

The Landscape and Problems of Geriatric Fractures/Osteoporosis Nationally

Own the Bone Symposium: Part 3
May 27th, 2021

Kyle J. Jeray

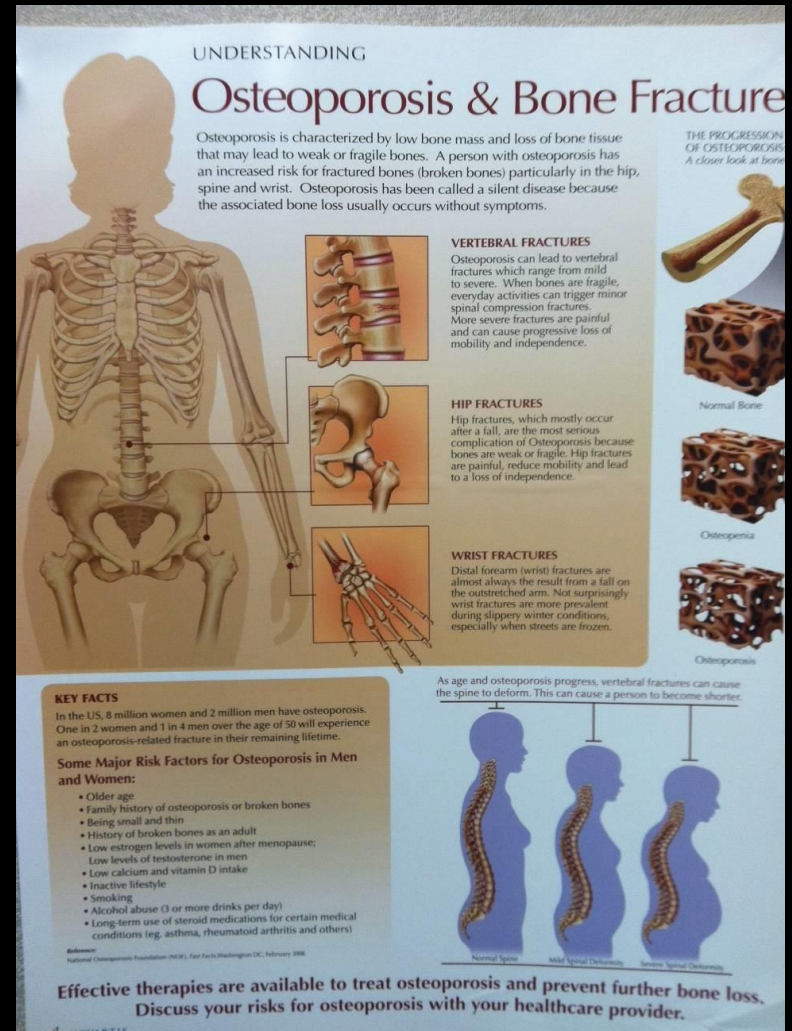
University of South Carolina
Prisma Health, Greenville, SC

I have no potential conflicts
with this presentation

My disclosures –Editorial board JOT,OTAI
Reviewer JBJS, JOT, JAAOS, CORR,
HAND; Consultant for ZimmerBiomet;
Speaker for RADIUS; ABOS Part 2
Examiner; Steering Committee for Own the
Bone; Research support from Department of
Defense, CIHR, NIH, OTA

