

Multidisciplinary Management of Low Back Pain

Objectives

- Discuss a differential diagnosis with practice tips.
- Discuss the tools and team members that can assist in management.
- Discuss the evidence and expectations from the tools and team members.

Low Back Pain



- Leading cause of disability among chronic ailments.
- 70-90% of adults will experience LBP in their lifetime.
- Number 2 reason for physician visits after respiratory conditions.
- \$100 billion in medical expenses annually in medical bills, disability and lost productivity.

Making a Diagnosis

- Muscular or Ligamentous
- Mechanical
- Herniated Disk
- Spinal Stenosis
- Infection
- Vitamin D
- Facet Syndrome
- Spondylolysis
- Sacroiliac Joint Pain
- Ankylosing Spondylitis
- Coccygeal Injuries
- Scheuermann Disease
- Tumors
- Secondary Gain

Sacroiliac Joint Pain

- Insidious onset or from a Twist on the pelvis.
- Highly innervated joint.
- Muscle insertions: Piriformis, Hamstring, Quad Lumborum, Psoas.
- Pain with extension, sitting, transitioning.
- Tender at SI joint.
- Mimics and may be radicular pain.
- Rx with OMT



Musculoligamentous Injuries



- Acute Soft Tissue Injuries.
- No Fracture or Neuro deficits.
- Muscle Pain and Spasm
- RX: NSAIDs, stretch and strengthen (like a hamstring injury).

Chronic Mechanical LBP

- Similar to Patello-Femoral Pain Syndrome of the Knee.
- Tight hamstrings and hip flexors. Weak Abs.
- Rx: Stretch, Strengthen and Mobilize



Minimize Risk factors

Job related

- Manual handling tasks
- Lifting
- Twisting
- Bending
- Falling
- Reaching
- Excessive Weights
- Prolonged Sitting
- Vibration

Related to Individual

- Prior Episode
- Job Dissatisfaction
- Smoking
- Obesity
- Genetic factors

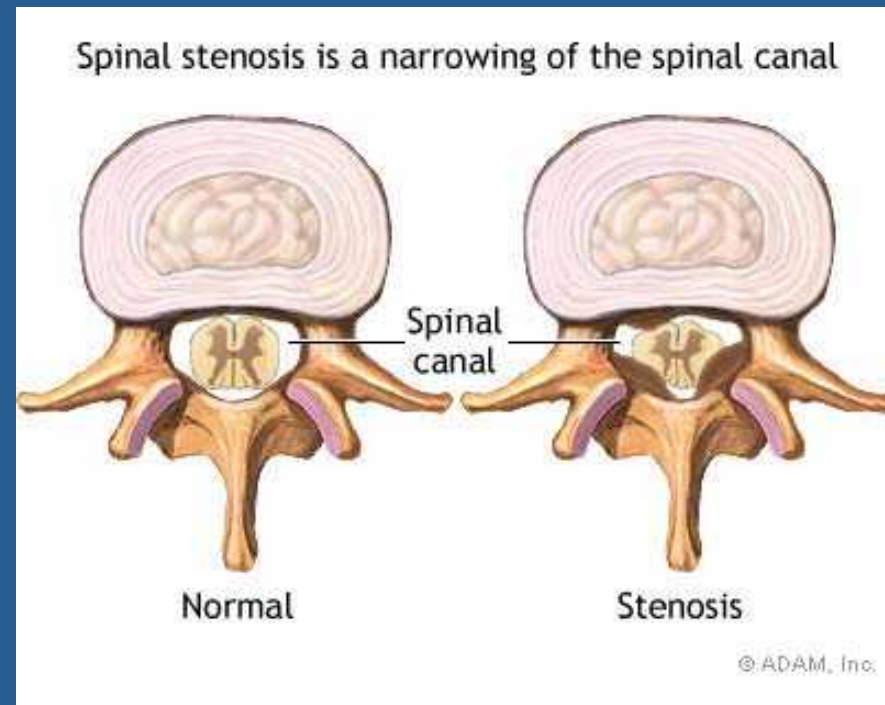
Herniated Disk

- Radicular Pain with flexion or sitting.
- Varying degrees of back pain to leg pain.
- Rx: Pain control, activity modification, regular follow up, PT, ESI, Surgery rarely needed.

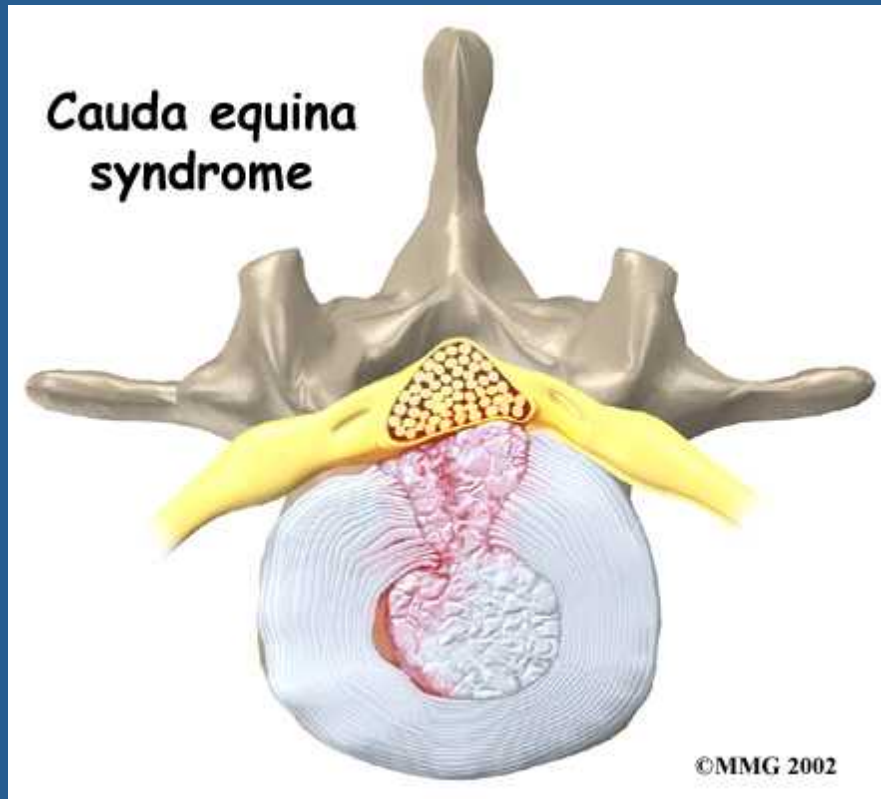


Spinal Stenosis

- Radicular Pain worsened by walking or running and improved by sitting.
- Degeneration of facets
- Posterior Longitudinal ligament or ligamentum flavum can also get thickened and cause spinal stenosis
- Disc degeneration
- Spondylolisthesis
- Post surgical.



Cauda Equina Syndrome



- Saddle Anesthesia
- Bladder Retention
- Start Dexamethasone
- Emergent MRI
- Operative decompression in < 24 hours.

Infections

Discitis

- Young Children <10 yrs old
- Stiff Back or Abdominal pain and often refuse to walk.
- Spine tenderness and loss of motion.
- Elevated ESR, CRP. CBC often normal.
- X-rays may take 2 weeks for abnormalities. Bone scan or MRI if suspicious.

Osteomyelitis

- Follow blunt trauma 1/3 of the time.
- Fever in 58%.
- Neurologic complications
- Elevated ESR 73%, WBC elevated 35%.
- X-rays may take 4 -8 weeks for erosive changes. Bone scan or MRI when suspicious.

Prevalence of Severe Hypovitaminosis D in Patients With Persistent, Nonspecific Musculoskeletal Pain

GREGORY A. PLOTNIKOFF, MD, MTS, AND JOANNA M. QUIGLEY, BA

- **Objective:** To determine the prevalence of hypovitaminosis D in primary care outpatients with persistent, nonspecific musculoskeletal pain syndromes refractory to standard therapies.

- **Patients and Methods:** In this cross-sectional study, 150 patients presented consecutively between February 2000 and June 2002 with persistent, nonspecific musculoskeletal pain to the Community University Health Care Center, a university-affiliated inner city primary care clinic in Minneapolis, Minn (45° north). Immigrant (n=83) and nonimmigrant (n=67) persons of both sexes, aged 10 to 65 years, from 6 broad ethnic groups were screened for vitamin D status. Serum 25-hydroxyvitamin D levels were determined by radioimmunoassay.

