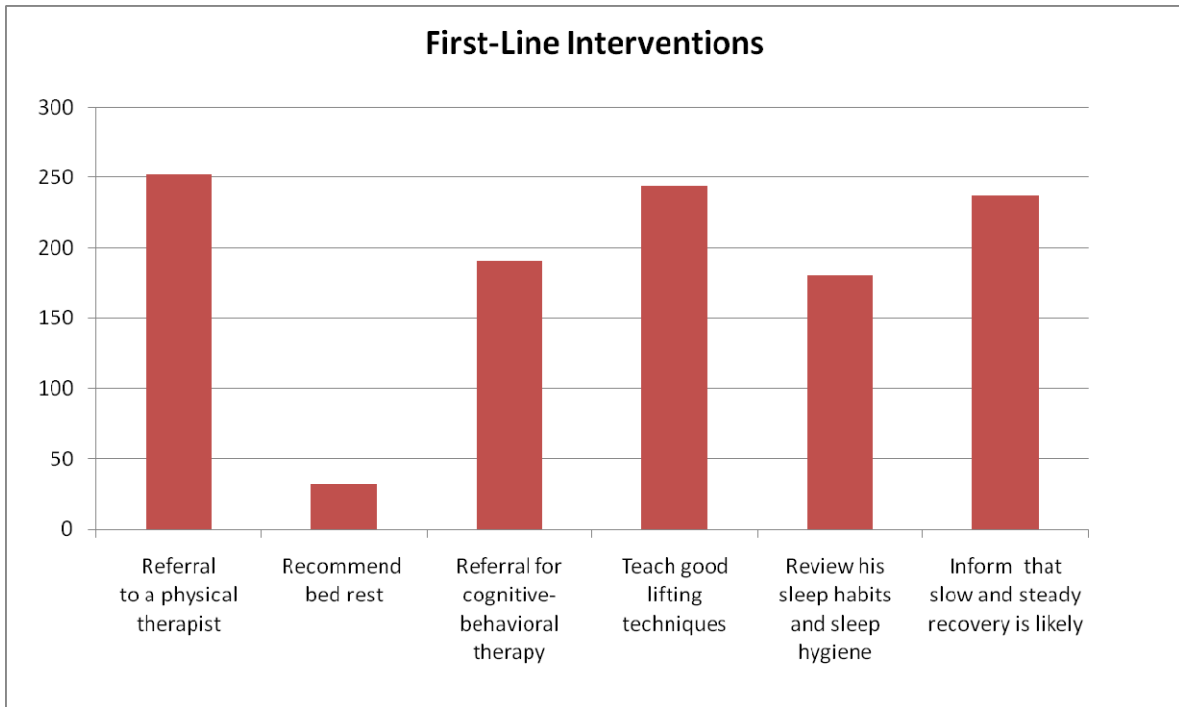
1. * Presence of sudden onset walking difficulties *
2. * Presence of sudden onset bladder voiding difficulties *
3. * Presence of sudden onset sensory loss in lower extremity *
4. Presence of severe depression and anxiety
5. * Presence of sudden onset loss of muscle strength *



Sudden onset walking and bladder activities and sudden loss of lower extremity sensation or muscle strength should trigger immediate referral. It is possible that the respondents who did not choose these answers did so because they were likely to refer to another specialist, not a spine surgeon specifically.

4. Assuming this patient’s physical examination is unremarkable, which of the following steps are appropriate as first line interventions?

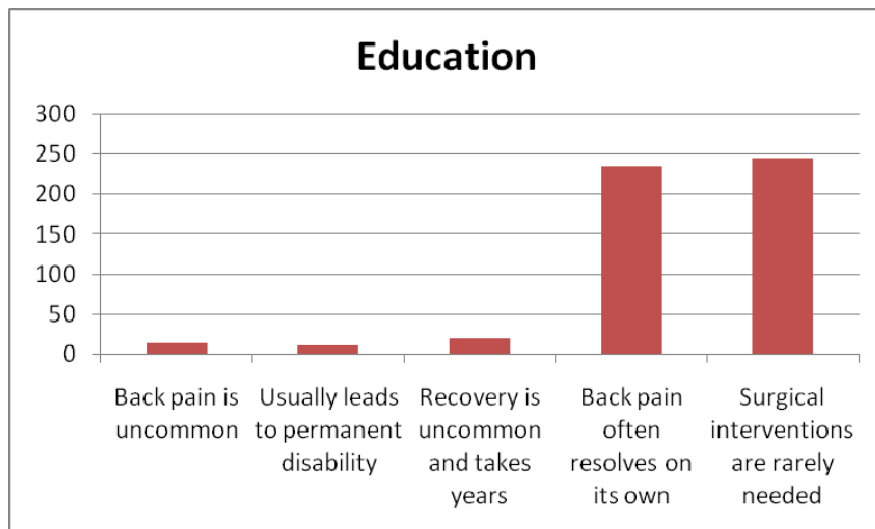
1. * Referral to a physical therapist for strengthening and conditioning of his back muscles and ligaments *
2. Recommend bed rest
3. * If psycho-social stressors are significant, referral for cognitive behavioral therapy *
4. * Teach good lifting techniques *
5. * Review his sleep habits and recommend appropriate sleep hygiene techniques *
6. * Inform him that slow and steady recovery is likely in most patients with uncomplicated lower back pain *



While most responses to this question were correct, some individuals responded that they would not refer for cognitive behavioral therapy or review sleep habits and hygiene. Additionally, 23 physicians would recommend bed rest, which is recommended against in clinical guidelines.

5. This patient asks to be educated about low back pain so that he and his wife can discuss treatment options. Which of the following are accurate statements to share with this patient and his wife?

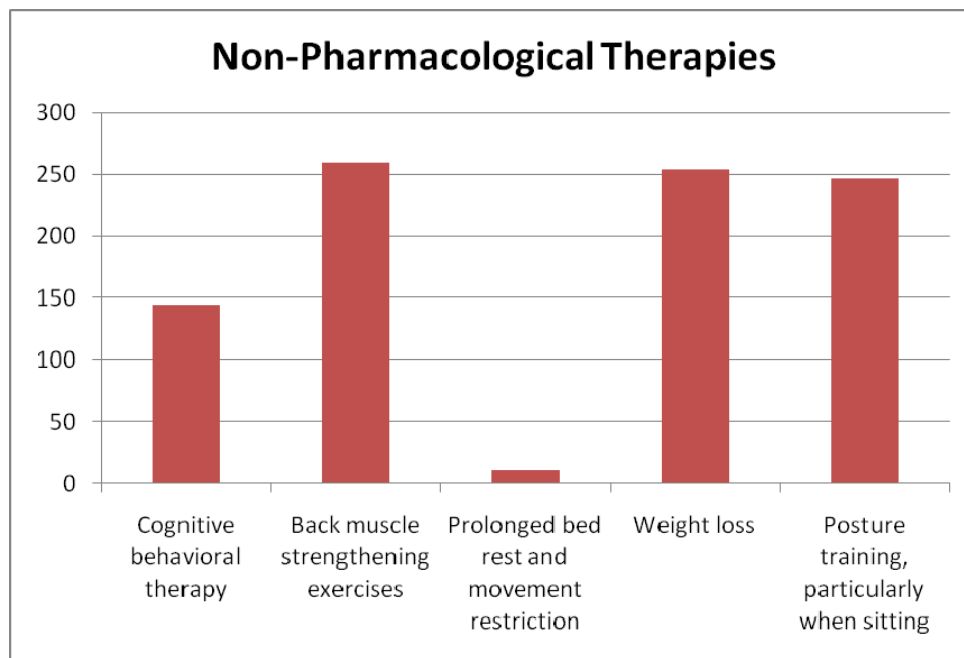
1. Back pain is an uncommon disorder
2. Back pain usually leads to permanent disability
3. Recovery is uncommon and takes years when it does occur
4. * Back pain often resolves on its own *
5. * Surgical interventions are not needed in most situations *



Most survey respondents correctly answered that back pain often resolves on its own and that surgical interventions are rarely necessary.

6. Which of the following non-pharmacological treatments have been found effective for patients with chronic low back pain? (select all that apply)

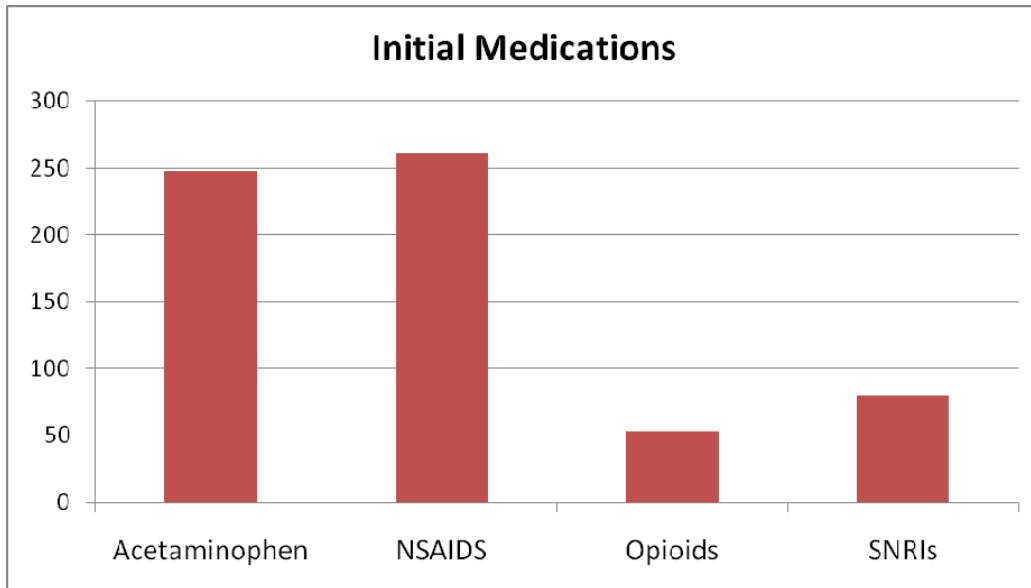
1. *** Cognitive behavioral therapy ***
2. *** Specific back muscle strengthening exercises ***
3. **Prolonged bed rest with severe physical movement restriction**
4. *** Weight loss, if person is overweight ***
5. *** Posture training, particularly when sitting for prolonged periods of time ***



Responses to this question suggest that while primary care physicians are familiar with the evidence-based data supporting back muscle strengthening exercises, weight loss, and posture training, they are less familiar with the evidence that supports cognitive behavioral therapy.

7. Which of the following are appropriate initial medications to recommend as management of this patient's low back pain?

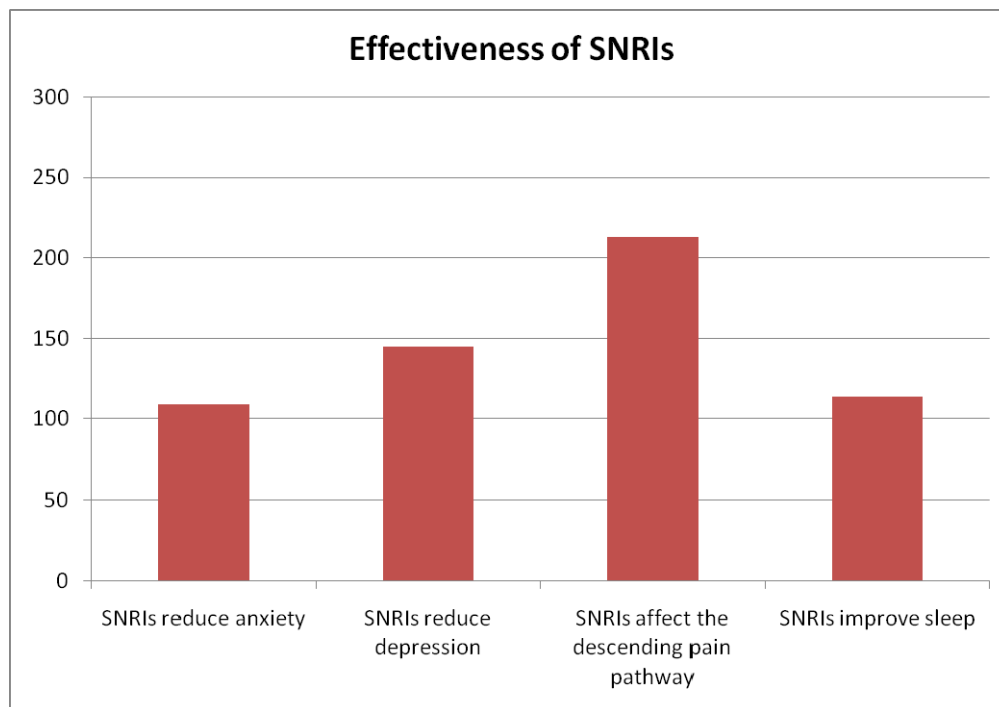
1. *** Acetaminophen ***
2. *** NSAIDs ***
3. **Opioids**
4. *** SNRIs ***



While most respondents were confident that acetaminophen and NSAIDs were appropriate medication for the initial treatment of low back pain, most did not recognize that SNRIs would also be an appropriate option. Additionally, 53 physicians incorrectly listed opioids as a potential first-line therapy.

8. Which of the following explain(s) the effectiveness of SNRIs for low back pain?

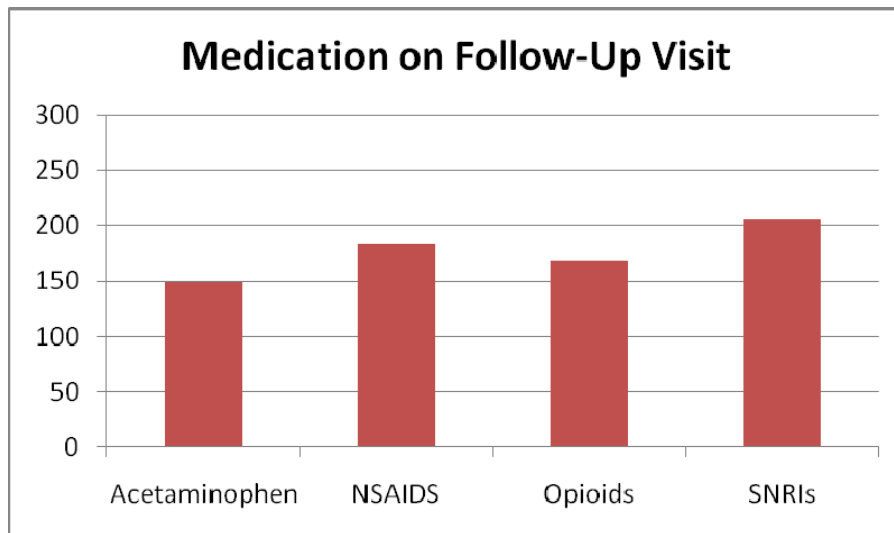
1. SNRIs improve pain by reducing anxiety.
2. SNRIs improve pain by reducing depression.
3. * SNRIs improve pain through a direct effect on the descending pain pathway. *
4. SNRIs improve pain by improving sleep.



