
KNOW
LOW BACK
PAIN

Development Committee

Mario H. Cardiel, MD, MSc
Rheumatologist
Morelia, Mexico

Andrei Danilov, MD, DSc
Neurologist
Moscow, Russia

Smail Daoudi, MD
Neurologist
Tizi Ouzou, Algeria

João Batista S. Garcia, MD, PhD
Anesthesiologist
São Luis, Brazil

Yuzhou Guan, MD
Neurologist
Beijing, China

Jianhao Lin, MD
Orthopedist
Beijing, China

Supranee Niruthisard, MD
Anesthesiologist, Pain Specialist
Bangkok, Thailand

Germán Ochoa, MD
Orthopedist, Spine Surgeon and Pain Specialist
Bogotá, Colombia

Milton Raff, MD, BSc
Consultant Anesthetist
Cape Town, South Africa

Raymond L. Rosales, MD, PhD
Neurologist
Manila, Philippines

Ammar Salti, MD
Consultant Anesthetist
Abu Dhabi, United Arab Emirates

Jose Antonio San Juan, MD
Orthopedic Surgeon
Cebu City, Philippines

Xinping Tian, MD
Rheumatologist
Beijing, China

Işin Ünal-Çevik, MD, PhD
Neurologist, Neuroscientist and Pain Specialist
Ankara, Turkey

This program was sponsored by Pfizer Inc.

Learning Objectives

- After completing this module, participants will be able to:
  - Discuss the prevalence of acute and chronic low back pain
  - Understand the impact of low back pain on patient functioning and quality of life
  - Use appropriate tools for the diagnosis of low back pain
  - Identify red and yellow flags that should trigger referral or further investigation
  - Explain underlying mechanisms of different types of low back pain
  - Select appropriate pharmacological and non-pharmacological strategies for the management of low back pain

Table of Contents

What is low back pain?

- Pain below the costal margin and above the gluteal folds, with or without radiation to the lower extremity[1]
- **Acute** vs. **chronic** low back is pain classified according to duration:
  - **Acute:** less than 3 months[2,3]
  - **Chronic:** more than 3 months[2,3]

1. Airaksinen O *et al. Eur Spine J* 2006; 15(Suppl 2):S192-300; 2. International Association for the Study of Pain. *Unrelieved Pain Is a Major Global Healthcare Problem.* Available at: http://www.iasp-pain.org/AM/Template.cfm?Section=Press_Release&Template=/CM/ContentDisplay.cfm&ContentID=2908. Accessed: July 22, 2013. 3. National Pain summit Initiative. *National Pain Strategy: Pain Management for All Australians.* Available at: http://www.iasp-pain.org/PainSummit/Australia_2010PainStrategy.pdf. Accessed: July 22, 2013.

Discussion Question

How many patients suffering from low back pain do you see during a typical week?

Epidemiology of Low Back Pain

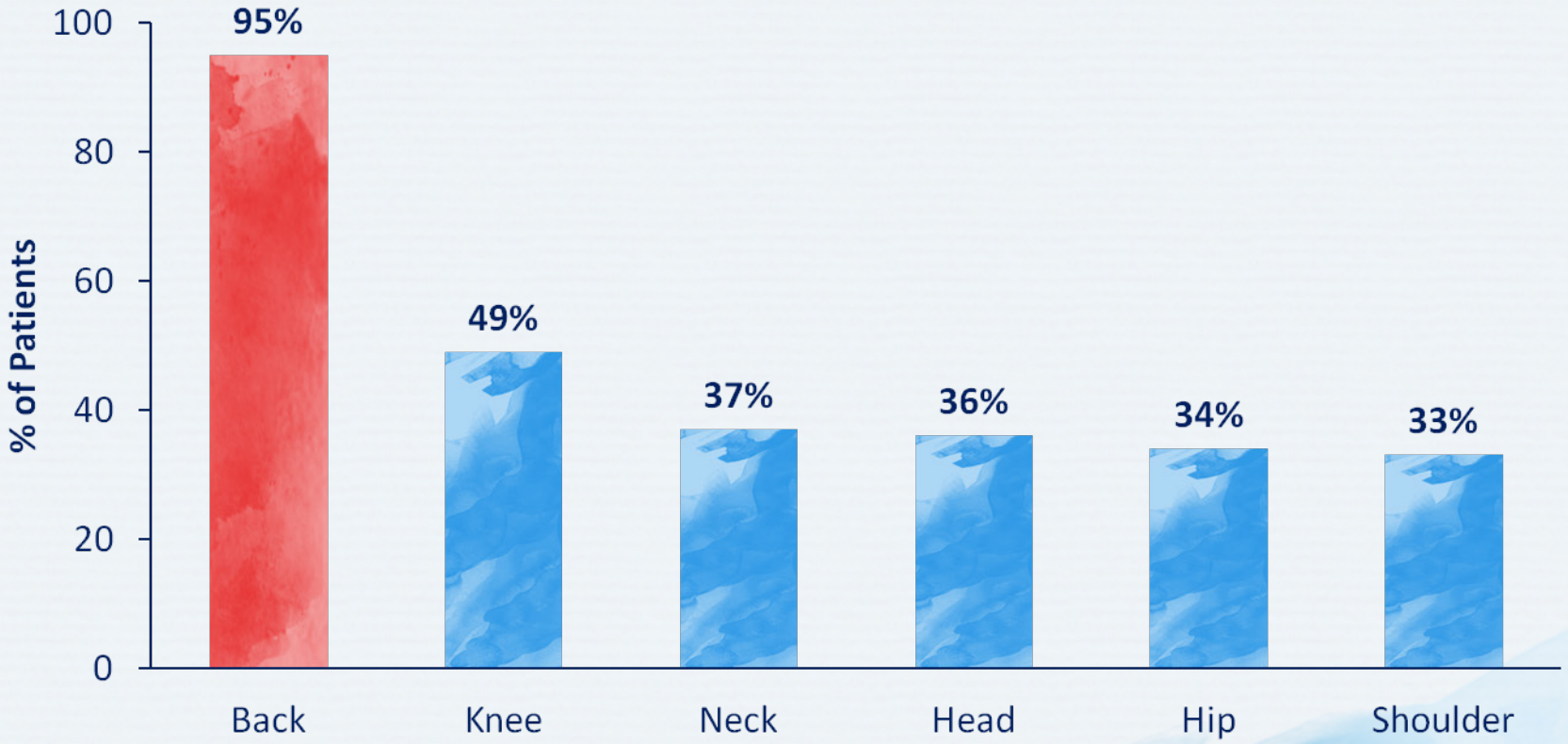
- **>80%** of adults experience back pain at some point in life[1]
- Incidence is highest in third decade[2]
- Overall prevalence increase with age until the age of 60–65 years[2]
- Men and women are equally affected[3]
- **5th** leading reason for medical office visits[4]
- **2nd** most common reason (after respiratory illness) for symptom-related physician visits[4]
- **Most common** cause of work-related disability[5]

1. Walker BF. *J Spinal Disord* 2000; 13(3):205-17; 2. Hoy D *et al. Best Pract Res Clin Rheumatol* 2010; 24(6):769-813;
3. Bassols A *et al. Gac Sanit* 2003; 17(2):97-107; 4. Hart LG *et al. Spine (Phila PA 1976)* 1995; 20(1):11-9; 5. National Institutes of Health. *Low Back Pain Fact Sheet.* Available at: http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm. Accessed: July 22, 2013.

A Practical Guide to Understanding, Assessing and Managing Pain

The Low Back Is the Most Common Site of Chronic Non-cancer Pain

Percentage of Patients with Chronic Pain Complaining of Pain at Common Body Sites*



***Based on physician survey**

Boulanger A *et al. Pain Res Manage* 2007; 12(1):39-47.

Common Causes of Low Back Pain

Mechanical (80-90%)
(e.g., disc degeneration, fractured vertebrae, instability, unknown cause [most cases])

Neurogenic (5-15%)
(e.g., herniated disc, spinal stenosis, osteophyte damage to nerve root)

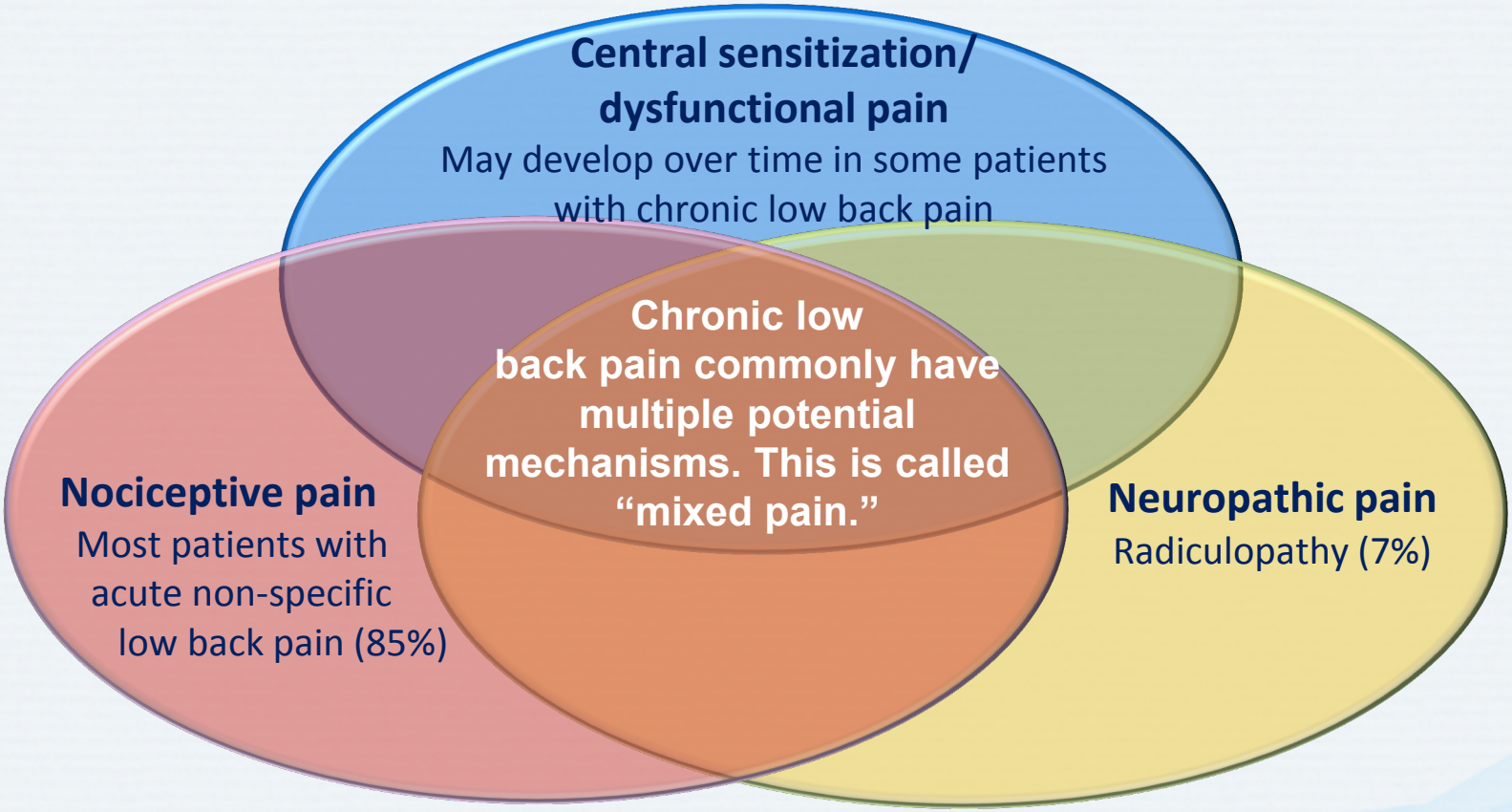
Non-mechanical spinal conditions (1-2%)
(e.g., neoplasm, infections, inflammatory arthritis, Paget's disease)