- **Results:** Of the African American, East African, Hispanic, and American Indian patients, 100% had deficient levels of vitamin D (≤ 20 ng/mL). Of all patients, 93% (140/150) had deficient levels of vitamin D (mean, 12.08 ng/mL; 95% confidence interval, 11.18-12.99 ng/mL). Nonimmigrants had vitamin D levels as deficient as immigrants ($P=.48$). Levels of vitamin D in men were as deficient as in

whom were younger than 30 years. Five patients, 4 of whom were aged 35 years or younger, had vitamin D serum levels below the level of detection. The severity of deficiency was disproportionate by age for young women ($P<.001$), by sex for East African patients ($P<.001$), and by race for African American patients ($P=.006$). Season was not a significant factor in determining vitamin D serum levels ($P=.06$).

- **Conclusion:** All patients with persistent, nonspecific musculoskeletal pain are at high risk for the consequences of unrecognized and untreated severe hypovitaminosis D. This risk extends to those considered at low risk for vitamin D deficiency: nonelderly, nonhousebound, or nonimmigrant persons of either sex. Nonimmigrant women of childbearing age with such pain appear to be at greatest risk for misdiagnosis or delayed diagnosis. Because osteomalacia is a known cause of persistent, nonspecific musculoskeletal pain, screening all outpatients with such pain for hypovitaminosis D should be standard practice in clinical care.

Mayo Clin Proc. 2003;78:1463-1470

ANOVA = analysis of variance; CI = confidence interval;

This Article

- [Full text](#)
- [Respond to this article](#)
- [Read responses to this article](#)
- [Alert me when this article is cited](#)
- [Alert me when responses are posted](#)
- [Alert me when a correction is posted](#)

Services

- [Email this article to a friend](#)
- [Find similar articles in BMJ](#)
- [Find similar articles in ISI Web of Science](#)
- [Find similar articles in PubMed](#)
- [Add article to my folders](#)

BMJ 2005;331:109 (9 July), doi:10.1136/bmj.331.7508.109-a

Letter

Vitamin D deficiency may have role in chronic low back pain

The first 150 words of the full text of this article appear below.

EDITOR—The optimal management of patients with chronic low back pain remains a challenge for healthcare services, as discussed by Koes,¹ but the importance of vitamin D is not widely appreciated.

Many studies have shown the high prevalence of vitamin D deficiency in various populations. For example, 93% of 150 patients presenting to a university affiliated inner city primary care clinic in Minneapolis with persistent, non-specific musculoskeletal pain had deficient concentrations of vitamin D.²

Most patients (83%) attending spinal and internal medicine clinics in Saudi Arabia over six years who had experienced low back pain that had no obvious cause for more than six months had an abnormally low level of vitamin D.³ After treatment with vitamin D supplements, clinical improvement in symptoms was seen in all of those who had a low initial concentration of vitamin D. The authors concluded that screening (of patients with chronic low back... *[Full text of this article]*

What's new

- Last 7 days
- Past weeks
- Current print issue
- Rapid responses

Latest blogs

- A NICE blog
- Priority setting
- BMJ in the news
- Sustainable purchasing
- Online medical records
- Writing and getting published
- The definite article

See also

- News: Screening has halved incidence of cervical cancer in UK (24 Feb 2009)
- Clinical Review: Difficult to treat asthma in adults (24 Feb 2009)

Facet Joint Syndrome

Age 30s-40s

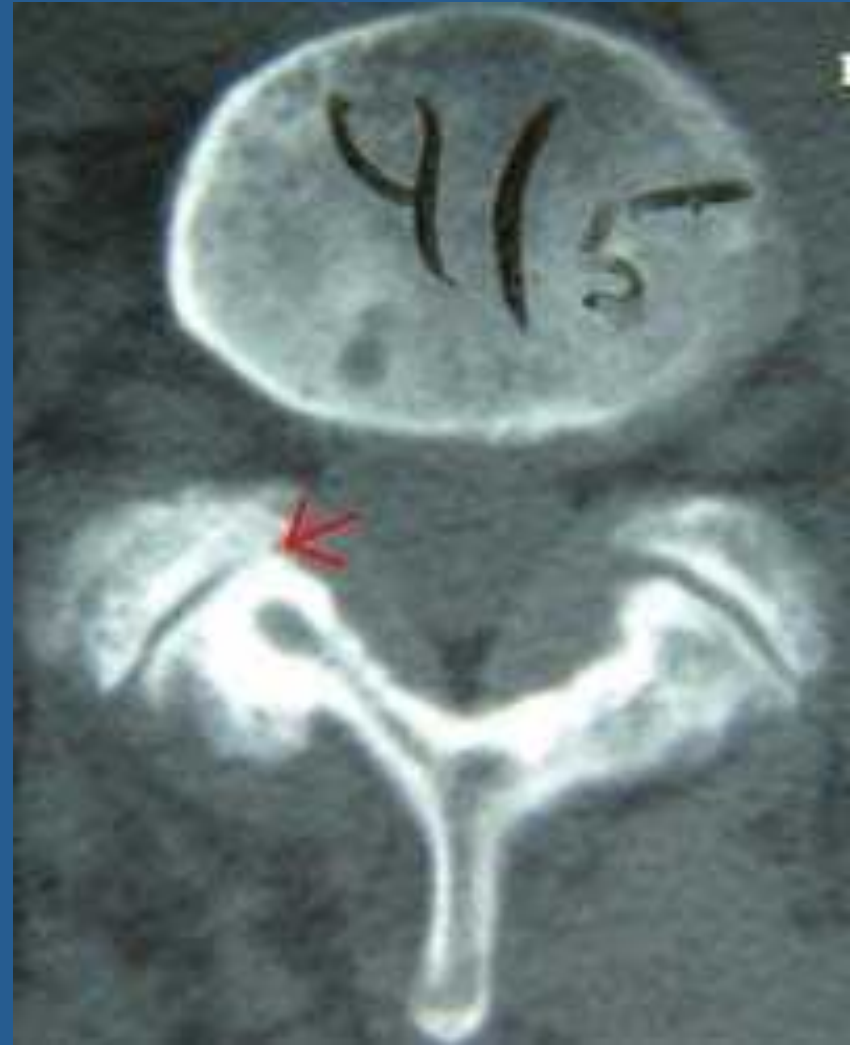
Pain with hyperextension
or running

Frequent radicular pain.

