
KNOW
CHRONIC
JOINT
PAIN

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This program was sponsored by Pfizer Inc.

Learning Objectives

- After completing this module, participants will be able to:
  - Discuss the prevalence of chronic joint pain, including osteoarthritis
  - Understand the impact of chronic joint pain and its comorbidities on patient functioning and quality of life
  - Explain the pathophysiology of chronic joint pain
  - Assess and diagnose patients presenting with chronic joint pain
  - Select appropriate pharmacological and non-pharmacological strategies to manage chronic joint pain
  - Know when to refer patients to specialists

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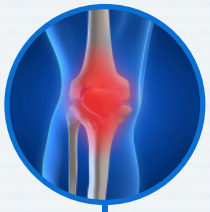
What is chronic joint pain?

- Joint pain that persists beyond the normal expected tissue healing time of 3 months
- A wide variety of conditions can cause chronic joint pain



Chronic joint pain

Mechanical

Inflammatory

Tumor-related

e.g., osteoarthritis, soft tissue injury, etc.

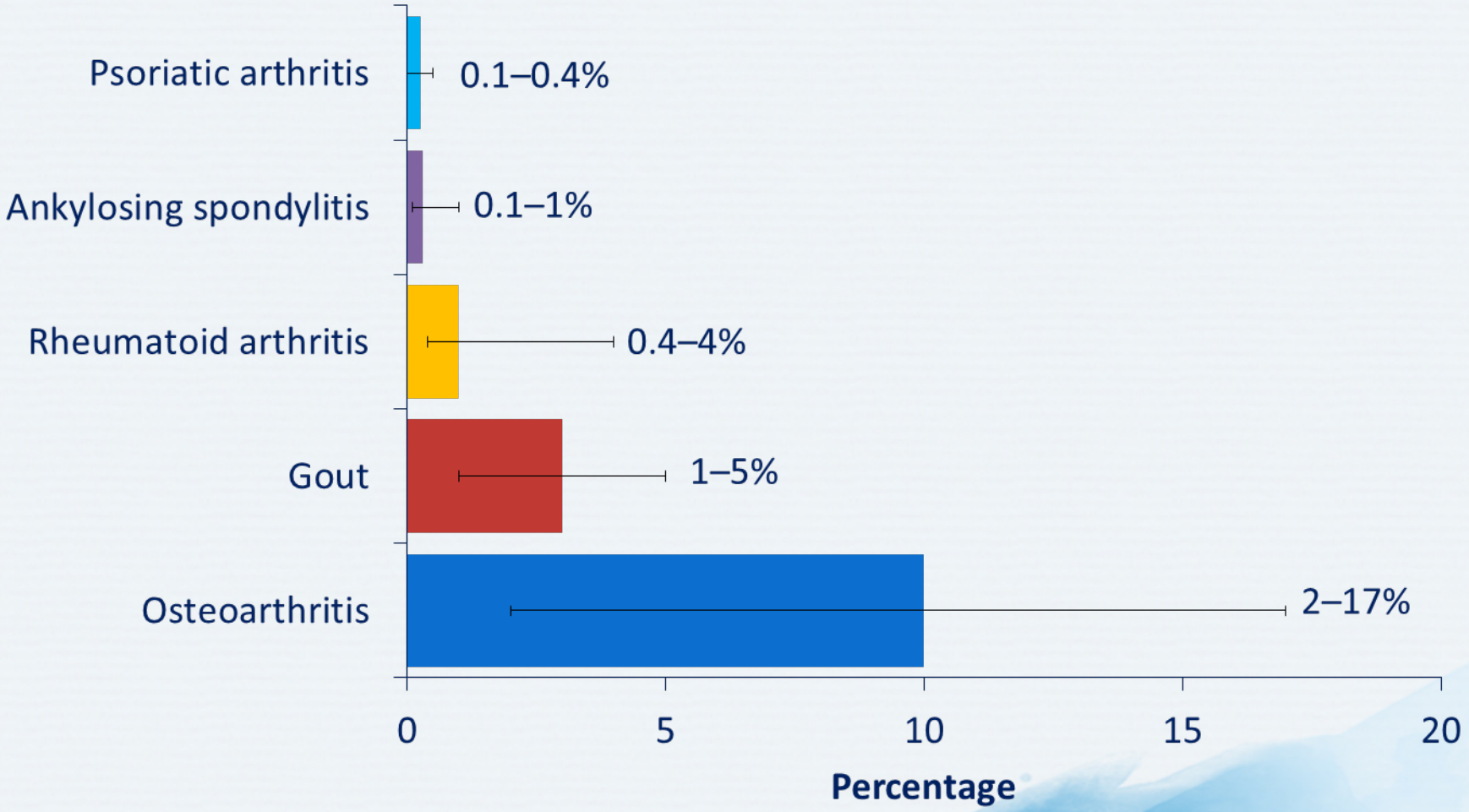
e.g., rheumatoid arthritis, bursitis, etc.

Davatchi F. In: Kopf A, Patel NB (eds). *Guide to Pain Management in Low-Resource Settings.* IASP Press; Seattle, WA: 2010; 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 19, 2013; Nielsen GP *et al. Semin Diagn Pathol* 2011; 28(1):37-52.

Discussion Questions

WHAT PROPORTION OF PATIENTS IN YOUR PRACTICE SUFFER FROM JOINT PAIN? WHAT IS THE MOST COMMON CAUSE OF JOINT PAIN AMONG YOUR PATIENTS?

Prevalence of Specific Conditions Associated with Chronic Joint Pain



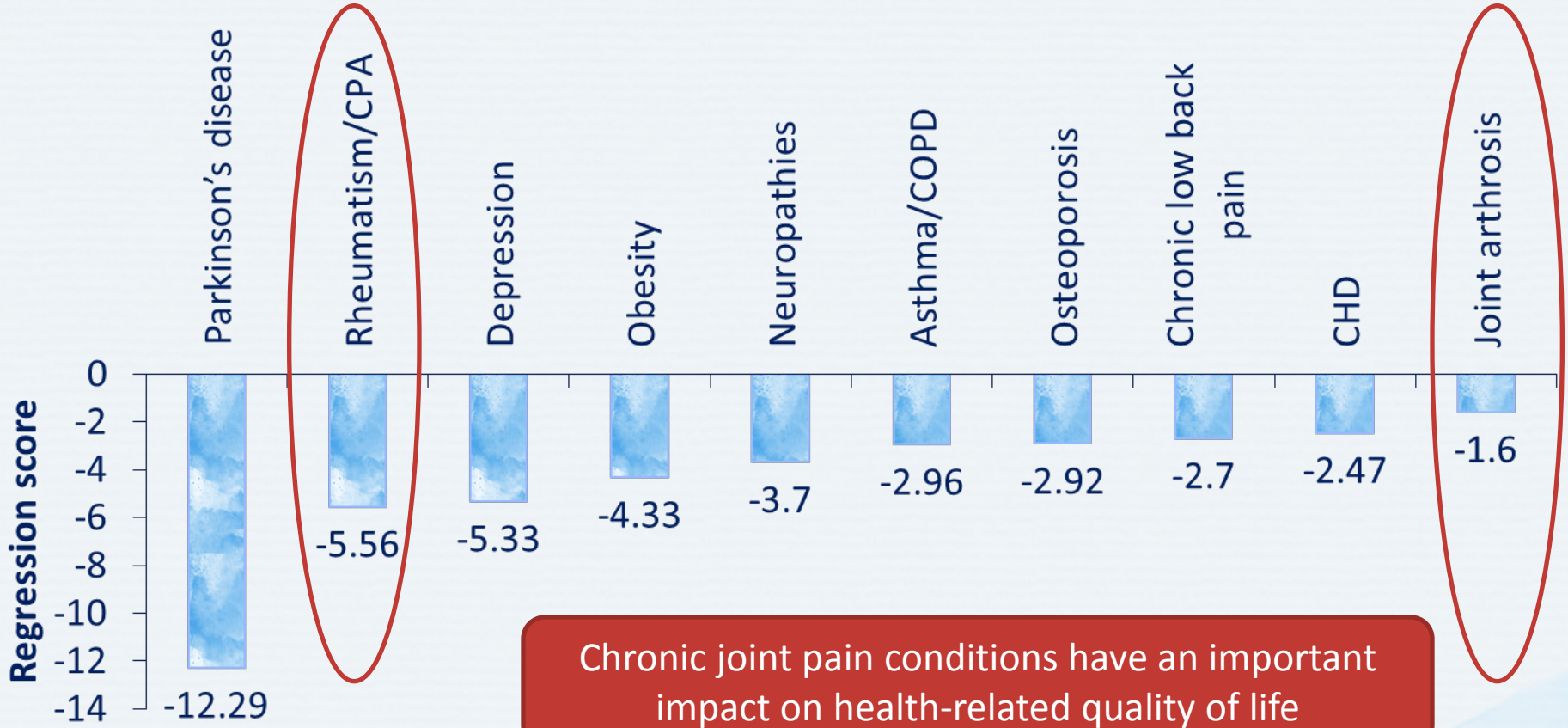
Mayo Clinic. *Arthritis*. Available at: https://healthletter.mayoclinic.com/secure/pdf/SRAR.pdf. Accessed: August 19, 2013;
Wong R *et al. Prevalence of Arthritis and Rheumatic Diseases Around the World: A Growing Burden and Implications for Health Care Needs.* Arthritis Community Research and Evaluation Unit; Toronto, ON: 2010.

Discussion Questions

IN WHAT WAYS DOES JOINT PAIN IMPACT YOUR PATIENTS' QUALITY OF LIFE?

HOW DOES THIS INFLUENCE HOW YOU MANAGE THESE PATIENTS?