Referred visceral pain (1-2%)
(e.g., gastrointestinal disease, kidney disease, abdominal aortic aneurism)

Other (2-4%)
(e.g., fibromyalgia, somatoform disorder, "faking" pain)

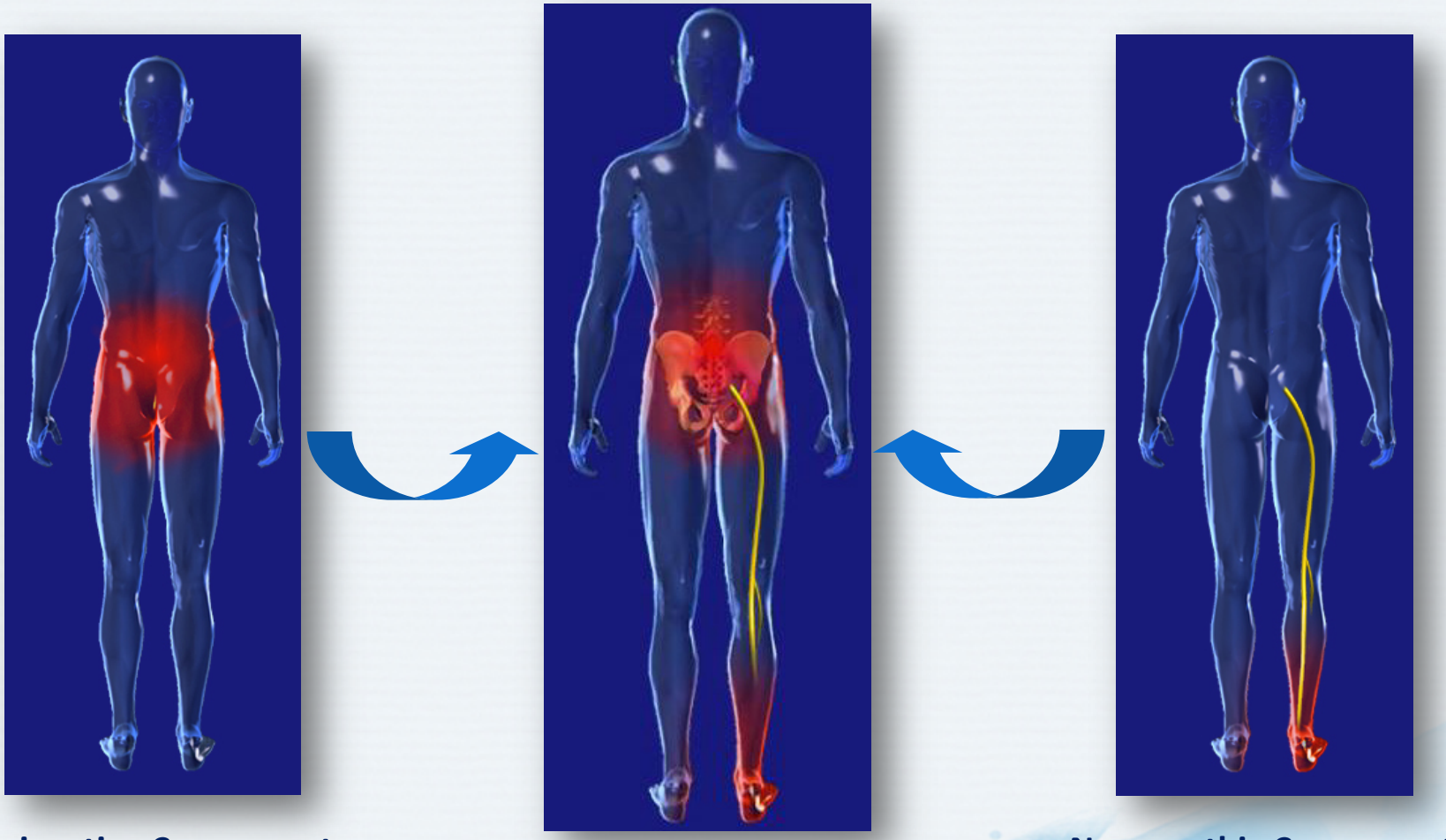
Cohen S. *BMJ* 2008; 337:a2718.

Pathophysiology of Low Back Pain



Manusov EG. *Prim Care* 2012; 39(3):471-9; Neblett R *et al. Pain* 2013; 14(5):438-45;
Vellucci R. *Clin Drug Investig* 2012; 32(Suppl 1):3-10; Woolf CJ, Salter MW. *Science* 2000; 288(5472):1765-9.

Nociceptive and Neuropathic Components May Be Present in Low Back Pain



Nociceptive Component

Neuropathic Component

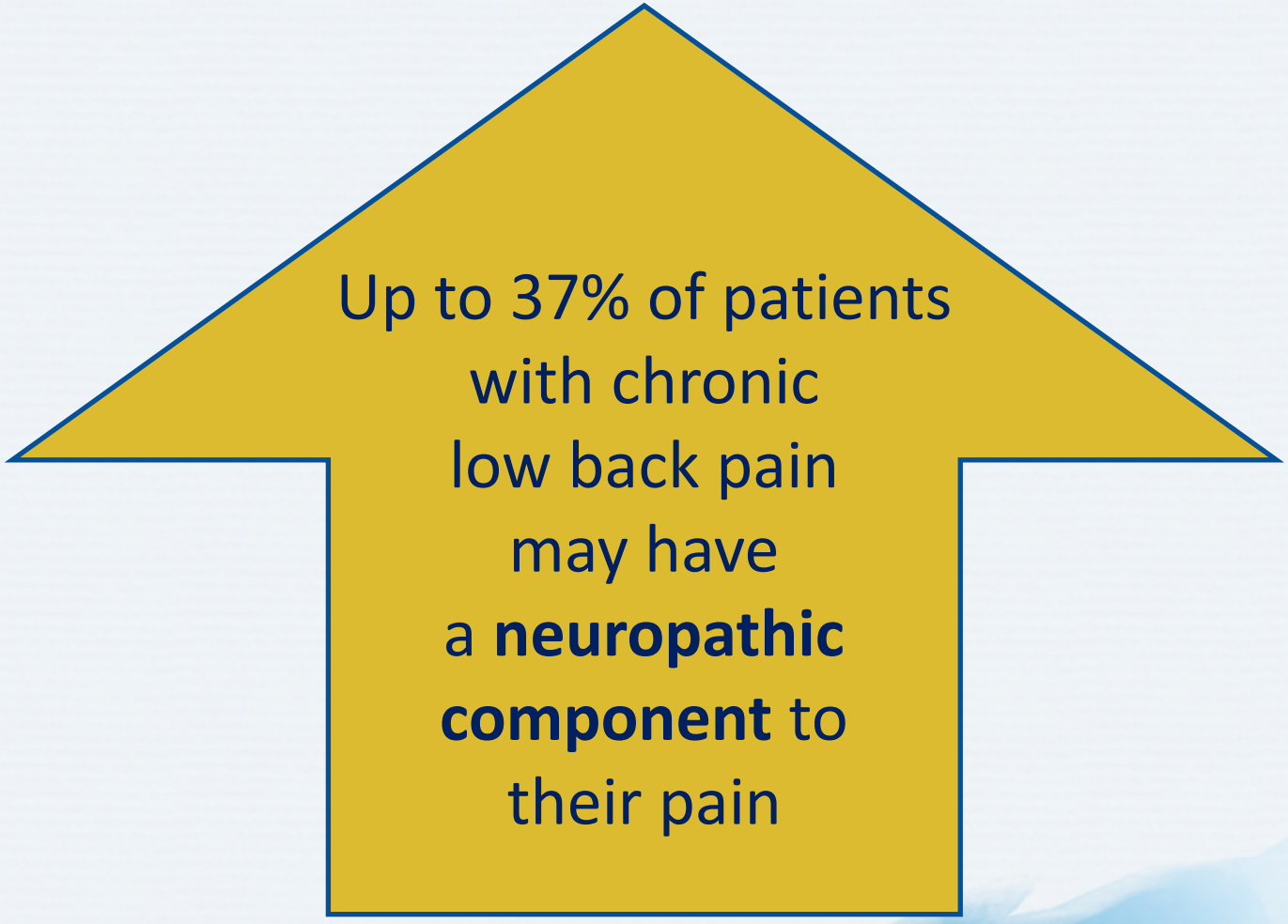
Freynhagen R, Baron R. *Curr Pain Headache Rep* 2009; 13(3):185-90.