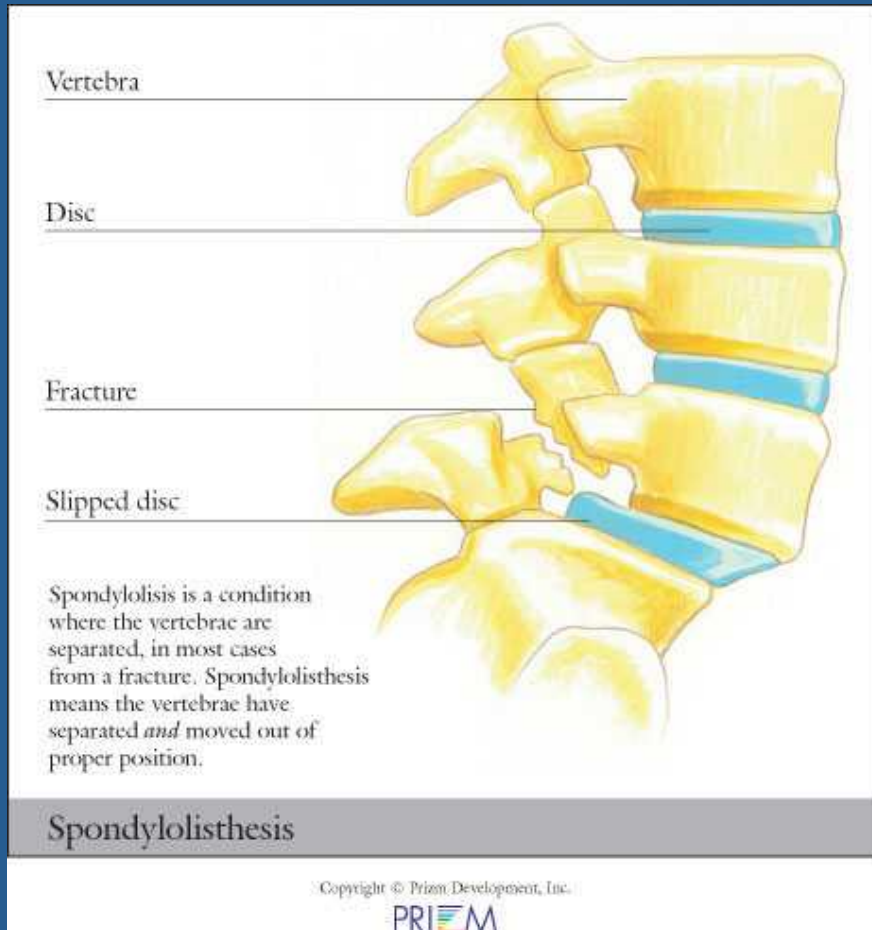
X-ray: Facet hypertrophy
or DJD

Facet injections diagnostic

Spinal Fusion definitive Rx
for spinal stenosis
symptoms



Spondylolysis/ Spondylolisthesis



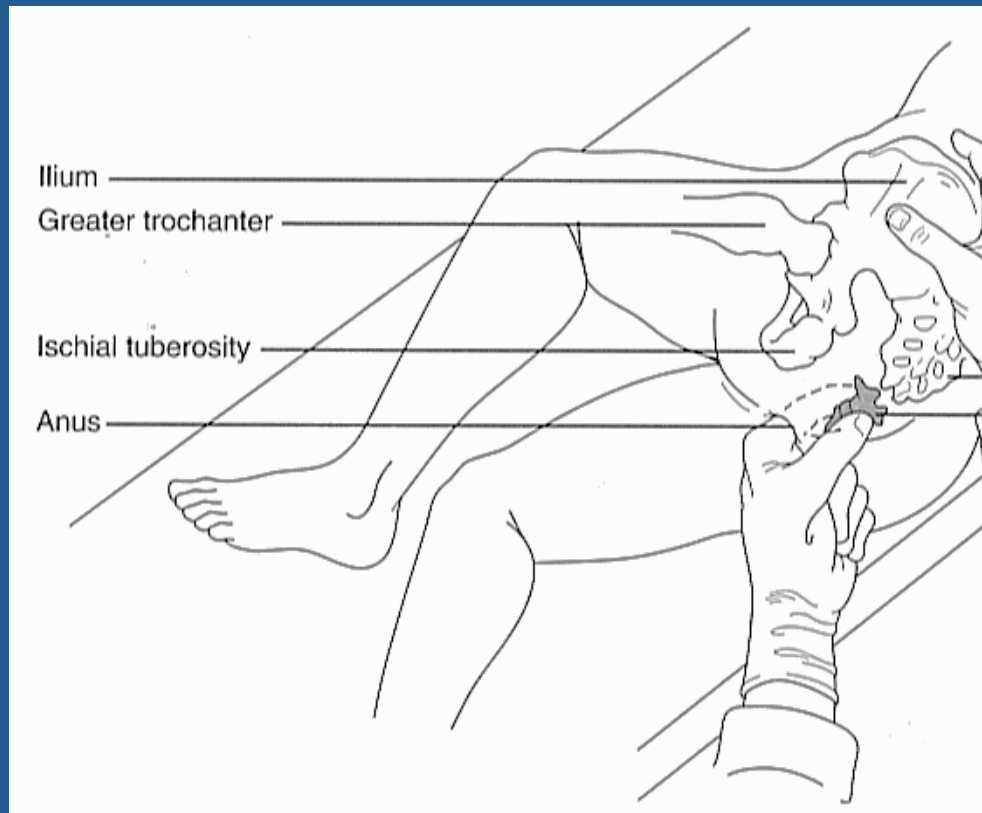
- Pain with hyperextension.
- More frequent in top competitors.
- Single Leg hyperextension test.
- X-ray, Spect Scan.
- Avoid hyperextension, fusion is rarely needed.

Ankylosing Spondylitis



- 10 Male : 1 Female
- Age 15-35
- Slowly progressive SI joint pain with morning stiffness.
- Look for loss in motion particularly extension.
- Elevated ESR. Normal ANA and RF.
- HLA B27 positive in 90%

Coccygeal Injuries



- Fall on buttocks
- Pain with sitting
- Localized tenderness
- Manual Reduction shown

Scheuermann Disease

- Juvenile Kyphosis
- Pain late in the day after activity.
- Thoracic T7-9 or Thoracolumbar T11-12 apex on flexion.
- X-rays: anterior wedging of 5 degrees of consecutive vertebrae and Schmorl's nodes.



Spinal Tumors

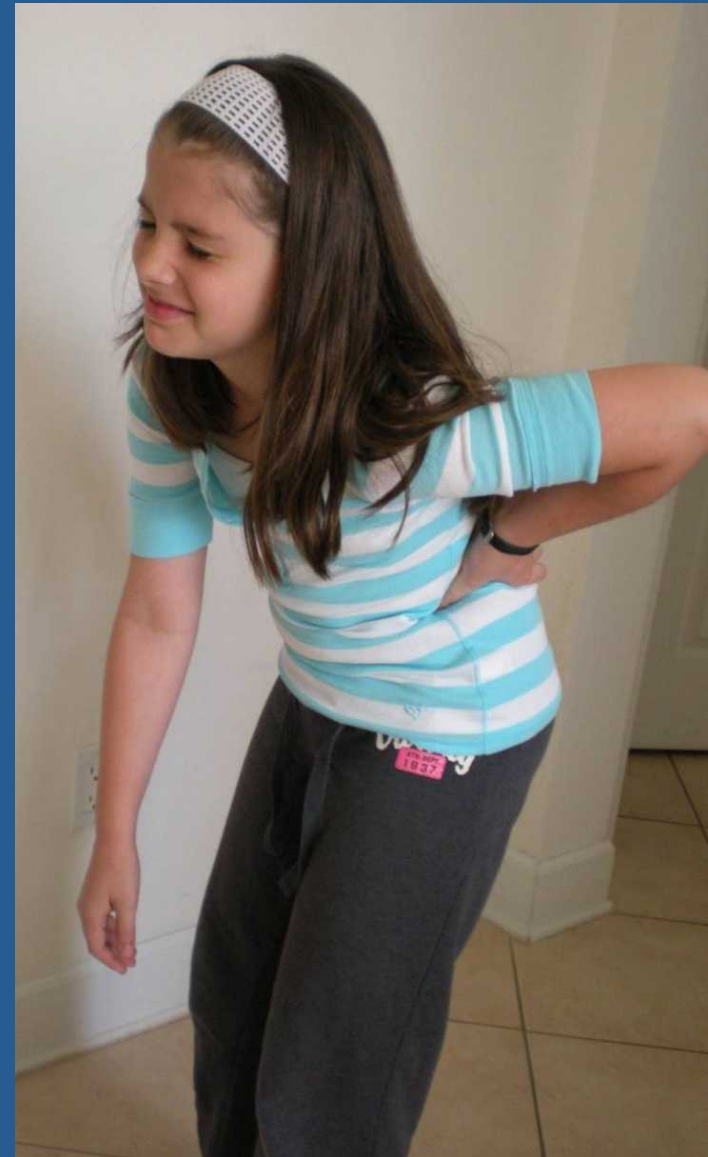
- Osteoid Osteoma or Osteoblastoma
- Night Pain relieved by NSAIDs.
- Get a fine cut CT scan.



