



The 'backbone' of Low Back pain

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Learning Objectives

1. Differentiate between Acute, Sub-Acute, & Chronic back pain.
2. Recognize the red flags that represent a clear indication for imaging.
3. Discuss the appropriate use of evidence-based pharmacotherapy and non-pharmacologic treatment options.
4. Identify how an individual's mental health can impact chronic back pain progression.



Disclosure

I have no actual or potential conflict of interest in relation to any product or service mentioned in this program or presentation.





General Information

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- up to 84% of all adults have low back pain at some time in their lives
- one of the more common reasons for a primary care visit
- Rapid improvement in pain and disability and return to work are the norm within the first month
- While the long-term outcome of low back pain is generally favorable and episodes are self-limited for most people, symptoms may persist beyond 12 weeks for some, and even among those no longer seeking care
- Rarely, back pain is a harbinger of serious medical illness.
- Several terms are used to describe conditions related to the back, based upon radiologic findings (eg, spondylosis), physical findings (radiculopathy), and symptoms (sciatica).
- The vast majority of patients seen in primary care (>85%) will have nonspecific low back pain, meaning that the patient has back pain in the absence of a specific underlying condition that can be reliably identified – some musculoskeletal
- Among patients who present with back pain to primary care settings, less than 1% will have a serious etiology (cauda equina syndrome, metastatic cancer, and spinal infection). Almost all patients with these conditions will have risk factors or other symptoms





DEFINITIONS

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Patients with low back pain are categorized into three groups according to the duration of symptoms:

- **Acute low back pain** – Pain lasting *up to 4 weeks*
- **Subacute low back pain** – Pain lasting *between 4 to 12 weeks*
- **Chronic low back pain** – Pain lasting *greater than 12 weeks*





Risk factors for low back pain

Risk factors for Low back pain

- smoking,
- obesity,
- age,
- female sex,
- physically strenuous work,
- sedentary work,
- psychologically strenuous work,
- low educational attainment,
- Workers' Compensation insurance,
- job dissatisfaction,
- psychologic factors such as somatization disorder, anxiety, and depression



CASE STUDY

- Mr. Vartak is a 35-year-old man with a history of depression who presents to your office with low back pain. He rates the pain as 7 out of 10. He localizes the pain to the midline of his lower back. It does not radiate. The pain started gradually about 2 weeks ago and has been steady. He has no known trauma to the back.
- Currently nothing in particular makes Mr. Vartak's back pain better or worse. He has tried ibuprofen 200 mg twice a day as well as ice and heat. He requests benzodiazepines to relieve his pain and an MRI to figure out what is wrong.





Acute low back pain (‘Mechanical’)

Causes of Acute low back pain

- **Nonspecific back pain** - absence of a specific underlying condition that can be reliably identified
 - The vast majority of patients seen in primary care (>85 %) will have nonspecific low back pain,

- **Serious Etiologies** –

- **Spinal cord or cauda equina compression** – many causes of cauda equina syndrome, the most common being herniation of the intervertebral disc
- **Metastatic cancer** – can cause cauda equina syndrome
- **Spinal epidural abscess** -
- **Vertebral osteomyelitis** -

- **Less Serious Causes:** -

- **Vertebral compression fracture** – 4% of PCP presentations w LBP, Risk factors for osteoporotic fracture include advanced age and chronic glucocorticoid use, significant trauma or presence of contusion or abrasion, or recent mild trauma (can occur without trauma)
- **Radiculopathy** - refers to symptoms or impairments related to a spinal nerve root. Damage to a spinal nerve root may result from degenerative changes in the vertebrae, disc protrusion, and other causes. >90% are L5 and S1
- **Spinal stenosis:**- multifactorial. Spondylosis (degenerative arthritis affecting the spine), typically affecting patients >60 years. *Ambulation-induced pain* localized to the *calf and distal lower extremity* resolving with sitting or leaning forward ("pseudoclaudication" or "neurogenic claudication") is a **hallmark** of lumbar spinal stenosis.



Comparison of symptoms in neurogenic and vascular claudication

Symptoms	Neurogenic	Vascular
Quality	Pain/numbness/tingling/weakness	Pain/cramping/tightness
Increased with walking	Yes	Yes
Relieved walking flexed with a cart	Yes	No
Relieved standing erect	No	Yes
Relieved sitting/lying	Within minutes	Immediate
Increased walking uphill/upstairs	No/less	Yes
Increased walking downhill	Yes/more	Yes
Increased biking/back flexed	No	Yes
Increased biking/back extended	Yes	Yes



Causes of Acute low back pain

- **Axial spondyloarthritis** (includes ankylosing spondylitis and nonradiographic axial spondyloarthritis)
 - Ankylosing spondylitis is more common among males <40yo , Cause of <5% Chronic LBP
- **Osteoarthritis** – most commonly >40yo, LBP may be a symptom of osteoarthritis of the facet joints spine, Pain is typically exacerbated by activity and relieved by rest
- **Adolescent idiopathic Scoliosis and hyperkyphosis** of older age
- **Psychologic distress** ** - depression or somatization may contribute to the severity symptoms of low back pain or may be a cause of nonorganic back pain, prevalence of somatic symptom disorder is unclear . risk factors include female sex, history of sexual abuse or other childhood trauma, and concurrent general medical and psychiatric disorders
- **Etiologies outside the spine** – eg. etiologies include pancreatitis, nephrolithiasis, pyelonephritis, abdominal aortic aneurysm, or herpes zoster

There are also clinical entities that are possibly associated with low back pain symptoms:

- **Piriformis syndrome** - piriformis muscle, a narrow muscle located in the buttocks, compresses or irritates the sciatic nerve
- **Sacroiliac joint dysfunction** - describe pain in the region of the sacroiliac joint believed to be due to malalignment or abnormal joint movement, is a controversial topic. injections of the sacroiliac joint have been unreliable in diagnosis and treatment
- **Bertolotti's syndrome** – related to transitional vertebra is known as "Bertolotti's syndrome."It is a congenital anomaly with a naturally occurring articulation or bony fusion between the transverse processes of L5 and the sacrum. should initially be treated similarly as patients with nonspecific back pain. Whether and when surgical intervention is appropriate remains unclear.