Neuropathic Component of Low Back Pain

- Neuropathic component of low back pain may be caused by:
  - Mechanical compression of nerve root (*mechanical neuropathic nerve root pain*)
  - Damage to sprouting C-fibers within the degenerated disc (*localized neuropathic pain*)
  - Action of inflammatory mediators released from the degenerated disc (*inflammatory neuropathic nerve root pain*), even without mechanical compression

Freynhagen R, Baron R. *Curr Pain Headache Rep* 2009; 13(3):185-90.

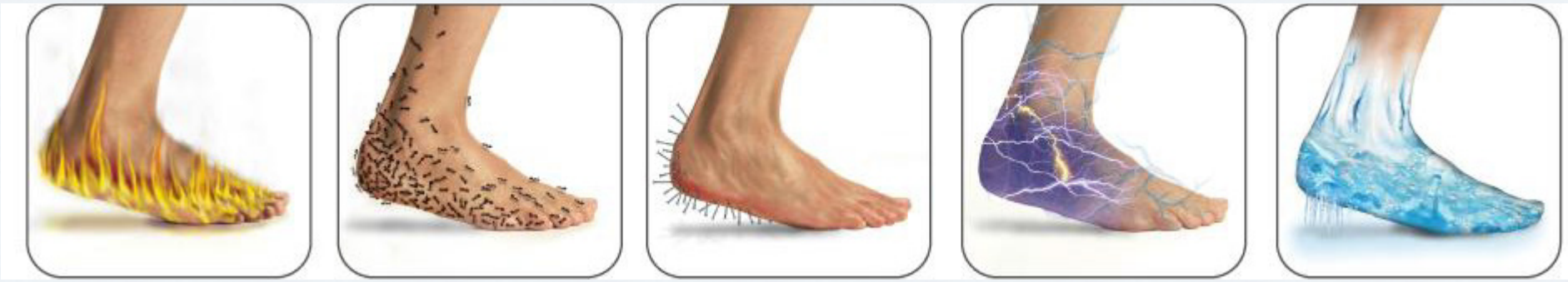
Neuropathic Component of Chronic Low Back Pain



Freynhagen R *et al. Curr Med Res Opin* 2006; 22(10):1911-20.

Recognizing Neuropathic Pain

Be alert for common verbal descriptors of neuropathic pain.



Burning ***Tingling*** ***Shooting*** ***Electric shock-like*** ***Numbness***

- Various neuropathic pain screening tools exist
- Tools rely largely on common verbal descriptors of pain, though some tools also include physical tests
- Tool selection should be based on ease of use

Baron R *et al. Lancet Neurol.* 2010; 9(8):807-19; Bennett MI *et al. Pain* 2007; 127(3):199-203; Gilron I *et al. CMAJ* 2006; 175(3):265-75.

Neuropathic Pain Screening Tools

	LANSS	DN4	NPQ	painDETECT	ID Pain
Symptoms					
Pricking, tingling, pins and needles	x	x	x	x	X
Electric shocks of shooting	X				
Hot or burning	X				
Numbness		x	x	x	x
Pain [illegible]	X				X
Painf[illegible]					
Clinical examination					
Brush allodynia	X	x			
Raised soft touch threshold					
Altered pin prick threshold	X				

Neuropathic pain screening tools rely largely on common verbal descriptors of pain

Select tool(s) based on ***ease of use*** and ***validation in the local language***

Some screening tools also include bedside neurological examination

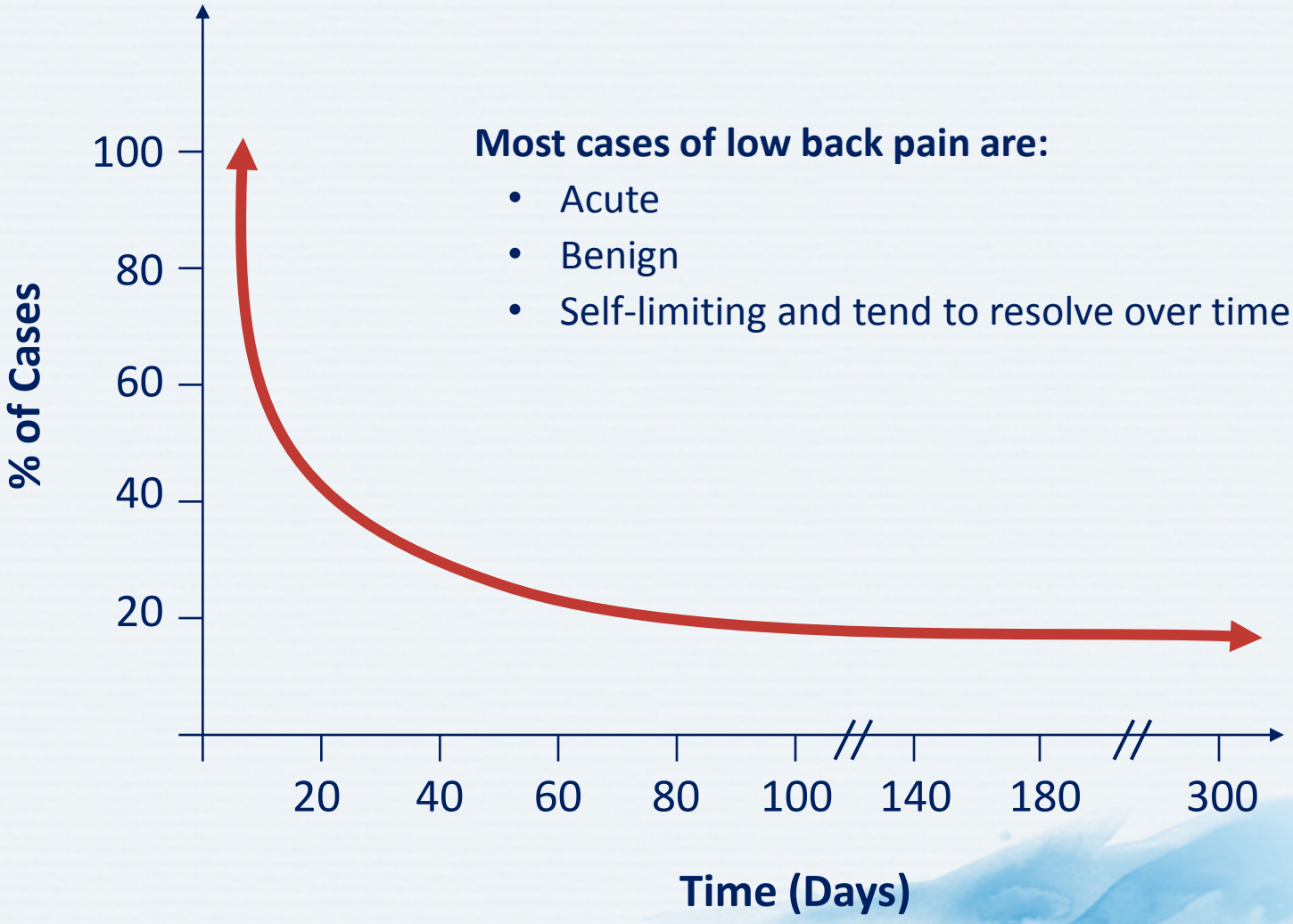
DN4 = Douleur Neuropathique en 4 Questions (DN4) questionnaire;
LANSS = Leeds Assessment of Neuropathic Symptoms and Signs; NPQ = Neuropathic Pain Questionnaire

Bennett MI *et al. Pain* 2007; 127(3):199-203; Haanpää M *et al. Pain* 2011; 152(1):14-27.

Discussion Question

HOW LONG DOES IT TAKE MOST OF YOUR PATIENTS TO RECOVER FROM LOW BACK PAIN?

Natural History of Low Back Pain

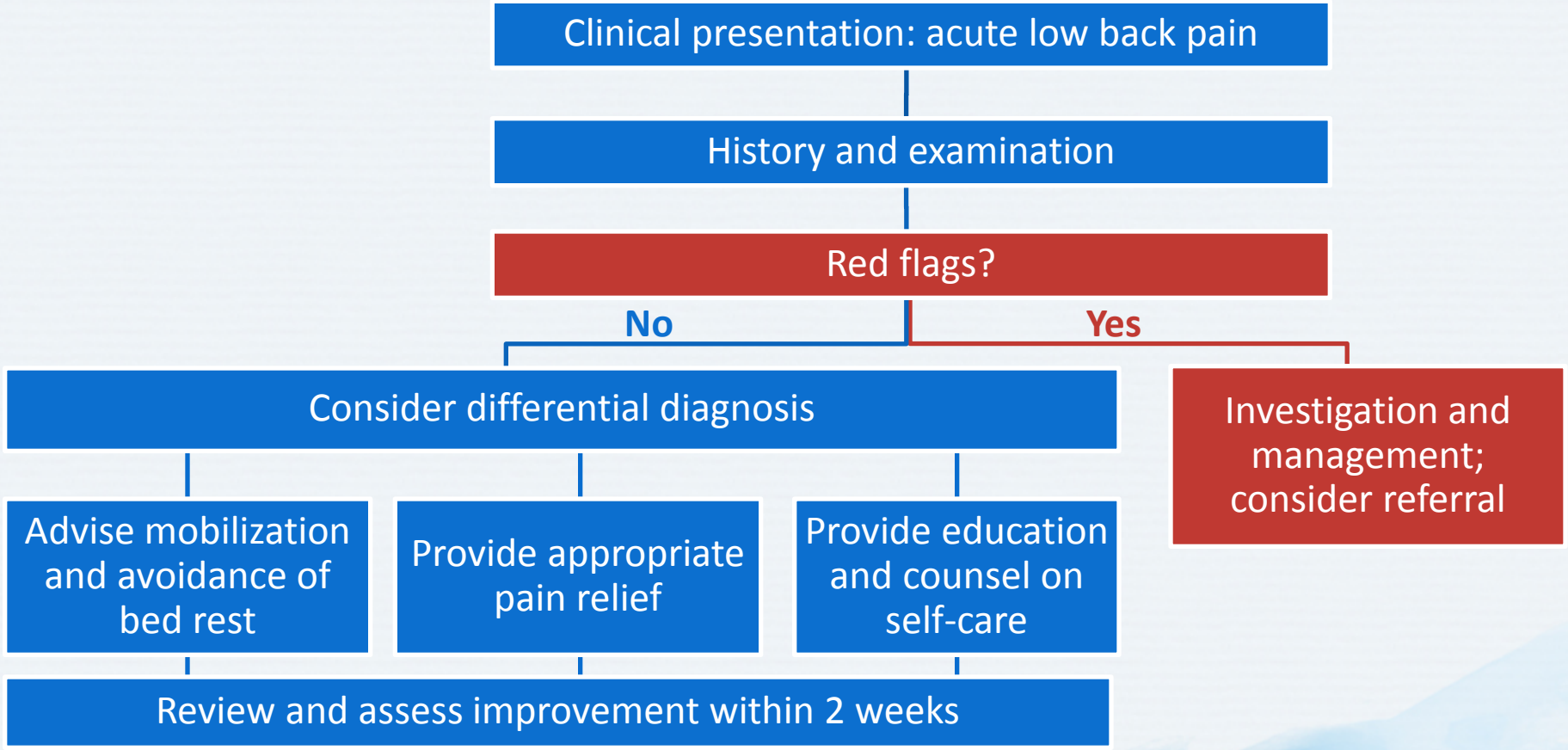


Most cases of low back pain are:

- Acute
- Benign
- Self-limiting and tend to resolve over time

Adapted from: Gunn CC *et al. Spine* 1980; 5(3):279-91.

Management of Acute Low Back Pain



Adapted from: Lee J *et al. Br J Anaesth* 2013; 111(1):112-20.

Discussion Question

WHEN DO YOU REFER PATIENTS WITH ACUTE LOW BACK PAIN TO A SPECIALIST?

"Red Flags" Require Immediate Investigation and/or Referral

Potential condition	Red flags	
Cancer	• Personal history of cancer • Weight loss	• Age >50 years
Infection	• Fever • Intravenous drug use	• Recent infection
Fracture	• Osteoporosis • Steroid use	• Trauma • Older age
Focal neurologic deficit	• Progressive or disabling symptoms	
Cauda equina syndrome	• Urinary retention • Multilevel motor deficit	• Fecal incontinence • Saddle anesthesia

Forseen. SE, Corey AS. *J Am Coll Radiol* 2012; 9(10):704-12.

Differential Diagnosis of Acute Low Back Pain

Intrinsic Spine	Systemic	Referred
• Compression fracture • Lumbar strain/sprain • Herniated disc • Spinal stenosis • Spondylolisthesis • Spondylolysis • Spondylosis (degenerative disc or facet joint	• Malignancy • Infection (e.g., vertebral discitis/osteomyelitis) • Connective tissue disease • Inflammatory spondyloarthropathy	• Gastrointestinal conditions (e.g., pancreatitis, peptic ulcer disease, cholecystitis) • Pelvic conditions (e.g., endometriosis, pelvic inflammatory disease, prostatitis) • Retroperitoneal conditions (e.g., renal colic, pyelonephritis) • Herpes zoster

It is important to identify and treat the underlying causes of pain whenever possible!

Casazza BA. *Am Fam Physician* 2012; 85(4):343-50.

Discussion Question

HOW FREQUENTLY DO YOU FOLLOW-UP WITH PATIENTS WHO PRESENT WITH ACUTE LOW BACK PAIN?

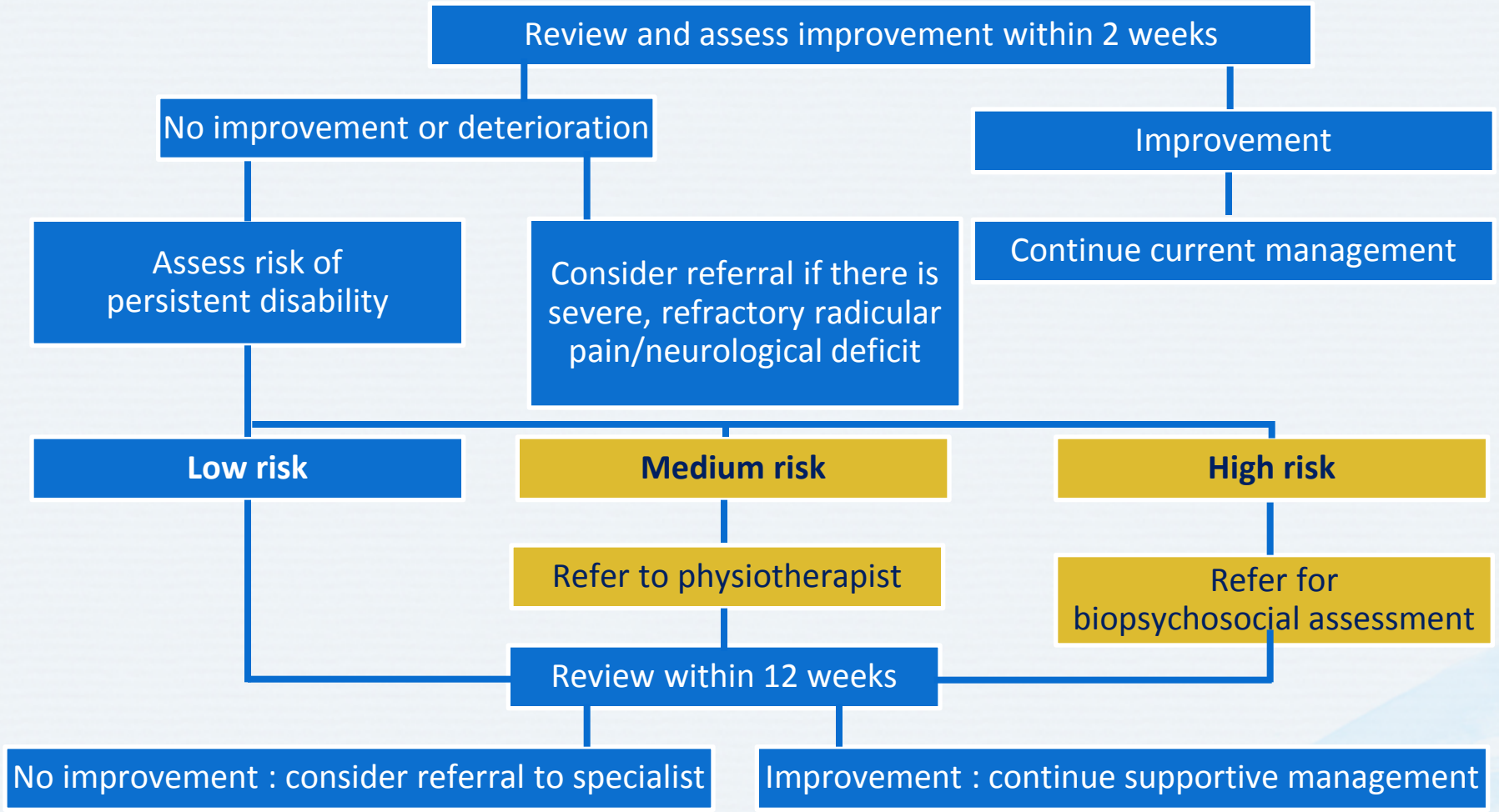
Recommendations for Follow-Up of Patients with Acute Low Back Pain

Patient Population	Frequency of Follow-up
All	• 2 weeks following initial visit • Follow-up options: telephone, e-mail or visit • Additional follow-up is indicated
Patients considered at high risk for chronic pain*	• Earlier and more frequent visits may be appropriate
Older patients or patients with: • Progression of symptoms or lack of significant improvement • Severe pain or functional deficit • Signs of nerve root disease or lumbar spinal stenosis	• Earlier and more frequent reassessment may be appropriate
Patients referred for spinal manipulation, acupuncture or massage	• After 4 visits, refer patient to a specialist to determine if functionality has improved

***See yellow flags; may also want to consider populations at risk if pain persists in the presence of adequate treatment: children and adolescents, women <30 years, men >60 years, patients with specific comorbidities (e.g., diabetes) and immunocompromised or immunosuppressed patients**

Ochoa G. In: Díaz Barriga JS, Gamarra AI (eds). *Libro Dolor Musculoesquelético*. Asociacion Colombiana para el Estudio del Dolor, ACED; Bogotá, Colombia: 2010; Savigny P *et al. Low Back Pain: Early Management of Persistent Non-specific Low Back Pain.* National Collaborating Centre for Primary Care and Royal College of General Practitioners; London, UK: 2009.

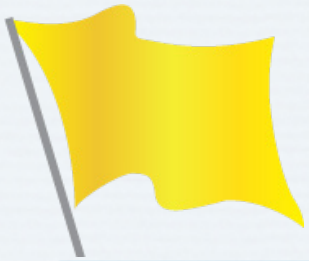
Follow-Up of Patients with Acute Low Back Pain



Adapted from: Lee J *et al. Br J Anaesth* 2013; 111(1):112-20.

Discussion Question

IN YOUR PRACTICE, DO YOU REGULARLY ASSESS RISK FOR DEVELOPING CHRONIC PAIN? IF SO, HOW?