Impact of Chronic Conditions on Health-Related Quality of Life



Chronic joint pain conditions have an important impact on health-related quality of life

Note: a larger negative score indicates a greater impact on health-related quality of life
CHD = coronary heart disease; COPD = chronic obstructive pulmonary disease; CPA = chronic polyarthritis

Brettschneider C *et al. PLoS One* 2013; 8(6):e66742.

Treating Underlying Causes of Joint Pain

- Many different conditions present with joint pain
  - Understanding clinical, laboratory and radiological features of these diseases can lead to early diagnosis and appropriate therapy
- Prompt recognition of underlying disease and institution of proper therapy can lead to improved prognosis

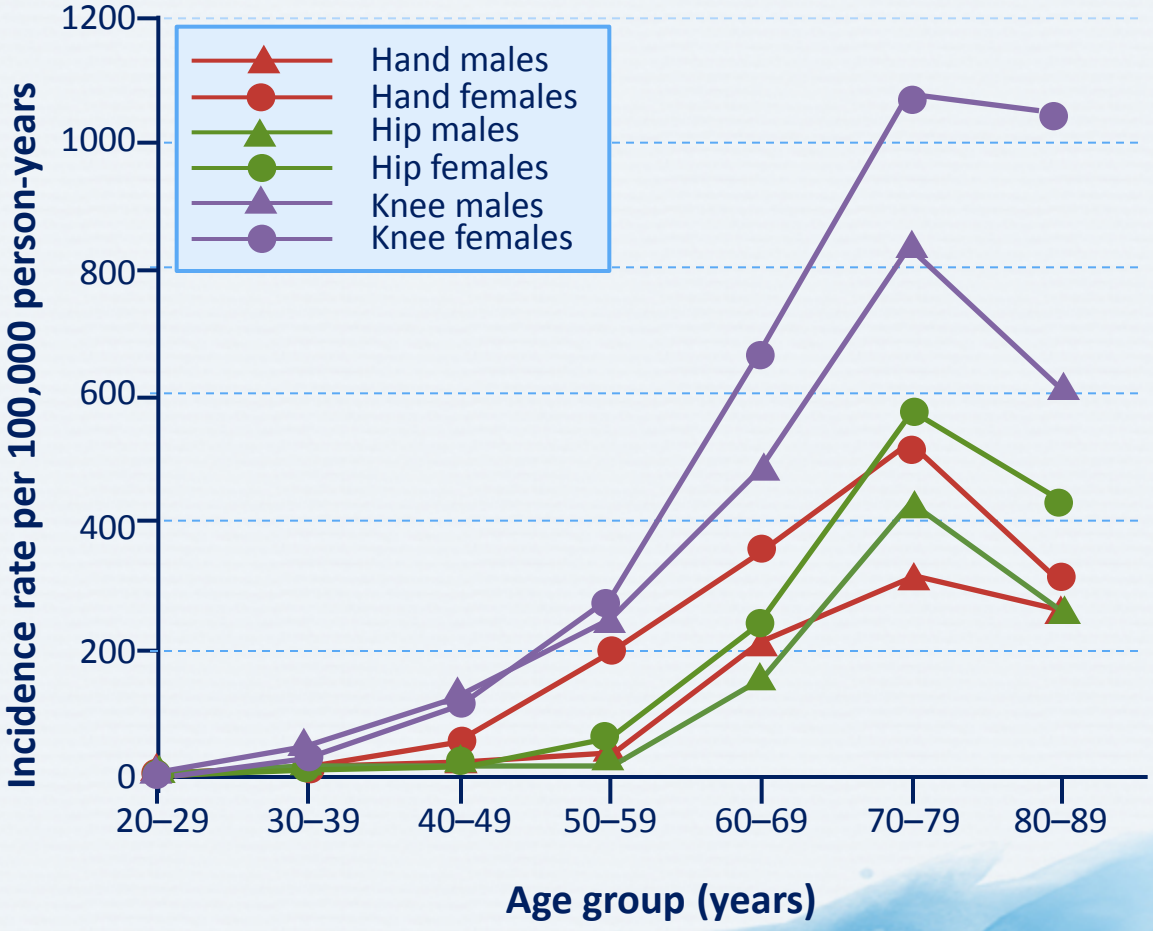
Polyarticular joint pain. In: *The Merck Manual for Health Care Professionals*. Available at: http://www.merckmanuals.com/professional/musculoskeletal_and_connective_tissue_disorders/symptoms_of_joint_disorders/polyarticular_joint_pain.html. Access: August 9, 2013.

Osteoarthritis: Most Common Form of Chronic Joint Pain

- Affects:
  - 13.9% of adults aged 25 years and older
  - 33.6% of those 65 years and older
- As the general population ages, the numbers of people affected are likely to increase dramatically

Centers for Disease Control. *Arthritis-Related Statistics*. Available at: http://www.cdc.gov/arthritis/data_statistics/arthritis_related_stats.htm. Accessed: July 19, 2013.

Incidence of Osteoarthritis of the Hand, Hip and Knee



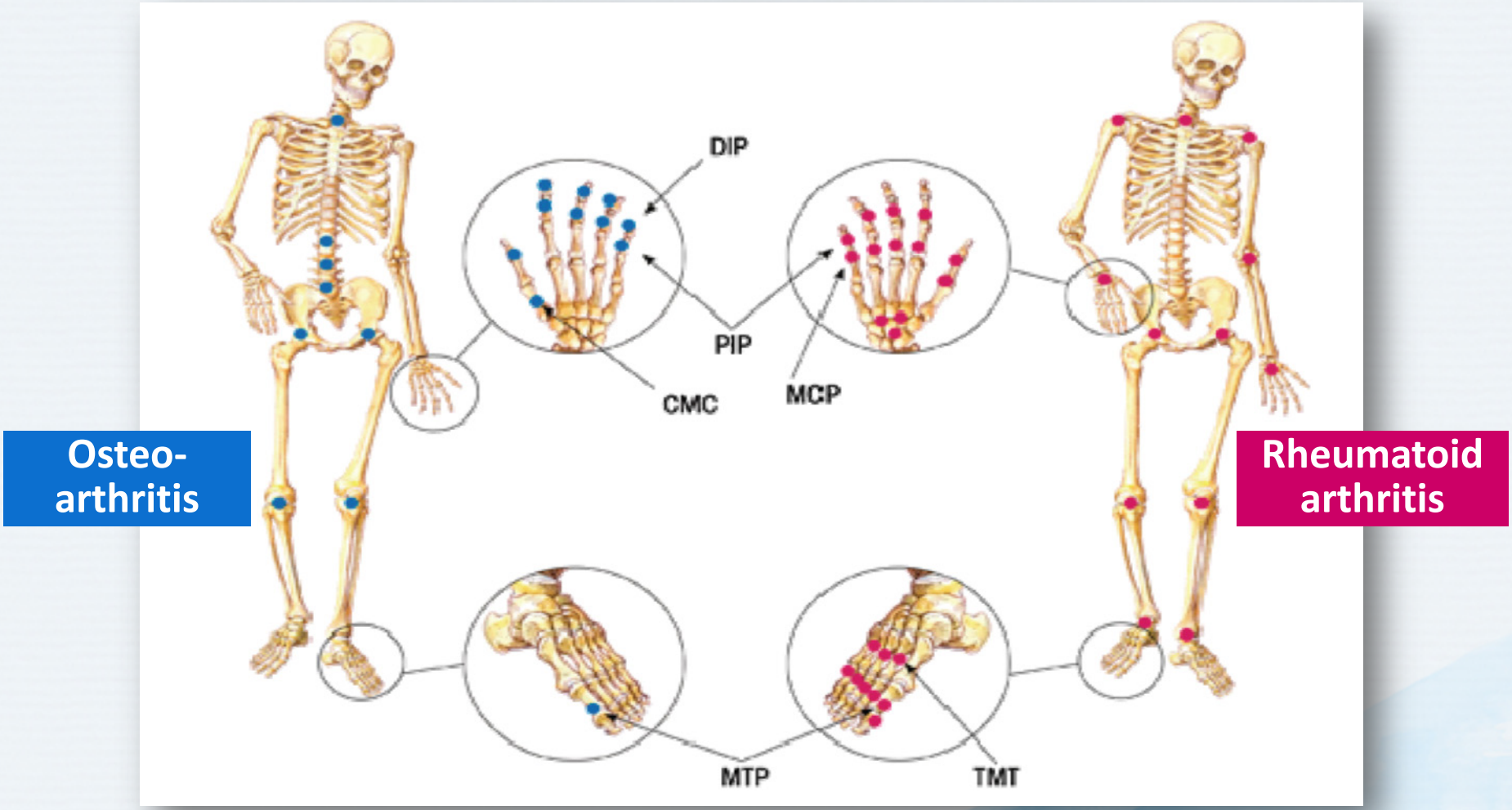
Oliveria SA *et al. Arthritis Rheum* 1995; 38(8):1134-41.

Distinguishing Osteoarthritis from Rheumatoid Arthritis

Characteristic	Osteoarthritis	Rheumatoid arthritis
Pathophysiologic process	Degenerative	Autoimmune
Commonly affected joints	Knees, spine, hips, hands	Fingers, feet
Typically symmetrical involvement	No	Yes
Morning stiffness	<30 minutes	>30 minutes
Joint swelling	Hard tissue	Soft tissue
Hand involvement	Distal joints	Proximal joints
Extra-articular involvement	No	Yes
Elevated autoimmune markers	No	Yes

Centers for Disease Control. *Osteoarthritis*. Available at: http://www.cdc.gov/arthritis/basics/osteoarthritis.htm. Accessed: August 19, 2013;
Centers for Disease Control. *Rheumatoid Arthritis.* Available at: http://www.cdc.gov/arthritis/basics/rheumatoid.htm. Accessed: August 19, 2013;
National Institutes of Health. *Osteoporosis and Arthritis: Two Common but Different Conditions.* Available at: http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/Conditions_Behaviors/osteoporosis_arthritis.asp. Accessed: August 19, 2013;
O'Dell JR. In: Goldman L, Ausiello D (eds) *Cecil Textbook of Medicine.* 23rd ed. Saunders Elsevier; Philadelphia, PA: 2007.