The responses to this question indicated that while some primary care physicians know that SNRIs improve pain through a direct effect on the descending pain pathway, many respondents are unfamiliar with the pain relief mechanism of SNRIs.

9. At a six-month follow-up visit, the patient states that he initially had some relief with the pharmacological treatment, but now is in more pain than ever. His functional limitations are such that he is seriously thinking about quitting his job. Which of the following are appropriate medications to recommend as management of this patient's low back pain?

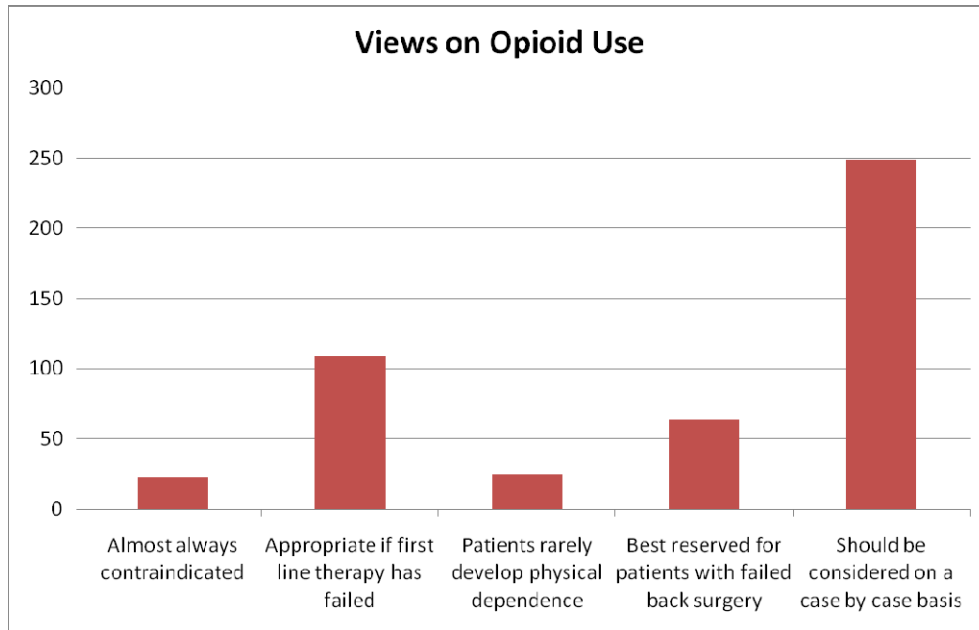
1. * Acetaminophen *
2. * NSAIDs *
3. * Opioids *
4. * SNRIs *



Responses to this question were relatively equally distributed. Compared to question 7, which gauged potential treatments for the *initial* treatment of the patient's low back pain, fewer physicians would prescribe acetaminophen and NSAIDs, while they would be more likely to prescribe opioids and SNRIs on follow-up.

10. Which of the following statements represent your views on the use of opioids in patients with chronic low back pain?

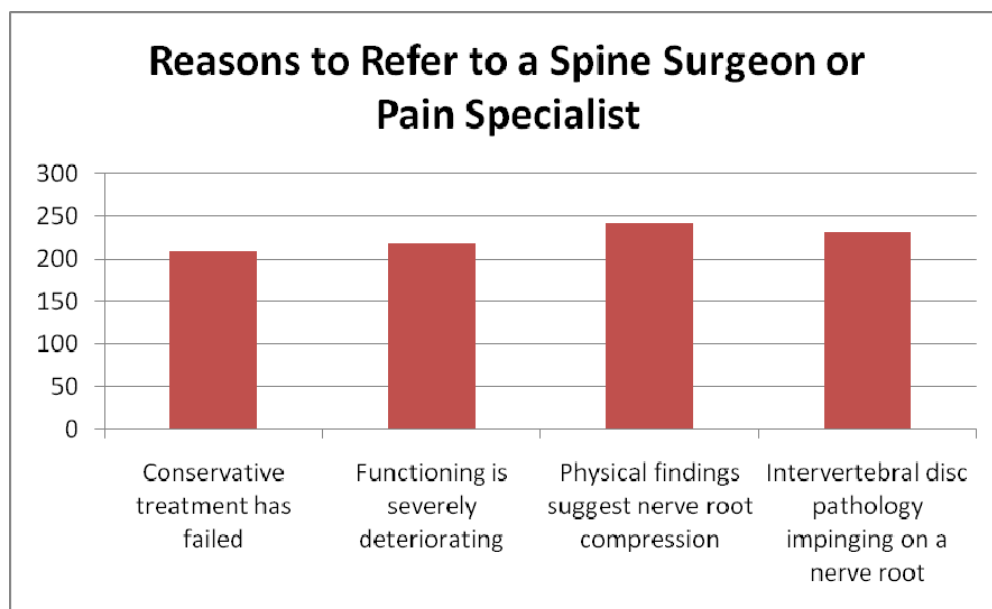
1. They are almost always contraindicated
2. They are appropriate if first line therapy has failed
3. Opioid use in low back pain is usually quite safe as these patients rarely develop tolerance or physical dependence
4. Opioids are best reserved for chronic low back patients with failed back surgery syndrome
5. * Opioid use should be considered on a case by case basis, and then monitored carefully *



Most respondents correctly answered that opioids should be considered on a case-by-case basis, then monitored carefully. One hundred nine individuals also answered that opioids are appropriate if first-line therapy has failed.

11. Which of the following is/are appropriate reasons to refer to a spine surgeon or an interventional pain specialist?

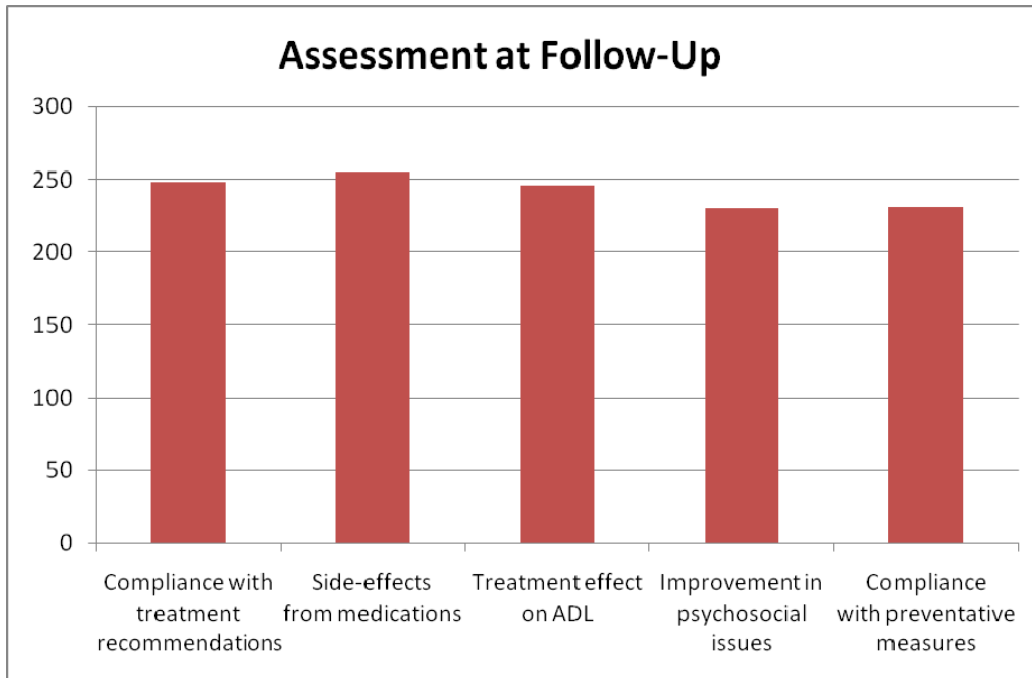
1. * Conservative treatment with non-pharmacological and pharmacological treatment has failed *
2. * The patient's personal and occupational functioning is severely deteriorating because of pain *
3. * Specific physical findings strongly suggest nerve root compression *
4. * The patient's MRI findings reveal a specific intervertebral disc pathology that is impinging on a nerve root *



All of the listed items are appropriate reasons to refer a patient to a spine surgeon or an interventional pain specialist; overall, respondents answered this question correctly.

12. Which of the following are important to assess when your patient is seen for a follow up visit?

1. ***Compliance with non-pharmacological and pharmacological treatment recommendations. ***
2. *** Side-effects or adverse reactions occurring from medications. ***
3. *** Treatment effect on Activities of Daily Living (ADL). ***
4. *** Resolution or improvement in psychosocial issues. ***
5. *** Compliance with preventative measures. ***



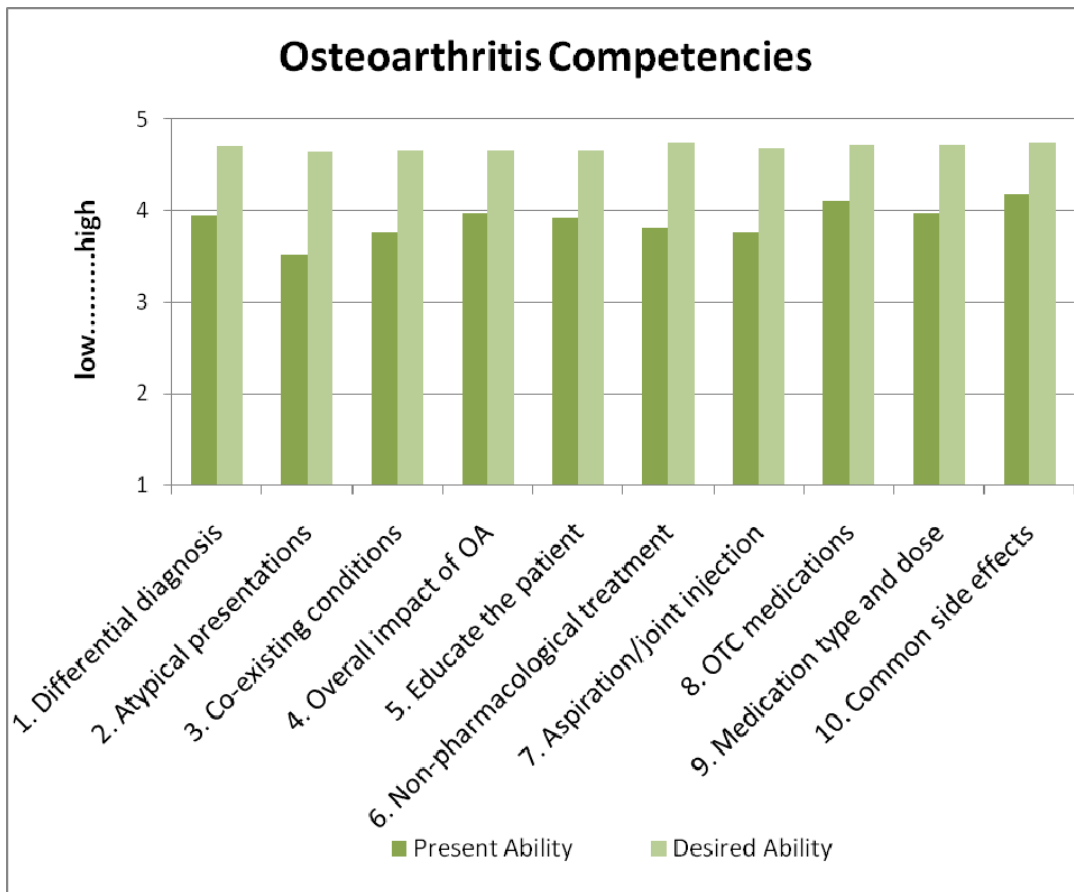
All of the listed items should be assessed when patients are seen at follow-up; overall, respondents answered this question correctly.

Osteoarthritis

Clinical guidelines, literature, and expert opinion were used to create a list of evidence-based, measurable competencies for each of the three disease areas. Clinical competencies identified in the area of osteoarthritis (OA) included the following:

1. Differentiate between OA and other forms of inflammatory arthritis in your patient population (including appropriate lab tests, imaging, and aspiration).
2. Identify atypical presentations of osteoarthritis.
3. Identify co-existing conditions that alter the presentation or management of osteoarthritis.
4. Evaluate the overall impact of OA on the patients well being (physical, psycho-social, quality of life).
5. Educate the patient and caregivers on their disease.
6. Select the most appropriate non-pharmacological therapy for the patient.
7. Recognize when aspiration and/or joint injection are indicated.
8. Acknowledge OTC medications that patients are taking in order to maximize benefit and minimize risk to the patient.
9. If medication is used, select the type and dose best suited to the patient.
10. Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy.

In the survey, respondents were asked to rate their present and desired levels of ability for each one of the competencies. Average responses are presented below:



The dark bar on the left represents participants' perceived present ability for each competency. The highest-rated current competencies for osteoarthritis include:

“Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy.”

“Acknowledge OTC medications that patients are taking in order to maximize benefit and minimize risk to the patient.”

The lowest perceived competencies were:

“Identify atypical presentations of osteoarthritis.”

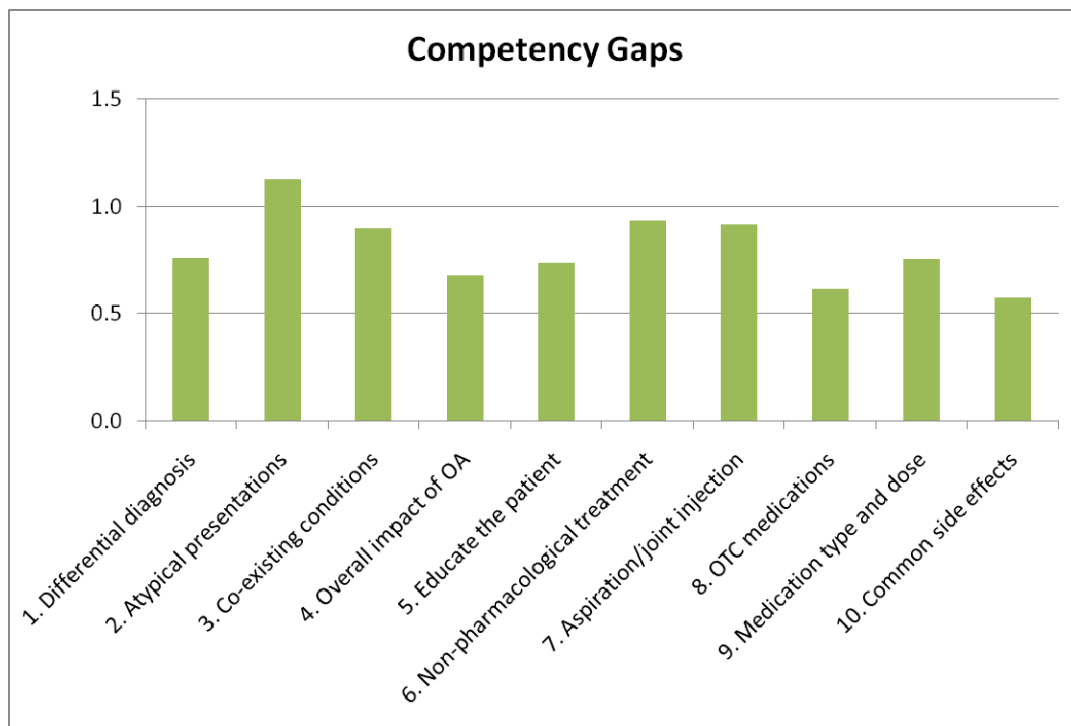
“Identify co-existing conditions that alter the presentation or management of osteoarthritis.”