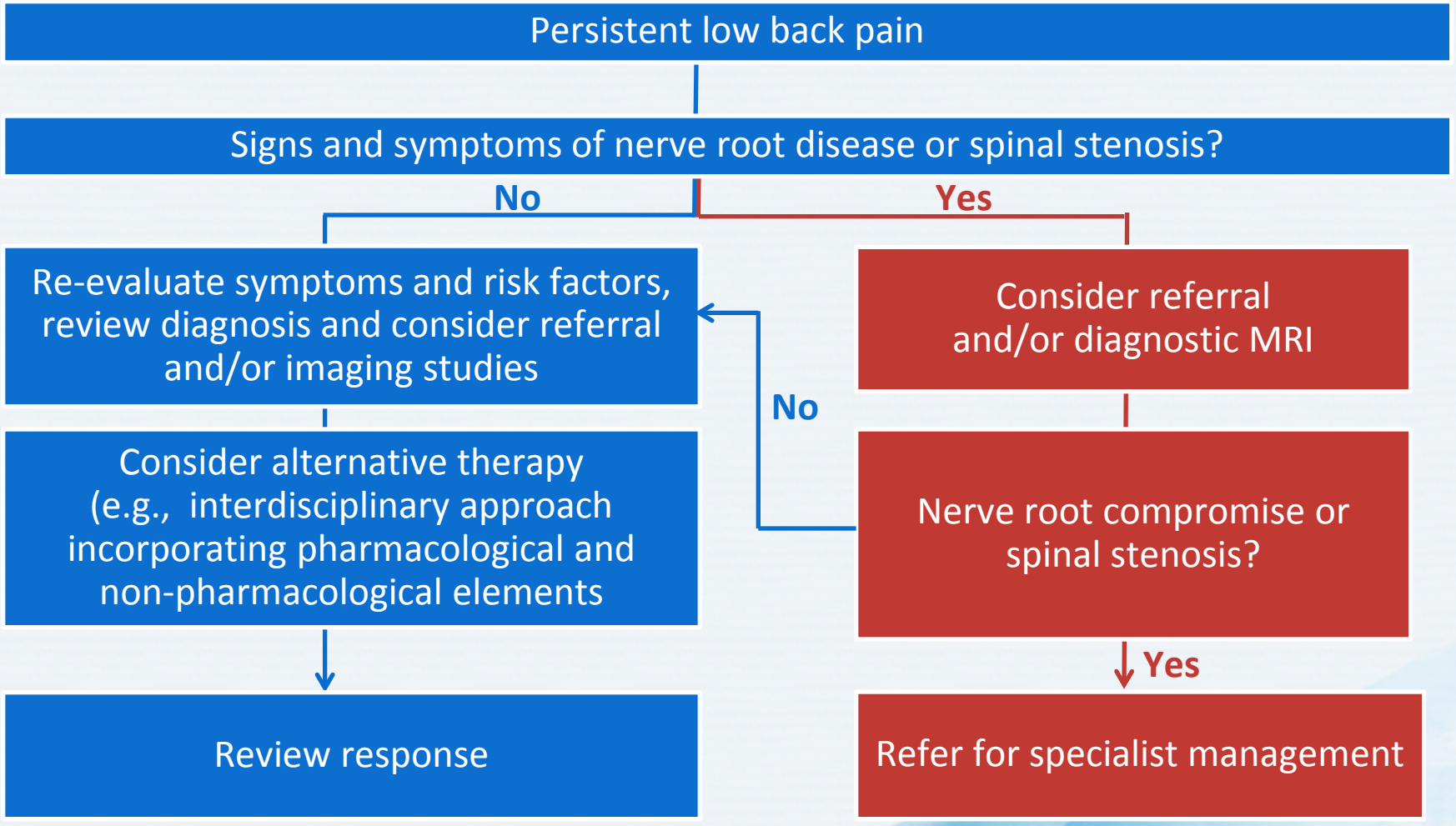
Patients at Risk of Developing Chronic Pain

Yellow flags are patient characteristics that can indicate long-term problems requiring greater attention by the physician, particularly in terms of returning to work.

- Pessimistic attitude toward pain, excessive fear of movement and activity and little hope for improvement
- Work-related problems (e.g., dissatisfaction, conflicts)
- Emotional problems (e.g., depression, anxiety, worry)
- Generalized pain (e.g., headache, fatigue, dizziness)
- Desire for passive treatment, little ability to be proactive
- Previous episodes of low back pain that were followed for an extended period of time

Laerum E *et al. Tidsskr Nor Laegeforen* 2010; 130(22):2248-51.

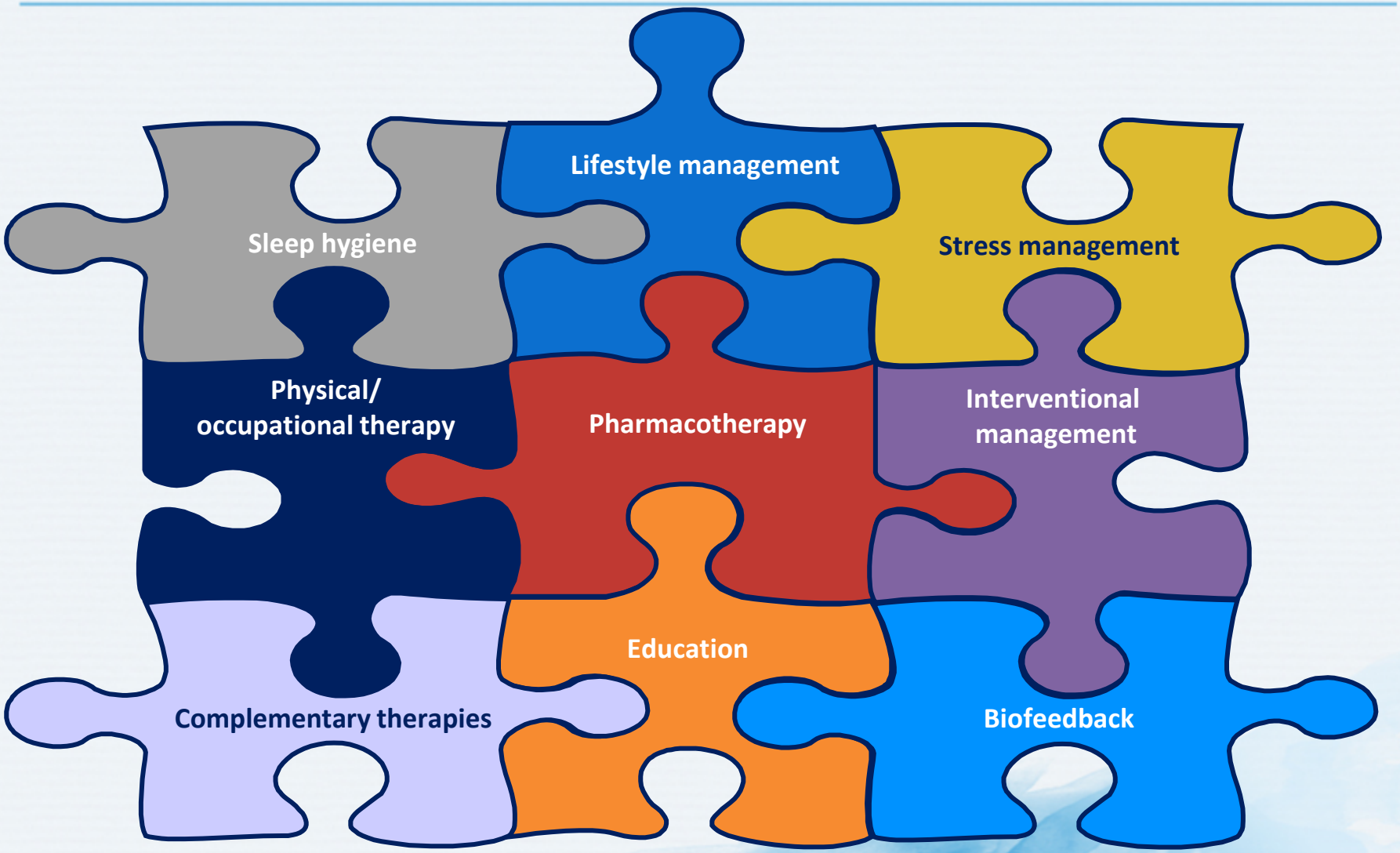
Management of Persistent Low Back Pain*



***American College of Physicians and the American Pain Society**

Adapted from: Chou R *et al. Ann Intern Med* 2007; 147(7): 478-91.

Multimodal Treatment of Low Back Pain



Gatchel RJ *et al. Psychol Bull* 2007; 133(4):581-624; Institute of Medicine. *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*; National Academies Press; Washington, DC: 2011; Mayo Foundation for Medical Education and Research. *Comprehensive Pain Rehabilitation Center Program Guide.* Mayo Clinic; Rochester, MN: 2006.

Discussion Question

WHAT NON-PHARMACOLOGICAL APPROACHES TO MANAGING LOW BACK PAIN DO YOU INCORPORATE INTO YOUR PRACTICE?

WHAT NON-PHARMACOLOGICAL MODALITIES YOUR PATIENTS REGULARLY ASK ABOUT?

Non-pharmacological Treatments for Low Back Pain

Moderate Evidence of Effectiveness	
Therapy and exercise	Moderately effective in pain relief and functional improvement in adults with low back pain
Cognitive-behavioral therapy	May reduce pain and disability in patients with chronic and subacute low back pain
Intensive multidisciplinary biopsychosocial reh	
Massage	ain
Yoga	
Heat therapy	ck pain
Medium-firm mattre	
Transcutaneous electrical nerve stimulation	Controversial with evidence both for and against
Sufficient Evidence of Effectiveness	
Function-centered treatment	More effective than pain-centered treatment for an increase in days able to work in patients with subacute low back pain lasting more than 6 weeks
Acupuncture	More effective than conventional therapy but not more effective than sham acupuncture

Evidence suggests bed rest and traction are **NOT** useful

Chou R *et al. Spine (Phila PA 1976)* 2009; 34(10):1066-77; Dagenais S *et al. Spine J* 2008; 8(1):203-12; Gay RE, Brault JS. *Spine J* 2008; 8(1):234-42; Hagen *KB et al. Spine (Phila PA 1976)* 2005; 30(5):542-6; Oleske D *et al. Spine 2007; 3*2(19):2050-7; Pillastrini P *et al. Joint Bone Spine* 2012*;* 79(2):176-85; Ramos-Remus CR *et al. Curr Med Res Opin* 2004; 20(5):691-8; Romanò CL *et al. J Orthop Traumatol* 2009; 10(4):185-91; Sakamoto C, Soen S. *Digestion* 2011; 83(1-2):108-23; Savigny P *et al. Low Back Pain: Early Management of Persistent Non-specific Low Back Pain*. National Collaborating Centre for Primary Care and Royal College of General Practitioners; London, UK: 2009; Toward Optimized Practice. *Guidelines for the Evidence-Informed Primary Care Management of Low Back Pain.* Edmonton, AB: 2009.