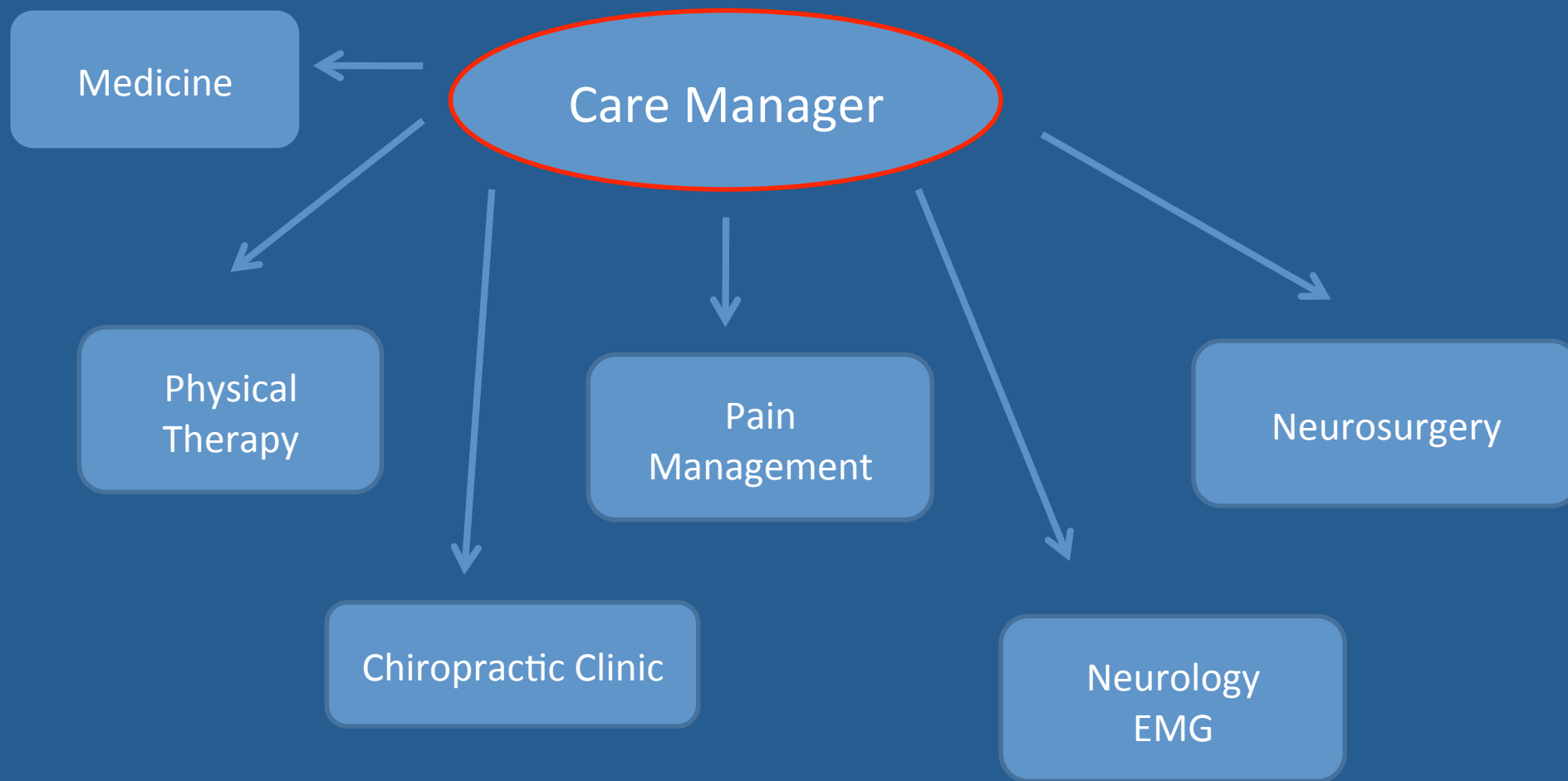
Secondary Gain

Waddell Signs

1. Non-organic superficial tenderness.
2. Axial loading or En Bloc Rotation.
3. Distraction test: Tripod negative with positive SLR.
4. Non-anatomic weakness or sensory loss.
5. Over reactive verbally or exaggerated response.