Clinical manifestations of osteoarthritis

Age of onset
Usually after age 40
Commonly affected joints
Cervical and lumbar spine
First carpometacarpal joint
Proximal interphalangeal joint
Distal interphalangeal joint
Hip
Knee
Subtalar joint
First metatarsophalangeal joint
Uncommonly affected joints
Shoulder
Wrist
Elbow
Metacarpophalangeal joint
Symptoms
Pain without significant swelling or other inflammatory characteristics
Stiffness, if present, worse after effort; may be described as evening stiffness
Findings on physical examination
Crepitus
Bony enlargement
Decreased range of motion
Malalignment
Tenderness to palpation
Synovial fluid analysis
Clear fluid
WBC <2000/mm ³
Normal viscosity
Radiographic features
Joint space narrowing
Subchondral sclerosis
Marginal osteophytes
Subchondral cysts
Patterns of presentation
Monoarticular in young adult
Pauciarticular, large-joint in middle age
Polyarticular generalized
Rapidly progressive
Secondary to trauma, congenital abnormality, or systemic disease
Prognosis
Variable, generally slowly progressive

WBC: white blood cells.



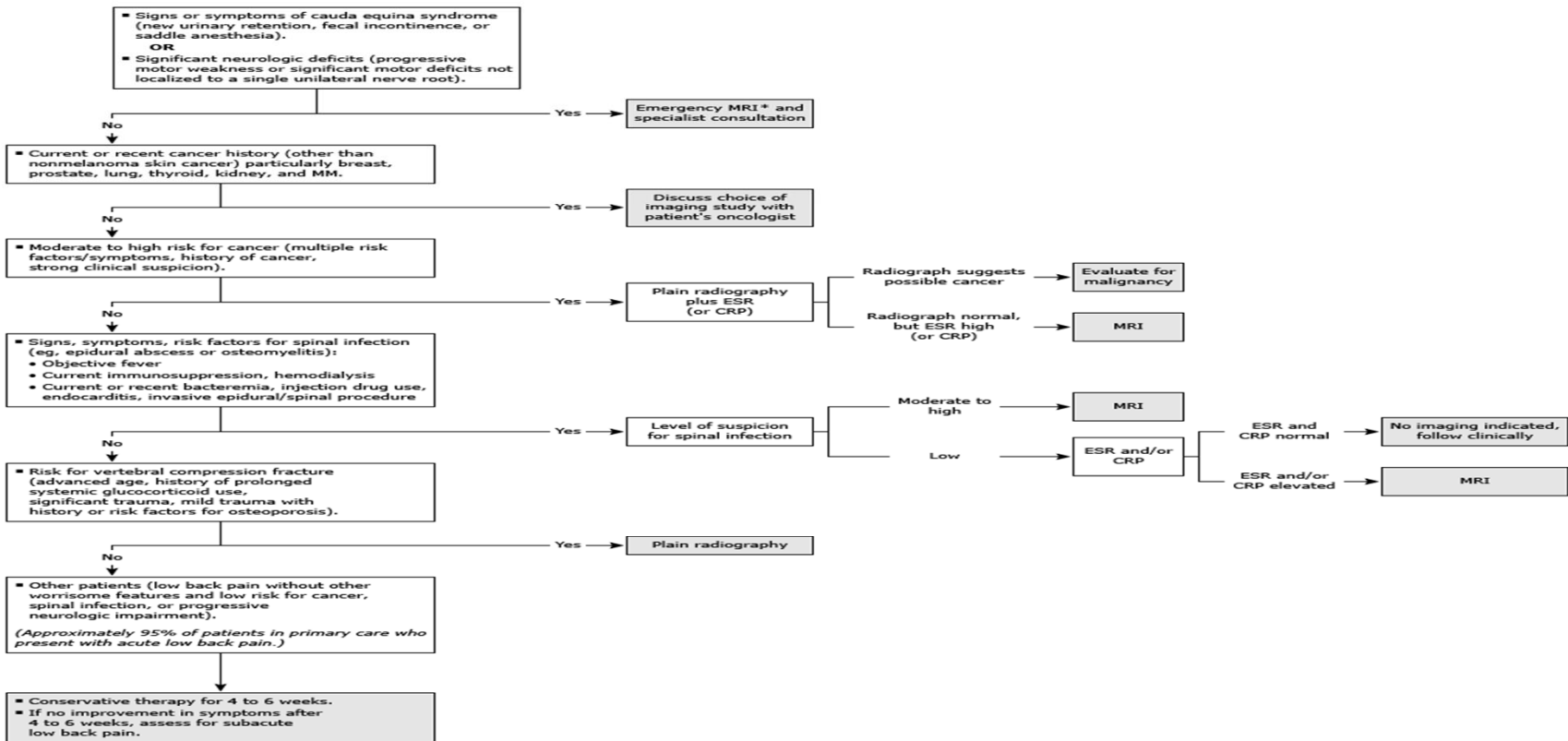
Evaluation: imaging tests

- The majority of patients with low back pain of less than four weeks duration do not require imaging **
- Joint guidelines from the American College of Physicians (ACP) and the American Pain Society explicitly recommend that "clinicians should not routinely obtain imaging or other diagnostic tests in patients with nonspecific low back pain" and reserve imaging for patients with severe or progressive neurologic deficits or when serious underlying conditions are suspected on the basis of history and physical examination.
- Among patients seen in primary care, <1% will have a serious systemic etiology that requires evaluation with immediate advanced imaging
- **red flags** associated with the highest post-test probability of a vertebral fracture were *older age, prolonged use of corticosteroids, severe trauma, and presence of contusion or abrasion*
- Indications for imaging in the presence of neurologic symptoms depends upon the nature of the symptoms and the patient's risk factors for cancer and/or an infectious etiology of back pain in which case an MRI is most appropriate **
- LBP with no improvement *after 12 weeks*
 - Consider plain X-ray and need for referrals for further evaluation and treatment. **
- LBP with radiculopathy attributable to a single nerve root level & no improvement after 4-6 weeks of conservative therapy.
 - Consider MRI There is no indication to re-image



Acute low back pain: Considerations for imaging

This algorithm is intended to assist with the evaluation of patients with acute (<4 to 6 weeks) low back pain in whom imaging is being considered. Most patients (95%) will not require immediate imaging.
Exclusion: History of significant trauma.



MRI: magnetic resonance imaging; MM: multiple myeloma; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; CT: computed tomography.