Pharmacotherapy for Low Back Pain

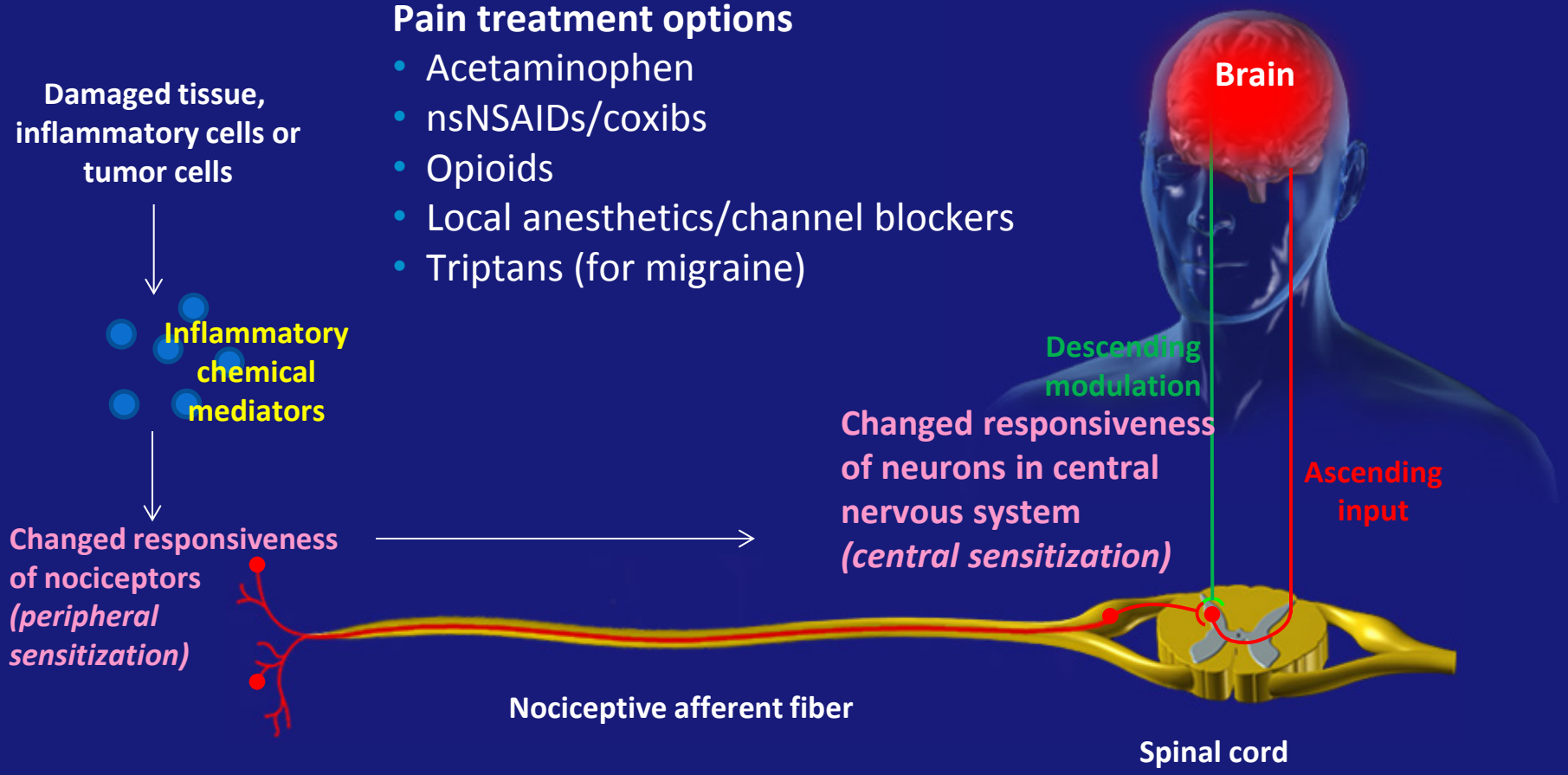
- Treatment must balance patient expectations for pain relief and possible analgesic effect of therapy
- Patients should be educated about the medication, treatment objectives and expected results
- Psychosocial factors and emotional distress are stronger predictors of treatment outcome than physical examination findings or the duration and severity of pain

Miller S. *Prim Care* 2012; 39(3):499-510.

Treatment of Inflammatory Pain

Pain treatment options

- Acetaminophen
- nsNSAIDs/coxibs
- Opioids
- Local anesthetics/channel blockers
- Triptans (for migraine)



Coxib = COX-2-specific inhibitor; nsNSAID = non-specific non-steroidal anti-inflammatory drug

Scholz J, Woolf CJ. *Nat Neurosci* 2002; 5(Suppl):1062-7.

Acetaminophen for Management of Low Back Pain

Efficacy	Safety	Mechanism of Action
• Effective • Efficacy improved by addition of nsNSAIDs or coxibs	• Favorable safety profile and low cost • May cause liver damage at doses higher than 4 g/day	• Unclear

Acetaminophen is the first-line option in acute and chronic low back pain.

Coxib = COX-2-specific inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug

Chou R *et al. Ann Intern Med* 2007; 147(7):505-14; Lee C *et al. Arthritis Rheum* 2004; 51(5):746-54; Lee J *et al. Br J Anaesth* 2013; 111(1):112-20; Mattia A, Coluzzi F. *Minerva Anestesiol* 2009; 75(11):644-53; Watkins PB *et al. JAMA* 2006; 296(1):87-93.

nsNSAIDs/Coxibs for Management of Low Back Pain

Efficacy	Safety	Mechanism of Action
• Effective • More effective than acetaminophen alone • Improved efficacy in combination with acetaminophen	• Gastrointestinal risk • Cardiovascular risk • Renal risk	• Block action of COX-2 enzyme, which is induced by inflammatory stimuli and results in increased production of prostaglandins • Coxibs specifically inhibit COX-2, while nsNSAIDs block action of COX-2 and COX-1 enzyme, which is involved in gastrointestinal cytoprotection and platelet activity

First-line option in acute and chronic low back pain

CI = confidence interval; coxib = COX-2-specific inhibitor;
nsNSAID = non-selective non-steroidal anti-inflammatory drug; RR = relative risk

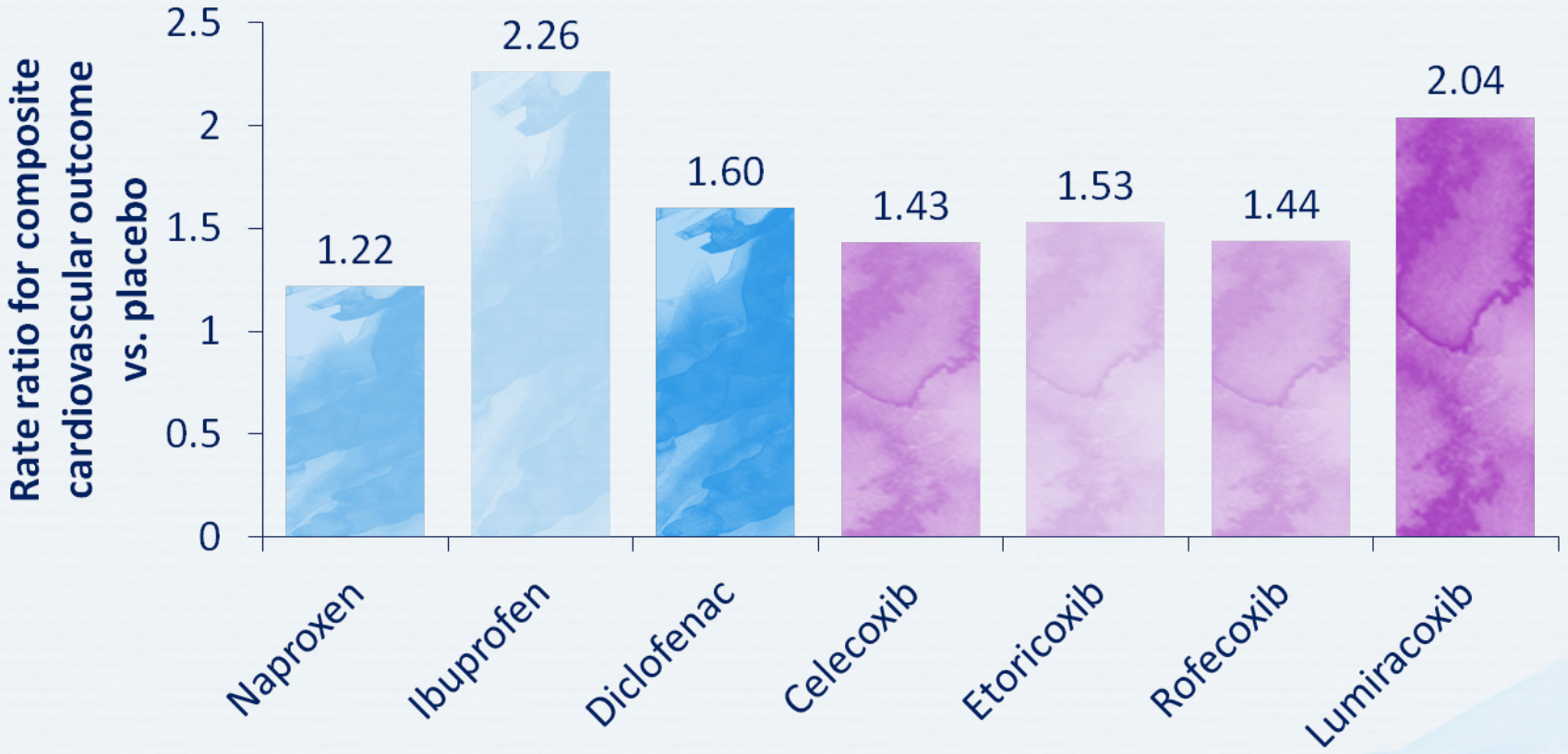
Chou R *et al. Ann Intern Med* 2007; 147(7):505-14; Lee J *et al. Br J Anaesth* 2013; 111(1):112-20; Schnitzer TJ *et al. J Pain Symptom Manage* 2004; 28(1):72-95; van Tulder M *et al. Cochrane Database Syst Rev* 2000; 2:CD000396; Vane JR, Botting RM. *Inflamm Res* 1995;44(1):1-10.