“Recognize when aspiration and/or joint injection are indicated.”

The right-hand bar, representing participants' desired level of ability for each competency, exhibits less variation than present perceived competency; respondents feel that all of these competencies represent needed skills in the management of osteoarthritis.

The average difference, or gap, between the present perceived and desired levels of competency indicates learners' perceived need. This gap between the perception of “what is” and “what ought to be” predicts physician motivation to learn and change. A gap of 0.5 or higher is considered to be meaningful, while a gap of 1.0-2.0 is ideal for clinician education; this cutoff threshold is based on previous research on forces for change and learning in the lives of physicians.

The following graph represents the osteoarthritis competency gaps for survey respondents.



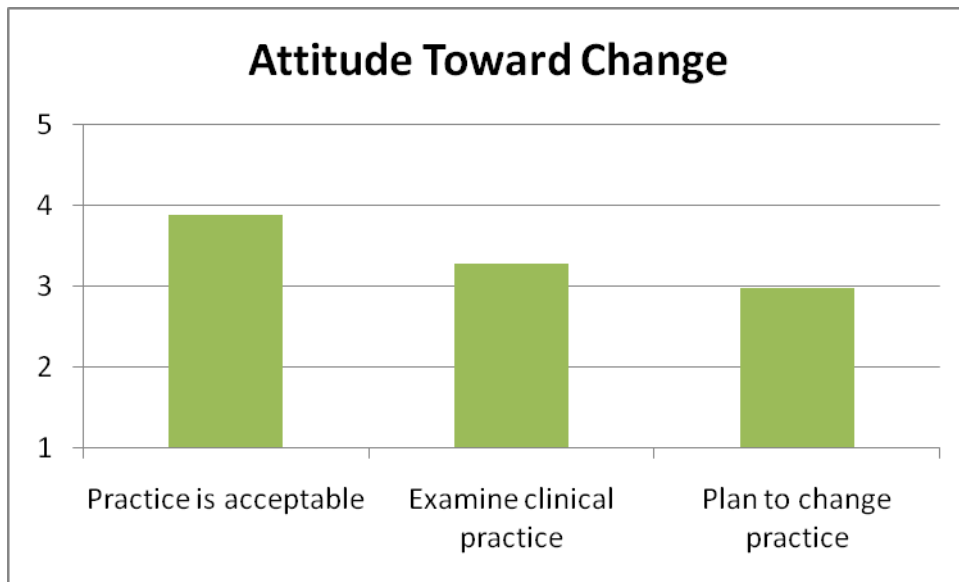
Gaps for all twelve competencies fall above 0.5 and are thus considered meaningful. Additionally, “Identify atypical presentations of osteoarthritis” was rated above the 1.0 cutoff level considered ideal for health care professional education.

To assess attitude toward practice change, respondents were asked to indicate their level of agreement with three statements, from 1 (low agreement) to 5 (high agreement).

With regard to osteoarthritis...

- 1. The way I practice in this clinical area is acceptable to me.**
- 2. I may need to examine one or more of my clinical practices in this area.**
- 3. I plan to change the way I practice in this area in the near future.**

Project partners routinely include this question in needs and outcomes assessment questionnaires. In clinical areas with moderate practice gaps, the response pattern typically appears as a downward-sloping stair-step pattern. Normally, “the way I practice in this clinical area is acceptable to me” is rated highest and “I plan to change the way I practice in this area in the near future” is rated lowest, with “I may need to examine one or more of my clinical practices in this area” falling somewhere in the middle.

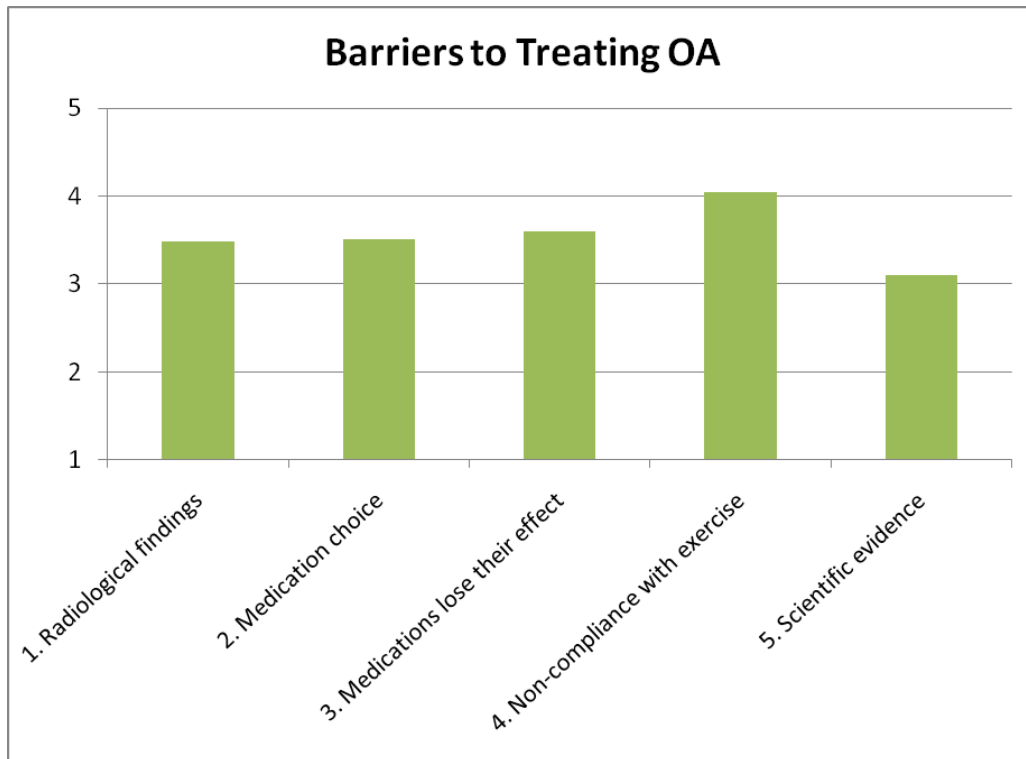


This graph distribution demonstrates the traditional downward stair-step pattern. Overall, the graph suggests that primary care physicians are moderately open to changing their practice in the care of osteoarthritis.

In order to assess the impact of barriers on best practice in osteoarthritis, respondents were asked to rate the extent to which they saw each item as a barrier to best practice, from 1 (low) to 5 (high):

1. Radiologic studies do not correspond with the severity of pain.
2. Medication choice is difficult due to the presence of co-morbidities.
3. Pain medications lose their effect over time.
4. Patient compliance with exercise is difficult for these patients.
5. There is little scientific evidence for medication selection for osteoarthritis patients.

Average responses are depicted below.



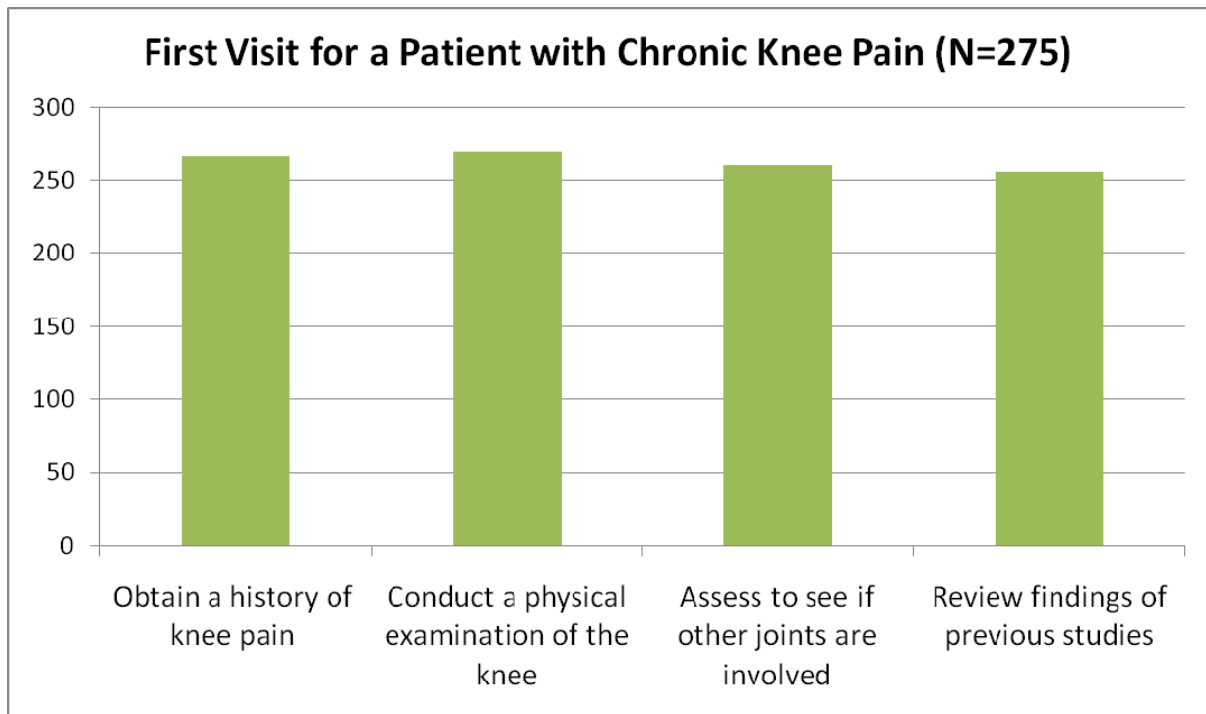
All responses fell above the midpoint of 3.0, suggesting that these issues present barriers in the care of osteoarthritis patients. The highest-rated barrier was “Patient compliance with exercise is difficult for these patients,” while the lowest barrier was “There is little scientific evidence for medication selection for osteoarthritis patients.”

Next, survey participants were asked a series of practice assessment questions. All of the following questions were noted “choose all that apply.” Correct answers are marked with an asterisk.

A 70 year old female reports bilateral knee pain (worse on left side) which worsens after moderate walking. Rest appears to help. The pain started 4 years ago and is progressively worsening. Because of this pain, she has limited her activities of daily living (e.g. going to evening walks, doing grocery shopping, etc) At the urging of her family, she is visiting her clinician, apologizing for asking for help with “normal aging aches and pains”.

1. Which of the following would be part of the first visit for a patient presenting with a chronic knee pain?
 1. * Obtain a longitudinal history of knee pain *
 2. * Conduct a physical examination of the knee *

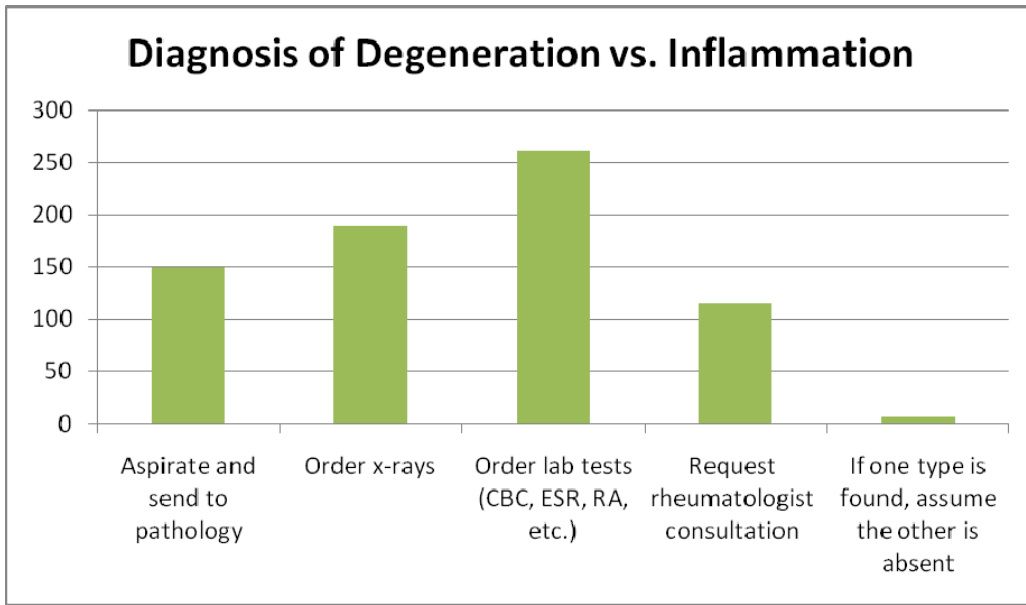
3. * Assess to see if other joints are involved and if a systemic inflammatory/ auto-immune disorder is present *
4. * Review findings of previous imaging studies (x-rays, MRI) *



Most survey respondents correctly responded that all four items should be part of an initial visit for a chronic knee pain patient.

2. If there is a question of degeneration vs. inflammation, which of the following might assist in making the differential diagnosis?

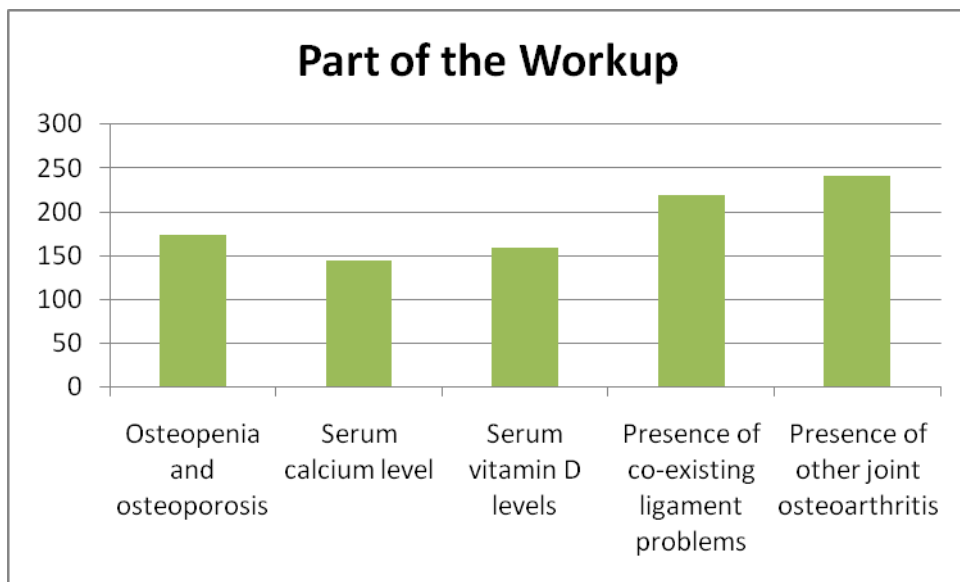
1. * Aspirate the knee joint and send to pathology for evidence of inflammation *
2. * Order x-rays of the knee and inform the radiologist that you are trying to differentiate the two conditions *
3. * Order laboratory tests such as CBC, ESR, RA, etc. *
4. * Request consultation from a rheumatologist *
5. If one type is arthritis is found, assume the other type is automatically absent



Although most respondents recognized the value of laboratory testing in distinguishing degeneration and inflammation of a joint, respondents were less likely to use joint aspiration, x-rays, or rheumatologist consultation.