Joint Involvement Differentiates Osteoarthritis from Rheumatoid Arthritis



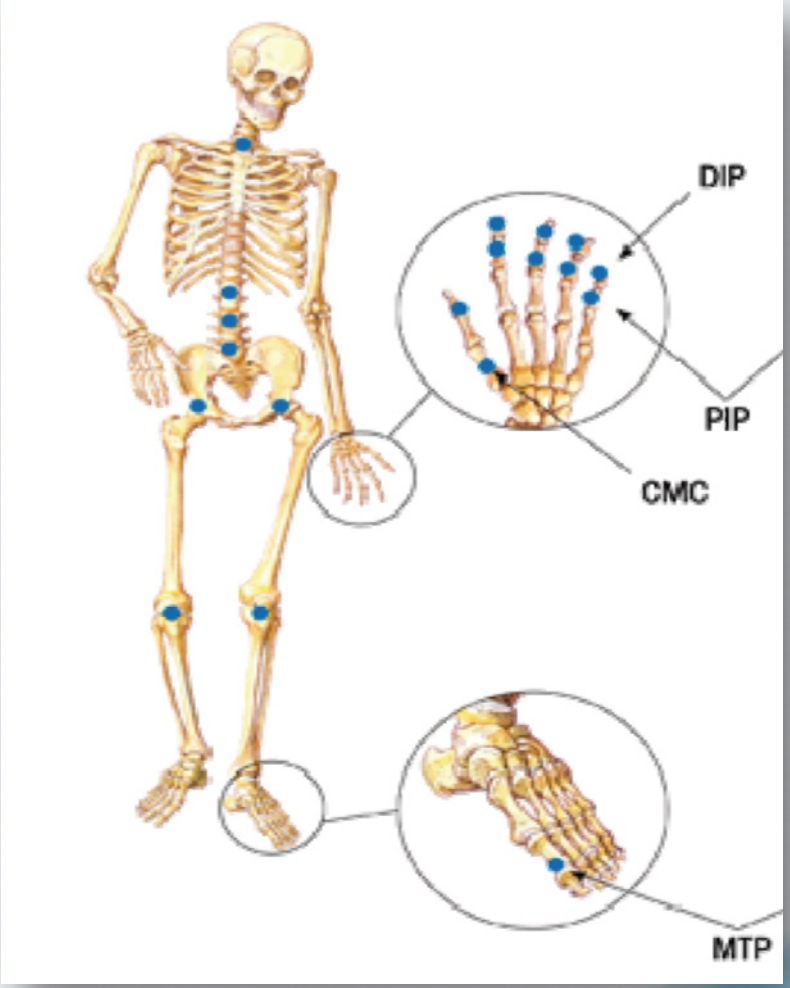
CMC = carpometacarpal; DIP = distal interphalangeal; MCP = metacarpophalangeal; MTP = metatarsophalangeal; PIP = proximal interphalangeal; TMT = tarsometatarsal

Lane NE *et al.* In: Goldman L, Ausiello D (eds). *Cecil Textbook of Medicine.* 23rd ed. Saunders Elsevier; Philadelphia, PA: 2007;
O'Dell JR. In: Goldman L, Ausiello D (eds). Cecil Textbook of Medicine. 23rd ed. Saunders Elsevier; Philadelphia, PA: 2007.

Commonly Affected Joints: Prevalence of Symptomatic Osteoarthritis

Hip: 4% of those ≥55 years

Knee: 12% of those ≥60 years



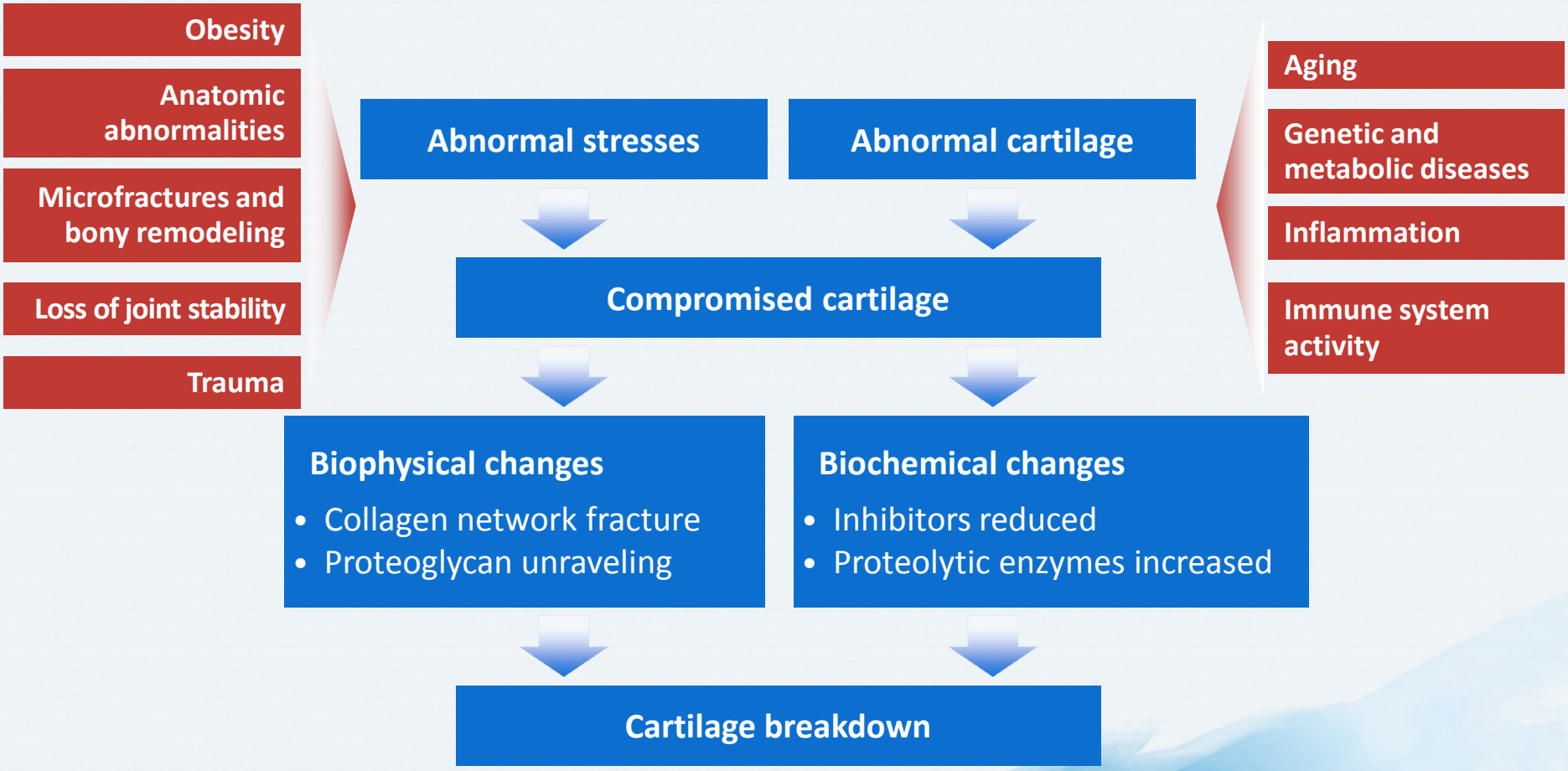
Hand: 8% of those ≥60 years

Foot: 2% of those 15–74 years

CMC = carpometacarpal; DIP = distal interphalangeal; MTP = metatarsophalangeal; PIP = proximal interphalangeal

Centers for Disease Control. *Osteoarthritis.* Available at: http://www.cdc.gov/arthritis/basics/osteoarthritis.htm. Accessed: July 22, 2013.

Factors Contributing to Osteoarthritis Development



Mandelbaum B, Waddell D. *Orthopedics* 2005; 28(2 Suppl):S207-14.

Discussion Question

WHAT PHYSICAL EXAMINATIONS AND/OR OTHER EXAMINATIONS DO YOU ROUTINELY USE TO EVALUATE OSTEOARTHRITIS?

Radiographic Findings Distinguish Different Types of Joint Pain

Condition	Bone density	Erosions	Cysts	Joint space loss	Distribution	Bone production
Osteo-arthritis	Normal overall	✗*	Subchondral	Non-uniform	Unilateral or bilateral Asymmetric	Osteophytes Subchondral sclerosis
Rheumatoid arthritis	Decreased	✓	Synovial	Uniform	Bilateral Symmetric	✗
Psoriatic arthritis	Normal	✓	✗	✓	Unilateral Asymmetric	✓
CPPD	Normal	✗	✓	Uniform	Unilateral Asymmetric	Osteophytes Chondrocalcinosis Subchondral
Ankylosing spondylitis	Early – normal Late – decreased	✓	✗	✓	Unilateral Asymmetric	✓
DISH	Normal	✗	✗	✗	Sporadic	Flowing osteophytes Tendon or ligament ossification

***Unless erosive osteoarthritis**

CPPD = calcium pyrophosphate deposition disease; DISH = diffuse idiopathic skeletal hyperostosis

Adapted from: Swagerty DL Jr, Hellinger D. *Am Fam Physician* 2001; 64(2):279-86.

Radiography: Osteoarthritis vs. Rheumatoid Arthritis of the Hand

Osteoarthritis

Rheumatoid Arthritis

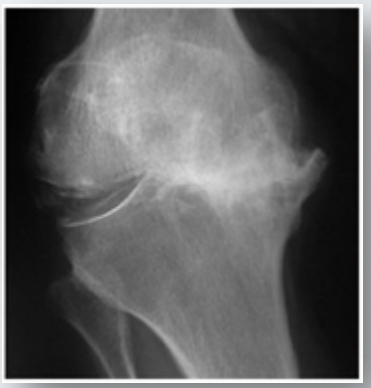
Swagerty DL Jr, Hellinger D. *Am Fam Physician* 2001; 64(2):279-86.