* Lumbar spine MRI without contrast is usually appropriate. If there is concern for cancer or infection or if there is history of prior surgery at the site, MRI without and with contrast is recommended. CT with contrast is the alternative exam if MRI is contraindicated.

American College of Physicians best practice advice: Diagnostic imaging for low back pain

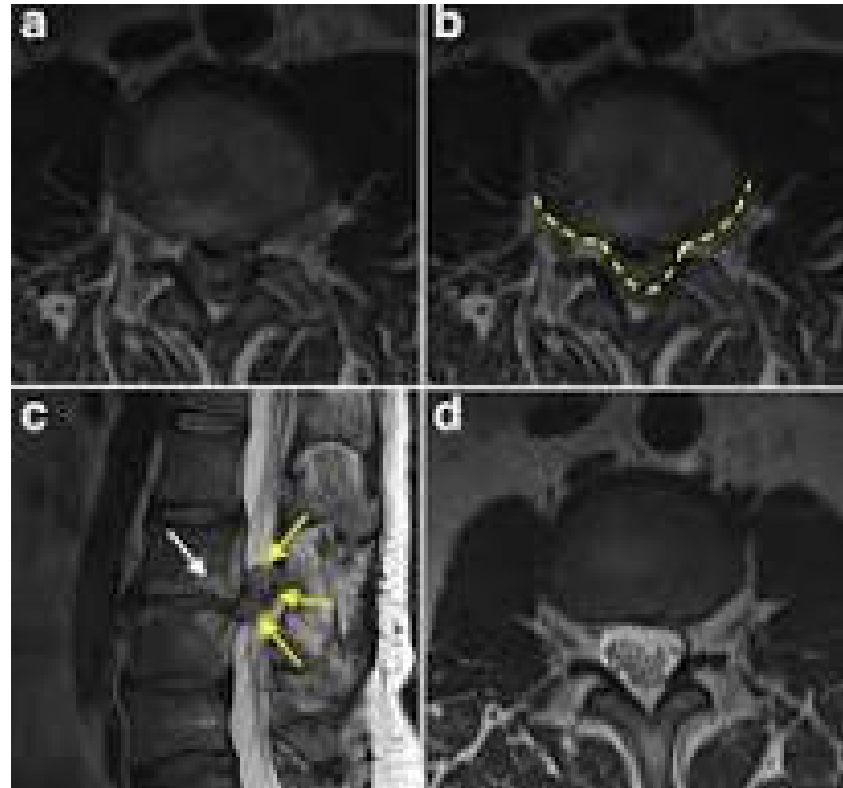
Diagnostic imaging techniques	<p>Radiography</p> <p>Computed tomography (CT)</p> <p>Magnetic resonance imaging (MRI)</p>
Indications for diagnostic imaging	<p>Radiography is recommended in patients with acute low back pain who have major risk factors for cancer (new onset of low back pain with history of cancer, multiple risk factors for cancer, or strong clinical suspicion for cancer).</p> <p>MRI is recommended in patients with acute low back pain who have risk factors for spinal infection (new onset of low back pain with fever and history of intravenous drug use or recent infection), risk factors for or signs of the cauda equina syndrome (new urinary retention, fecal incontinence, or saddle anesthesia), or severe or progressive neurologic deficits.</p> <p>Radiography is recommended after a trial of therapy in patients with minor risk factors for cancer (unexplained weight loss or age >50 years), risk factors for ankylosing spondylitis (morning stiffness that improves with exercise, alternating buttock pain, awakening because of back pain during the second part of the night), risk factors for vertebral compression fracture (history of osteoporosis, glucocorticoid use, significant trauma, or older age [>65 years for men or >75 years for women]).</p> <p>MRI is recommended after a trial of therapy in patients with signs/symptoms of radiculopathy (back pain with leg pain in an L4, L5, or S1 nerve root distribution or positive result on straight leg raise or crossed straight leg raise test) who are candidates for surgery or epidural steroid injection. MRI is also recommended in patients with risk factors for or symptoms of symptomatic spinal stenosis (radiating leg pain, older age, or pseudoocclusion) in patients who are candidates for surgery.</p> <p>MRI is generally preferred over CT scan for most cases of low back pain. CT scan may help visualize bony abnormalities and is used when patients have a magnetic implant that is not suitable for MRI.</p> <p>Repeated imaging is only recommended in patients with new or changed low back symptoms.</p>
Evidence that expanding imaging to patients without these indications does not improve outcomes	<p>Randomized trials of routine imaging versus usual care without routine imaging in patients without indications for diagnostic imaging suggest no clinically meaningful benefits on outcomes related to pain, function, quality of life, or mental health.</p> <p>Other supporting evidence includes the weak correlation between most imaging findings and symptoms, the favorable natural history of acute low back pain with or without imaging, the low prevalence of serious or specific underlying conditions, and unclear effects of imaging on treatment decisions.</p>
Harms of unnecessary imaging	<p>Radiation exposure (for lumbar radiography and CT)</p> <p>Labeling</p> <p>Hypersensitivity reactions and contrast nephropathy (for iodinated contrast with CT)</p> <p>Potential association with subsequent unnecessary, invasive, and expensive procedures</p>
Approaches to overcome barriers to evidence-based practice	<p>Patient expectations or preferences for routine imaging: Use talking points based on evidence-based guidelines to aid in patient education</p> <p>Time constraints: Use evidence-based online or print education material to supplement face-to-face education</p> <p>Clinician uncertainty: Recognize the low likelihood of serious conditions in the absence of clinical risk factors and the evidence that shows no benefit associated with routine imaging</p> <p>Clinician incentives based on patient satisfaction: Advocate for incentives that are based on providing appropriate care</p>
Talking points for clinicians when discussing low back pain imaging with patients	<p>Risk factor assessment can almost always identify patients who require imaging</p> <p>The prevalence of serious underlying conditions is low in patients without risk factors</p> <p>The natural history of acute low back pain is quite favorable, but patients require reevaluation if they are not better after about one month</p> <p>Routine imaging does not improve clinical outcomes but increases costs and may lead to potentially unnecessary invasive treatments, such as surgery</p> <p>Imaging abnormalities are extremely common, especially in older adults, but most are poorly correlated with symptoms</p> <p>In most cases, treatment plans do not change after imaging studies</p> <p>Back imaging is associated with radiation exposure, which can increase the risk for cancer in the case of lumbar radiography and CT</p>

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Causes of Acute low back pain

Spinal cord or cauda equina compression

- Cauda Equina - The collection of nerves at the end of the spinal cord, due to its resemblance to a horse's tail. The spinal cord ends at the upper portion of the lumbar (lower back) spine
- **Symptoms** (3 classic) :
 - Pain is usually the first symptom of cord compression
 - motor (usually weakness) and sensory findings are present in the majority of patients at diagnosis.
 - Bowel and/or bladder dysfunction are generally late findings
- **Early diagnosis** and treatment improves outcomes
- **Outcome:** many are still able to walk, either independently, or with the use of walking aids. Walking any distance may be limited and could cause significant fatigue, pain and limit independence.
- **RED FLAGS:** bladder dysfunction, bowel dysfunction, pain and/or altered sensation in the legs, loss of sexual sensation, and saddle numbness.