3. As part of the evaluation of painful degenerative osteoarthritis of the knee, which of the following should be part of the workup?

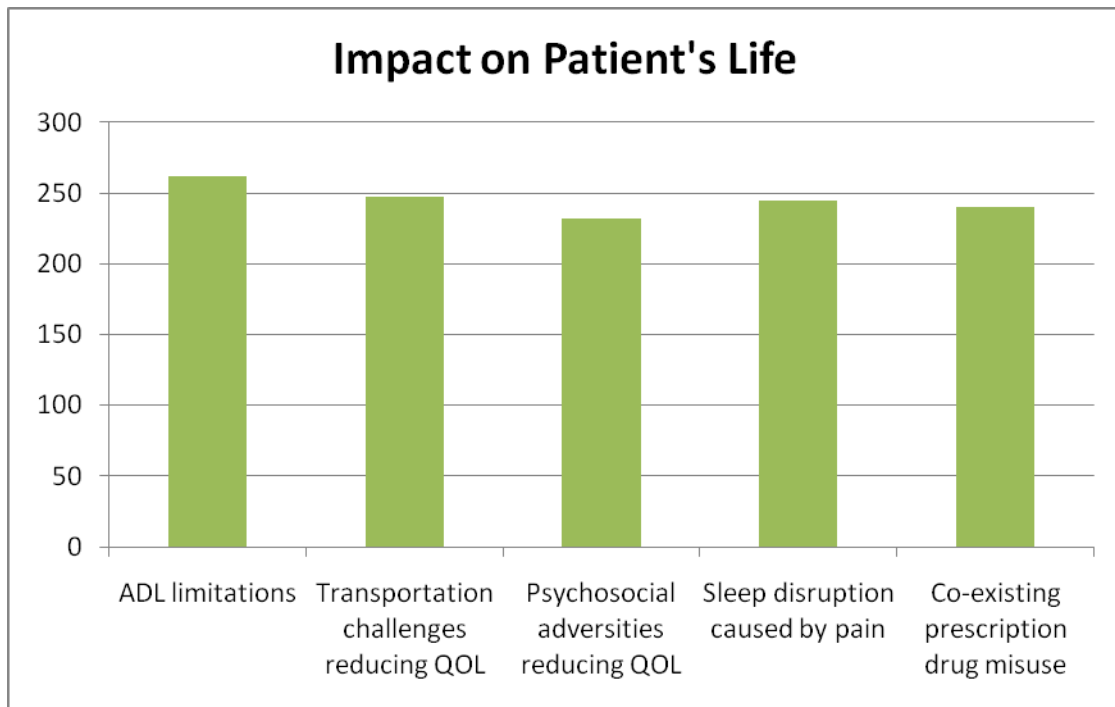
1. * Osteopenia and osteoporosis *
2. * Serum calcium level *
3. * Serum vitamin D levels *
4. * Presence of co-existing meniscal and cruciate ligament problems *
5. * Presence of other joint osteoarthritis (such as hip, ankles, etc) that can also affect mobility *



Assessment of osteopenia/osteoporosis, serum calcium levels, serum vitamin D levels, co-existing ligament problems, and other joint arthritis should all comprise a general workup for an osteoarthritis patient. Respondents listed varying levels of agreement for each item, and were least likely to respond with osteopenia/osteoporosis, serum calcium levels, and serum vitamin D levels as part of a patient work-up.

4. When evaluating the impact of the painful osteoarthritis on this patient's life, for which of the following should you inquire?

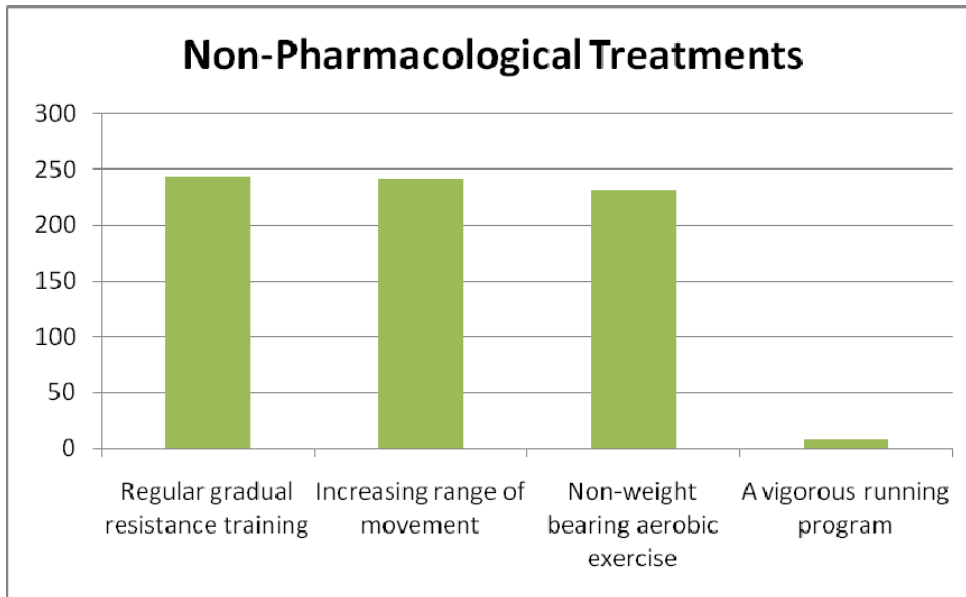
1. * Limitations in Activities of Daily Living (ADL) as a result of the pain caused by the arthritis *
2. * Presence of transportation challenges (eg – trouble walking to the bus station) that are now reducing the quality of life for this patient *
3. * Presence of psychosocial adversities that are further reducing her quality of life *
4. * Presence of any sleep disruption caused by the knee pain *
5. * Presence of co-existing prescription drug misuse, abuse or dependence *



Each of the listed items should be evaluated to determine the impact of osteoarthritis on the patient's life. Overall, respondents answered this question correctly, although they were slightly less likely to assess for presence of psycho-social adversities that reduce quality of life.

5. You interview and examine this patient and rule out inflammatory arthritis. Based on exam and x-rays, you diagnose her with degenerative osteoarthritis. Which of the following non-pharmacological treatments are helpful in patients with chronic osteoarthritis related pain?

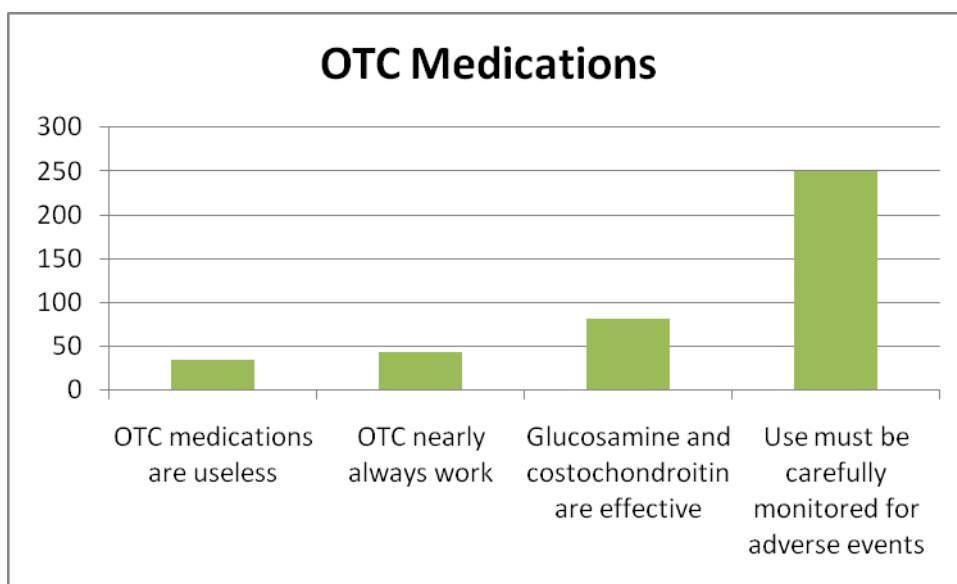
1. * Regular, gradual, resistance training (weight lifting) that focuses on strengthening the muscles surrounding her knees (extensors and flexors) *
2. * Increasing the range of movement of her knee joint *
3. * Non-weight bearing aerobic exercising (such as heated pool, stationary biking, etc) *
4. A vigorous running program



Most respondents correctly answered that regular resistance training, exercises to increase range of movement, and non-weight-bearing aerobic exercise are helpful in patients with chronic osteoarthritis-related pain.

6. The patient inquires about the use of OTC medications for pain management. Which of the following is/are true?

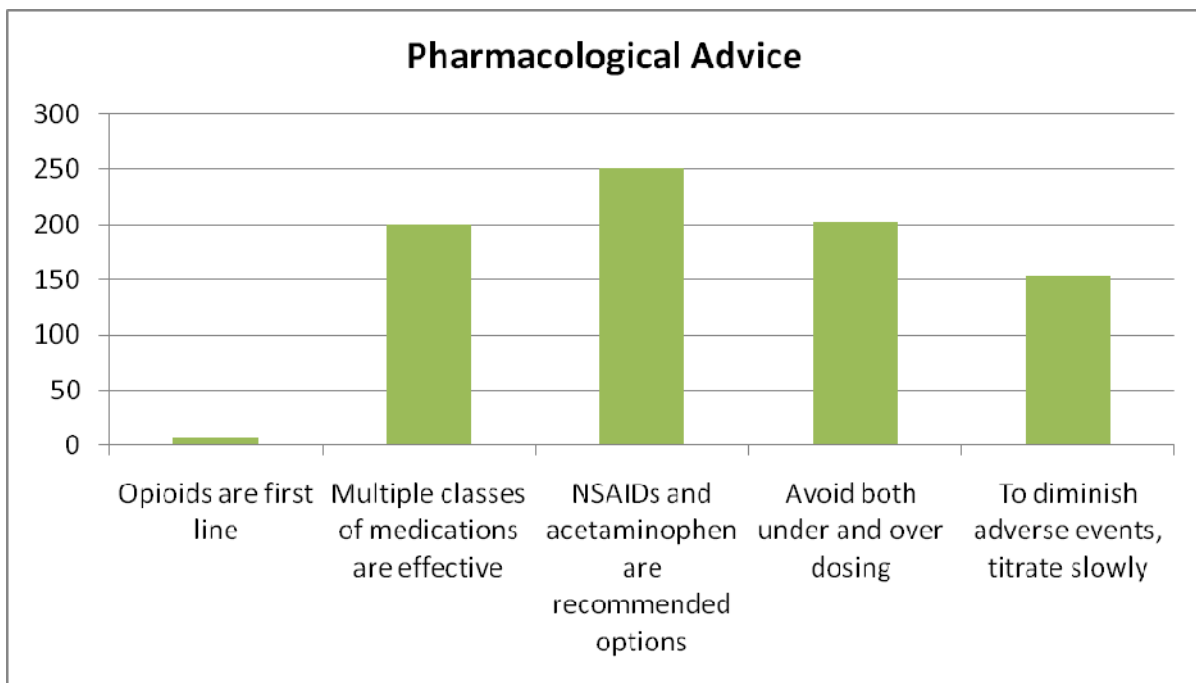
1. OTC medications such as acetaminophen, ibuprofen, etc. are useless for OA pain and standard guidelines strongly recommend against them
2. OTC nearly always work and once diagnosis is made further intervention is rarely needed
3. OTC medications such as glucosamine and costochondroitin have been clinically proven to be effective in OA
4. * OTC medication use needs to be carefully monitored by the clinician to make sure no significant adverse events develop *



Most respondents correctly answered that over-the-counter medication use should be carefully monitored for adverse clinical effects. Additionally, 82 physicians responded that glucosamine and costochondroitin have been clinically proven to be effective in the treatment of osteoarthritis pain, which is incorrect.

7. Which of the following is appropriate advice to offer to the patient and her family related to pharmacologic treatment?

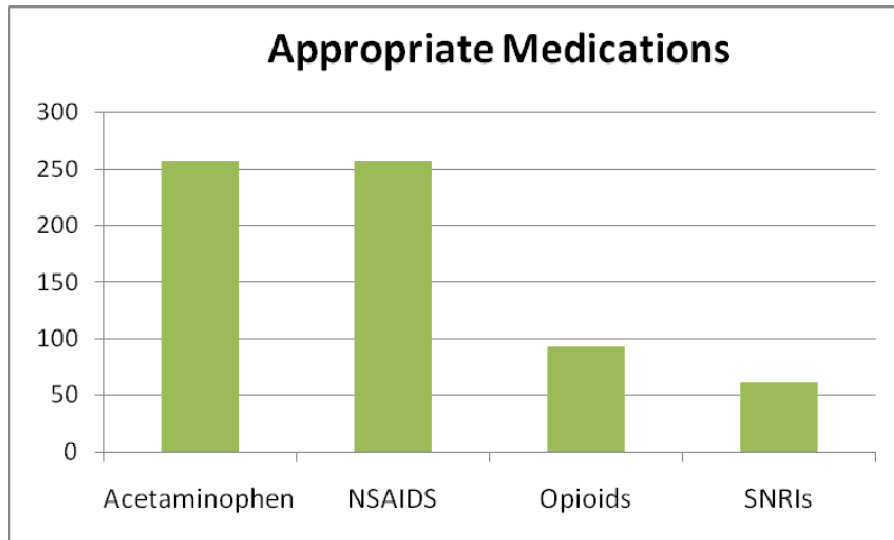
1. **Opioids are first line as they are such effective pain medications**
2. *** Multiple classes of medications are effective for her condition and individualized medication selection is crucial ***
3. *** NSAIDs and acetaminophen are among the recommended options available ***
4. *** No matter which medication is chosen, avoidance of both under and over dosing is a crucial issue ***
5. *** To diminish adverse events, slow titration is usually appropriate ***



While most respondents correctly indicated that opioids are not appropriate first-line therapies for osteoarthritis, responses to the remaining answers were varied; slightly more than half of physicians agreed with the statement “to diminish adverse events, slow titration is usually appropriate.”