Radiographic Hallmarks of Osteoarthritis

Grade 1
Subchondral bone sclerosis

Grade 2
Decreased joint space

Grade 3
Osteophytes and geodes



Grade 4
Malformation

Grade 1	Doubtful narrowing of joint space and possible osteophytic lipping
Grade 2	Definite osteophytes and possible narrowing of joint space
Grade 3	Moderate multiple osteophytes, definite narrowing of joint space, and some sclerosis
Grade 4	Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone ends

Hunter DJ *et al. Curr Opin Rheumatol* 2009; 21(2):110-7; Swagerty DL Jr, Hellinger D. *Am Fam Physician* 2001; 64(2):279-86;

Physical Examinations for Osteoarthritis

Knee	Hip
Check alignment	Look for leg length discrepancy
Assess muscle strength (quadriceps atrophy)	Assess muscle strength
Evaluate tenderness/pain	Evaluate tenderness/pain
Assess range of motion	Assess range of motion
Palpate for bony swelling	
Check for crepitus	
Inspect gait	
Look for inflammation	

Note that while instability should be assessed, there there is no physical examination sign for instability.

Cibere J *et al. Arthritis Rheum* 2004; 50(2):458-68; Cibere J *et al. Arthritis Rheum* 2008; 59(3):373-81.

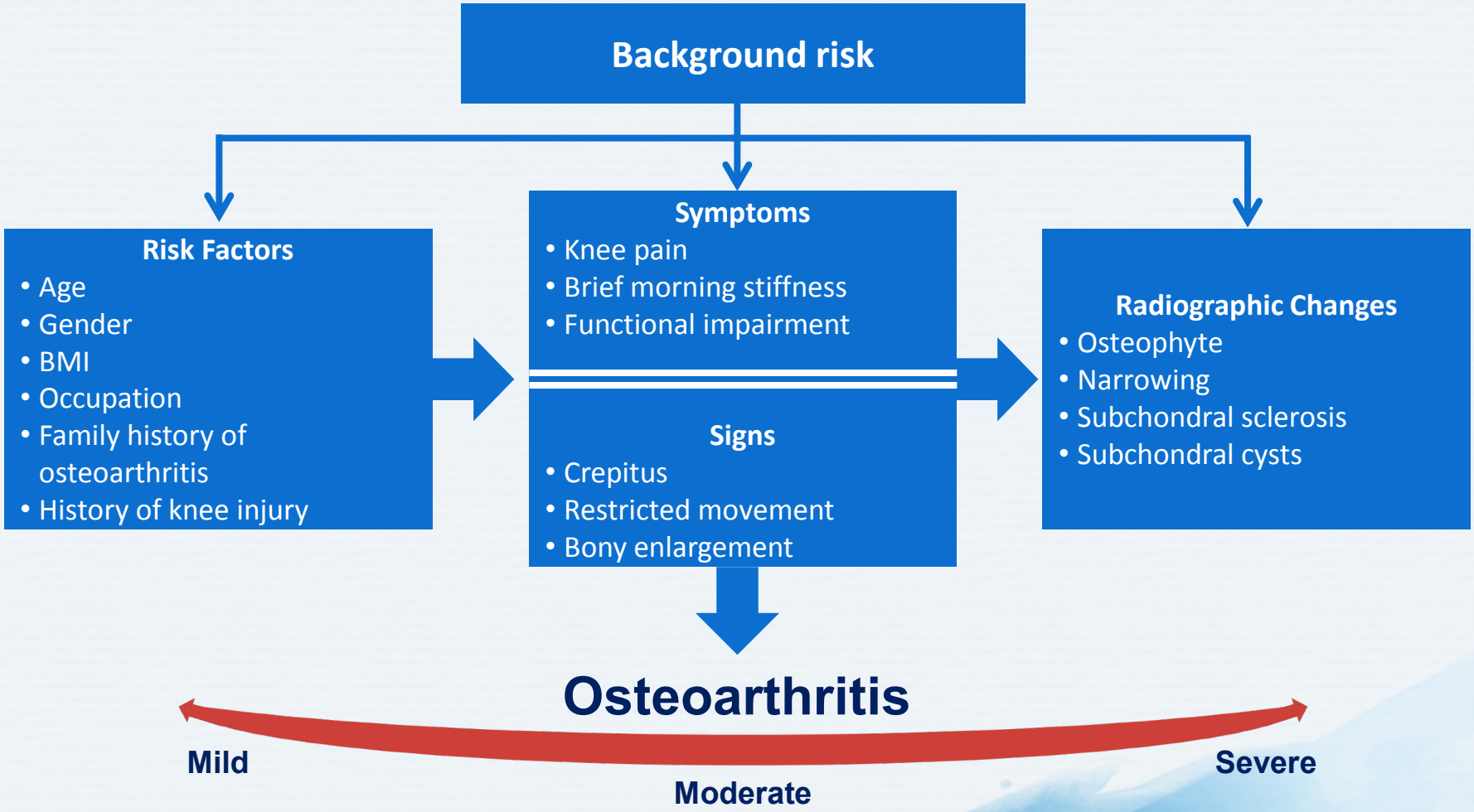
EULAR: Major Components in the Diagnosis of Hand Osteoarthritis

Risk Factors	Symptoms	Clinical Hallmarks	Radiographic Features
• Female sex • Age >40 years • Menopausal status • Family history of hand osteoarthritis • Obesity • Higher bone density • Greater forearm muscle strength • Joint laxity • Prior hand injury • Occupation- or recreation-related usage	• Pain on usage • Mild morning or inactivity stiffness affecting one or a few joints at a time • Symptoms often intermittent • Symptoms target DIP, PIP, thumb base, index and MCP joints	• Heberden's nodes • Bouchard's nodes • Bony enlargement without deformity affecting characteristic joints (DIP, PIP, thumb base, index and MCP joints)	• Joint space narrowing • Osteophyte • Subchondral bone sclerosis • Subchondral cyst • Subchondral erosis in erosive hand osteoarthritis

DIP = distal interphalangeal; EULAR = European League Against Rheumatism; MCP = metacarpophalangeal; PIP = proximal interphalangeal

Zhang W *et al. Ann Rheum Dis* 2009; 68(1):8-17.

EULAR: Major Components in the Diagnosis of Knee Osteoarthritis



BMI = body mass index; EULAR = European League Against Rheumatism

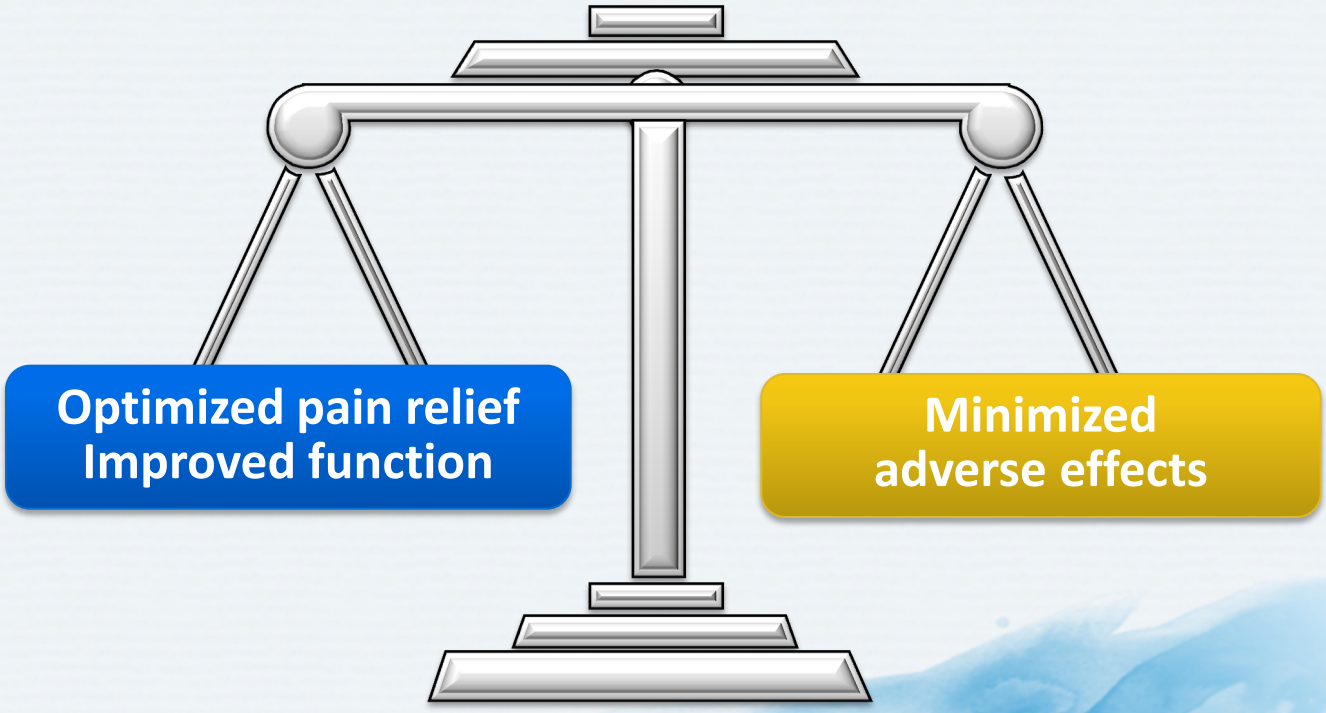
Zhang W *et al. Ann. Rheum Dis* 2010; 69(3):483–9.

Goals of Osteoarthritis Treatment

Kennedy S, Moran M. *BCMJ* 2010; 52(8):404-9.