Causes of Acute LBP -

Metastatic cancer to bone

Metastatic cancer to bone- The bone is one of the most common sites of metastasis.

- 80% of bone mets are due to solid cancers from breast, prostate, lung, thyroid, and kidney cancers
- 60% of multiple myeloma have skeletal lytic lesions present at diagnosis

<1% will have a serious symptoms of spinal cord or cauda equina compression or progressive and/or severe neurologic deficits that requires evaluation with immediate advanced imaging

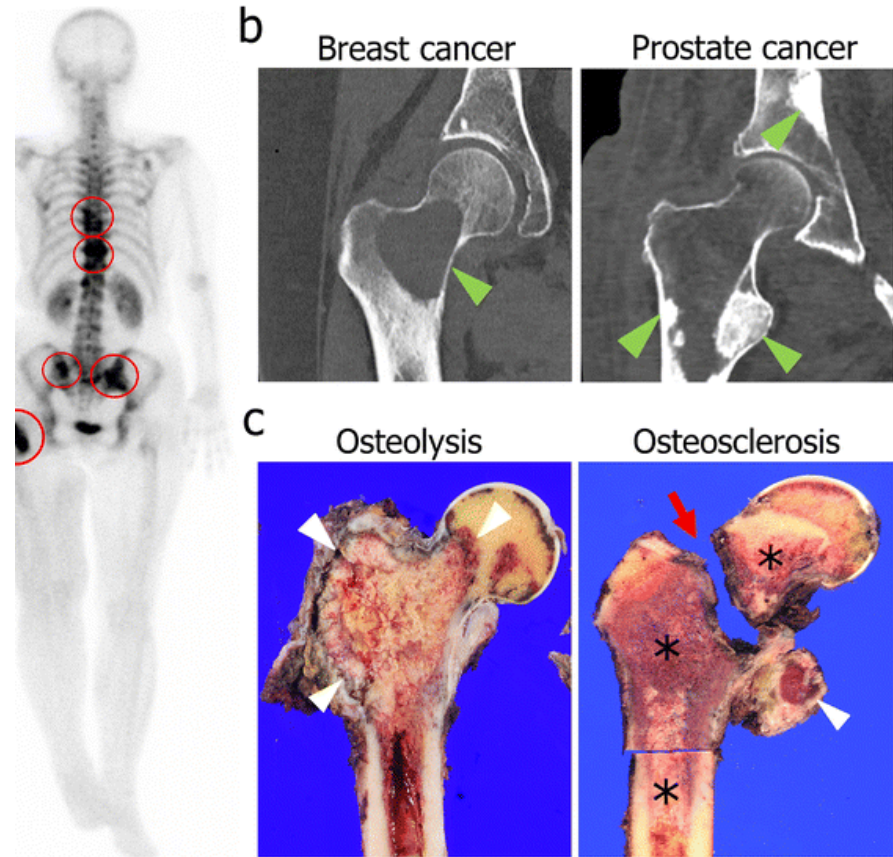
Risk Factor:- A history of cancer (excluding nonmelanoma skin cancers) is the strongest risk factor .

Symptoms - Pain is the most common symptom ;

Early diagnosis and treatment of cancer improves outcomes

Outcome:

- **RED FLAGS:** with a history of cancer, sudden, **severe pain raises concern for pathologic fracture** ; **neurologic symptoms** may occur from either spinal cord compression or spinal instability.



Spinal epidural abscess (SEA)

Spinal epidural abscess (SEA) – a rare but serious cause of back pain. most patients present to health care providers multiple times before the diagnosis is made. Median time to diagnosis of SEA despite the presence of red flags was 12 days, compared with 4 days in other cases.

Risk Factor:- recent spinal injection or epidural catheter placement, injection drug use, and other infections (eg, contiguous bony or soft tissue infection or bacteremia). Immunocompromised state, ESRD/HD,

Symptoms - Initial symptoms (eg, fever and malaise) are often nonspecific

- Over time, localized back pain may be followed by radicular pain and left untreated, neurologic deficits.

Early diagnosis – MRI immediate, surgical drainage and immediate antibiotic therapy.

Outcome: neurologic deficits

RED FLAGS :- unexplained weight loss, neurologic deficits, and fever



Causes of Acute LBP – Vertebral osteomyelitis

Vertebral osteomyelitis – increases with age, males are more commonly affected than females.

Risk Factor:- immunocompromised state and injection drug use, DM, spinal hardware, ESRD/HD, recent bacteremia/endocarditis

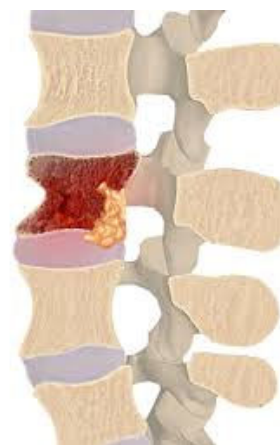
Symptoms - present with back or neck pain which gradually increases, fever may or may not be present,

- most common clinical finding is local tenderness to percussion over the involved posterior spinous processes.

Early diagnosis – early detection (MRI) & intervention with antibiotic

Outcome: mortality <5% (due to comorbid dx) -Most cases of vertebral osteomyelitis respond to antimicrobial therapy; most pain resolves few cases have chronic back pain. Surgery is necessary in a few w red flags

RED FLAGS :- worsening neurologic deficits, abscess ,acute cord compression/spinal instability



CASE STUDY

- Mr. Vartak is a 35-year-old man with a history of depression who presents to your office with low back pain. He rates the pain as 7 out of 10. He localizes the pain to the midline of his lower back. It does not radiate. The pain started gradually about 2 weeks ago and has been steady. He has no known trauma to the back.
- Currently nothing in particular makes Mr. Vartak's back pain better or worse. He has tried ibuprofen 200 mg twice a day as well as ice and heat. He requests benzodiazepines to relieve his pain and an MRI to figure out what is wrong.



