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# Introduction to the M2 Musculoskeletal Sequence

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Fall 2009



# Musculoskeletal medicine is important!

- Musculoskeletal conditions are the #1 reason across the U.S for physician office visits (~92 million/year)
- 20% of primary care and emergency room visits in the United States
- One in four Americans has a musculoskeletal condition requiring medical attention
- Annual direct and indirect costs for bone and joint health are ~\$850 billion
- The population is aging -> increasing prevalence of musculoskeletal problems

# Musculoskeletal Problems in the U.S.

- **Arthritis**

~40 million Americans (1/7); 50% of >65 yo population

- **Osteoporosis**

44 million Americans 'at risk' (osteoporosis/osteopenia)

- **Arthroplasty**

478,000 knees; 234,000 hips (2004)

- **Back pain**

75-85% population; 1% chronically disabled

# Musculoskeletal problems are managed by **multiple specialties.**

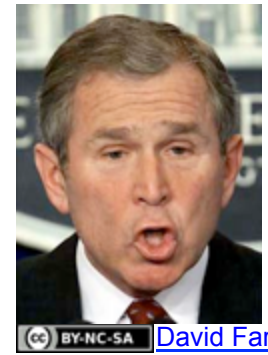
- Primary care (Internal medicine, Family medicine, Pediatrics)
- Emergency Medicine
- Physical Medicine and Rehabilitation
- Orthopedic Surgery
- Rheumatology
- Sports Medicine

# In addition, consider:

- The postoperative patient on the Vascular Surgery service developing an acutely swollen, painful toe
- The severely depressed patient with diffuse body pain
- The 22 week pregnant woman with buttock pain and swollen, tingling fingers
- The 78 year old patient with severe longstanding rheumatoid arthritis needing to undergo general anesthesia for abdominal surgery

And if that's not reason  
enough....





March 21, 2002 : “NOW, THEREFORE, I, GEORGE W. BUSH, President of the United States of America, by virtue of the authority vested in me by the Constitution and laws of the United States, do hereby proclaim the years 2002–2011 as **National Bone and Joint Decade**. I call upon the people of the United States to observe the decade with appropriate programs and activities; and I call upon the medical community to pursue research in this important area.”