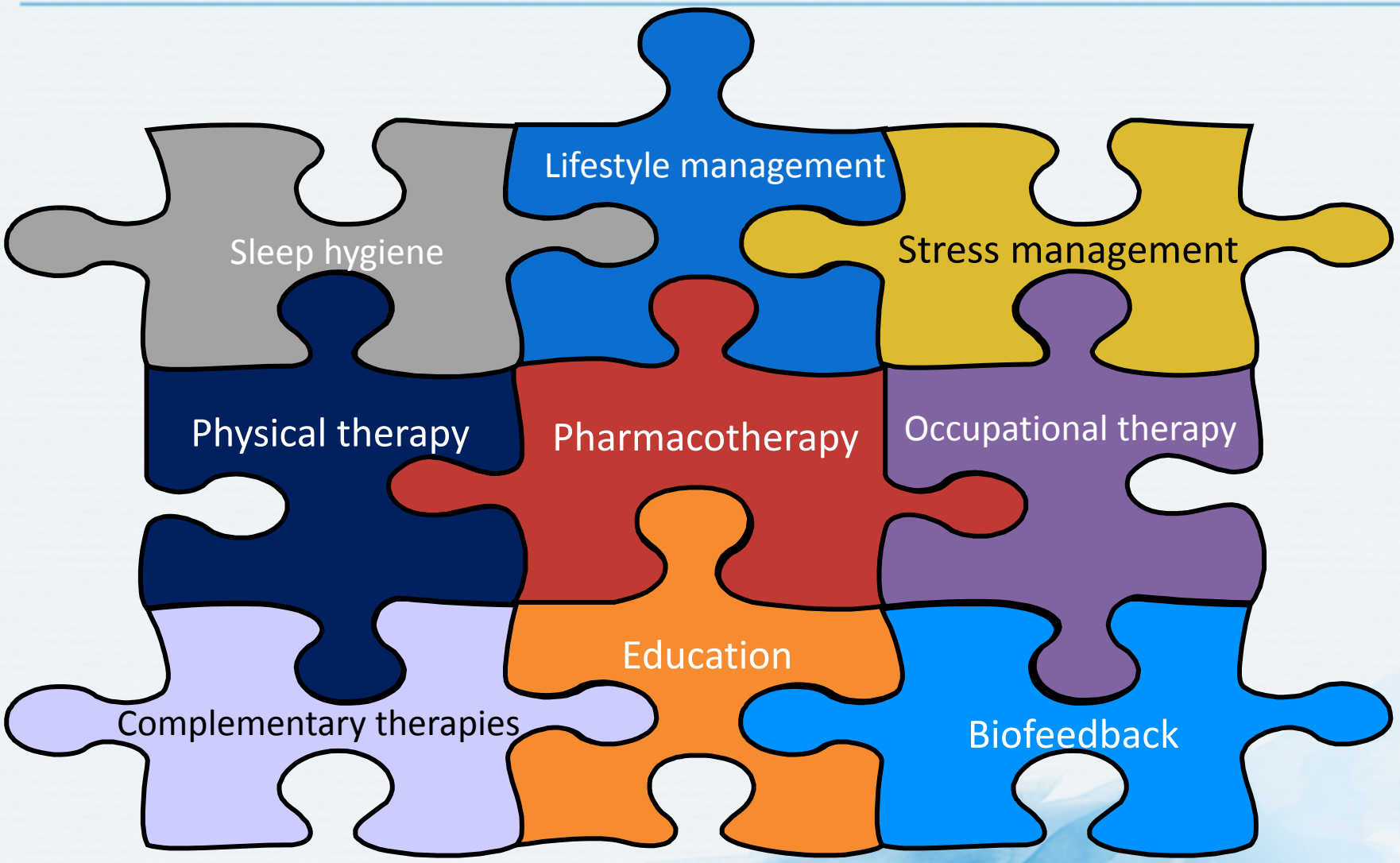
Goals in Pain Management

- Involve the patient in the decision-making process
- Agree on realistic treatment goals **before** starting a treatment plan



Farrar JT *et al. Pain* 2001; 94(2):149-58; Gilron I *et al. CMAJ* 2006; 175(3):265-75.

Combining Pharmacological and Non-pharmacological Therapies Is Most Effective in Managing Osteoarthritis



Adebajo A. *BMC Fam Pract* 2012; 13:23.

Discussion Question

WHAT NON-PHARMACOLOGICAL THERAPIES HAVE YOU FOUND TO BE HELPFUL IN MANAGING CHRONIC PAIN IN YOUR PATIENTS?

WHICH ONES HAVE YOU FOUND TO BE INEFFECTIVE/UNHELPFUL?

Non-pharmacological Treatment of Osteoarthritis

Core treatment:

Weight reduction

Exercise

Education

Other modalities to potentially consider:

- Acupuncture
- Assisted devices (e.g., splints, insoles)
- Heat and cold therapy
- Transcutaneous electrical nerve stimulation

Fernandes L *et al. Ann Rheum Dis* 2013; 72(7):1125-35.

AAOS: Pharmacological Management of Knee Osteoarthritis

Recommended

- Coxibs
- Oral nsNSAIDs
- Topical nsNSAIDs
- Tramadol

Not recommended

- Chondroitin
- Glucosamine
- Growth factor injections
- Hyaluronic acid

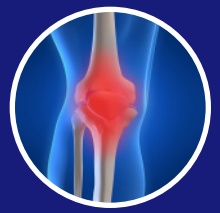
Insufficient evidence

- Acetaminophen
- Intra-articular corticosteroids
- Opioids
- Pain patches

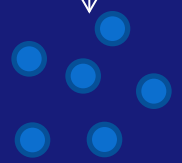
AAOS = American Academy of Orthopaedic Surgeons; coxib = COX-2-selective inhibitor; nsNSAID = non-selective non-steroidal anti-inflammatory drug

Jevsevar DS *et al. J Bone Joint Surg Am* 2013; 95(20):1885-6.

Mechanism-Based Treatment of Inflammatory Pain



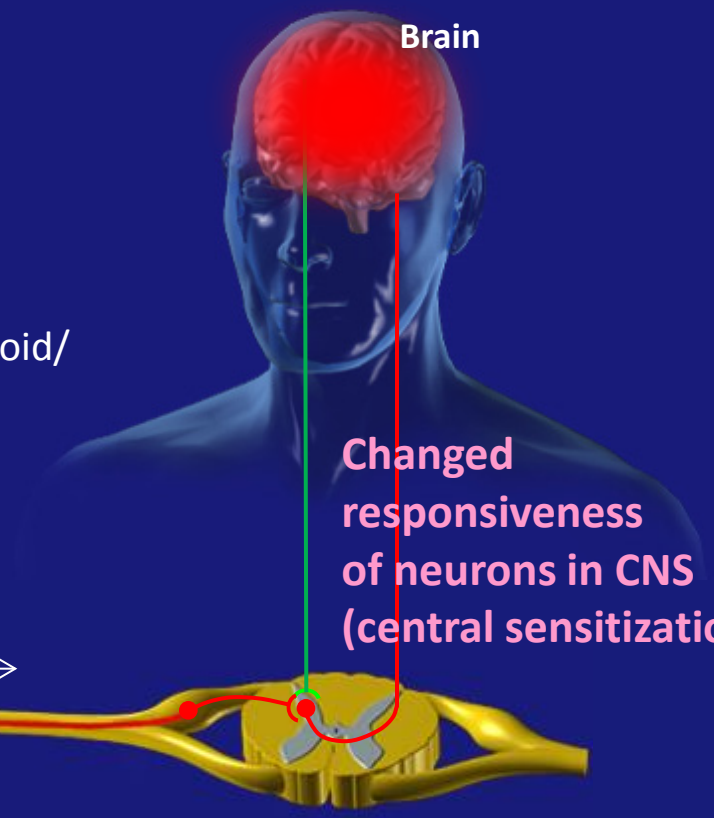
Damaged joint tissue



Inflammatory chemical mediators

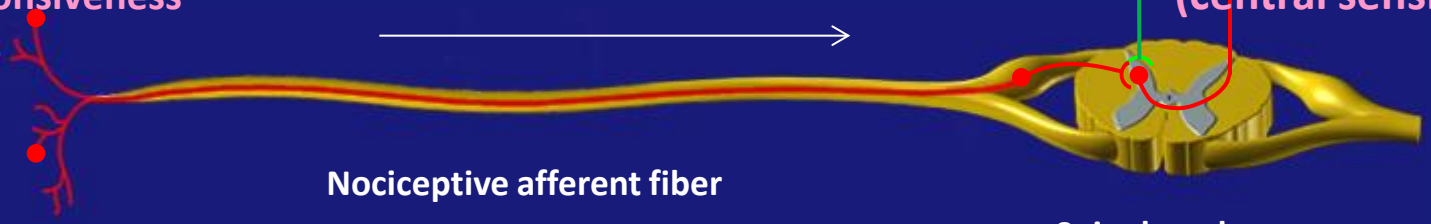
Pain Treatment Options

- Acetaminophen
- nsNSAIDs/coxibs
- Opioids
- Local anesthetics/ channel blockers
- Intra-articular corticosteroid/ hyaluronate injections



Changed responsiveness of neurons in CNS (central sensitization)

Changed responsiveness of nociceptors (peripheral sensitization)



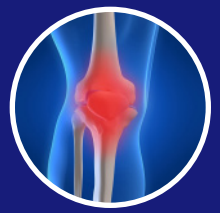
Nociceptive afferent fiber

Spinal cord

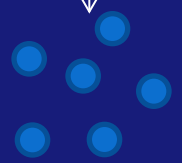
CNS = central nervous system; coxib = COX-2 inhibitor; nsNSAID = non-specific non-steroidal anti-inflammatory drug

Hochberg MC *et al.* *Arthritis Care Res (Hoboken)* 2012; 64(4):465-74; Scholz J *et al*. *Nat Neurosci* 2002; 5(Suppl):1062-7.