Objectives

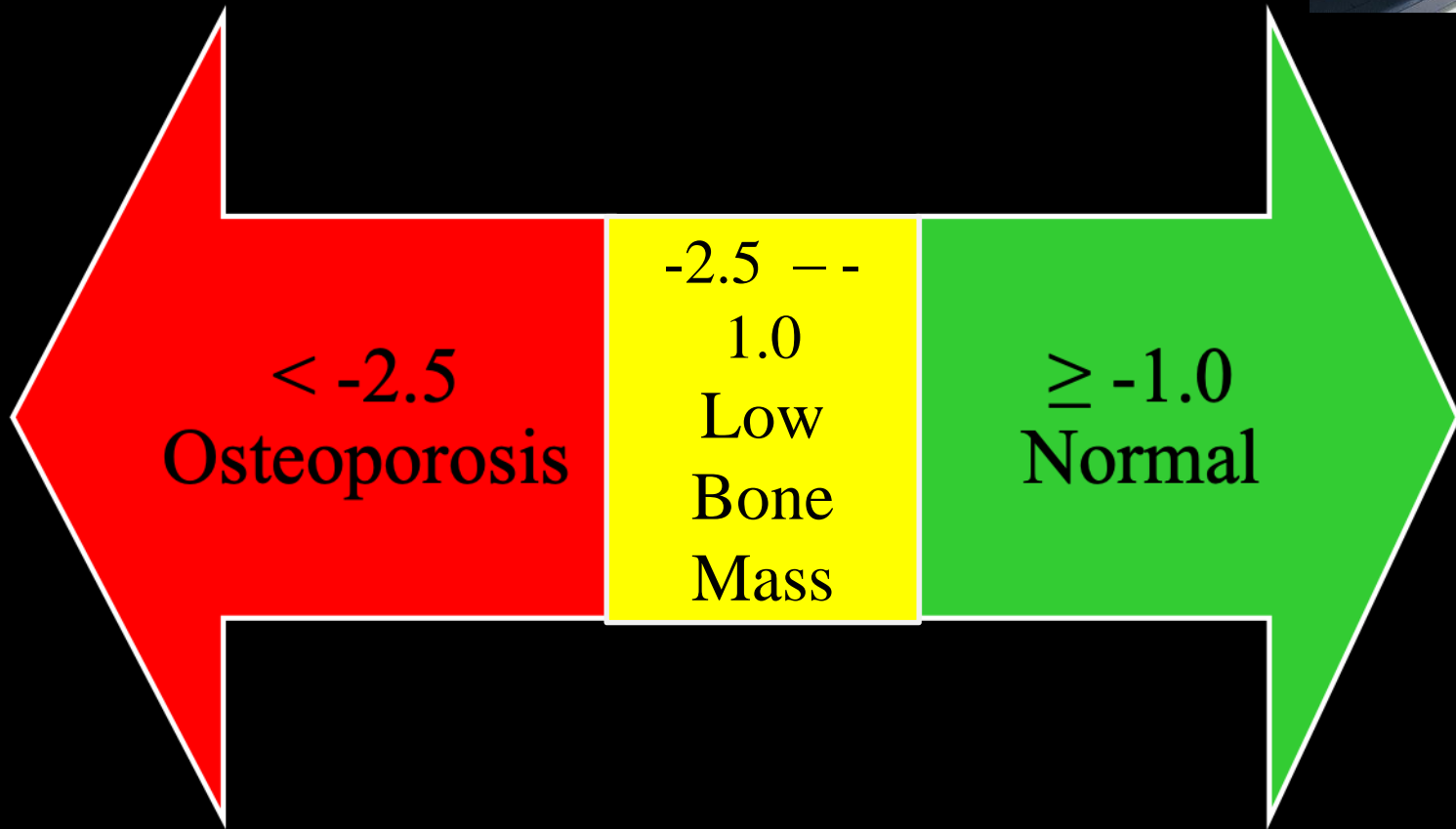
- Definition
- Prevalence
- Health problem
- Cost
- Spectrum/Diversity
- What we need to do



Osteoporosis – Low Bone Mass



WHO Classification T-score



Calculation Tool

Please answer the questions below to calculate the ten year probability of fracture with BMD.

Country: **US (Caucasian)**

Name/ID:

[About the risk factors](#) 

Questionnaire:

1. Age (between 40-90 years) or Date of birth

Age:

Date of birth:

Y:

M:

D:

2. Sex

☐

Male

☐

Female

3. Weight (kg)

4. Height (cm)

5. Previous fracture

☒

No

☐

Yes

6. Parent fractured hip

☒

No

☐

Yes

7. Current smoking

☒

No

☐

Yes

8. Glucocorticoids

☒

No

☐

Yes

9. Rheumatoid arthritis

☒

No

☐

Yes

10. Secondary osteoporosis

☒

No

☐

Yes

11. Alcohol 3 or more units per day

☒

No

☐

Yes

12. Femoral neck BMD (g/cm²)


Select DXA 

Clear

Calculate




Weight Conversion

Pounds  kg

Convert

Height Conversion

Inches  cm

Convert

00334115

Individuals with fracture risk
assessed since 1st June 2011

Prevalence in U.S.



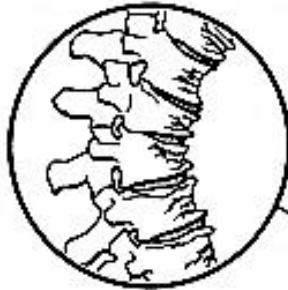
➤ 44 million Americans

14 million with Osteoporosis
34 million with Low Bone Mass

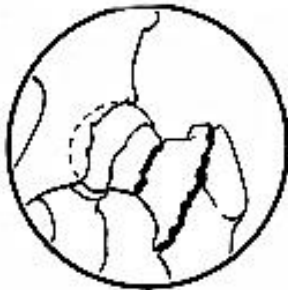
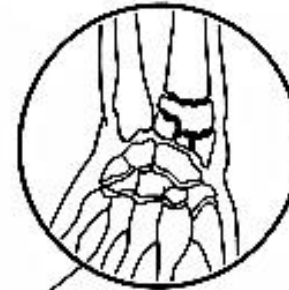
- 80% are women
- 1 in 2 women & 1 in 4 men > 50 years
→ osteoporotic related fracture