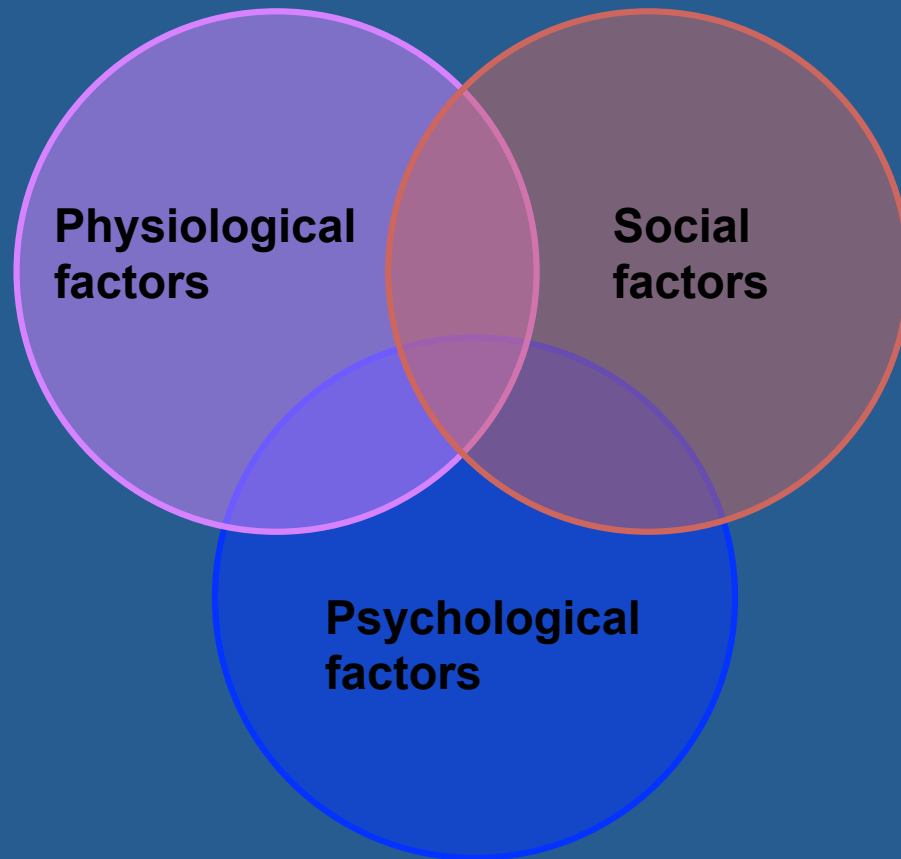


Back Pain Management Tools



Interdisciplinary Team Approach to Chronic Spinal Disorders

Complex Problem



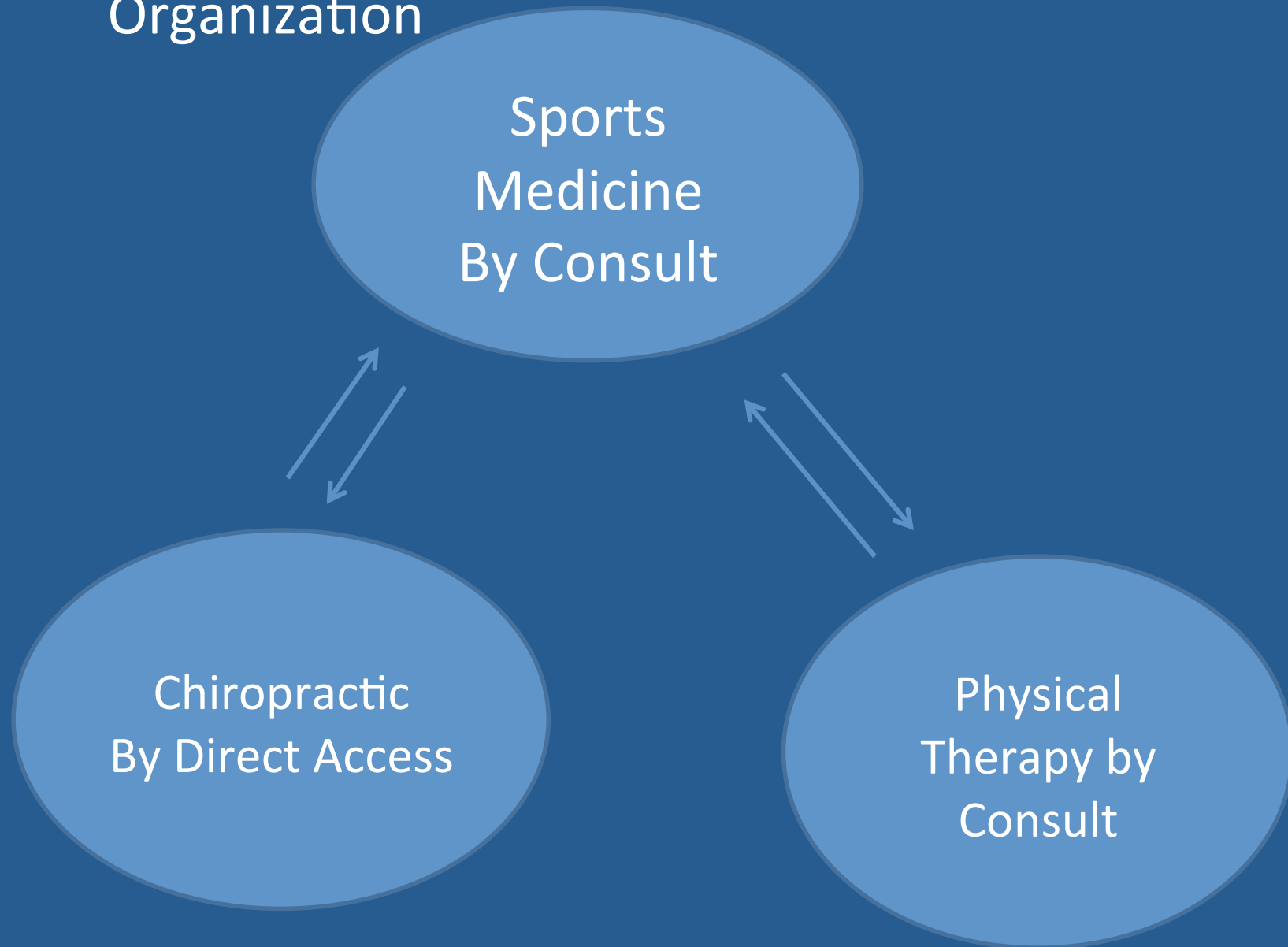
Interdisciplinary Management

- Spine Surgeons
- Neurosurgeons
- Pain specialists
- Psychiatrists/
Psychologists
- Physiatrists
- Radiologists

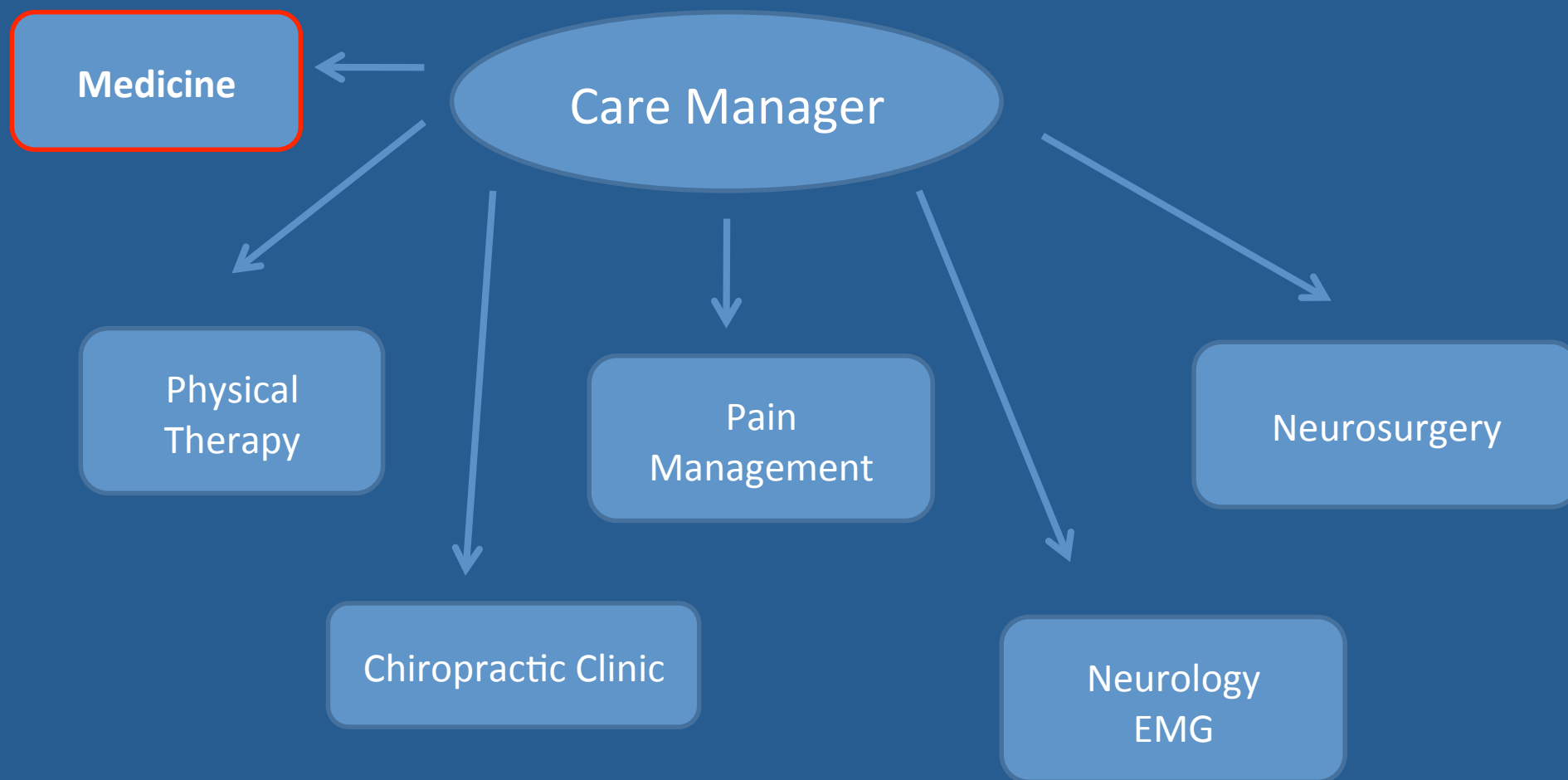
The Role Of The Manager

1. Make a diagnosis using a differential diagnosis.
2. Educate the patient about the plan.
3. Prescribe appropriate medications.
4. Make appropriate referrals at appropriate times.

The Multidisciplinary Management Team Organization



Back Pain Management Tools



EFNS guidelines on pharmacological treatment of neuropathic pain.

- The Task Force recommends TCA or GBP/pregabalin as first choice for painful polyneuropathy.(Level A)
EBM-CME
- GBP 300mg qhs f3, bid f3 then tid
- http://www.guideline.gov/summary/summary.aspx?doc_id=10472&nbr=005495&string=neuropathic%2bAND%2bpain

European Federation of Neurological Societies (EFNS)