8. Which of the following are appropriate medications to recommend for management of this patient’s osteoarthritis?

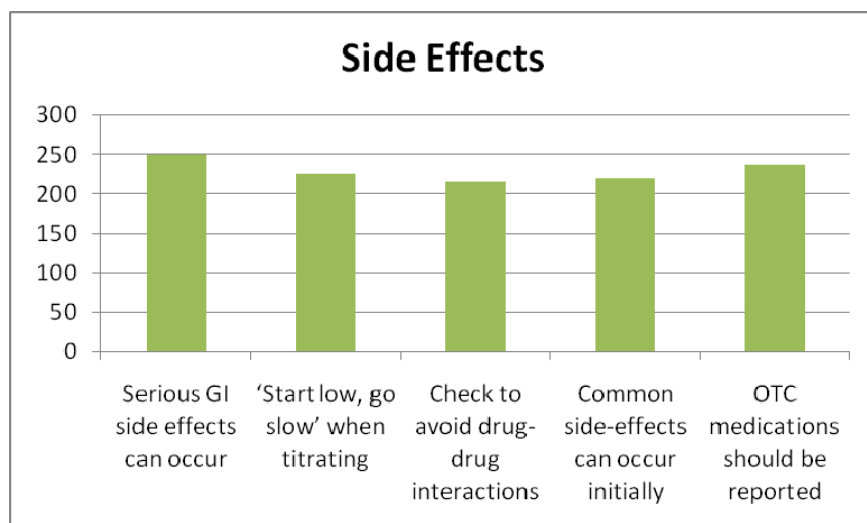
1. *** Acetaminophen ***
2. *** NSAIDs ***
3. **Opioids**
4. *** SNRIs ***



Most physicians indicated that acetaminophen and/or NSAIDs would be appropriate therapies for this patient. Additionally, 93 physicians chose opioids and 61 selected SNRIs. Although SNRIs are an appropriate treatment for osteoarthritis pain, they are rarely covered by insurance; this fact may have affected respondents' answers to this question.

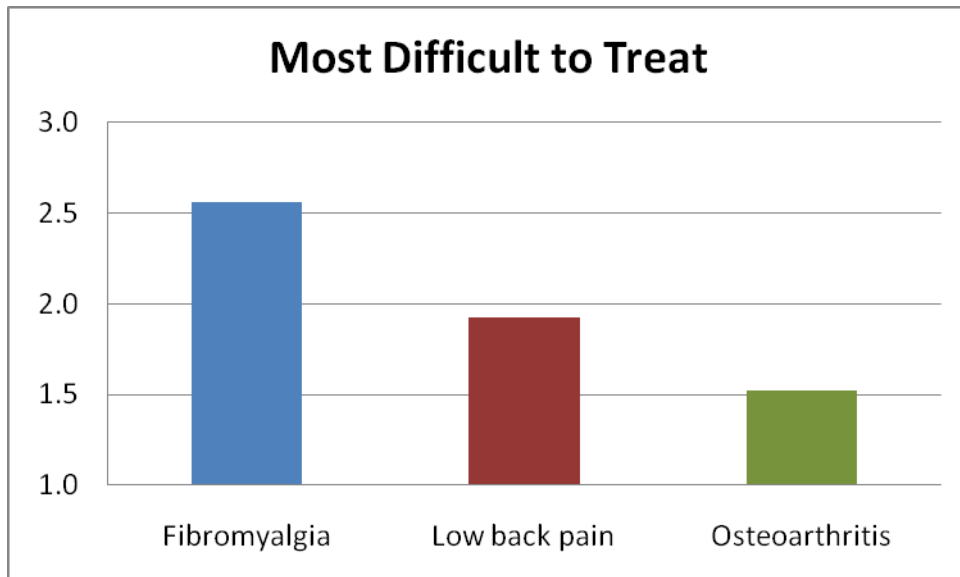
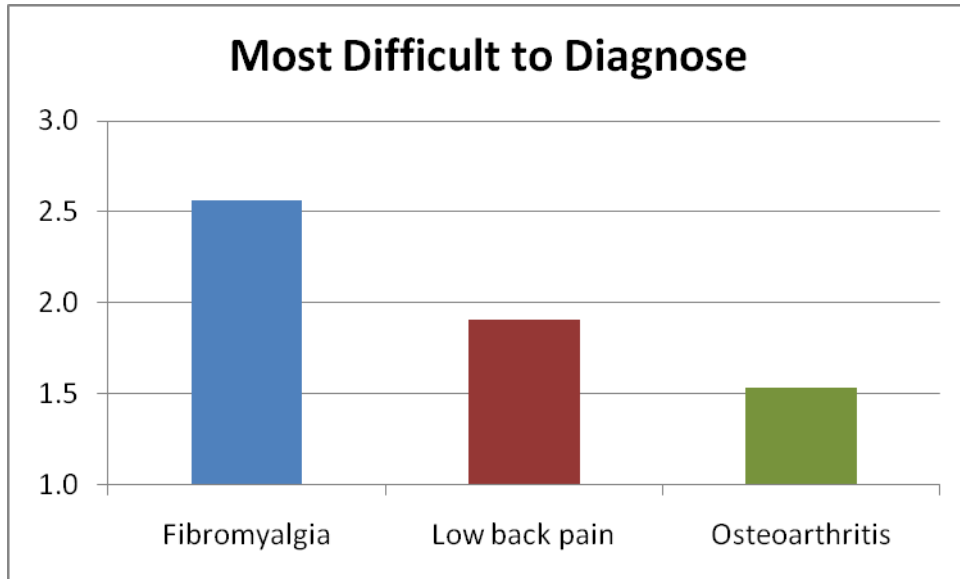
9. The patient and family ask the clinician about side-effects of medications. Which of the following are good points to share with the patient about medication side effects?

1. * With certain medications (such as NSAIDs) serious GI side-effects such as bleeding, while rare, can occur and one should be vigilant about it *
2. * 'Start low, go slow' is a valuable clinical tool to use when titrating medications, particularly in elderly patients *
3. * Before starting any new medication, check with pharmacist and/or clinician to avoid drug-drug interactions *
4. * Common side-effects such as nausea can occur initially and taking medication with food and gently increasing dose is often helpful *
5. * OTC medications can have drug-drug interactions with prescription medications so their use should be reported to the clinician *



Each of the listed points is important to share with the patient regarding potential side effects of osteoarthritis medication. Overall, respondents answered this question correctly.

Finally, survey respondents were asked to rank the three clinical conditions —fibromyalgia, low back pain, and osteoarthritis— according to difficulty in diagnosis and difficulty in treatment (1=low difficulty, 3=high difficulty).



Average answers for both questions were virtually identical. Most respondents found that fibromyalgia was the hardest condition to diagnose and treat, while osteoarthritis was the easiest.

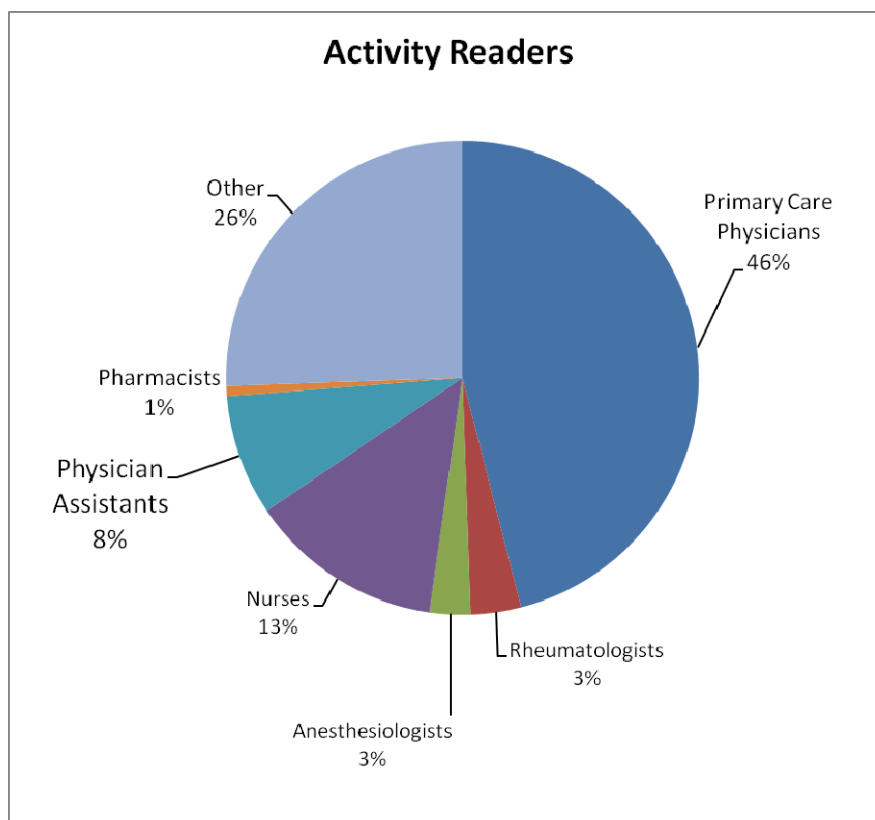
Medscape Activity

Results from the literature review, interviews, focus group, and survey informed the content of an online certified education activity hosted on Medscape's educational platform. The purpose of the activity was twofold: first, to validate the results of certain survey items by replicating them in the pre-activity evaluation; and second, to address educational needs identified in the preliminary needs assessment, thereby closing knowledge and competency gaps to positively impact patient health outcomes.

Since assessment data indicated that fibromyalgia was the most challenging of the three conditions to diagnose and manage, the Medscape activity was designed to address these issues. Titled *Pain Assessment in the Primary Care Office: Diagnosing Fibromyalgia*, the one-half credit activity was designed to accomplish the following objectives:

1. Identify pain assessment tools suitable for the primary care setting
2. Diagnose fibromyalgia based on the American College of Rheumatology criteria
3. Perform a differential diagnosis of fibromyalgia

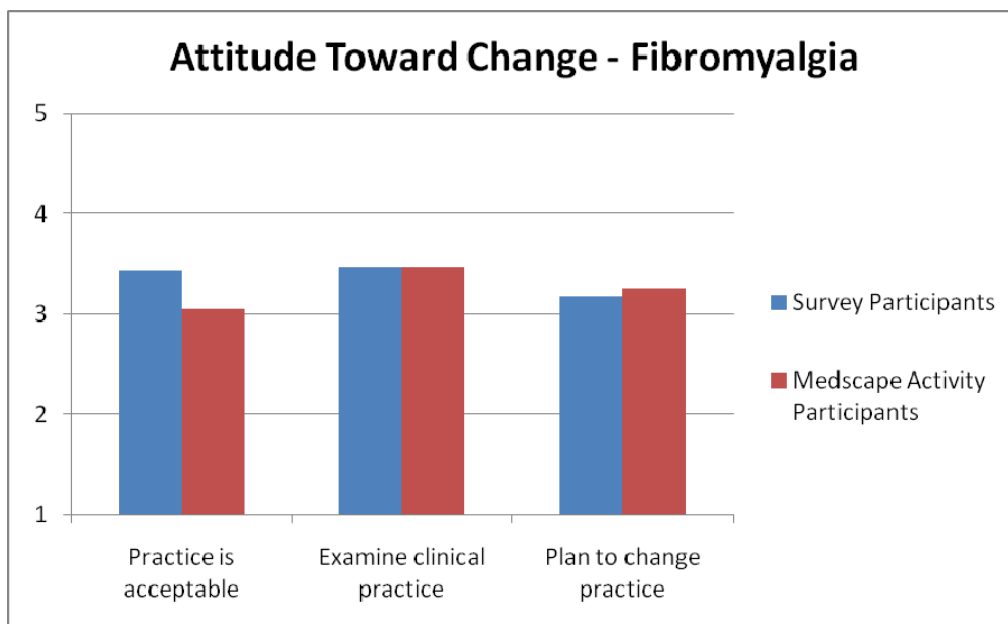
The activity was posted online March 9, 2011. During the first month, the activity attracted 2,018 individual readers; 631 credit certificates were granted. The distribution of readers according to profession and specialty is listed below:



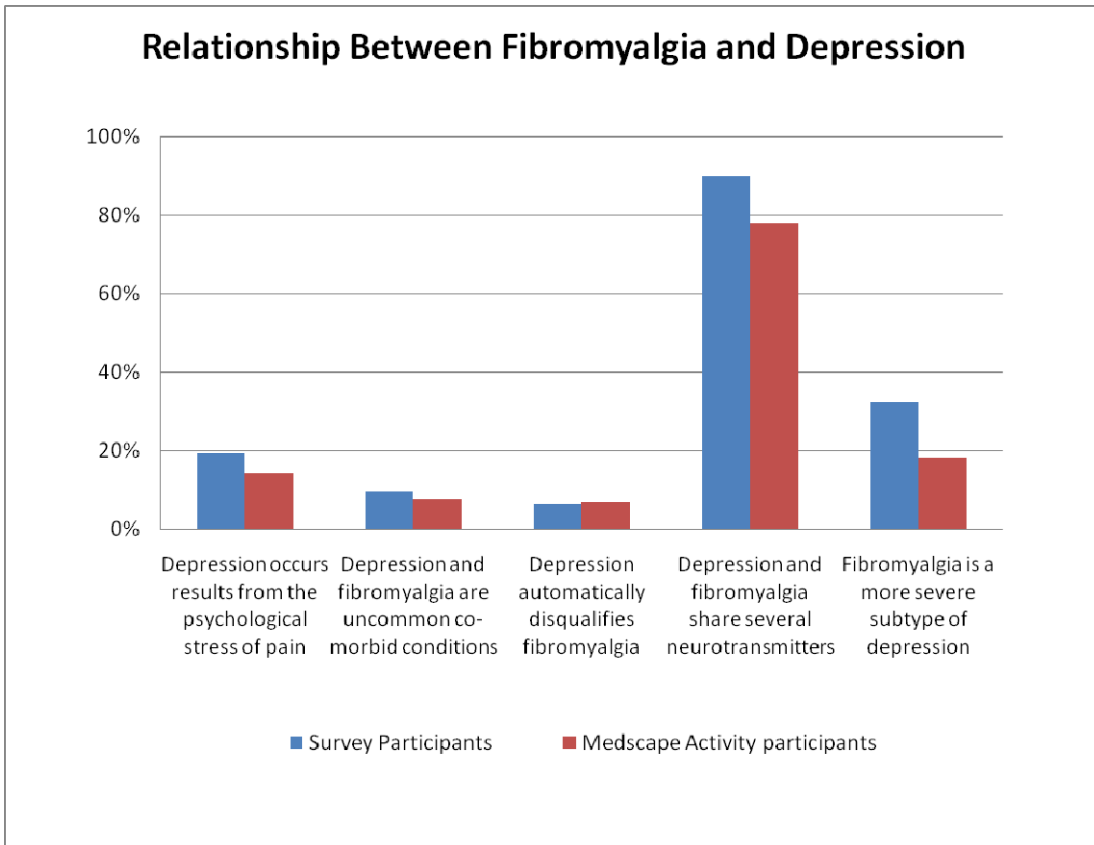
As a pre-activity test, learners responded to a series of attitude and practice questions that were taken from the needs assessment survey instrument. Responses from the surveys were compared with those from the Medscape pre-activity test to compare and validate learner answers.

On the whole, response patterns among survey participants and activity participants revealed similar response patterns, although the responses for each individual item were likely to be slightly higher among survey participants. This suggests that the two learner groups exhibit comparable practice gaps and attitudes, thereby further validating the results of the practice assessment survey and the resulting educational needs and implications.