Mechanism-Based Treatment of Chronic Pain in Osteoarthritis

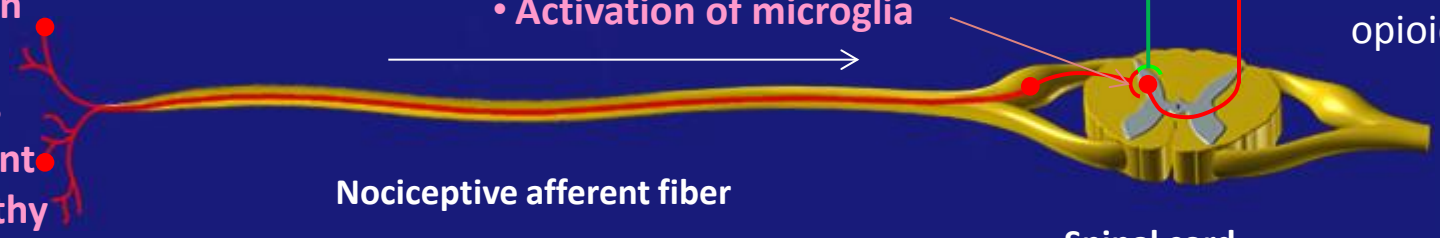


Damaged joint tissue



Inflammatory chemical mediators

- Sensitization of joint nociceptors
- Development of neuropathy



Nociceptive afferent fiber

Spinal cord

- Activation of thalamocortical nociceptive system and amygdala
- Reduction of gray matter

Brain

- Changes in descending inhibition and facilitation
- Sensitization of nociceptive spinal cord neurons with joint input
- Activation of microglia

Medications affecting central sensitization

- $\alpha_2\delta$ ligands
- SNRIs
- TCAs
- Tramadol, opioids

CNS = central nervous system; coxib = COX-2 inhibitor; nsNSAID = non-specific non-steroidal anti-inflammatory drug

Hochberg MC *et al.* *Arthritis Care Res (Hoboken)* 2012; 64(4):465-74; Scholz J *et al*. *Nat Neurosci* 2002; 5(Suppl):1062-7.

What are NSAIDs (nsNSAIDs/coxibs)?

NSAID = **N**on-**S**teroidal **A**nti-**I**nflammatory **D**rug

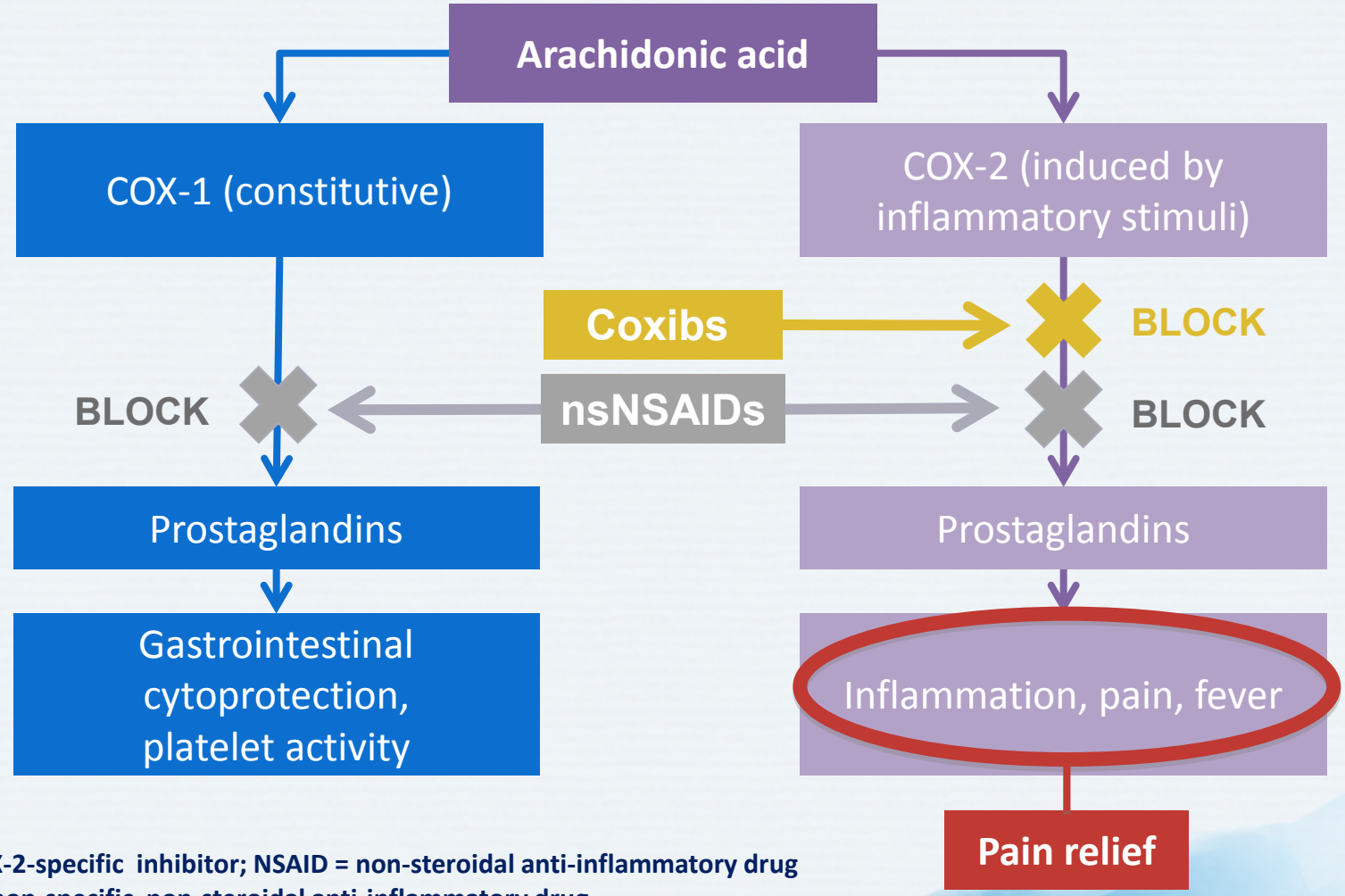
- Analgesic effect via inhibition of prostaglandin production
- Broad class incorporating many different medications:

Examples of nsNSAIDs:	*Examples of Coxibs:*
– Diclofenac	– Celecoxib
– Ibuprofen	– Etoricoxib
– Naproxen	– Parecoxib

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

Brune K. In: Kopf A *et al* (eds). *Guide to Pain Management in Low-Resource Settings.* International Association for the Study of Pain; Seattle, WA: 2010.

How do nsNSAIDs/coxibs work?



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

Gastrosource. *Non-steroidal Anti-inflammatory Drug (NSAID)-Associated Upper Gastrointestinal Side-Effects*. Available at: http://www.gastrosource.com/11674565?itemId=11674565. Accessed: December 4, 2010; Vane JR, Botting RM. *Inflamm Res* 1995;44(1):1-10.

Adverse Effects of nsNSAIDs/Coxibs

All NSAIDs:

- Gastroenteropathy
  - Gastritis, bleeding, ulceration, perforation
- Cardiovascular thrombotic events
- Renovascular effects
  - Decreased renal blood flow
  - Fluid retention/edema
  - Hypertension
- Hypersensitivity

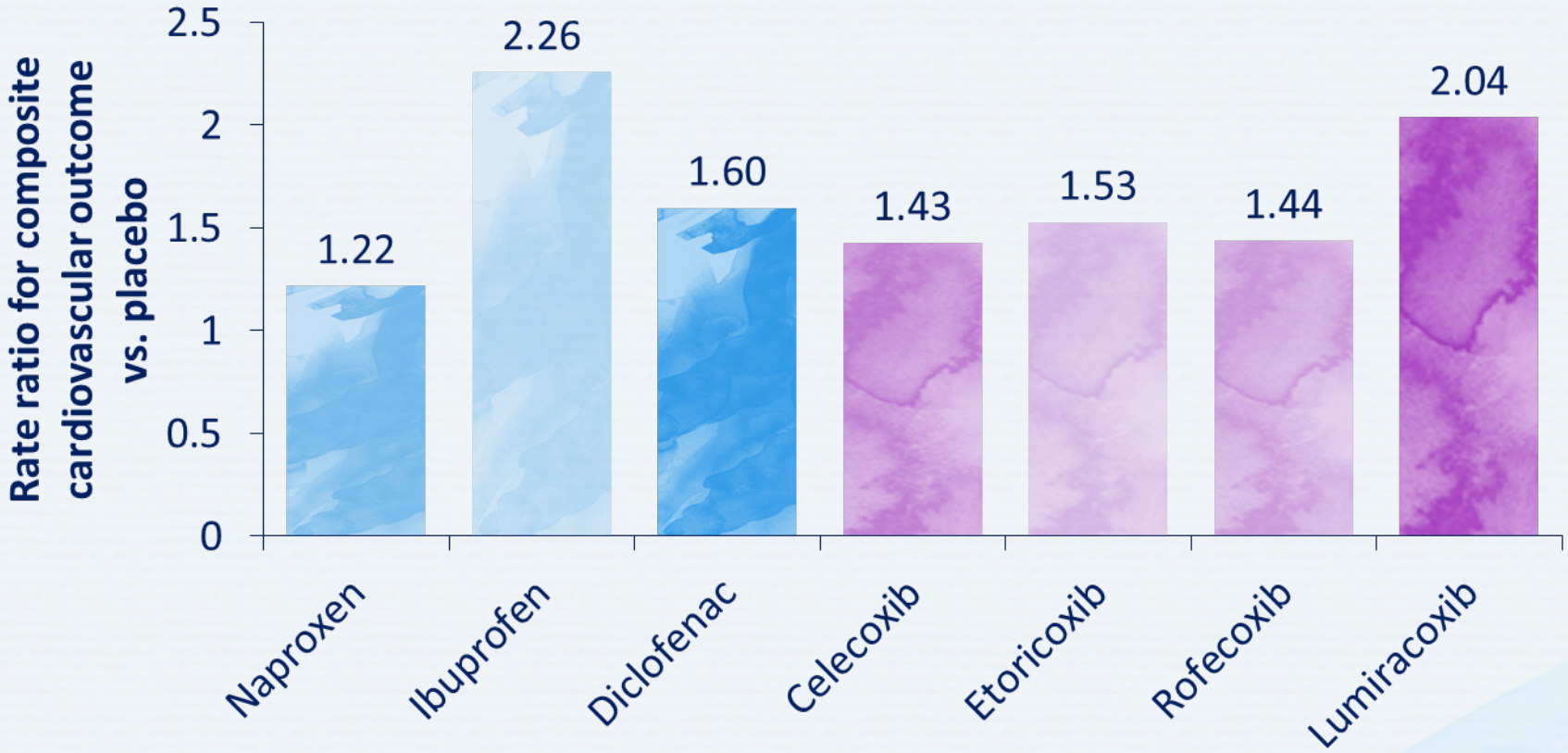
Cox-1-mediated NSAIDs (nsNSAIDs):

- Decreased platelet aggregation

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

Clemett D, Goa KL. *Drugs* 2000; 59(4):957-80; Grosser T *et al.* 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.