Discussion Question

HOW DO YOU EVALUATE GASTROINTESTINAL AND CARDIOVASCULAR RISK IN PATIENTS FOR WHOM YOU ARE CONSIDERING PRESCRIBING A NSNSAID OR A COXIB?

Coxib = COX-2-specific inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug

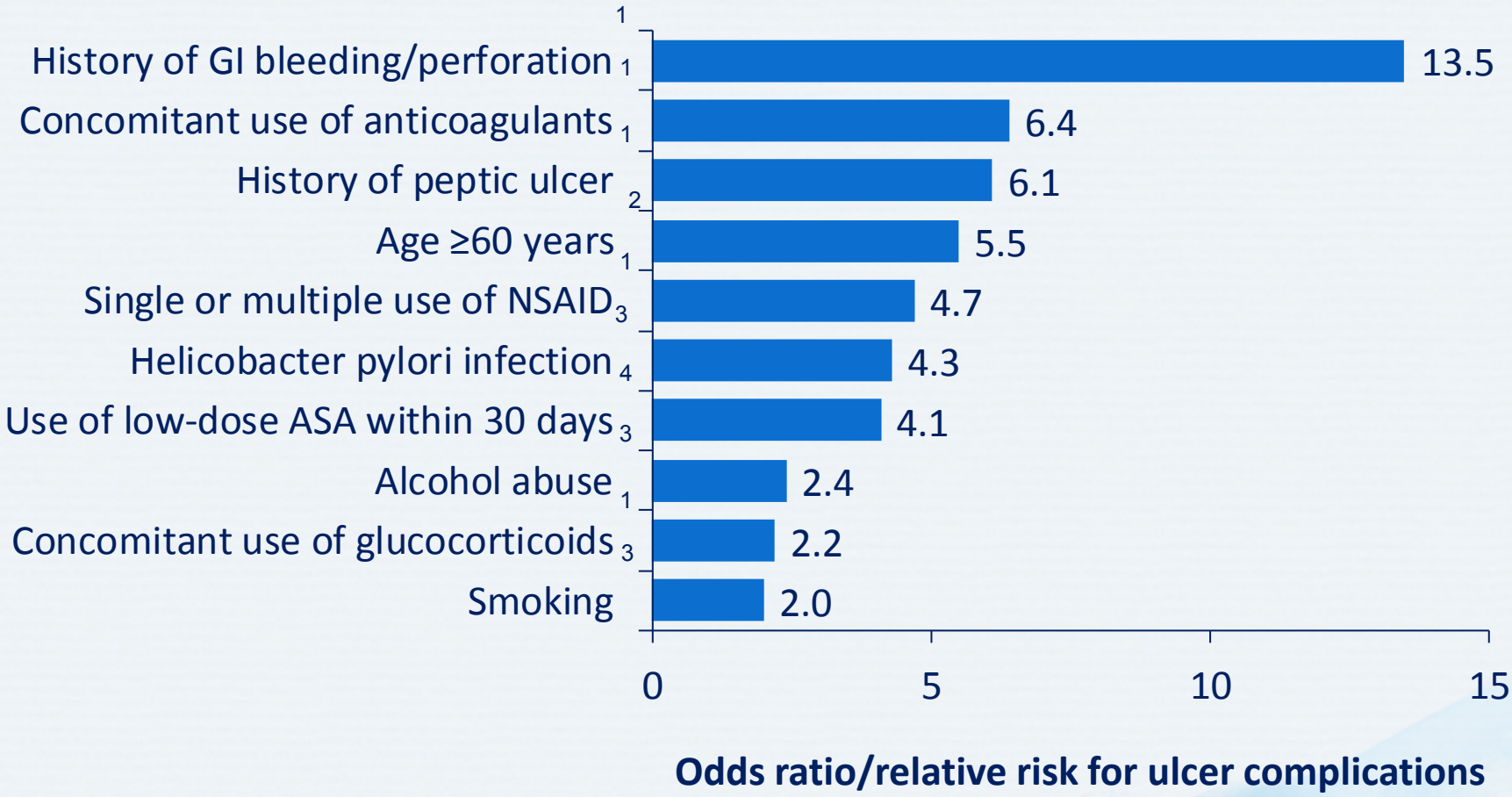
nsNSAIDs/Coxibs and Cardiovascular Risk



Composite includes non-fatal myocardial infarction, non-fatal stroke, or cardiovascular death compared with placebo; chart based on network meta-analysis involving 30 trials and over 100,000 patients.
Coxib = COX-2 inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug

Trelle S *et al. BMJ* 2011; 342:c7086.

Risk Factors for Gastrointestinal Complications Associated with nsNSAIDs/Coxibs



ASA = acetylsalicylic acid; coxib = COX-2-specific inhibitor; GI = gastrointestinal; NSAID = non-steroidal anti-inflammatory drug; nsNSAID = non-selective non-steroidal anti-inflammatory drug; SSRI = selective serotonin reuptake inhibitor

1. Garcia Rodriguez LA, Jick H. *Lancet* 1994; 343(8900):769-72; 2. Gabriel SE *et al*. *Ann Intern Med* 1991; 115(10):787-96;
3. Bardou M. Barkun AN. *Joint Bone Spine* 2010; 77(1):6-12; 4. Garcia Rodríguez LA, Hernández-Díaz S. *Arthritis Res* 2001; 3(2):98-101.

Gastrointestinal Effects of nsNSAIDs/Coxibs Beyond the Upper Gastrointestinal Tract

- There is strong evidence to suggest potentially clinically relevant adverse gastrointestinal events are not limited to the upper gastrointestinal tract
- Studies suggest NSAIDs also increase the risk for **lower*** gastrointestinal clinical events

***Lower gastrointestinal means distal to the ligament of Treitz or fourth segment of the duodenum**
Coxib = COX-2-specific inhibitor; GI = gastrointestinal; nsNSAID = non-selective non-steroidal anti-inflammatory drug

Ilison MC *et al. N Engl J Med* 1992; 327(11):749-54; Lanas A, Sopeña F. *Gastroenterol Clin N Am* 2009; 38(2):333-53; Fujimori S *et al. Gastro Endoscopy* 2009; 69(7):1339-46; Laine L *et al. Gastroenterology* 2003; 124(2):288-92; Chan FK *et al. N Engl J Med* 2002; 347(26):2104-10.

Opioids for the Management of Low Back Pain

Acute or chronic severe low back pain for short periods of time

Efficacy	Safety	Mechanism of Action
• Effective • Evidence insufficient to recommend one opioid over another • Efficacy enhanced by addition of acetaminophen and/or nsNSAIDs/coxibs	• Multiple side effects • Potential for **abuse** or **addiction**	• Alter limbic system activity • Modify sensory and affective pain aspects • Activate descending pathways that modulate transmission in spinal cord • Affect transduction of pain stimuli to nerve impulses

Coxib = COX-2-specific inhibitor; nsNSAID = non-specific non-steroidal anti-inflammatory drug

Chou R *et al. J Pain Symptom Manage* 2003; 26(5):1026-48; Chou R et al. *J Pain* 2009; 10(2):113-30; Furlan AD *et al. CMAJ* 2006; 174(11):1589-94; Kalso E *et al. Pain* 2004; 112(3):372-80; Lee J *et al. Br J Anaesth* 2013; 111(1):112-20; Martell BA *et al. Ann Intern Med* 2007; 146(2):116-27; Rauck RL *et al. J Opioid Manag* 2006; 2(3):155-66; Reisine T, Pasternak G. In: Hardman JG *et al* (eds). *Goodman and Gilman's: The Pharmacological Basics of Therapeutics.* 9th ed. McGraw-Hill; New York, NY: 1996; Scholz J, Woolf CJ. *Nat Neurosci* 2002; 5(Suppl):1062-7; Trescot AM *et al. Opioid Pharmacol Pain Phys* 2008; 11(2 Suppl):S133-53.

Tramadol for the Management of Low Back Pain

- "Atypical" opioid analgesic
- Unique mechanism of action
  - Noradrenergic and serotoninergic pathways
  - Opioid effect depends on conversion to active O-demethylated metabolite M1
- Weak binding affinity to mu opioid receptor
- Clinical studies of efficacy in low back pain
- Consider avoiding use in patients with diabetes due to potential for hypoglycemia

Baer P *et al. Can J Diagnosis* 2010; 27(10):43-50; Deshpande A et al. *Cochrane Database Syst Rev* 2007; 3:CD004959; Janssen Pharmaceuticals Inc. *Tramadol Hydrochloride Tablets Full Prescribing Information.* Titusville, NJ: 2013; Jonville-Bera A *et al. Therapie* 2010; 65(5):499-500;.Schofferman J, Mazanec D. *Spine J* 2008; 8(1):185-94; Taugourdeau S *et al. Rev Med Interne* 2011; 32(11):703-5; Vorsanger GJ *et al. J Opioid Manag* 2008; 4(2):87-97.

Discussion Question

WHAT POTENTIAL SIDE EFFECTS DO YOU DISCUSS WITH PATIENTS FOR WHOM YOU ARE CONSIDERING PRESCRIBING AN OPIOID?