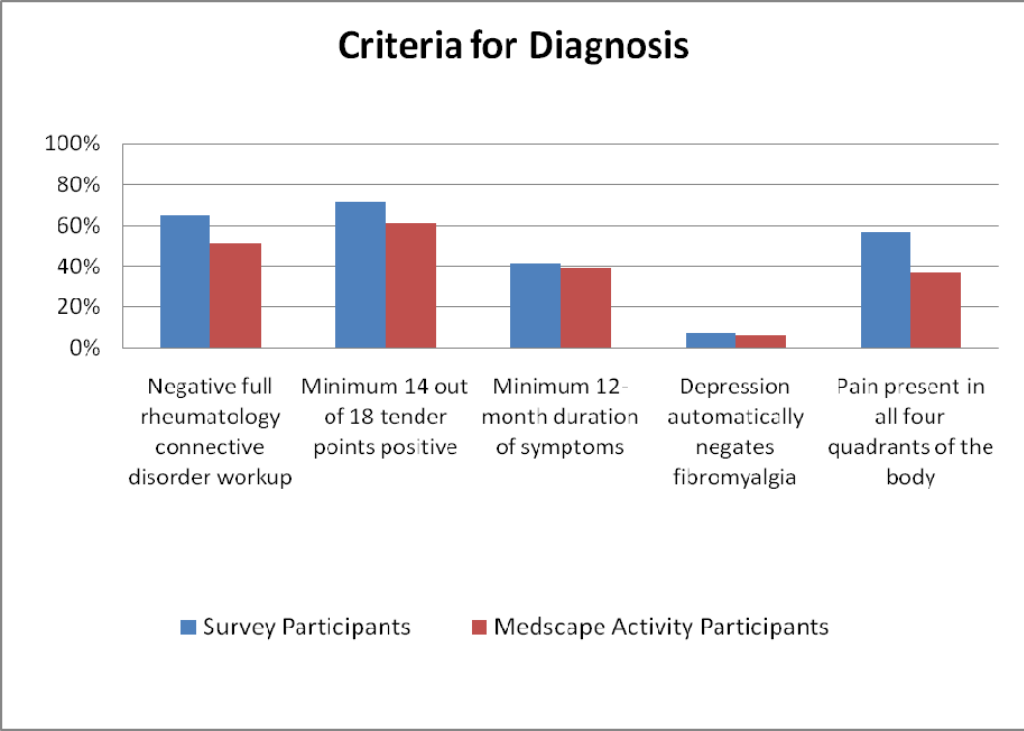
Comparative responses for the questions that appear on the pre-activity test are shown below.



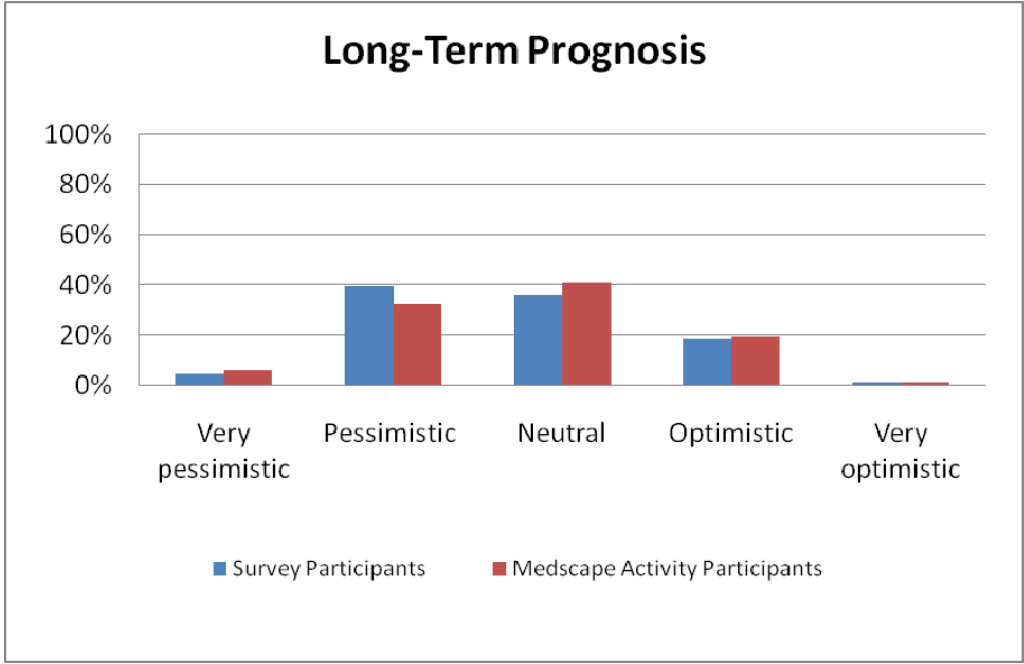
In regards to fibromyalgia practice, participants in the Medscape activity were less likely to agree that “the way I practice in this area is acceptable to me”; this may be because the population of learners who are less satisfied with their practice is likely to actively seek out education on the topic, and thus participate in the Medscape activity. Responses to “I may need to examine one or more of my clinical practices in this area” and “I plan to change the way I practice in this area in the near future” were similar.



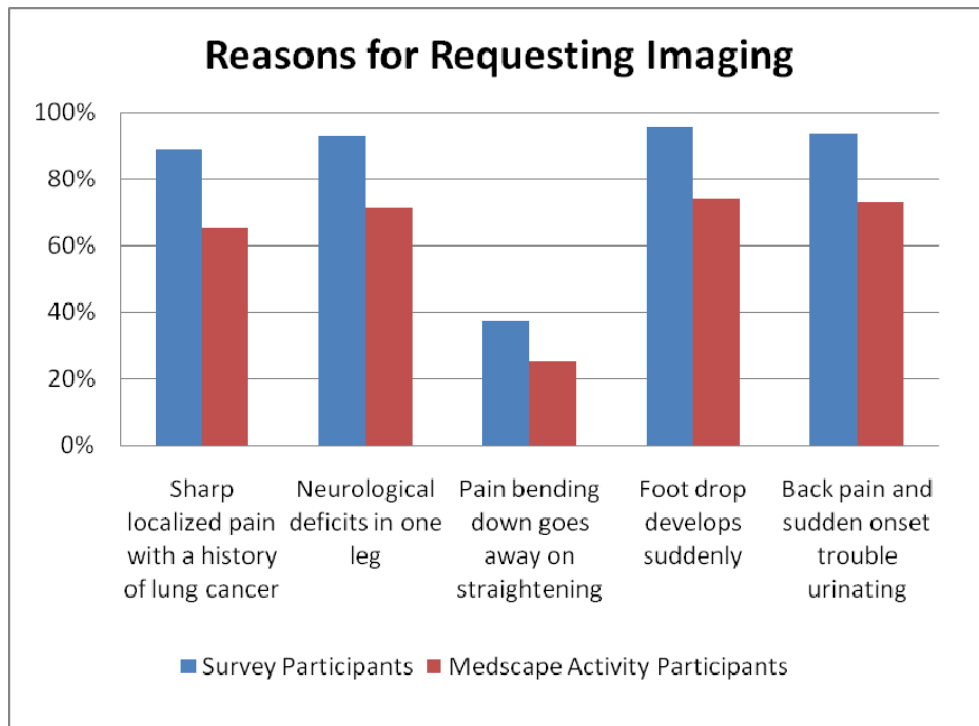
Responses were similar among survey and activity participants, although activity participants were slightly more likely to agree that depression and fibromyalgia share several neurotransmitters and that fibromyalgia is a more severe subtype of depression.



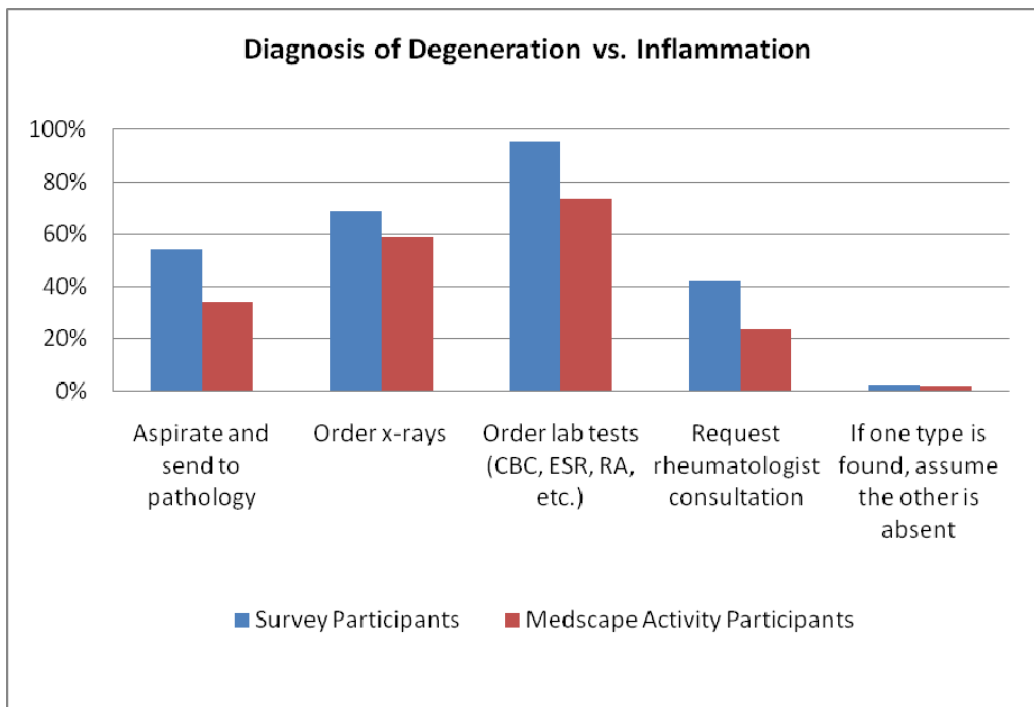
Responses to this question were similar, although survey participants were slightly more likely to choose each of the response items.



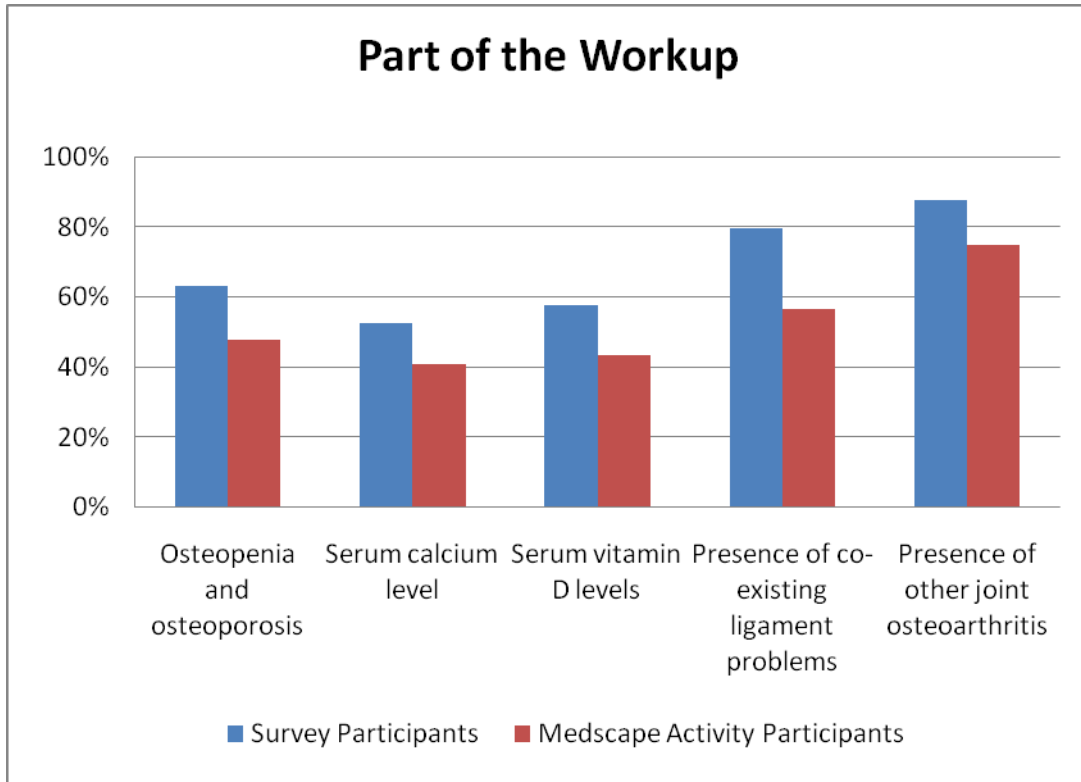
Survey and activity participants demonstrated comparable attitudes of pessimism and optimism in the prognosis of the fibromyalgia patient.



Survey participants reported being slightly more likely to request imaging in osteoarthritis patients for all reasons compared to Medscape activity participants.



In the differential diagnosis of degeneration vs. inflammation in a patient with chronic knee pain, survey participants were more likely to use each of the listed diagnostic methods compared to activity participants.



In determining part of a routine work-up in the evaluation of painful degenerative osteoarthritis of the knee, response distributions were similar, though survey participants were more likely to choose each item compared to activity participants.

Implications for Future Continuing Education

The data collected during the process of this needs assessment presents a broad perspective on some of the challenges and issues in the management of chronic pain in the primary care setting. Through careful analysis of clinical guidelines and literature, physician interviews, survey data, and expert opinion, project partners synthesized a series of key educational implications and corresponding recommendations for continuing professional development.

1. Primary care physicians exhibit significant educational need in fibromyalgia, low back pain and osteoarthritis; they also exhibit significant readiness to change.

Pain management comprises a major component of primary care. The needs assessment demonstrates clear educational need in all three clinical areas, identified through self-report and practice assessment. Each of the competencies assessed in the three practice areas revealed meaningful gaps between participants' current perceived practice level and desired practice level. Encouragingly, primary care physicians recognize areas in which they need improvement and are prepared to make changes in their practice.

Implications for future continuing medical education (CME): Opportunities for education are ripe in these clinical areas. Primary care providers will welcome practice-changing education in the management of pain in chronic conditions.

2. The educational need is largest in fibromyalgia, yet physicians may experience fatigue from fibromyalgia medical education.

Of the three clinical areas studied, fibromyalgia stands out as the condition with the most significant educational need. Fibromyalgia was rated as more difficult to diagnose and treat than low back pain and osteoarthritis; practice assessment survey questions revealed significant practice gaps; and survey participants were highly dissatisfied with their current fibromyalgia practice and willing to examine and change their current practice.

Although health care professionals recognize the need for changes in fibromyalgia patient care, many are suffering "burnout" from the widespread continuing medical education that already addresses the topic.

Implications for future CME: Education addressing the management of fibromyalgia, while needed, should be carefully designed to engage and maintain learner interest. Relevant fibromyalgia education could be incorporated into alternative educational topics, such as patient adherence or the appropriate management of chronic pain with opioids. Educators might also approach fibromyalgia

education from a non-traditional angle, such as a focus on patient education or a hands-on workshop to practice a tender point exam.

3. The time, attention, and energy needed to manage fibromyalgia patients can be overwhelming.

Fibromyalgia patients take considerable time and energy commitment on the part of primary care physicians to manage their pain and other symptoms such as depression, sleep disorders, and co-morbid conditions. Because most pharmacological and non-pharmacological therapies have limited effectiveness, many patients try multiple treatments, necessitating further attention. The nature of primary care allows physicians to address pain symptoms over time and often the diagnosis of fibromyalgia is determined only after other conditions have been ruled out. However, primary care physicians feel helpless and frustrated when patients' pain persists despite all efforts and without concrete physiological findings.