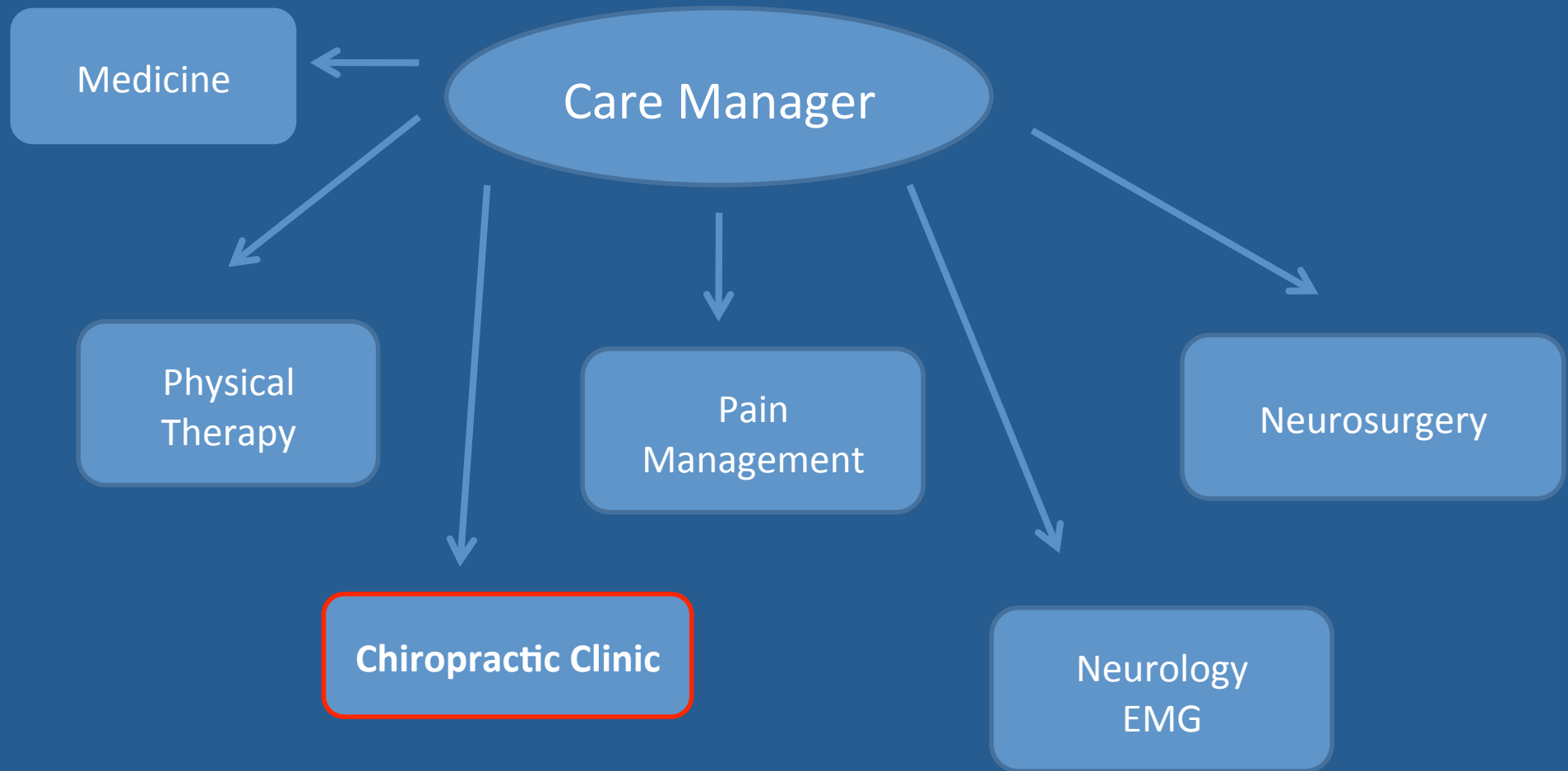
NSAIDS EBM-CME

- A randomized controlled trial (RCT) comparing etoricoxib 60mg and 90mg with placebo for people with chronic back pain found both doses of etoricoxib resulted in significant improvements in pain scores and function vs placebo after 12 weeks. *Level A*

Muscle Relaxants EBM-CME

- Meta-analysis of the randomized controlled trials (RCTs), that included sufficient data, in a review studying non-benzodiazepine muscle relaxants found an significant improvement in pain and global assessment after 2-4 days vs placebo. *Level A*
- Three RCTs included in the systematic review compared muscle relaxants with each other and found no significant differences between them. *Level A*
- More effective than placebo in achieving short-term symptomatic relief in people with non-specific acute low back pain. *Level A*

Back Pain Management Tools

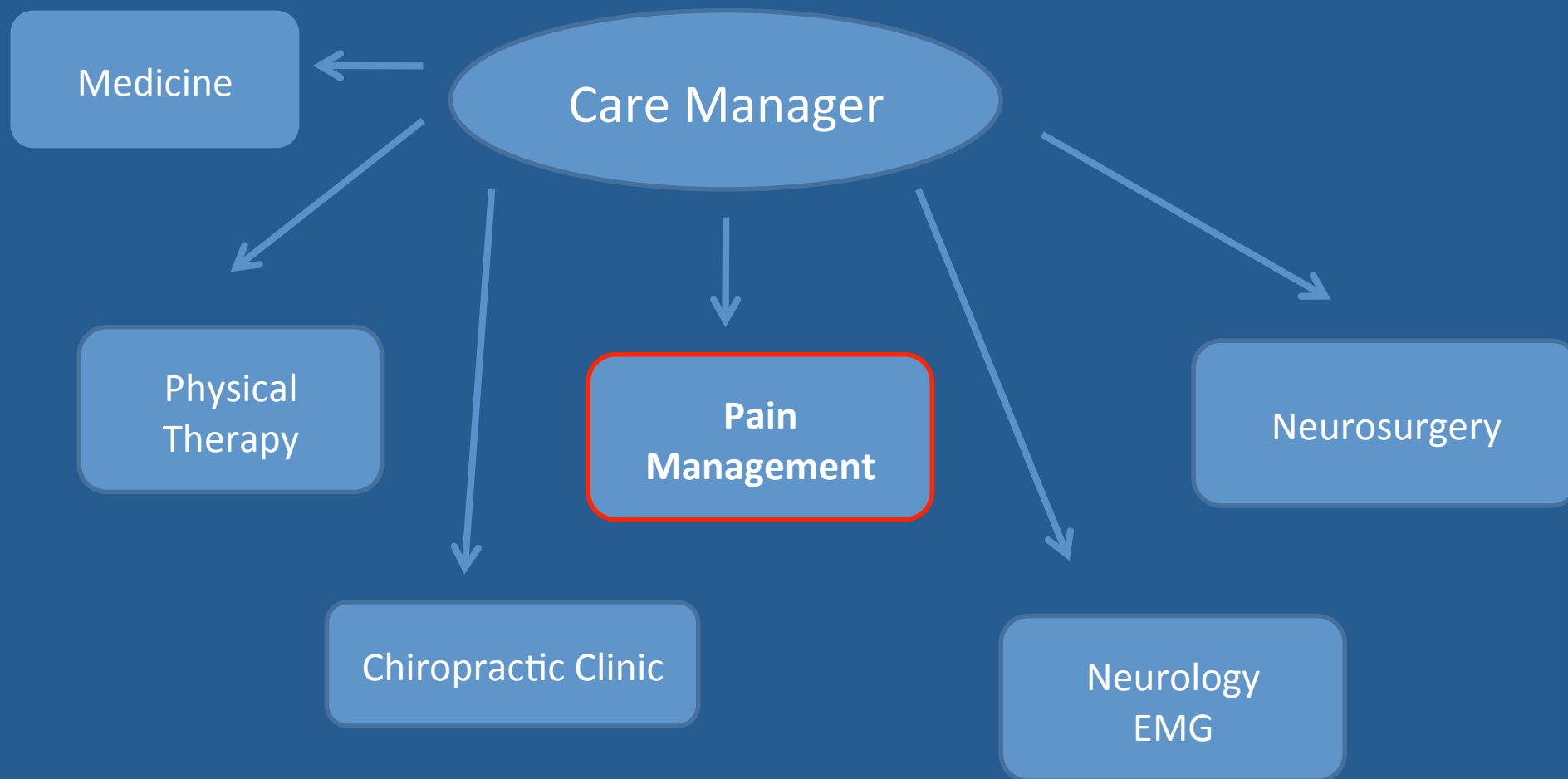


OMT/ Mobilization

- Spinal manipulation for acute back pain slightly reduced pain at 6 weeks compared with sham treatment, but there was no significant difference in functional outcomes. There was no significant difference between spinal manipulation , physical therapy, exercises or back school . *Level A*