Bush, GW, *J Bone Joint Surg Am*. 2002

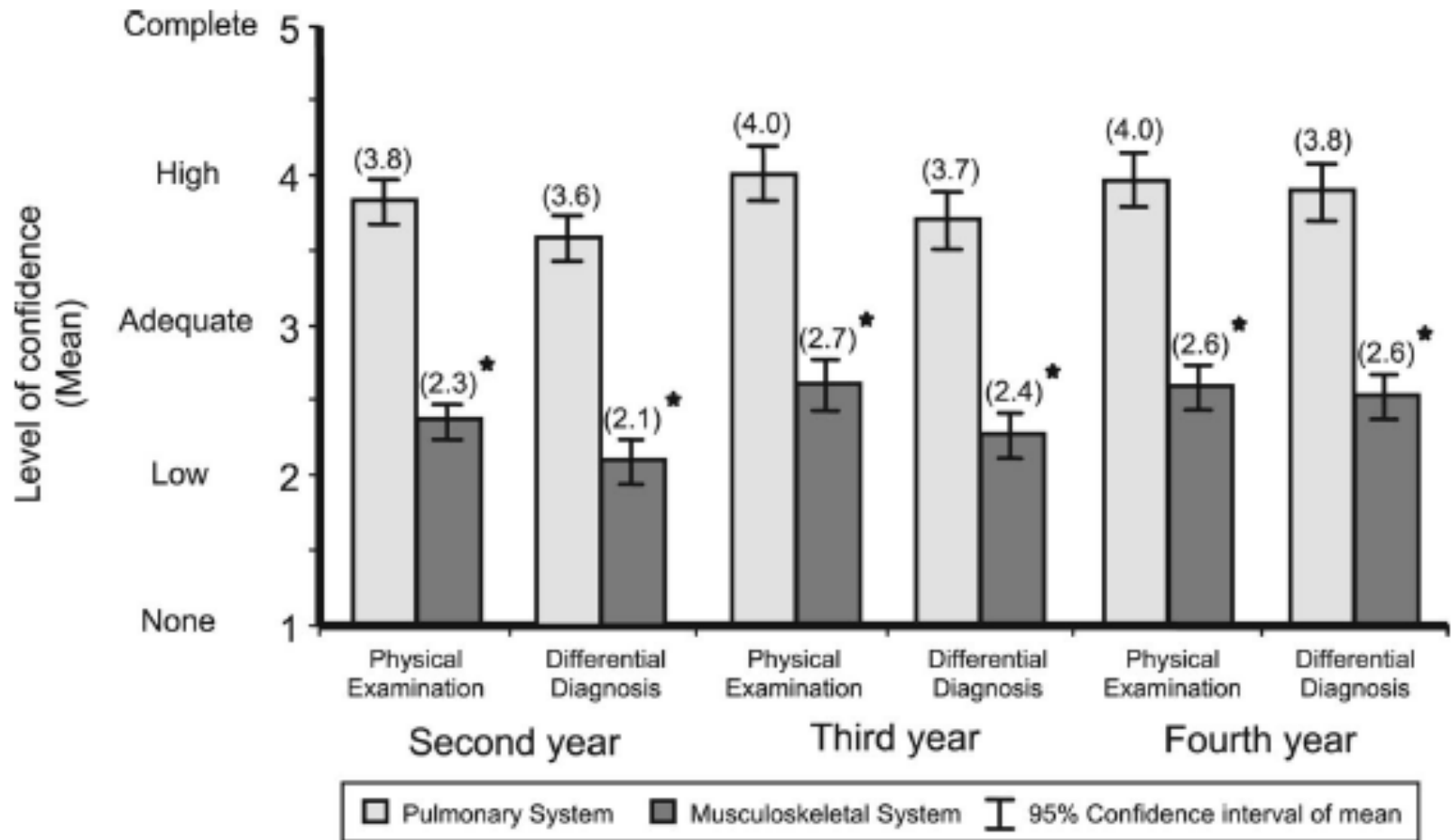
# And yet.....

- Historically, ~2% of medical school curriculum focusing on musculoskeletal medicine
- 65% of 4th-year medical students listed “non-operative musculoskeletal care” as the area in which they felt least prepared as they enter residency
- U Penn: 80% medical school graduates failed a validated musculoskeletal competency examination
- U Wash: >50% failed

Connolly, et al. *J of Musc Med.* 1998

Freedman, *J Bone Joint Surg*, 1998

Schmale, *Clin Orth Rel Res*, 2005



**Figure 2** Self-reported confidence in examining the musculoskeletal and pulmonary systems among 345 second-, third-, and fourth-year medical students at Harvard Medical School, Boston, Mass, 2005 to 2006.

\*Indicates significant difference between pulmonary and musculoskeletal systems as determined by Student t test.

# Overall Goals and Objectives

- Medical School Objectives Project
  - Contemporary Issues in Medicine:  
Musculoskeletal Medicine Education Sept  
2005, p2-3.

# M2MS 2009 - Overview

- Lectures
- Pathology Laboratories
- Small group physical exam and diagnosis sessions
- Large group shoulder/knee exam
- Small group case discussion

# Goals and Objectives for this Sequence

1. Learn how to examine the musculoskeletal system
2. Learn how to identify and treat common musculoskeletal disorders
3. Learn about various forms of arthritis
4. Learn about autoimmune disorders involving the musculoskeletal system
5. Learn about metabolic bone disease
6. Learn about the various specialties that manage musculoskeletal problems

# The musculoskeletal exam

- Heavily emphasized
- Presented in several different formats
  - Lectures
  - CCA practice sessions
  - Family practice sessions
  - Patient Partners

# Monday 11.30.09

## **AM**

9:30 – 10:00 Introduction (S. Monrad)

10:00 - 11:00 Osteoarthritis (S. Monrad)