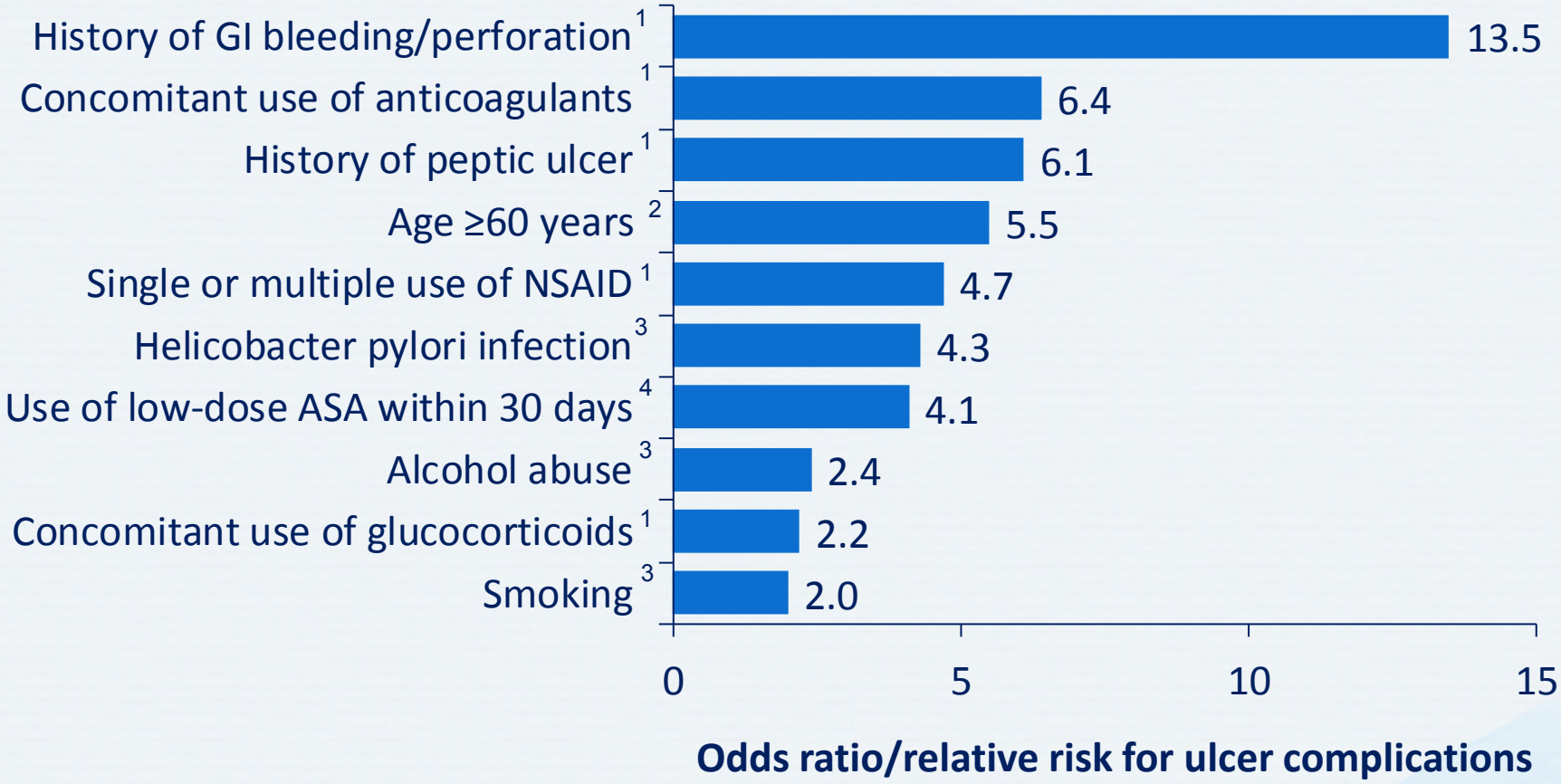
nsNSAIDs/Coxibs and Cardiovascular Risk



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-specific 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-specific 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 that 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; NSAID = non-steroidal anti-inflammatory drug;
nsNSAID = non-specific non-steroidal anti-inflammatory drug

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

Guidelines for nsNSAIDs/Coxibs Use Based on Gastrointestinal Risk and ASA Use

	Gastrointestinal risk	
	Not elevated	**Elevated**
Not on ASA	nsNSAID alone	Coxib nsNSAID + PPI
On ASA	Coxib + PPI nsNSAID + PPI	Coxib + PPI nsNSAID + PPI

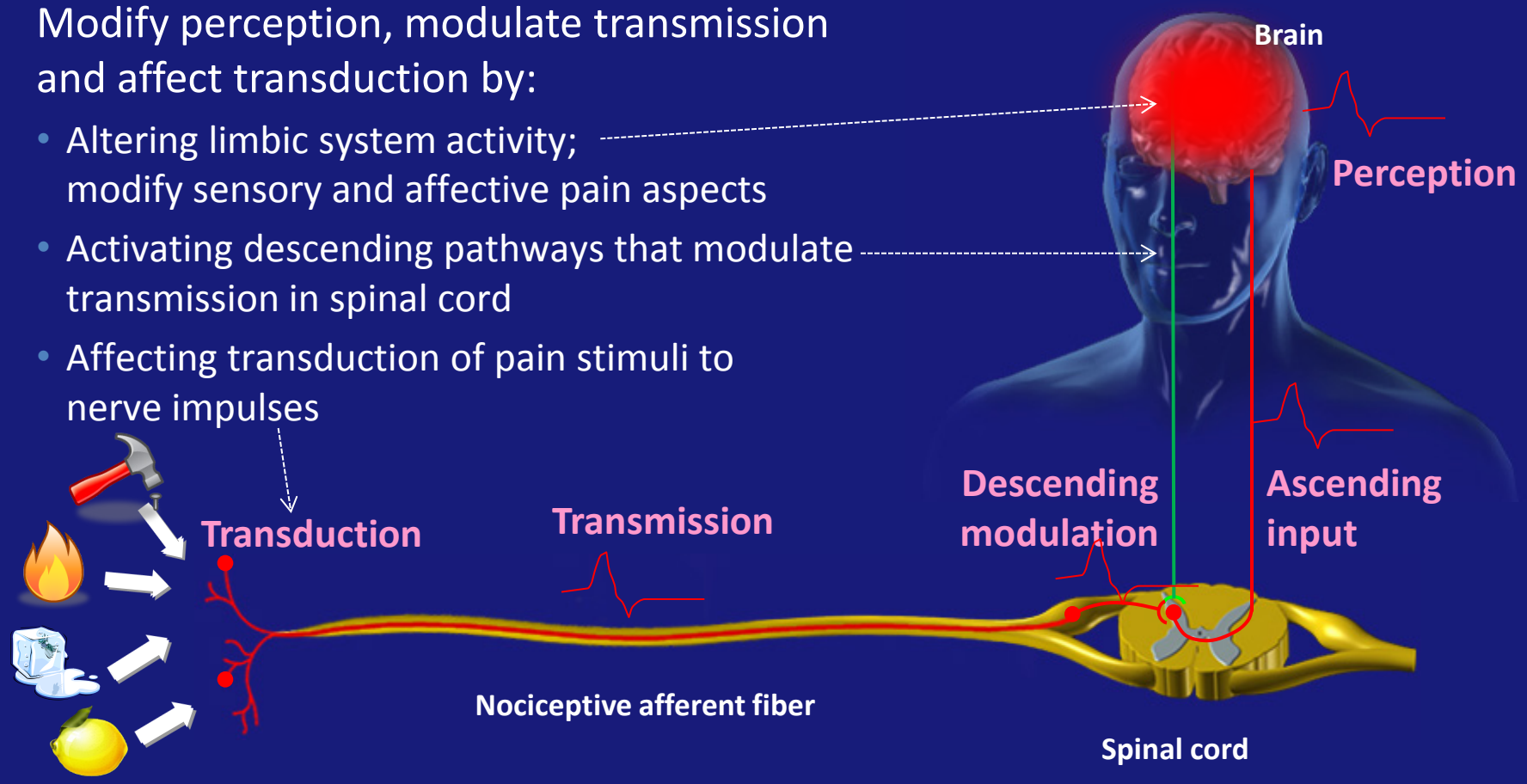
ASA = acetylsalicylic acid; coxib = COX-2-specific inhibitor;
nsNSAID = non-selective non-steroidal anti-inflammatory drug; PPI = proton pump inhibitor

Tannenbaum H *et al*. *J Rheumatol* 2006; 33(1):140-57.