Questions to ask?

What additional history will you obtain to determine if this 35-year-old man has any red flag symptoms that would suggest a need for imaging or other studies to evaluate his low back pain?



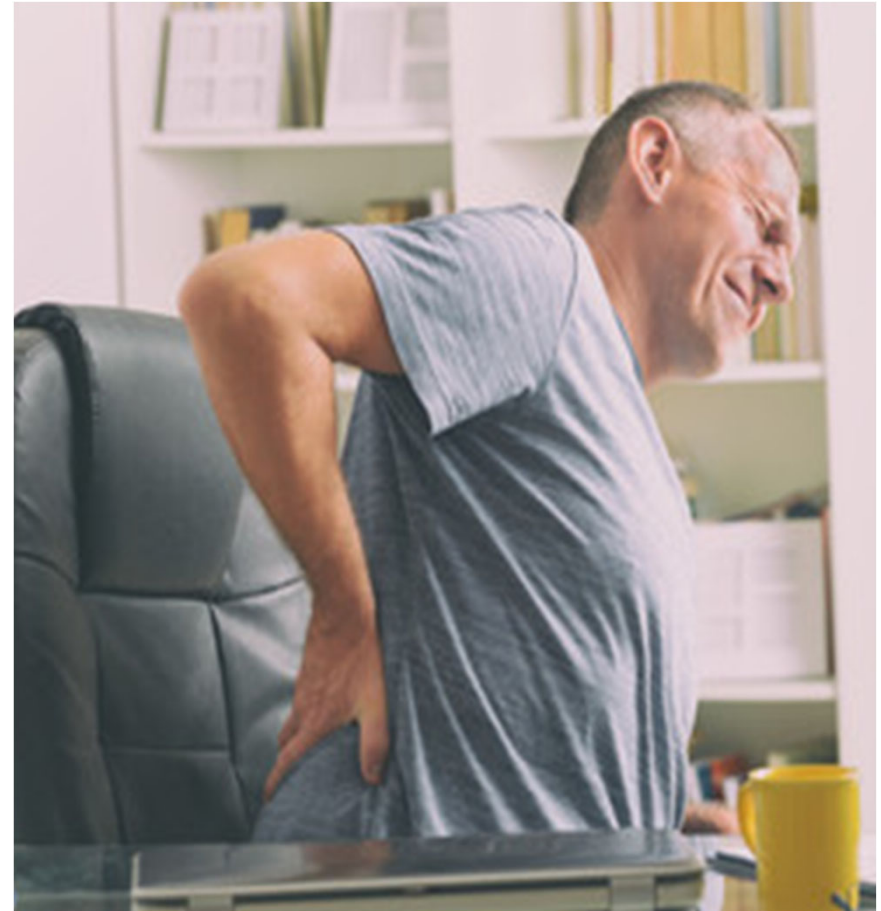


**Please place answers in
the chat.**

Any Biomedical Red Flags?

Because of his age, you consider Mr. Vartak's risks for axial spondyloarthritis (ankylosing spondylitis), cauda equina syndrome, or infection. You are less concerned about cancer, but assess that due to his concerns.

1. He has no leg numbness or tingling and no urinary retention, **making cauda equina syndrome unlikely.**
2. The pain does not wake him from sleep, does not improve with exercise, and does not alternate from side to side, **making axial spondyloarthritis unlikely.**
3. He does not use intravenous drugs and has no fevers, **making infection unlikely.**
4. He also reports no weight loss; along with the lack of sleep disruption, **this makes malignant pain unlikely.**



Perform a Psychosocial Assessment

- Given the absence of red flag biomedical symptoms, you continue your biopsychosocial assessment by also **exploring the psychosocial impact of pain on his life**. Your continued interview includes assessment of the status of his depression.
- Below are examples his psychosocial exploration, along with responses from Mr. Vartek.
- As you review Mr. Vartek's responses, note how they might change your approach to setting goals of therapy and establishing a treatment plan.



Psychosocial assessment

- What questions about his mental wellbeing and social situation are you going to ask?
- What will help you better understand what may be ailing him?





**Please place answers in
the chat.**

Psychosocial interview

- “I’ve been depressed before and I slept all the time, lost interest in things and gained 50 lbs. I was always tired and had no motivation. Talk therapy and bupropion helped me.”
- “But I feel ok now. I just feel worried and anxious that this pain is something bad. I can’t focus on any thing else. I’ve searched the internet for causes and its scary. I’m worried I will never feel better”
- “usually, to feel better I go to the gym, exercise, boxing and lift weights, but I can’t do that now”
- “socially, well I live alone, I just moved here. I don’t know many ppl and my apartment is pretty empty; it’s lonely”
- “ I am close to family but they liver far away, I don’t have many friends locally. The pain keeps me from doing things and meeting people”



Refection and exam

- What physical exam components will you focus on in your examination? What body area other than the spine will you assess?





**Please place answers in
the chat.**

Exam for LBP

A focused exam for low back pain includes :

- Gait examination
- Inspection/palpation of the back/spine
- Neurologic examination
- Straight leg raise
- Hip examination



Results of examination

- Mr. Vartak appears well but slightly disheveled.
- Exam reveals discomfort and stiffness with movement, but he is able to walk on his heels and toes without difficulty. He has pain on back flexion and extension, but spine range of motion is intact.
- He reports *generalized* tenderness to palpation of the entire bilateral lower lumbar region, including the paraspinal muscles, but without focal spinous process tenderness.
- Strength of hip flexion and knee extension is 5/5 bilaterally, reflexes are 2+ patellar & Achilles tendons bilaterally. Sensation is intact to light touch of the BLE –
- Straight leg raise is negative bilaterally.
- Hips show full range of motion without pain.
- consider mental wellness concerns
- Unlikely significant joint issues, major arthritis, or injury, possible OA
- more muscularskeletal, unlikely infectious due to generalization
- likely no nerve damage
- likely no nerve pinching
- likely not OA, arthritis





What about his mood?
What do you want to know?



**Please place answers in
the chat.**

What about his Mood?