11:00 – 12:00 Crystal Arthritis (S. Monrad)

## **PM**

1 – 2:30 Patient Presentation/Rheumatoid  
arthritis 1\* (D. Fox)

2:30 – 3:30 Rheumatoid Arthritis 2 (D.Fox)



# Tuesday 12.1.09

## AM

9 – 10 The Musculoskeletal Exam (L. DiPonio)

10 – 11 Musculoskeletal Exam of the  
Pediatric Patient (H. Haftel)

11 - 12 Introduction to Bone and Soft Tissue  
Pathology (A. Flint)

## PM

1 – 3 Path Lab/Patient Partner Program \*

3 – 5 Path Lab/Patient Partner Program\*

# Wednesday 12.2.09

## AM

9 – 10 Other inflammatory arthropathies  
(S. Monrad)

10 – 12 Drugs for pain, inflammation and fever  
(M. Schlafer)

## PM

1 – 3 Path Lab/Patient Partner Program\*

3 – 5 Path Lab/Patient Partner Program\*

# Thursday 12.3.09

## AM

9:30 – 10:30 Vasculitis (R. Marks)

10:30 - 12 Metabolic Bone Diseases (R. Grekin)

## PM

1 – 3 Path Lab/Patient Partner Program\*

3 – 5 Path Lab/Patient Partner Program \*

# Friday 12.4.09

## **AM**

9 – 10 Systemic Lupus Erythematosus  
(J. McCune)

10 – 12 Patterns of Rheumatic Diseases in  
Children (B. Adams)

## **PM**

1 – 2 Autoantibodies and associated  
disorders (S. Monrad)

# Monday 12.7.09

## **AM**

9:30 – 11 Common Musculoskeletal Disorders  
(J. Richardson)

11 – 12 Common musculoskeletal problems:  
Growth and Development –  
Pathology vs Normal Variation (C. Craig)

## **PM**

1 – 2:30 Small Group Problem Solving \*

2:30 – 4 Small Group Problem Solving \*

# Tuesday 12.8.09

## **AM**

9 – 11 Introduction to Orthopedics (K. Schultz)

11 – 12 Introduction to Musculoskeletal  
Radiology (B. Sabb)

## **PM**

1 – 4 CCA practice sessions\*

# Wednesday 12.9.09

## **AM**

9:30 – 11 Back pain (J. Richardson)

11 – 12 Diffuse aches and pains (S. Monrad)

## **PM**

1 – 4 FCE small groups\*

# Thursday 12.10.09

**AM**

9 – 12 Pathology-based exam for the  
shoulder and knee (B. Miller)

**PM**

1 – 4 CCA practice\*



# Friday 12.11.09

## **AM**

10 – 11 Common sports injuries (A. Bohn)

11 – 12 Sequence wrap-up (S. Monrad)

## **PM**

1 – 5 Pathology based physical diagnosis  
sessions\*

# M2MS 2009 Grading

- Grades are based on:
  - Final comprehensive exam (80%)
  - Path exam (10%)
  - Patient Partner Participation (2.5%)
  - CCA Practice (2.5%)
  - Pathology Based Physical Diagnosis Sessions (2.5%)
  - Small Group Problem Solving (2.5%)
- The final grades will follow Component II guidelines as in previous sequences.
  - **Pass:** 75% and above
  - **Fail:** 74.999% and below

# A few final comments:

- Broad spectrum of topics
- Multiple approaches to physical exam
- Repetition is (usually) intentional
- Learning objectives are to help guide your studying
- Ask questions

# Additional Source Information

for more information see: <http://open.umich.edu/wiki/CitationPolicy>

Slide 4: NAMC, 2004

Slide 9: David Faris, 87billion.com, <http://87billion.com/>; Bush, GW, *J Bone Joint Surg Am.* 2002

Slide 10: Connolly, et al. *J of Musc Med.* 1998; Freedman, J Bone Joint Surg, 1998; Schmale, *Clin Orth Rel Res*, 2005

Slide 11: Day, *Acad Med* 2007