How Opioids Affect Pain

Modify perception, modulate transmission and affect transduction by:

- Altering limbic system activity; modify sensory and affective pain aspects
- Activating descending pathways that modulate transmission in spinal cord
- Affecting transduction of pain stimuli to nerve impulses



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. Pain Physician* 2008; 11(2 Suppl):S133-53.

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.

Management of Osteoarthritis Flowchart

CORE TREATMENT

- Exercise
- Weight reduction
- Education

↓

CONSIDER

- Acetaminophen ± topical NSAID gel
- Assisted devices (splints, insoles)
- Heat and cold therapy
- TENS/acupuncture
- Intra-articular steroid injection

↓

ASSESS GASTROINTESTINAL AND CARDIOVASCULAR RISK

- Suggested cardiovascular threshold <20% 10-year risk without absolute contraindications
- Hepatic and renal profile
- No ASA use

→ **NSAID CONTRAINDICATION**

- Opioids (weak opioids, such as tramadol, preferred to strong opioids)

↓

- Oral NSAIDs
  - nsNSAID + PPI
  - Coxib (coxib + PPI for those with higher gastrointestinal risk)
- Consider impact of ASA co-prescribed with nsNSAIDs/coxibs

↓

- Opioids (weak opioids, such as tramadol, preferred to strong opioids)
- Surgery

ASA = acetylsalicylic acid; coxib = COX-2-specific inhibitor; NSAID = non-steroidal anti-inflammatory drug; nsNSAID = non-specific non-steroidal anti-inflammatory drug; PPI = proton pump inhibitor; TENS = transcutaneous electrical nerve stimulation

Adapted from: Adebajo A. *BMC Fam Pract* 2012; 13:23.

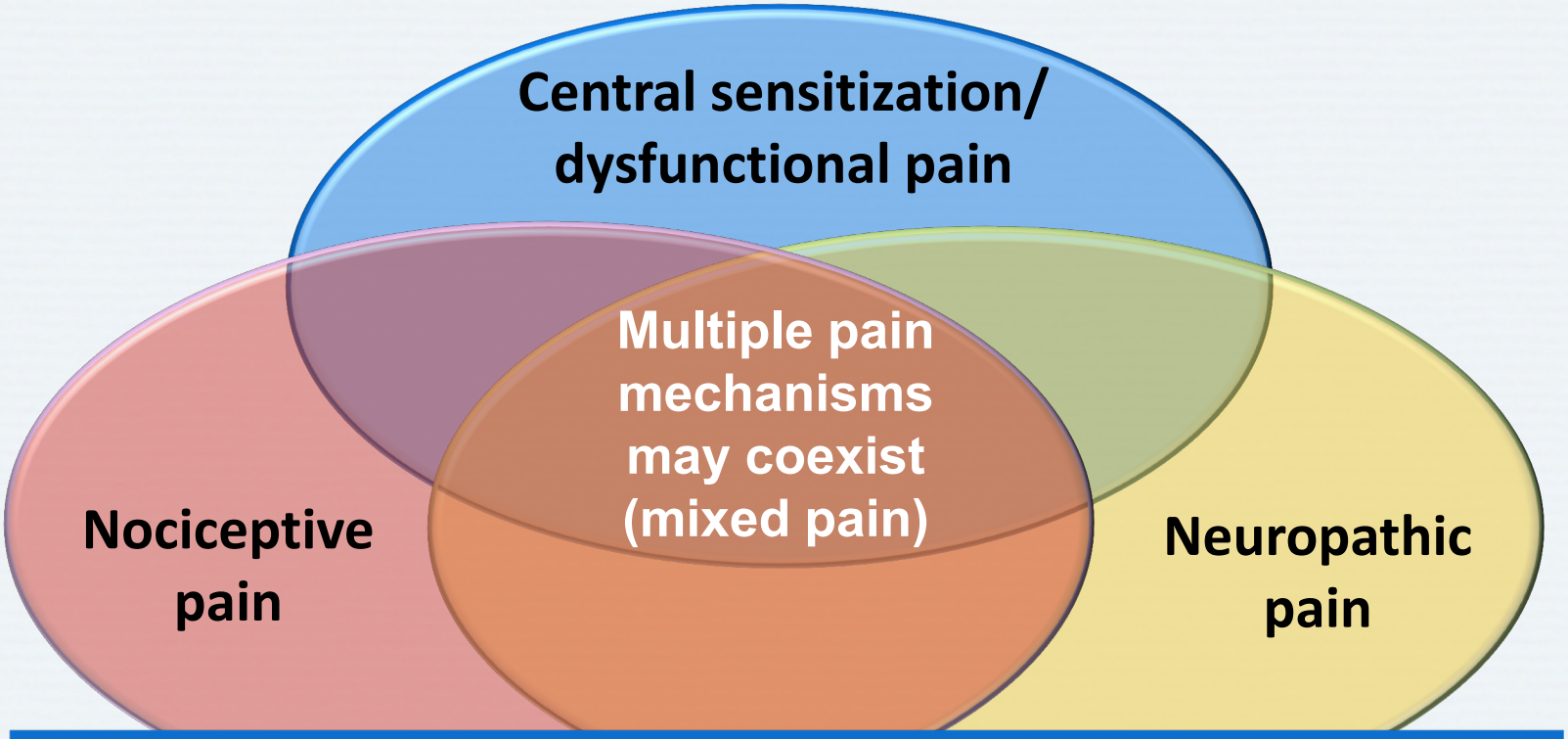
Selected Osteoarthritis Management Guidelines

Organization	Year	Joints		
		Hand	Hip	Knee
ESCEO[1]	2014			X
OARSI[2]	2014			X
NICE[3]	2014	X	X	X
AAOS[4]	2013			X
South Africa[5]	2013	X	X	X
ACR[6]	2012	X	X	X
Chinese Orthopaedic Association[7]	2010	X	X	X
Croatian Society for Rheumatology[8]	2010		X	X
EULAR[9]	2010			X
Mexico[10]	2008		X	X
EULAR[11]	2007	X		
EULAR[12]	2005		X	

ACR = American College of Rheumatology; AAOS = American Academy of Orthopaedic Surgeons; NICE = National Institute of Clinical Excellence; ESCEO = European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis; EULAR = European League Against Rheumatism; OARSI = Osteoarthritis Research Society International

Bruyère O *et al. Semin Arthritis Rheum* 2014; pii:S0049-0172(14)00108-5; 2. McAlindon TE *et al. Osteoarthritis Cartilage* 2014; 22(3):363-88; 3. National Institute for Health and Care Excellence. 2014; 4. Jevsevar DS *et al. J Bone Joint Surg Am* 2013; 95(20):1885-6; 5. Hodkinson B *et al. S Afr Med J* 2013;103(8 Pt 2):576-85; 6. Hochberg MC *et al. Arthritis Care Res (Hoboken)* 2012; 64(4):465-74; 7. Chinese Orthopaedic Association. *Orthop Surg* 2010; 2(1):1-6; 8. Grazio S *et al. Reumatizam* 2010; 57(1):36-47; 9. Zhang W *et al. Ann Rheum Dis* 2010;69(3):483-9; 10. Secretaria de Salud. 2008; 11. Zhang W *et al. Ann Rheum Dis* 2007;66(3):377-88; 12. Zhang W *et al. Ann Rheum Dis* 2005;64(5):669-81.

But… Patients with Chronic Pain of Just One Type of Pain Pathophysiology May be Rare



Therapies that work better for a particular patient are likely to depend on the mechanisms contributing to the patient's pain

Patients with mixed pain may benefit from ***combination therapy***

Otori S *et al. Yonsei Med J* 2012; 53(4):801-5; Vellucci R. *Clin Drug Investig* 2012; 32(Suppl 1):3-10.

Discussion Question

WHAT TREATMENT APPROACH WOULD YOU TAKE WITH A PATIENT SUFFERING FROM MIXED PAIN?

Neuropathic Pain in Osteoarthritis

- Some osteoarthritis patients may use terms such as "burning" or "numbness" to describe their pain
  - These verbal descriptors are suggestive of a neuropathic component
- Based on mechanism of action and preliminary studies, non-traditional analgesics such as $\alpha_2\delta$ ligands, TCAs and SNRIs, may be useful for treating this component
  - However, further studies are needed to clarify the role of these drugs in osteoarthritis

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

Mease PJ *et al. J Rheumatol* 2011; 38(8):1546-51.

When to Refer Patients with Osteoarthritis

Urgency	Hip osteoarthritis	Knee osteoarthritis
Immediate	Evidence of infection in the joint	Evidence of infection in the joint
Urgent	Symptoms rapidly deteriorate and are causing severe disability	Evidence of acute inflammation (e.g., hemarthrosis, gout, pseudo-gout)
Soon	N/A	Joint continues to "give way" (i.e., fails to provide proper support) despite therapy Symptoms rapidly deteriorate and are causing severe disability
Routine appointment	Symptoms impair the quality of life*	Symptoms impair the quality of life*

***Referral criteria should take into account the extent to which the condition is causing pain, disability, sleeplessness, loss of independence, inability to undertake normal activities, reduced functional capacity or psychiatric illness**
N/A = not applicable

National Institute for Clinical Excellence. *Referral Advice: A Guide to Appropriate Referral From General to Specialist Services*. London, UK: 2001.

Key Messages

- A wide variety of conditions can cause joint pain, but osteoarthritis is the most common cause, affecting >10% of the population
- It is important to assess and treat underlying causes of joint pain to help guide choice of therapy and improve prognosis
- Signs, symptoms and radiographic findings can help distinguish osteoarthritis from other causes of joint pain

Key Messages (cont'd)

- Signs of infection or autoimmune/ inflammatory disease should prompt referral to a specialist
- Core management of osteoarthritis should include education, exercise and weight reduction
- Pharmacological management may include paracetamol, nsNSAIDs/coxibs and/or opioids

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