- Mr. Vartek's mood is not obviously depressed, and he is not suicidal, but he is expressing some anxiety about his health.
- He says *“I’m worried that cancer is causing this pain and I would like an MRI.”*





**Would you recommend
further evaluation, such as
imaging?**



**Please place answers in
the chat.**

FINAL Dx ASSESSMENT

- Mr. Vartek has acute nonspecific low back pain without red flag signs or symptoms that would indicate a need for early imaging.
- His low back pain is likely to resolve within 2 to 4 weeks regardless of treatment.
- *You are concerned however, as he expresses fear of being active, and he is at increased risk for progression to subacute or chronic back pain due to his prior history of depression*
 - **BUT**
- You have not addressed his concerns – which are?



Meeting the patient's needs and concerns – Patient centric and Patient informed decision

- Mr. Vartak has shared his worry that cancer is causing his pain, and he is asking for an MRI. He is also requesting benzodiazepines for relief of his pain.
- How would you respond to his questions and concerns?
 - What options will you suggest for medication treatment of his acute nonspecific low back pain?



FRUP technique - offer Mr. Vartek a beneficial management plan, and redirect him from his requests for unnecessary imaging and clinically nonindicated medication.

F Frame risks/benefits

R Review discussions

U Use empathy

P Provide options



- 1. provide evidence-based options for pharmacotherapy: oral NSAIDs as first-line agents
- 2. advise against benzodiazepines due to lack of benefit for back pain.
- Other options ?

FRAME- .” It sounds like you have really been suffering alone with this pain for the past 2 weeks. Benzodiazepines are not very good at treating back pain, and they have a lot of adverse effects and safety concerns. I have some ideas about how we can help you feel better and improve your function. I would like to discuss them, and talk with you about your MRI suggestions, so we can come up with a plan that works for you”

REVIEW- “Based on your history and physical exam, I think you have severe and debilitating low back pain that is most likely coming from the bones, joints, and muscles of the low back. Thankfully, there are no signs that you need surgery or need to go to the emergency room. The vast majority of patients with this diagnosis get better within 2 to 4 weeks regardless of what we do. I want to reassure you that I do not think your pain is coming from cancer because you do not have any of the signs or symptoms we usually see in patients with cancer-related back pain. “

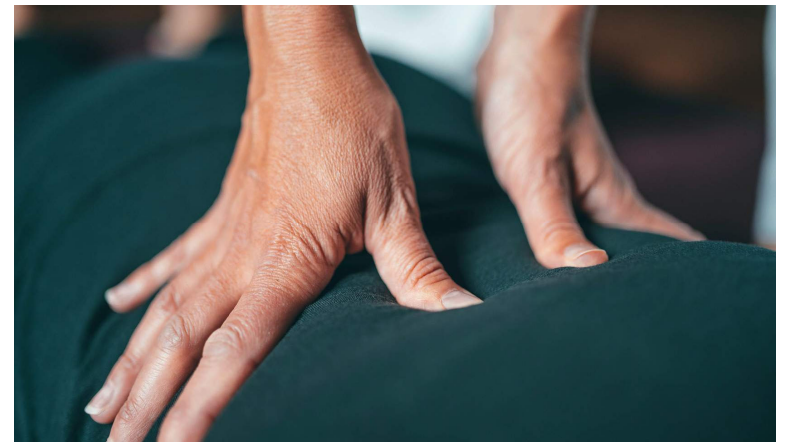
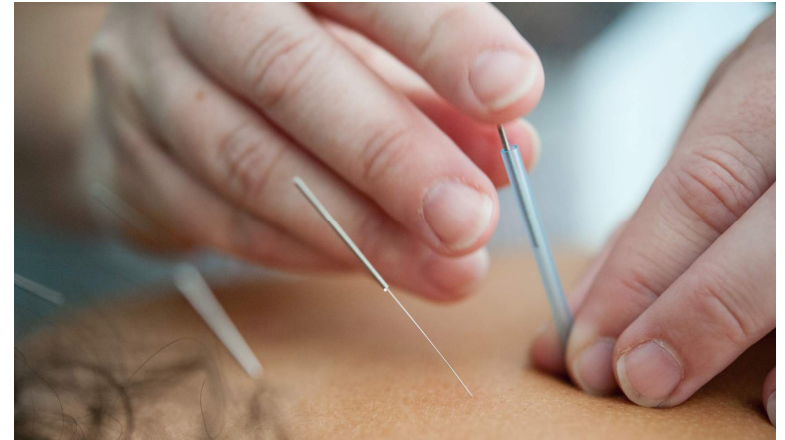
USE EMPATHY – “I’m sorry that this back pain is causing you so much trouble right now. Clearly the pain is causing significant suffering. I am confident that we will be able to decrease the amount of pain you are feeling and get you back to work and the gym. But I also want to be sure you understand that we may not be able to get the pain to go away completely right away. We may need to try several treatments before we find the combination that works best for you.”

PROVIDE OPTIONS – “Because you do not have signs of cancer and you do not need surgery, we do not need to do an MRI of your back right now. An MRI would be unlikely to change the treatment plan. Instead, to help get your pain under control, here's what I recommend: Rx of Naprosyn (lasts longer than Ibuprofen OTC) x2 weeks; Avoid staying in bed- get out of bed every day a little at a time; Apply topical heat to relax muscles spasms that can contribute to pain. . Benzodiazepines are not helpful, have risks and side effects – not recommended. “



Are there any other options?

- **Nonpharmacologic Multimodality Therapy** (for acute <4wks LBP w risk of progression)
- early physical therapy may decrease progression to chronic pain.
- **Manual Treatment Options**
- **Acupuncture** -limited and inconsistent evidence for benefit of acupuncture in acute back pain and better evidence in chronic low back pain.
- **Massage** - There is no evidence that massage offers clinical benefits, but if a patient chooses massage, it may increase patient satisfaction
- **spinal manipulation (chiropractor)** - associated with modest improvement in pain and function; base recommendation of spinal manipulation on patient preference and access





Sub-Acute Low back pain

Approach to Sub-Acute low back pain

Assess risk for developing Chronic low back pain

- The use of other treatments in addition to self-care advice and exercise therapies depends upon the patients' risk factors for the development of chronic pain and chronic low back pain-related disability.
- Patients with risk factors for the development of chronic low back pain may benefit from different treatment approaches earlier in their presentation.
- By risk stratifying patients, clinicians may be able to refer those at higher risk for additional interventions earlier while avoiding overtreatment in patients who have a high likelihood of recovery
 - Stratification Tools
 - STarT Back (Subgroups for Targeted Treatment) tool: validated as a predictive tool in UK



Approach to Treatment & interventions for Sub Acute low back pain

1) **Lower Risk** – of developing chronic low back pain

- self-care advice and recommend participation in an exercise program (supervised or independent)

2) **Higher Risk** – for developing chronic low back pain,

- recommend participation in a supervised exercise program.