Back Pain Management Tools



“Ladder” Approach to Pain Management*

**Neuroablation
(chemical or surgical)**

**Implantable Therapies
Neurostimulation or Intrathecal Pain Therapy**

Long-Term Oral Opioids

Behavioral Programs

Nerve Blocks

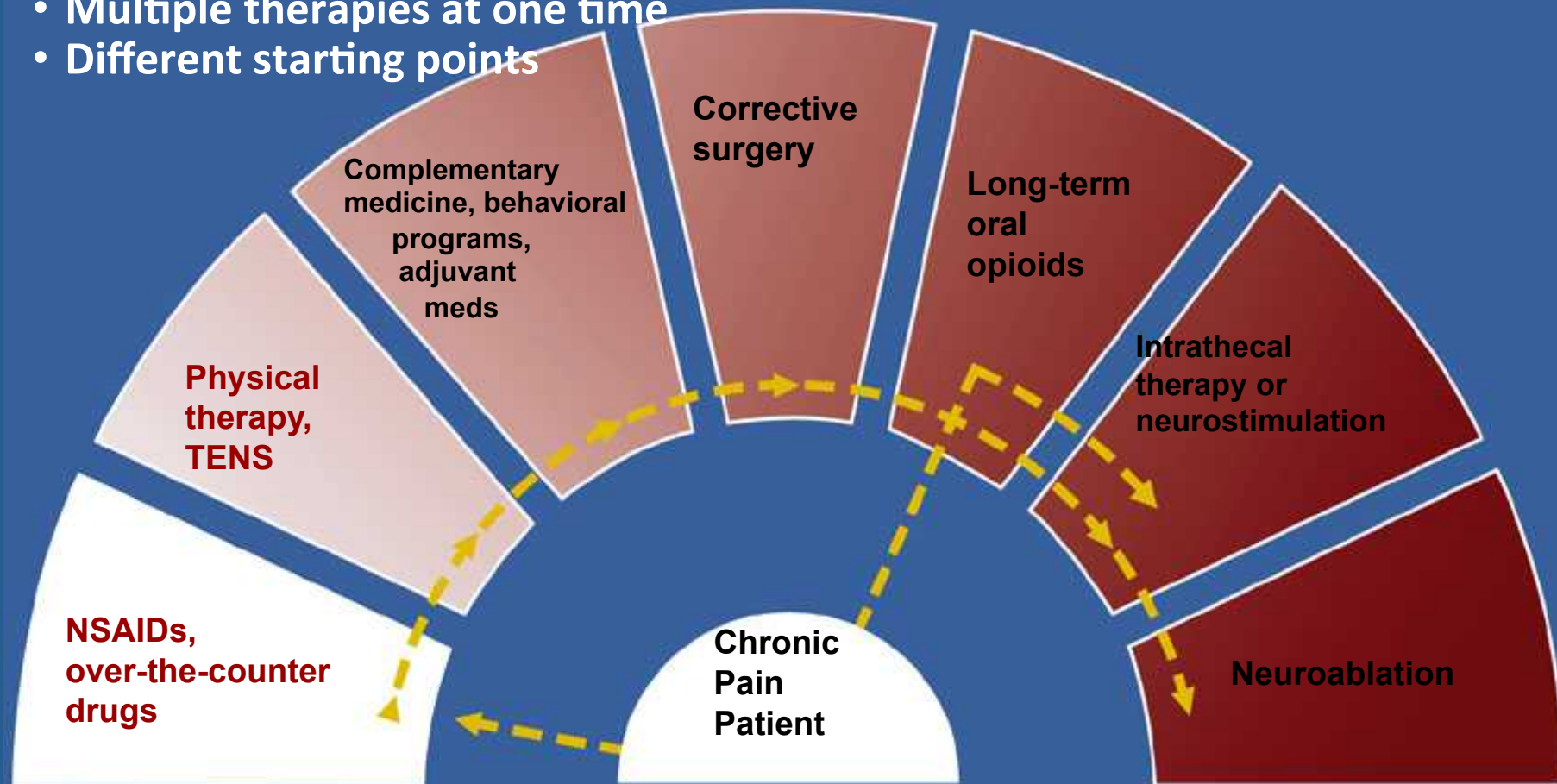
**Physical Therapy/Manipulation/
TENS/Muscle Relaxants**

NSAIDs/Over-the-Counter Drugs

* E. Krames. Intraspinial Opioid Therapy for Chronic Nonmalignant Pain: Current Practice and Clinical Guidelines. *JPSM* 1996;11(6):333-352.

Pain Management: A More Flexible Approach*

- Different time frames
- Multiple therapies at one time
- Different starting points



* Prager J and Jacobs M. Evaluation of patients for implantable pain modalities: medical and behavioral assessment. Clin J Pain. 2001 Sep;17(3):206-14.

Epidural Steroid Injections

EBM-CME

- The American Academy of Neurology has produced recommendations concerning the treatment of radicular lumbosacral pain with epidural steroid injection.
- Epidural steroid injection may be associated with short-term improvement in radicular lumbosacral pain it does not, in general, result in any change in the need for surgery at a later date and does not improve pain beyond 3 months. *Level C*

EPIDURAL STEROID INJECTION

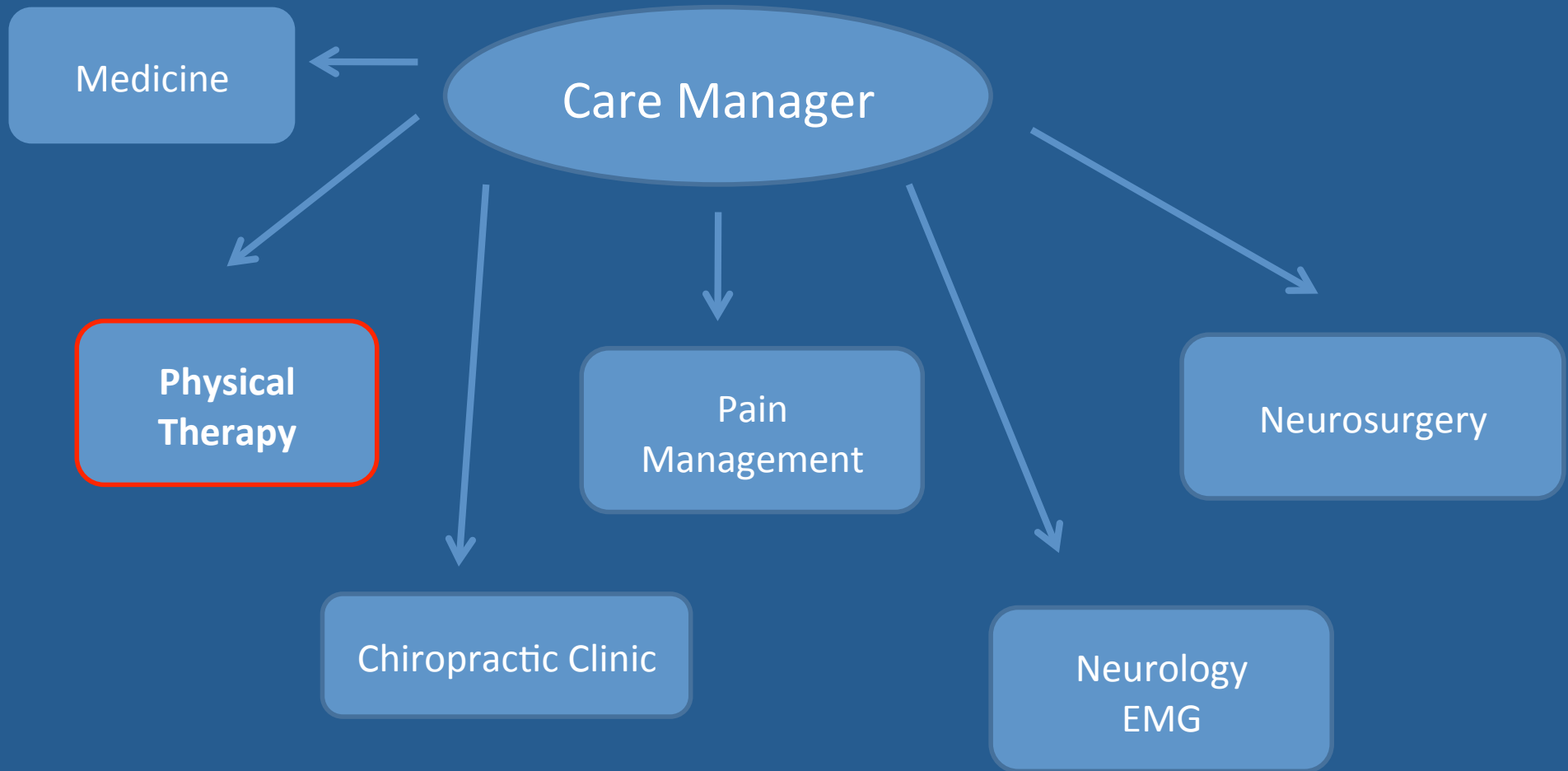
- The main goal of the epidural injection is to decrease any inflammation response that may be caused from the pressing on a spinal nerve.