Implications for future CME: Education in the management of fibromyalgia should provide practical tools and resources for dealing with difficult or frustrating patients. A model of fibromyalgia management that incorporates team-based and community involvement will ensure best care of the patient while minimizing the time and attention burden on the primary care physician. Continuing education that addresses the Accreditation Council for Graduate Medical Education (ACGME) competencies of *Interpersonal and Communications Skills* and *Professionalism* may be particularly suitable in this clinical area.

4. Physicians are vaguely familiar with the diagnosis of fibromyalgia, but do not know the specifics.

Since the release of the American College of Rheumatology diagnostic criteria in 1990, physicians have come to accept the diagnosis of fibromyalgia as a legitimate disease. They are aware that pain, together with other symptoms such as depression and sleep disturbance, comprise the disease and that diagnosis centers on a tender point site examination. However, this practice assessment survey revealed that primary care physicians are unaware of the specific diagnostic criteria for fibromyalgia. More than half incorrectly thought that a full negative rheumatology connective disorder workup and 14 positive tender points were necessary for diagnosis, while more than a third thought that symptoms must persist for 12 months. Lack of familiarity with diagnostic guidelines may result in underdiagnosis of fibromyalgia, or misdiagnosis of another clinical condition as fibromyalgia.

Implications for future CME: Education should address the identified knowledge gap of diagnostic criteria for fibromyalgia. These criteria may change in the near future; in May of 2011 the American College of Rheumatology released a set of provisional updated criteria that are currently under review. Continuing medical education providers should be aware of future updates and modify curriculum accordingly.

5. Imaging is a challenge in low back pain.

Physical abnormalities as revealed via x-ray or other imaging often have no correlation with the presence or absence of low back pain. Studies show that imaging has no impact on clinical outcomes; consequently, guidelines recommend that diagnostic or imaging tests should not be used in the routine assessment of chronic low back pain. Additionally, radiography of the lumbar spine is a concern due to high levels of radiation exposure. Patients may request or demand imaging when it is not indicated; conversely, clinicians find that insurance companies make obtaining imaging difficult.

Implications for CME: Primary care physicians need strategies to communicate to low back pain patients who express a desire for imaging. Education should address the symptoms and circumstances that indicate imaging, how to best determine the relative risks and benefits of imaging, and how to communicate effectively with insurers to see that testing is covered when necessary. Likewise, primary care physicians need to feel confident in their decisions regarding imaging.

6. Not all chronic pain is the same.

While “chronic pain” is often treated as a single health condition, the assessment of educational needs in fibromyalgia, osteoarthritis and low back pain highlight some distinct dissimilarities in the presentation and management of different pain conditions. For example, osteoarthritis generally occurs in older patients; as such, issues such as polypharmacy, independence, treatment goals that focus on function and ability, and expectations of normal aging differ considerably when compared to a condition such as fibromyalgia, which generally presents in much younger patients.

Implications for CME: Education that addresses the management of pain in patients with chronic conditions should take into account patient variables — such as age, expectations, and treatment goals — as well as the unique needs of each clinical area. Content should specifically address similarities and differences between different types of chronic pain.

7. The best use of SNRIs in chronic pain is not fully understood.

Primary care physicians indicate that they are much more likely to use other indicated first-line pharmacotherapies (such acetaminophen and NSAIDs) rather than SNRIs in the management of chronic low back pain and osteoarthritis pain. FDA approval of SNRIs occurred more recently than other drug classes, and these medications are less likely to be covered by insurers, which may contribute to physicians’ lack of familiarity in this situation. Additionally, many physicians are unaware of the mechanism through which SNRIs relieve pain by affecting the descending pain pathway.

Implications for CME: Potential topics for CME content in the pharmacological management of chronic pain include the indication of SNRIs for low back pain and osteoarthritis, as well as their mechanism of action.

8. Many physicians do not appropriately use opioids or other prescription medications when treating patients with fibromyalgia, low back pain and osteoarthritis.

A variety of pharmacological and non-pharmacological therapies are potentially effective in treating chronic pain conditions. The practice assessment survey revealed certain areas in which primary care physicians are unclear about the indications and appropriate use of certain medications. For example, half of respondents incorrectly believed that amitriptyline and gabapentin are FDA-approved for the treatment of fibromyalgia, and almost a third thought that glucosamine and chondroitin have been clinically proven to be effective in treating osteoarthritis pain.

Additionally, primary care providers hold erroneous views about the best use of opioids to treat chronic pain. Although guidelines recommend against it, more than a third of survey respondents cited opioid therapy as a second-line treatment option for fibromyalgia and osteoarthritis. A significant number of respondents also incorrectly thought that opioids have a favorable risk/benefit ratio in most fibromyalgia patients.

Implications for CME: Unnecessary use of opioids, or beginning opioid therapy too early, carries considerable patient safety risk and may result in adverse clinical outcomes. Continuing education that addresses the management of chronic pain patients or appropriate use of opioids should review indications and recommendations for opioid therapy and address the appropriate time to initiate opioid use.

9. Effective physician/patient communication ensures realistic expectations about interventions, prognosis, and outcomes.

Unfortunately, many patients with chronic pain conditions will not experience a cure or full relief of symptoms. Primary care professionals find that clear, honest communication with patients about potential pharmacological and non-pharmacological therapy choices, the expected course of the disease, and short- and long-term treatment goals is key to effectively managing the condition. Patients should be aware that a full recovery is not always expected, and should be involved in the focus on symptom management, function, quality of life, and activities of daily living.

Implications for CME: Continuing education in the area of chronic pain management should address clinician competencies in communication and patient education, ensuring that patients and health care providers have concordant treatment goals and expectations.

Conclusions

Pain is one of the most common and most complex complaints that patients bring to their primary care providers. While physicians want to provide some kind of immediate relief to suffering patients, they also have a need to identify the underlying cause and to plot a strategy for long-term management. Chronic conditions like fibromyalgia, low back pain, and osteoarthritis present considerable challenges to primary care physicians because the underlying pathology is not always clear, nor is it typically reversible. Diagnosis and management are complicated by a minority of patients who are seeking drugs or disability payments. A high prevalence of physical and psychological co-morbid conditions creates clinical challenges that leave primary care physicians often frustrated and feeling helpless.

A comprehensive, multi-faceted evaluation of the forces that impact clinician behavior — and, consequently, patient care — is key to the identification of practice gaps, educational needs, and the optimal design of appropriate educational strategies. The approach to chronic pain management clearly differs for fibromyalgia, osteoarthritis, and low back pain; however, despite the unique educational needs inherent in each clinical condition, many similarities exist in the management strategies for these patients.

Pertinent, high-quality, evidence-based education that meets identified educational needs will ensure that health care professionals continually improve their practice, ultimately resulting in improved care and optimal clinical outcomes in the care of patients with chronic pain.

Educational Partners

Each *Helping the Hurting* partner contributed extensive experience in qualitative and quantitative techniques for needs assessment, statistical analysis, educational design, and continuing professional development of physicians, as well as a strong commitment to improving patient outcomes through changing physician behavior.

Healthcare Performance Consulting (HPC)

Healthcare Performance Consulting develops and implements strategies to drive behavior change in clinicians, patients and others within health care systems in order to attain specific and measurable quality and cost outcomes for clients.

The core competency of HPC is its ability to assess the current performance of physicians and other health care practitioners, analyze forces and barriers that influence performance, and develop strategic approaches that will change behavior, where it is ethical and medically appropriate to do so. This is accomplished by taking a systems approach to changing behavior.

Each HPC consultant has over 25 years of experience in the health care system and has presented their expertise at national meetings of CME educators and researchers of physician behavior change. Clients have included large employers, managed care organizations, and CME providers. HPC has consulted on projects in a variety of clinical areas. HPC experience and core competencies include: needs analysis and outcomes measurement, medical education, training and education, organizational development, management and quality improvement.

Interstate Postgraduate Medical Association (IPMA)

The mission of Interstate Postgraduate Medical Association (IPMA) is to disseminate medical knowledge and elevate the standards of continuing medical education to improve physicians' ability to prevent, detect and treat disease. Since its inception in 1916, IPMA has remained dedicated to this goal. Operating as a not-for-profit 501 (c)(3) educational association, IPMA creates educational and change strategies that transform health care practices to improve patient health. IPMA has been lead by some of medicine's great teachers- William J. Mayo MD, Charles H. Mayo MD, Frank H. Lahey MD, Charles W. Mayo MD, Alton Ochsner MD, Robert M. Zollinger MD, Morris Fishbein MD, and John L. Ochsner MD.

IPMA sponsors its annual Primary Care Update gathering primary care clinicians from the United States and Canada for clinically relevant sessions examining the changing practice environment for primary care. This tradition of excellence carries through to diverse CME activities centered on timely needs assessment, quality faculty, relevant topics and outcomes measurement designed to improve patient care. Examples of such programs include Postgraduate Medicine magazine, Harrison's Practice, Performance Improvement and educational programs on diverse topics including women's health, diabetes, cardiology, insomnia, gastroesophageal reflux disease (GERD), pain management, and rheumatology. IPMA employs rigorous project management in the delivery and execution of all educational offerings.

University of Cincinnati Center for Continuous Professional Development (CCPD)

The University of Cincinnati CCPD combines all continuing education planning and development for physicians, nurses, pharmacists and allied health professionals. The staff includes career educators in the health professions, instructional designers, information technologists, program evaluators, psychometricians, statisticians and health care professionals in medicine, nursing, and pharmacy.

The CCPD is focused on interprofessional continuing education that promotes team-based care and quality improvement for better patient care. The CCPD relies of the extensive content and educational expertise at the University of Cincinnati Academic Health Center and uses its close relationship with community-based health care providers to develop quality education programs that directly impact clinicians and patient care.

University of Virginia School of Medicine Office of Continuing Medical Education

The Office of Continuing Medical Education of the University of Virginia School of Medicine is actively involved in the development of innovative and interactive educational initiatives that promote improved patient care, particularly in the area of primary care. As an ACCME-accredited program with Commendation, the University of Virginia School of Medicine actively pursues educational initiatives that meet the needs of providers and patients with timely and clinically relevant educational programming.

Appendix 1: Survey Instrument

Welcome to the University of Cincinnati assessment on chronic pain. The information from this survey will be used to assess needs and barriers of clinicians, in order to develop continuing medical education (CME) in the management of chronic pain. Your participation is voluntary, and you may exit the survey at any time and skip any questions that you don't want to answer. It will take approximately 30 minutes to complete the questionnaire. Your survey responses will be strictly confidential and data from this survey will be reported only in the aggregate. We do not ask for any information that can personally identify you. Please start with the survey now by clicking on the Continue button below.

Do you treat patients that suffer from chronic pain?

1. Yes
2. No

Please note your primary specialty:

1. Family Medicine
2. General Internal Medicine
3. Other

The next 3 sections deal with clinical issues related to fibromyalgia, low back pain, and osteoarthritis. Please consider each group of questions separately. Each section will take about 7 minutes.

Fibromyalgia (FM)

The following items represent clinical competencies in fibromyalgia management. For each competency, please indicate your present ability to the left, and your desired ability to the right.

(each respondent rated Present Ability and Desired Ability [1-Low, 5-High])

1. Perform a complete history & physical examination focusing on illnesses that may mimic or complicate fibromyalgia.
2. Focus pain assessment on type and quality of pain, source, location, duration, time course, pain affect and effects on quality of life.
3. Base the clinical diagnosis of fibromyalgia on the presence of widespread pain, defined as pain in all four body quadrants and axial pain, for at least 3 consecutive months.
4. Evaluate the severity of other fibromyalgia symptoms including fatigue, sleep disturbance, and mood and cognitive disturbance.
5. Assess functional status in the initial and subsequent patient visits.
6. Obtain a complete blood count and conduct erythrocyte sedimentation rate, muscle enzymes, liver function, and thyroid function tests in a new patient with probable fibromyalgia.
7. Provide education about the causes, course, prognosis, and treatment of fibromyalgia to the patient.
8. Select appropriate pharmacotherapy for fibromyalgia and associated symptoms.
9. Select appropriate non-pharmacologic therapies such as exercise and counseling.
10. Appropriately refer to specialists.
11. Manage time constraints associated with the diagnosis, treatment, and management of fibromyalgia.
12. Follow-up with patients to assess progress and compliance and then adjust the treatment plan accordingly.

Please indicate your level of agreement with the next 3 statements: With regard to fibromyalgia... (Each respondent rated 1-Low, 5-High)

1. The way I practice in this clinical area is acceptable to me.
2. I may need to examine one or more of my clinical practices in this area.
3. I plan to change the way I practice in this area in the near future.

Reflecting on your own experience in fibromyalgia management, please rate the following statements according to the extent you see each as a barrier to best practice.

1. Criteria are vague for diagnosing fibromyalgia.
2. Distinguishing fibromyalgia from other conditions is extremely difficult.
3. Patients do not have the same treatment goals that I have.
4. Patients are non-compliant with recommendations for exercise.
5. Patients are non-compliant with cognitive behavioral therapy.
6. Counseling services are not available in my area.
7. Counseling services are not covered by insurance.
8. There is little scientific evidence for medication selection for fibromyalgia patients.
9. It is not personally rewarding to work with fibromyalgia patients because they never seem to get better.

A 35 year old married female comes to see the clinician because of a two year history of progressively worsening generalized aches and pains in her muscles with concurrent depression and anxiety. She reports reading an article on fibromyalgia and identifies a great deal of her difficulties in the description she read. She is asking for your opinion and requesting help.