- interventions that address psychosocial contributors to pain.

 - therapies include cognitive behavioral therapy (CBT) or mind-body interventions

 - eg. mindfulness-based stress reduction [MBSR], biofeedback, and progressive relaxation.

- These interventions can be prescribed individually, combined with supervised exercise programs, or coordinated through a multidisciplinary rehabilitation program

- Adjunctive passive therapies for short-term management of symptoms, short-term symptomatic improvement, allowing them to participate in active therapies

 - short-term interventions such as spinal manipulation, acupuncture, or massage.



Treatment & interventions for Sub Acute low back pain

- **Spinal manipulation** - form of manual therapy that involves the movement of a joint beyond its usual end range of motion, but not past its anatomic range of motion
 - has beneficial short-term benefits in the management of subacute and chronic low back pain.
 - Performed by chiropractic providers, osteopathic clinicians and physical therapists
 - Serious adverse events following lumbar spinal manipulation (such as worsening lumbar disc herniation or cauda equina syndrome) are possible but rare
- **Acupuncture** - an intervention consisting of the insertion of needles at specific predetermined acupuncture points
 - Found to be more effective than usual care for low back pain
 - Benefit, when seen, is often within the first seven days of treatment, more effective for immediate pain relief
 - Beware of Sham Acupuncture which is insertion of needles at non-acupuncture points, or applying needles to acupuncture points but not actually inserting them
 - **Massage** - massage therapy delivers only short-term improvement in pain and function compared to no treatment but involves minimal potential for harm
- **Lumbar Support use** - may provide some benefit for patients with subacute low back pain who are actively engaged in recommended therapies and who will remain active



Treatment & interventions for Sub Acute low back pain

• Pharmacologic treatment for more severe pain symptoms

- **1st line** - do not suggest to combine acetaminophen with NSAID
- **NSAIDS** - efficacy of NSAIDs in the management of subacute low back pain is sparse, but the benefits seen in acute back pain likely extend to those with subacute symptoms
 - encouraged to take the lowest effective dose of an NSAID for the shortest period of time
 - data are limited on optimal NSAID dosing strategies
 - reasonable approach is to have the patient take a standing dose for one to two weeks, then decrease the dose and dosing frequency as tolerated.
 - Contraindicated due to allergy or other intolerance, chronic kidney disease, hypertension, peptic ulcer disease, or with cardiovascular disease
- **Acetaminophen** – for patients unable to take NSAIDS ; maximum dose 3 gms per 24 hours (reminder to consider ALL sources of Acetaminophen eg. OTC etc) & use a lower total daily dose for older adult patients and those with any hepatic impairment
- **2nd line** - addition of a **non-benzodiazepine skeletal muscle relaxant** as needed, for sx not well managed with NSAIDs or acetaminophen alone.
 - High-quality data on the use of skeletal muscle relaxants in patients with subacute low back pain are lacking, and the recommendation to use them in this patient population is based upon the efficacy of these medications in patients with acute low back pain
 - Cyclobenzaprine
 - Tizanidine



3 months later.....

What kind of pain does he have now?



Mr. Vartak complains of intermittent pain - televisit

Despite oral NSAIDs and PT, Mr. Vartak continues to have moderate (5 out of 10), intermittent low back pain.

He states that when the pain is present, he cannot go to work. He is spending more and more time at home in bed. **What do you ask?**

There are no new red flag symptoms

He demonstrates good back range of motion. A roommate presses on his vertebral processes under your guidance, with no new focal site of pain identified. **What do we do now?**





**Please place answers in
the chat.**

Sub-acute to chronic pain

- Despite back pain duration and his incomplete response to initial therapy, Mr. Vartak does not have a clear indication for low back pain imaging.
- What additional information in which of the following systems would improve your ability to manage this patient's chronic nonspecific low back pain?
 - General appearance?
 - Muscular skeletal ?
 - Neurologic?
 - Psychiatric?



Mr. Vartak now complains of intermittent pain in a televisit

At this point, it is crucial to assess Mr. Vartak for recurrent depression.

His prior history of a major depressive episode and his lack of response to initial treatment, continued missed days from work, and increased time spent in bed are all clues that he may be suffering from a recurrence of depression.

Depression and chronic pain often coexist, and diagnosing and treating depression may improve his pain and function.

He scores 12 on Patient Health Questionnaire (PHQ)-9





Chronic Low back pain

Treatment & Intervention - Chronic pain and disabling S/S

- **Patients without disabling symptoms or functional impairment**

- with a history of recurrent low back pain, participation in a regular exercise therapy program may help prevent future exacerbations of low back pain , Need to evaluate for mental wellness and concurrent psychiatric conditions

- **Patients with disabling pain and significant functional impairment** with - more severe, persistent, disabling symptoms and significant functional impairment

- **the goal of care is to manage pain, increase function, and maximize coping skills.**

- Utilizing a combination of treatments

- active patient-engaging therapy consisting of a biopsychosocial movement-based intervention approach to pain, aiming to improve function, combined with cognitive behavioral therapy (CBT) and mind-body interventions not just for reducing pain with a mind-body component, including Tai-chi and yoga,

- Psychological & Mind-body therapies -intended for those with significant functional impairment and who exhibit either maladaptive coping behaviors (fear avoidance, catastrophizing) or who cannot participate in exercise

- CBT or mind-body interventions, including Mindfulness-based stress reduction (MBSR), biofeedback, and progressive relaxation.

- Multidisciplinary (Interdisciplinary) rehabilitation coordinated program – for those who failed CBT or MBSR , coordinated by pain clinics or rehabilitation centers

- More intensive therapy - generally combine graded exercise therapy with a psychosocial approach, often involving a psychologist

- **focuses on functional improvement (“functional restoration”) and may emphasize occupational aspects of rehabilitation.**

- Insurance coverage for multidisciplinary rehabilitation programs is variable



Treatment & interventions for Chronic, persistent, disabling chronic LBP & functional impairment

Nonpharmacologic therapy is preferred over pharmacologic therapy for the management of chronic low back pain

The goal of medications is to provide symptomatic relief of pain while allowing the patient to participate in active therapies (exercise and/or psychological treatments), encouraging increased function and improved coping.