Adverse Effects of Opioids

System	Adverse effects
Gastrointestinal	Nausea, vomiting, constipation
CNS	Cognitive impairment, sedation, lightheadedness, dizziness
Respiratory	Respiratory depression
Cardiovascular	Orthostatic hypotension, fainting
Other	Urticaria, miosis, sweating, urinary retention

CNS = central nervous system

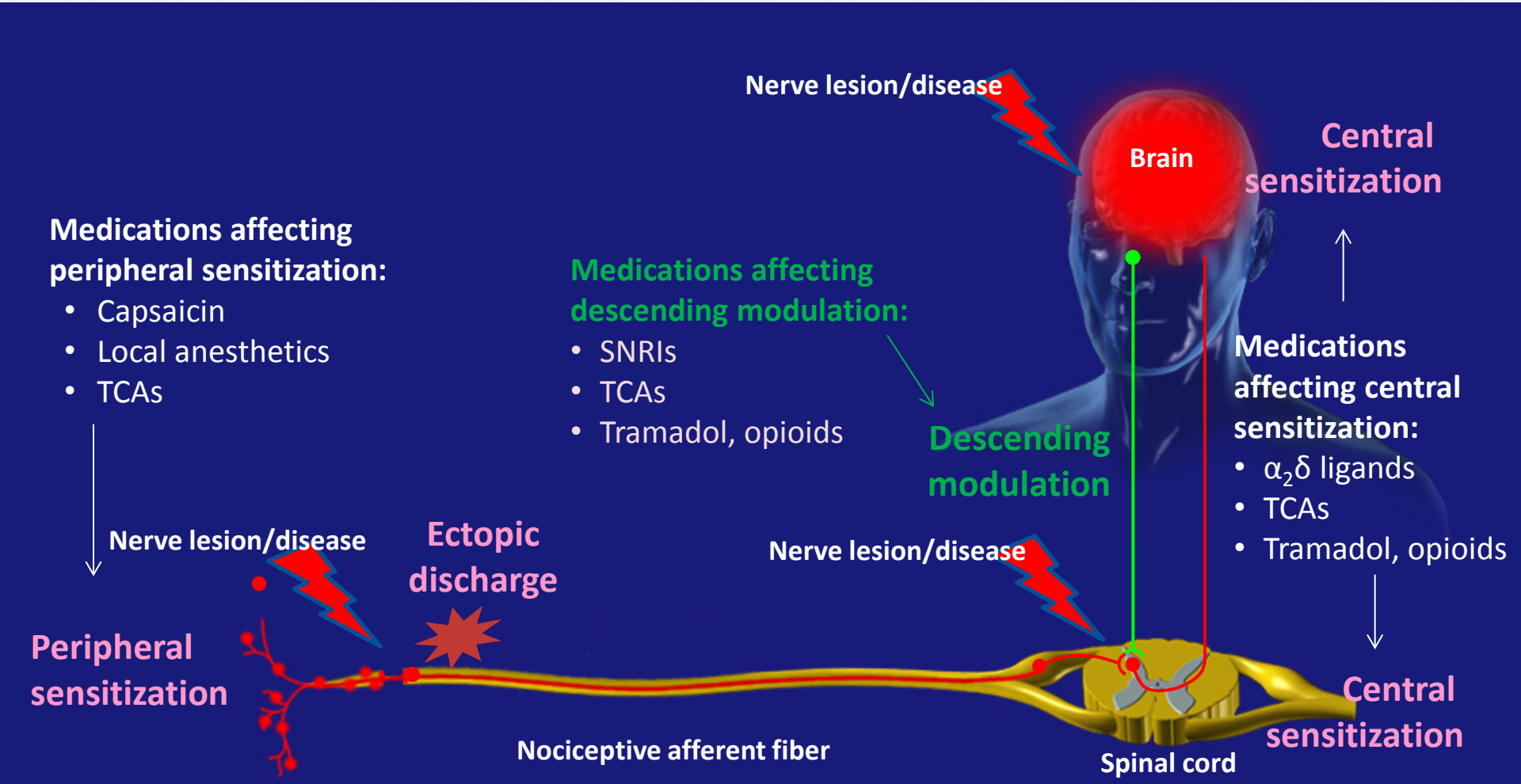
Moreland LW, St Clair EW. *Rheum Dis Clin North Am* 1999; 25(1):153-91; Yaksh TL, Wallace MS. In: Brunton L *et al* (eds). *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. 12th ed. (online version). McGraw-Hill; New York, NY: 2010.

Muscle Relaxants for Management of Low Back Pain

- Diverse group of drugs
- Mechanisms of action not clarified
- Use is controversial, mainly due to side effects and potential for abuse and dependency
- Guidelines do not universally recommend use of muscle relaxants in management of low back pain
- Provide short-term relief of low back pain
  - No differences in efficacy and safety
  - Very few short-term studies
  - No evidence supports long-term use or recommends one over the other

Chou R *et al. J Pain Symptom Manage* 2004; 28(2):140-75; van Tulder MW *et al. Spine (Phila PA 1976)* 2003; 28(17):1978-92.

Mechanism-Based Pharmacological Treatment of Neuropathic Pain



SNRI = serotonin-norepinephrine reuptake inhibitor; TCA = tricyclic antidepressant

Adapted from: Attal N *et al. Eur J Neurol* 2010; 17(9):1113-e88; Beydoun A, Backonja MM. *J Pain Symptom Manage* 2003; 25(5 Suppl):S18-30; Jarvis MF, Boyce-Rustay JM. *Curr Pharm Des* 2009; 15(15):1711-6; Gilron I *et al. CMAJ* 2006; 175(3):265-75; Moisset X, Bouhassira D. NeuroImage 2007; 37(Suppl 1):S80-8; Morlion B. Curr Med Res Opin 2011; 27(1):11-33; Scholz J, Woolf CJ. Nat Neurosci 2002; 5(Suppl):1062-7.

α2δ Ligands* for Management of Low Back Pain

Useful in combination with other treatments for low back pain with a neuropathic component

Efficacy	Safety	Mechanism of Action
• Pregabalin + coxib combination is more effective than each drug used alone for management of chronic low back pain	• Most common side effects are dizziness and somnolence	• Bind to $\alpha_2\delta$ subunit of calcium channel, which is upregulated in neuropathic pain • Binding reduces neurotransmitter release and pain sensitization

***Gabapentin and pregabalin are $\alpha_2\delta$ ligands**
Coxib = COX-2-specific inhibitor

Attal N, Finnerup NB. *Pain Clinical Updates* 2010; 18(9):1-8; Bauer CS *et al. J Neurosci* 2009; 29(13):4076-88;
Chou R *et al. Ann Intern Med* 2007; 147(7):505-14; Lee J *et al. Br J Anaesth* 2013; 111(1):112-20; Romanó C *et al. J Orthop Traumatol* 2009; 10(4):185.

Antidepressants for Management of Low Back Pain

Useful in combination with other treatments for low back pain with a neuropathic component

Efficacy	Safety	Mechanism of Action
• Not recommended for non-specific acute low back pain • May be considered for low back pain with a neuropathic component	• TCAs can cause cognitive disorders, confusion, gait disturbance and falls • SNRIs are contraindicated in severe hepatic dysfunction or unstable arterial hypertension	• Inhibit reuptake of serotonin and norepinephrine, enhancing descending modulation

TCA = tricyclic antidepressant; SNRI = serotonin norepinephrine reuptake inhibitor

Attal N, Finnerup NB. *Pain Clinical Updates* 2010; 18(9):1-8; Lee J *et al. Br J Anaesth* 2013; 111(1):112-2; Skljarevski V *et al. Eur J Neurol* 2009; 16(9):1041-8; Verdu B *et al. Drugs* 2008; 68(18):2611-32.

Therapies Not Recommended for Low Back Pain

ASA	Benzodiazepines	Systemic Corticosteroids
• Insufficient evidence to permit recommendation of its use as an analgesic in patients with low back pain	• Risk of abuse, addiction and tolerance	• Oral or parenteral • No more effective than placebo

ASA = acetylsalicylic acid

Arbus L *et al. Clin Trials J* 1990; 27:258-67; Chou R *et al. Ann Intern Med* 2007; 147(7):505-14; Derry S *et al. BMJ* 2000; 321(7270):1183-7; Evans DP *et al. Curr Med Res Opin* 1980; 6(8):540-7; Finckh A *et al. Spine (Phila PA 1976).* 2006; 31(4):377-81; Friedman BW *et al. J Emerg Med* 2006; 31(4):365-70; Haimovic IC, Beresford HR. *Neurology* 1986; 36(12):1593-4; Medina Santillán R *et al. Proc West Pharmacol Soc* 2000; 43:69-70.

Key Recommendations for Management of Acute Low Back Pain

Level A (Consistent Evidence)	Level B (Inconsistent Evidence)	Level C (Consensus)
• Bed rest is **not recommended** • nsNSAIDs/coxibs, acetaminophen and muscle relaxants are effective treatments for **non-specific** acute low back pain	• Patient education is beneficial • Spine stabilization may reduce recurrence and need for health care services • Spinal manipulation and chiropractic techniques are **not recommended**	• Red flags are common but do not necessarily indicate serious pathology • Imaging is not indicated without findings suggestive of serious pathology

Coxib = COX-2 inhibitor; nsNSAID = non-steroidal anti-inflammatory drug

Casazza BA. *Am Fam Physician* 2012; 85(4):343-50.

Therapeutic Recommendations for Management of Low Back Pain

	Non-specific Low Back Pain	Radicular Pain
Acute	• Acetaminophen • nsNSAIDs/coxibs • Co-prescribe PPI for patients aged >45 years • Weak opioids • Muscle relaxants	If radicular pain is prominent consider addition of: • $\alpha^2\delta$ ligands • TCAs
Chronic	Refer to specialist for: • Cognitive behavioral therapy • Complex pharmacological management, including opioids and neuropathic pain medications • Consider interventional pain therapies • Consider surgery	

Coxib = COX-2-specific inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug; PPI = proton pump inhibitor; TCA = tricyclic antidepressant

Adapted from: Lee J *et al. Br J Anaesth* 2013; 111(1):112-20.

Key Messages

- Most people suffer from low back pain at some point in their life
- 90% of the time low back pain is benign and self-limiting
  - "Yellow flags" may help identify individuals at risk for chronic pain
- "Red flags" requiring immediate action should be assessed in all patients presenting with low back pain
- Pain should be addressed using an interdisciplinary approach including patient education and non-pharmacological therapies

Key Messages (cont'd)

- Pharmacotherapy for acute low back pain may include acetaminophen, nsNSAIDs/coxibs, weak opioids and/or muscle relaxants
  - Addition of α2δ ligands or TCAs should be considered if radicular pain is present
- Patients with low back pain of longer duration should be assessed for neuropathic and central sensitization/ dysfunctional pain
  - These patients may require referral to a specialist

Coxib = COX-2-specific inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug; TCA = tricyclic antidepressant