Question 1: Which of the following offer(s) explanation of the relationship between fibromyalgia and depression (select all that apply)

6. Depression occurs only as a result of the psychological stress of being in pain
7. Depression and fibromyalgia are uncommon co-morbid conditions
8. According to American College of Rheumatology criteria, presence of depression automatically disqualifies a diagnosis of fibromyalgia
9. Depression and fibromyalgia appear to share several neurotransmitters as part of their pathophysiology
10. Because depression is often accompanied by somatic symptoms, fibromyalgia is thought to be a more severe subtype of depression

2. The American College of Rheumatology Criteria for the diagnosis of fibromyalgia include: (select all that apply)

6. A negative full rheumatology connective disorder workup
7. A minimum 14 out of 18 tender points are positive
8. A minimum 12 month duration of symptoms is required
9. Presence of depression automatically negates a diagnosis of fibromyalgia
10. Pain should be present in all four quadrants of the body

3. Common symptoms accompanying fibromyalgia include: (select all that apply)

6. Fatigue
7. Insomnia
8. Memory difficulties
9. Weight loss
10. Anxiety

4. Cognitive behavioral therapy (CBT) is often recommended for fibromyalgia. Which of the following is/ are true? (select all that apply)

4. CBT is a second line intervention, reserved for patients not responding to pharmacotherapy

5. CBT is effective in treating fibromyalgia pain and helps with stress management
6. CBT is most effective in patients not currently on pharmacotherapy

5. This patient mentions physical exercise, and asks if it will help or harm her pain. Which of the following do you think is/are reasonable advice to give her? (select all that apply)

5. Exercise is helpful to patients with fibromyalgia with high quality evidence supporting its use
6. Exercise is a good idea, but there is no evidence it helps with pain
7. Exercise usually worsens pain of fibromyalgia so avoiding it until the pain improves is advisable
8. Exercise further inflames muscles so treatment guidelines suggest limiting exercising for a year after diagnosis

6. Which of the following statements regarding pharmacotherapy of fibromyalgia is/are correct? (select all that apply)

5. Amitriptyline and gabapentin are FDA approved for the treatment of fibromyalgia and are first line treatment options
6. Patients with fibromyalgia are often susceptible to medication side-effects, so slow titration is often appropriate
7. Serotonin-norepinephrine reuptake inhibitors are helpful as they modulate the descending pain pathway
8. Alpha-2 delta, calcium modulating medications (gabapentin and pregabalin) are helpful as they are thought to modulate the ascending pain pathway

7. Which of the following do you believe to be true regarding the use of opioids in patients with fibromyalgia (select all that apply)

5. If an opioid is to be used, the recommendation is to use high potency opioids
6. Opioids are a second line option, after mono-therapy with one medication has failed
7. Opioids while potentially addicting, are thought to have a favorable risk/benefit ratio in most fibromyalgia patients
8. Opioid receptor density has been shown to be abnormal in the brains of patients with fibromyalgia

8. Based on your experience dealing with other patients with fibromyalgia, how do you feel about her long term prognosis? (select one response)

6. Very pessimistic
7. Pessimistic
8. Neutral
9. Optimistic
10. Very optimistic

Low Back Pain (LBP)

The following items represent clinical competencies in the management of low back pain. For each competency, please indicate your present ability to the left, and your desired ability to the right.

Present Ability [Low,High]

1. Conduct a significant history and physical examination (including mechanism of onset, description of pain, neurological history, inspection of posture and gait, ROM testing).
2. Exclude critical diagnoses (including Cauda Equina Syndrome, neurological deficits and progressive

changes, fracture, neoplasms)

3. When indicated, order appropriate radiological tests.
4. Educate the patient and caregivers on the condition.
5. Help patients to set reasonable expectations for services and outcomes.
6. Select the most appropriate non-pharmacological therapy.
7. Select the type and dose best suited to the patient for those patients who are candidates for pharmacological management.
8. Identify patient barriers to adhering to treatment instructions.
9. Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy.
10. Evaluate the treatment response and patient's ability to return to work or ADL's.
11. Seek interventional pain management, surgical consultation or referral when appropriate.
12. Manage time constraints associated with the diagnosis, treatment, and management of Low Back Pain.
13. Follow-up with patients to assess progress and compliance and then adjust the treatment plan accordingly.

Please indicate your level of agreement with the next 3 statements: With regard to low back pain... (Each respondent rated 1-Low, 5-High)

1. The way I practice in this clinical area is acceptable to me.
2. I may need to examine one or more of my clinical practices in this area.
3. I plan to change the way I practice in this area in the near future.

Reflecting on your own experience in low back pain management, please rate the following statements according to the extent you see each as a barrier to best practice.

1. It is difficult to distinguish those who truly suffer from low back pain from those who are seeking drugs or other secondary gain (time off, workers compensation, etc)
2. Determining the appropriate time to order imaging is a problem.
3. Insurance companies make obtaining imaging difficult.
4. Tolerance and dependence on medication is common.
5. There is rarely anything that can be done to help low back pain patients.
6. There is little scientific evidence for medication selection for low back pain patients.

A 55 year old, married male comes to clinic for yearly follow up of his long-standing diabetes and hypertension. He is doing well with both. He adds that his lower back has been hurting for 6 months and now its' affecting his sleep and his functioning as an accountant. He asks for your thoughts and recommendations.

1. Which of the following would be part of a basic exam for a patient presenting with a low back pain? (select all that apply)

6. Obtain a thorough history of back pain
7. Obtain an x-ray
8. Assess for psycho-social stressors, and presence of depression and/or anxiety
9. Obtain a history of any trauma to the low back
10. Conduct a physical examination of the back

2. Which of the following are appropriate reasons for requesting immediate imaging studies (X-Rays or MRI) of the lower back? (select all that apply)

6. Sharp localized pain in a person with a history of lung cancer
7. Neurological deficits present in one leg
8. Trouble bending down due to pain that then goes away on straightening
9. Patient had a foot drop develop suddenly along with back pain

10. Patient has back pain and sudden onset trouble with urinating

3. Which of the following findings should trigger an immediate referral of a back pain patient to a spine surgeon? (select all that apply)

6. Presence of sudden onset walking difficulties
7. Presence of sudden onset bladder voiding difficulties
8. Presence of sudden onset sensory loss in lower extremity
9. Presence of severe depression and anxiety
10. Presence of sudden onset loss of muscle strength

4. Assuming this patient's physical examination is unremarkable, which of the following steps are appropriate as first line interventions? (select all that apply)

7. Referral to a physical therapist for strengthening and conditioning of his back muscles and ligaments
8. Recommend bed rest
9. If psycho-social stressors are significant, referral for cognitive behavioral therapy
10. Teach good lifting techniques
11. Review his sleep habits and recommend appropriate sleep hygiene techniques
12. Inform him that slow and steady recovery is likely in most patients with uncomplicated lower back pain

5. This patient asks to be educated about low back pain so that he and his wife can discuss treatment options. Which of the following are accurate statements to share with this patient and his wife? (select all that apply)

6. Back pain is an uncommon disorder
7. Back pain usually leads to permanent disability
8. Recovery is uncommon and takes years when it does occur
9. Back pain often resolves on its own
10. Surgical interventions are not needed in most situations

6. Which of the following non-pharmacological treatments have been found effective for patients with chronic low back pain? (select all that apply)

6. Cognitive behavioral therapy
7. Specific back muscle strengthening exercises
8. Prolonged bed rest with severe physical movement restriction
9. Weight loss, if person is overweight
10. Posture training, particularly when sitting for prolonged periods of time

7. Which of the following are appropriate initial medications to recommend as management of this patient's low back pain? (select all that apply)

5. Acetaminophen
6. NSAIDs
7. Opioids
8. SNRIs

8. Which of the following explain(s) the effectiveness of SNRIs for low back pain? (select all that apply)

5. SNRIs improve pain by reducing anxiety.
6. SNRIs improve pain by reducing depression.
7. SNRIs improve pain through a direct effect on the descending pain pathway.
8. SNRIs improve pain by improving sleep.

9. At a six month follow-up visit, the patient states that he initially had some relief with the pharmacological treatment, but now is in more pain than ever. His functional limitations are such that he is seriously thinking about

quitting his job. Which of the following are appropriate medications to recommend as management of this patient's low back pain? (select all that apply)

5. Acetaminophen
6. NSAIDs
7. Opioids
8. SNRIs

10. Which of the following statements represent your views on the use of opioids in patients with chronic low back pain? (select all that apply)

6. They are almost always contraindicated
7. They are appropriate if first line therapy has failed
8. Opioid use in low back pain is usually quite safe as these patients rarely develop tolerance or physical dependence
9. Opioids are best reserved for chronic low back patients with failed back surgery syndrome
10. Opioid use should be considered on a case by case basis, and then monitored carefully

11. Which of the following is/are appropriate reasons to refer to a spine surgeon or an interventional pain specialist? (select all that apply)

5. Conservative treatment with non-pharmacological and pharmacological treatment has failed
6. The patient's personal and occupational functioning is severely deteriorating because of pain
7. Specific physical findings strongly suggest nerve root compression
8. The patient's MRI findings reveal a specific intervertebral disc pathology that is impinging on a nerve root

12. Which of the following are important to assess when your patient is seen for a follow up visit? (select all that apply)

6. Compliance with non-pharmacological and pharmacological treatment recommendations.
7. Side-effects or adverse reactions occurring from medications.
8. Treatment effect on Activities of Daily Living (ADL).
9. Resolution or improvement in psychosocial issues.
10. Compliance with preventative measures.

Osteoarthritis (OA)

The following items represent clinical competencies in the management of osteoarthritis. For each competency, please indicate your present ability to the left, and your desired ability to the right.

Present Ability [Low, High]

1. Differentiate between OA and other forms of inflammatory arthritis in your patient population (including appropriate lab tests, imaging, and aspiration).
2. Identify atypical presentations of osteoarthritis.
3. Identify co-existing conditions that alter the presentation or management of osteoarthritis.
4. Evaluate the overall impact of OA on the patients well being (physical, psycho-social, quality of life).
5. Educate the patient and caregivers on their disease.
6. Select the most appropriate non-pharmacological therapy for the patient.
7. Recognize when aspiration and/or joint injection are indicated.
8. Acknowledge OTC medications that patients are taking in order to maximize benefit and minimize risk to the patient.
9. If medication is used, select the type and dose best suited to the patient.
10. Recognize common side effects including serious upper GI events, and potential drug interactions of each pharmacological therapy.
11. Follow-up with patients to assess progress and compliance and then adjust the treatment plan accordingly.

12. Seek medical or surgical consultation or referral when appropriate.

Please indicate your level of agreement with the next 3 statements: With regard to osteoarthritis... (Each respondent rated 1-Low, 5-High)

1. The way I practice in this clinical area is acceptable to me.
2. I may need to examine one or more of my clinical practices in this area.
3. I plan to change the way I practice in this area in the near future.

Reflecting on your own experience in osteoarthritis management, please rate the following statements according to the extent you see each as a barrier to best practice.

1. Radiologic studies do not correspond with the severity of pain.
2. Medication choice is difficult due to the presence of co-morbidities.
3. Pain medications lose their effect over time.
4. Patient compliance with exercise is difficult for these patients.
5. There is little scientific evidence for medication selection for osteoarthritis patients.

A 70 year old female reports bilateral knee pain (worse on left side) which worsens after moderate walking. Rest appears to help. The pain started 4 years ago and is progressively worsening. Because of this pain, she has limited her activities of daily living (e.g. going to evening walks, doing grocery shopping, etc) At the urging of her family, she is visiting her clinician, apologizing for asking for help with “normal aging aches and pains”.

1. Which of the following would be part of the first visit for a patient presenting with a chronic knee pain? (select all that apply)

5. Obtain a longitudinal history of knee pain
6. Conduct a physical examination of the knee
7. Assess to see if other joints are involved and if a systemic inflammatory/ auto-immune disorder is present
8. Review findings of previous imaging studies (x-rays, MRI)

2. If there is a question of degeneration vs. inflammation, which of the following might assist in making the differential diagnosis? (select all that apply)

6. Aspirate the knee joint and send to pathology for evidence of inflammation
7. Order x-rays of the knee and inform the radiologist that you are trying to differentiate the two conditions
8. Order laboratory tests such as CBC, ESR, RA, etc.
9. Request consultation from a rheumatologist
10. If one type is arthritis is found, assume the other type is automatically absent

3. As part of the evaluation of painful degenerative osteoarthritis of the knee, which of the following should be part of the workup? (select all that apply)

6. Osteopenia and osteoporosis
7. Serum calcium level
8. Serum vitamin D levels
9. Presence of co-existing meniscal and cruciate ligament problems
10. Presence of other joint osteoarthritis (such as hip, ankles, etc) that can also affect mobility

4. When evaluating the impact of the painful osteoarthritis on this patient’s life, for which of the following should you inquire? (select all that apply)

6. Limitations in Activities of Daily Living (ADL) as a result of the pain caused by the arthritis
7. Presence of transportation challenges (eg – trouble walking to the bus station) that are now reducing the

quality of life for this patient

8. Presence of psycho-social adversities that are further reducing her quality of life
9. Presence of any sleep disruption caused by the knee pain
10. Presence of co-existing prescription drug misuse, abuse or dependence

5. You interview and examine this patient and rule out inflammatory arthritis. Based on exam and x-rays, you diagnose her with degenerative osteoarthritis. Which of the following non-pharmacological treatments are helpful in patients with chronic osteoarthritis related pain? (select all that apply)

5. Regular, gradual, resistance training (weight lifting) that focuses on strengthening the muscles surrounding her knees (extensors and flexors)
6. Increasing the range of movement of her knee joint
7. Non-weight bearing aerobic exercising (such as heated pool, stationary biking, etc)
8. A vigorous running program

6. The patient inquires about the use of OTC medications for pain management. Which of the following is/are true? (select all that apply)

5. OTC medications such as acetaminophen, ibuprofen, etc. are useless for OA pain and standard guidelines strongly recommend against them (*Note: the expert marked this as correct, but I think that was an error - Amy*)
6. OTC nearly always work and once diagnosis is made further intervention is rarely needed
7. OTC medications such as glucosamine and chondroitin have been clinically proven to be effective in OA
8. OTC medication use needs to be carefully monitored by the clinician to make sure no significant adverse events develop

7. Which of the following is appropriate advice to offer to the patient and her family related to pharmacologic treatment? (select all that apply)

6. Opioids are first line as they are such effective pain medications
7. Multiple classes of medications are effective for her condition and individualized medication selection is crucial
8. NSAIDs and acetaminophen are among the recommended options available
9. No matter which medication is chosen, avoidance of both under and over dosing is a crucial issue
10. To diminish adverse events, slow titration is usually appropriate

8. Which of the following are appropriate medications to recommend for management of this patient's osteoarthritis? (select all that apply)

5. Acetaminophen
6. NSAIDs
7. Opioids
8. SNRIs

(correct answers not listed -Amy)

9. The patient and family ask the clinician about side-effects of medications. Which of the following are good points to share with the patient about medication side effects? (select all that apply)

6. With certain medications (such as NSAIDs) serious GI side-effects such as bleeding, while rare, can occur and one should be vigilant about it
7. 'Start low, go slow' is a valuable clinical tool to use when titrating medications, particularly in elderly patients
8. Before starting any new medication, check with pharmacist and/or clinician to avoid drug-drug interactions
9. Common side-effects such as nausea can occur initially and taking medication with food and gently increasing dose is often helpful

10. OTC medications can have drug-drug interactions with prescription medications so their use should be reported to the clinician

General

Please rank the following conditions as to the difficulty in diagnosis? (1=most difficult, 3=least difficult)

- Fibromyalgia _____
- Low back pain _____
- Osteoarthritis _____

Please rank the following conditions as to the difficulty in treatment? (1=most difficult, 3=least difficult)

- Fibromyalgia _____
- Low back pain _____
- Osteoarthritis _____

How long have you been in practice?

1. Less than 10 years
2. 10 – 20 years
3. More than 20 years

Approximately how many patients do you see in a typical week?

1. Fewer than 50
2. 50 – 100
3. 101 – 150
4. More than 150

Approximately how many chronic pain patients do you treat in a typical week?

1. Fewer than 10
2. 11 – 25
3. 26 – 50
4. More than 50

Your gender

1. Male
2. Female

Type of practice

1. Solo
2. Small primary care group
3. Large primary care group
4. Multi-specialty group

Your practice setting

1. Urban
2. Suburban
3. Rural

Please click Submit to submit your survey responses.

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