- Massage – there is limited evidence to support the long-term efficacy of massage therapy in the treatment of chronic low back pain
- **Adjunctive pharmacologic therapy** for patients with persistent, significant symptoms –
 - 1st line: **NSAIDS** - If only partially effective in controlling symptoms, add 2nd -line pharmacologic therapy; do not use for chronic therapy if they were ineffective in managing subacute LMP Sx
 - **Acetaminophen** is a reasonable alternative (as per Subacute)
 - 2nd line
 - **SNRI**: Duloxetine
 - **Tricyclics** (unless contraindicated due to age, concurrent medications) :Amitriptyline, Nortriptyline, Desipramine- especially for those patients with pain symptoms that interfere with sleep, or for those in whom duloxetine is ineffective or cost-prohibitive.
 - **Opioid Agonist** : Tramadol – as needed initially then progress to standing if needed for control, deescalating dose as pain improves.; use w caution with SUD, Beware of serotonin syndrome and lowered Seizure threshold
 - 3rd line
 - **skeletal muscle relaxant** : cyclobenzaprine or tizanidine – esp if risk of SUD to avoid Tramadol
 - **Opioids** – (reviewed below)
- **Treatments not recommended** :-other antidepressants, Benzodiazepines, Antiepileptics (gabapentin, Pregabalin, Topiramate), Corticosteroids, Glucosamine, Herbal, Cannabis & Cannabinoids

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Opioid Use for Chronic, persistent, disabling chronic LBP & functional impairment

- **OPIOIDS** – use for Chronic LBP is inconsistent with evidence-based care; poor or modest efficacy with the potential for harm
 - should not be used routinely for the management of chronic low back pain
 - restricted to patients not highly vulnerable to drug dependence, misuse, or addiction and only when the potential benefits outweigh the risks;
 - the lowest possible dose should be used, and use should be monitored closely
 - Recommend to lower dose (Morphine Mg Equivalent - MME) by maximizing nonpharmacologic therapies towards goal of deprescribing



Interventions for Chronic, persistent, disabling chronic LBP & functional impairment

- **Intensive education** - data are lacking to support the efficacy of intensive education *as a sole* intervention in the management of chronic low back pain, rather than as an adjunct . Pain neurophysiology education is a particular type of pain education that focuses upon the neurophysiology and psychosocial contributors of pain, rather than on the biomechanical aspects of pain
- **Back school** - provided to groups of patients and supervised by a physical therapist or other therapist trained in back rehabilitation. Developed in Sweden not widely available in the United States
- **Use of lumbar supports** – Benefit is uncertain
- **Firm mattress/Sleeping surface** – inconsistent data : High quality studies are lacking; some say softer back-conforming mattresses lead to improved outcomes
- **Other physical modalities** - there is little evidence of benefit eg. Interferential therapy, Low-level laser therapy, Ultrasound, Shortwave diathermy, Traction, Transcutaneous electrical nerve stimulation (TENS), Percutaneous electrical nerve stimulation (PENS),



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DX :chronic nonspecific LBP complicated by depression

Mr. Vartak meets criteria for recurrent unipolar depression

- **Antidepressant therapy** with duloxetine, to treat both his depression and his pain 4- to 6-week trial
- **CBT** (addressing negative thinking patterns and coping behaviors), to improve both pain and disability in this patient with low back pain.
- **Mindfulness-based stress reduction (MBSR)** (mind-body training to improve relaxation, reduce reactive thoughts, and reduce reinforcement of pain), to improve pain and functioning, with similar efficacy to CBT
- program of **therapeutic exercise** for subacute and chronic low back pain to address decreased strength, endurance, muscle atrophy, and fatigue, which may in turn worsen pain.
- revisit with his physical therapist to supervise a **therapeutic exercise program** and **implement multimodal pain management**.
- **** studies showed that exercise modestly improved pain & function in patients with subacute & chronic LBP. All programs are beneficial & no single approach has been shown to be more efficacious than another.**

ADJUNCTIVE TX:

- **Yoga** - produces small improvements in function and pain in patients with chronic low back pain,
- **Tai Chi** - tai chi *plus* physical therapy has been shown to be more effective than physical therapy alone, better than Yoga
- **Pilates** - similar efficacy to other exercise regimens for low back pain, and a program of 2 to 3 sessions per week has better efficacy than once-weekly sessions.
- **Home stretches** - may be beneficial in reducing symptoms in patients with chronic low back pain
- **Lumbar supports** - have no evidence for efficacy for most patients with acute low back pain



SELF-CARE ADVICE AND EXERCISE FOR ALL PATIENTS

- All patients with subacute or chronic low back pain should receive self-care advice and be encouraged to participate in some sort of exercise or movement-based program (supervised or independent).
- Self-care advice — Self-care advice for all patients with subacute or chronic low back pain includes all of the following:
 - Maintain activity as tolerated
 - Heat
 - Self-care education
- Exercise therapy??



Relevance

FACTS:

- The incidence of low back pain in our population is huge- which leads to medication dependence, or realization of services, increase use of DME, AA, MHM ; increased risk of falls and subsequent injuries; Need for self medication
- The incidence of depression and other mental health conditions is large.
- We have a large substance use disorder and illicit drug dependent problem in our population.

CHANGE IN BELHAVIOR: OPPORTUNITIES – to reduce utilization and prevent (re)admissions

- recognize the connection between depression and anxiety and chronic back pain
- understand how to relate these conditions to the member in an effort to change their outlook of the condition
- consider referral to behavioral health or psychology/ psychiatry for members with chronic back pain or some acute back pain
- know when to intervene to prevent acute back pain from escalating to serve acute or chronic back pain
- consider the recommendation of alternative non pharmacologic treatment as discussed, using apps, contracted vendors, BHA /Optum referral for CBT, mindfulness based stress reduction treatment, self-directed exercise programs etc
- Understand that rarely is imaging recommended for acute back pain and know when it's appropriate to refer to specialists such as orthopedist.





Thank you



UnitedHealthcare Community Plan



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