Diagnostic Facet Injections

- **The rationale for using facet joint blocks for diagnosis is based on the fact that facet joints are capable of causing pain and they have a nerve supply.**
- **Blocks of a facet joint can be performed in order to test the hypothesis that the target joint is the source of the patient's pain**
- **Summary of evidence: Based on these evaluations, the validity, specificity and sensitivity of facet joint nerve blocks are considered strong in the diagnosis of facet joint pain.**

Back Pain Management Tools



Physical Activity EB-CME

A brief period of bed rest may help initially to overcome the severe pain of the acute phase. Clinical trials have shown that there is no benefit from extending the period of bed rest beyond 48h.

Studies have shown that an exercise regimen commencing after 6 weeks will yield a superior clinical outcome compared to other forms of treatment.

LOW BACK PAIN

EB-CME

Acute and chronic low back pain

Background: Low back pain is very common in developed countries, especially in adults of working age. The costs of back pain to society are huge. In 1998, the direct health care costs of back pain in the UK were estimated at £1632million. Information was extracted from systematic reviews undertaken by the Cochrane Back Group for an Effective Health Care bulletin.

Findings: For acute low back pain, advice to continue ordinary activity can give equivalent or faster symptomatic recovery from the acute attack and lead to less chronic disability and less time off work. Bed rest should not be recommended as a treatment for acute low back pain. Non-steroidal anti-inflammatory drugs (NSAIDs) are effective for short-term symptomatic relief in patients with acute low back pain. Several types of NSAIDs appear similarly effective, but can have harmful side-effects.

Muscle relaxants (benzodiazepines) are effective at reducing pain for patients with acute low back pain but can have harmful side-effects. Different benzodiazepines appeared to be similarly effective.

There is strong evidence that exercise therapy may help chronic low back pain patients return to normal daily activities and work.

Multidisciplinary treatment programmes, involving components such as education, active exercise programmes, behavioural treatment, relaxation exercises, and work-place visits, can improve long-term outcomes for pain, functional status and sick leave compared with other treatments for chronic low back pain.

Conducted by: CRD and the Cochrane Back Group

Commissioned by: Department of Health

Current status: Completed November 2000

Lumbar Traction EBM-CME

- A systematic review was unable to find any significant benefit for traction in people with acute, sub-acute, or chronic low back pain with or without sciatica.
- *Level A*

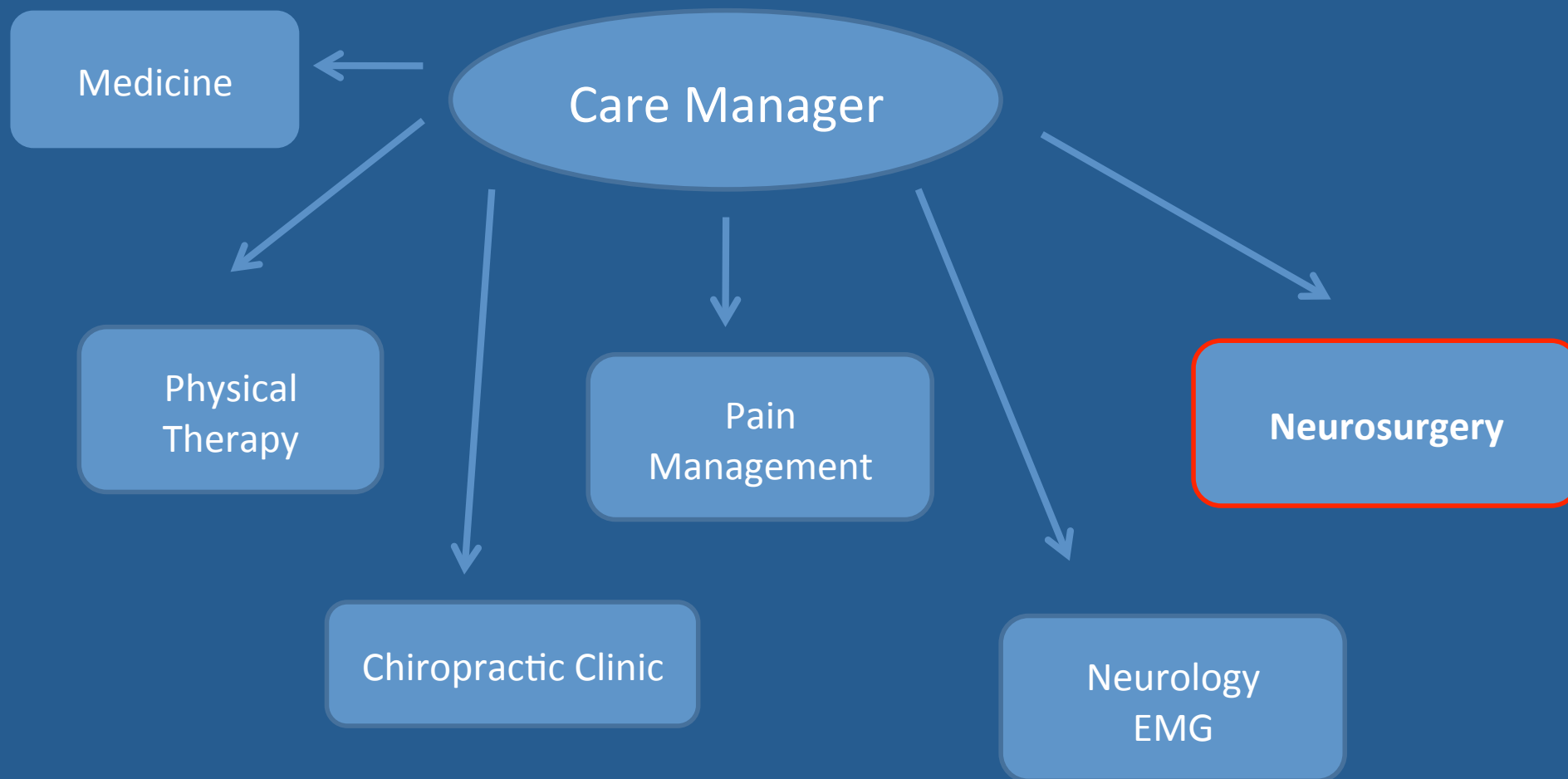


Acupuncture EBM-CME

- Acupuncture, added to other conventional therapies, relieves pain and improves function better than the conventional therapies alone. However, effects are only small.
- Level A



Back Pain Management Tools



Lumbar Microdiscectomy EBM-CME

- A randomized controlled trial compared early surgery with conservative therapy followed by surgery if the symptoms persisted in people with sciatica lasting longer than 6-12 weeks.
- It found that at 1 year follow-up, the level of perceived recovery in both groups was similar at 95% .
- However the group treated by early lumbar disk surgery had a faster recovery from pain and a quicker perceived recovery than the group initially managed conservatively . *Level B*

Disc Replacement

- Charite Artificial Disc received FDA approval in October 2004.
- Allows Motion
- Preserves disc height.
- Several different types now: Flexicor shown, Prestige, VertePlex.



Patient Education

1. Tell patients your plan and your expectations.
2. Set reasonable expectations.
3. Severity of Acute Pain does not correlate with outcome or duration.
4. Follow up regularly to check response to treatment.
5. Reassess for further diagnostic of therapeutic options.

Example Management for HNP

1. Percocett, Gabapentin, PT consult, f/u 2 wks
2. MRI for motor weakness or lost reflexes.
Consider EMG. f/u after MRI (3 weeks)
3. After confirmatory MRI, consult Pain for ESI for Pain, consult Surgery for weakness. f/u monthly or after surgery.
4. Duty Status Changes according to plan:
Limited Duty, Temporary Profile, etc.

Recommended References

- Lilligard WA. Handbook of Sports Medicine (2nd edition), Butterworth-Heinemann 1999
- Magee DJ. Orthopedic Physical Assessment (3rd edition), Saunders 1997
- Ferri FF. Ferri's Clinical Adviso, Mosby 2009