1.5 Million Fractures Annually

**Vertebral Fractures:
700,000+**

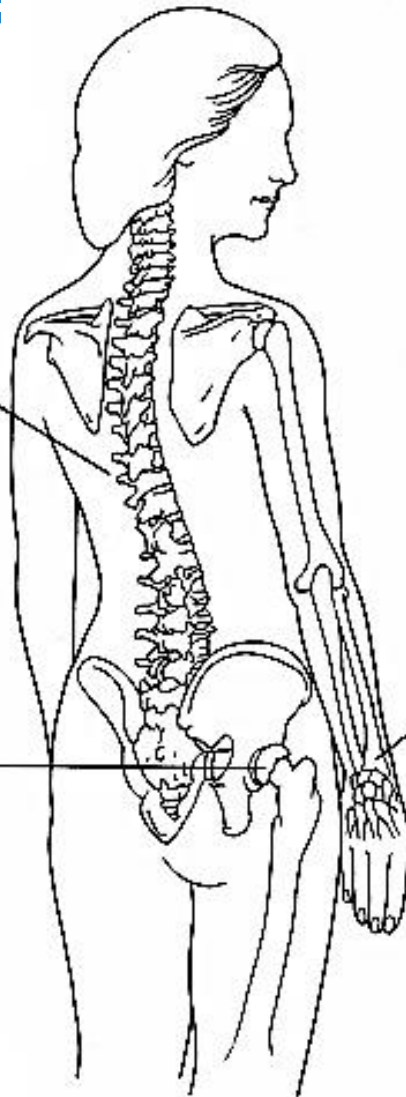


**Wrist Fractures:
200,000+**

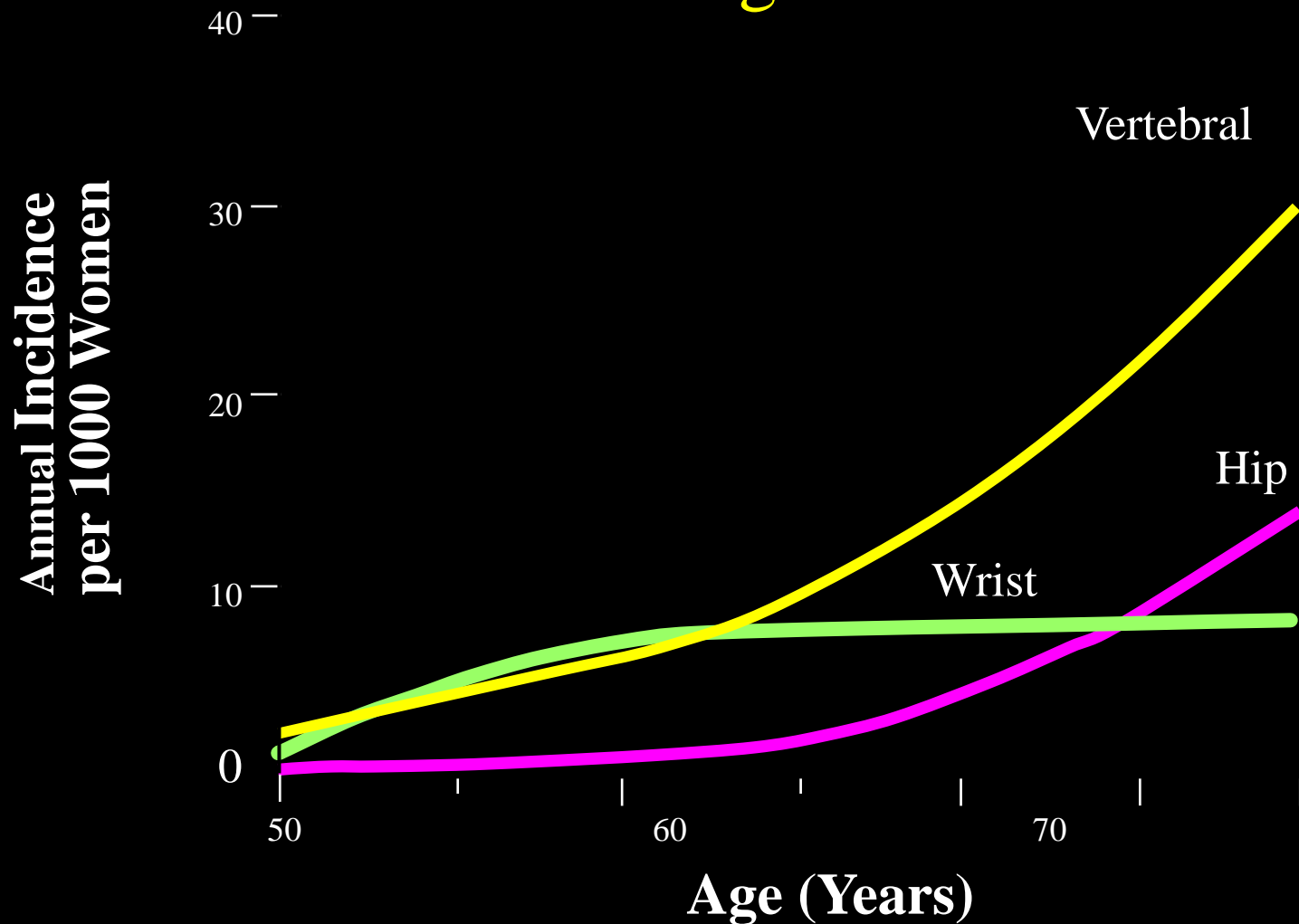


**Hip Fractures:
300,000+**

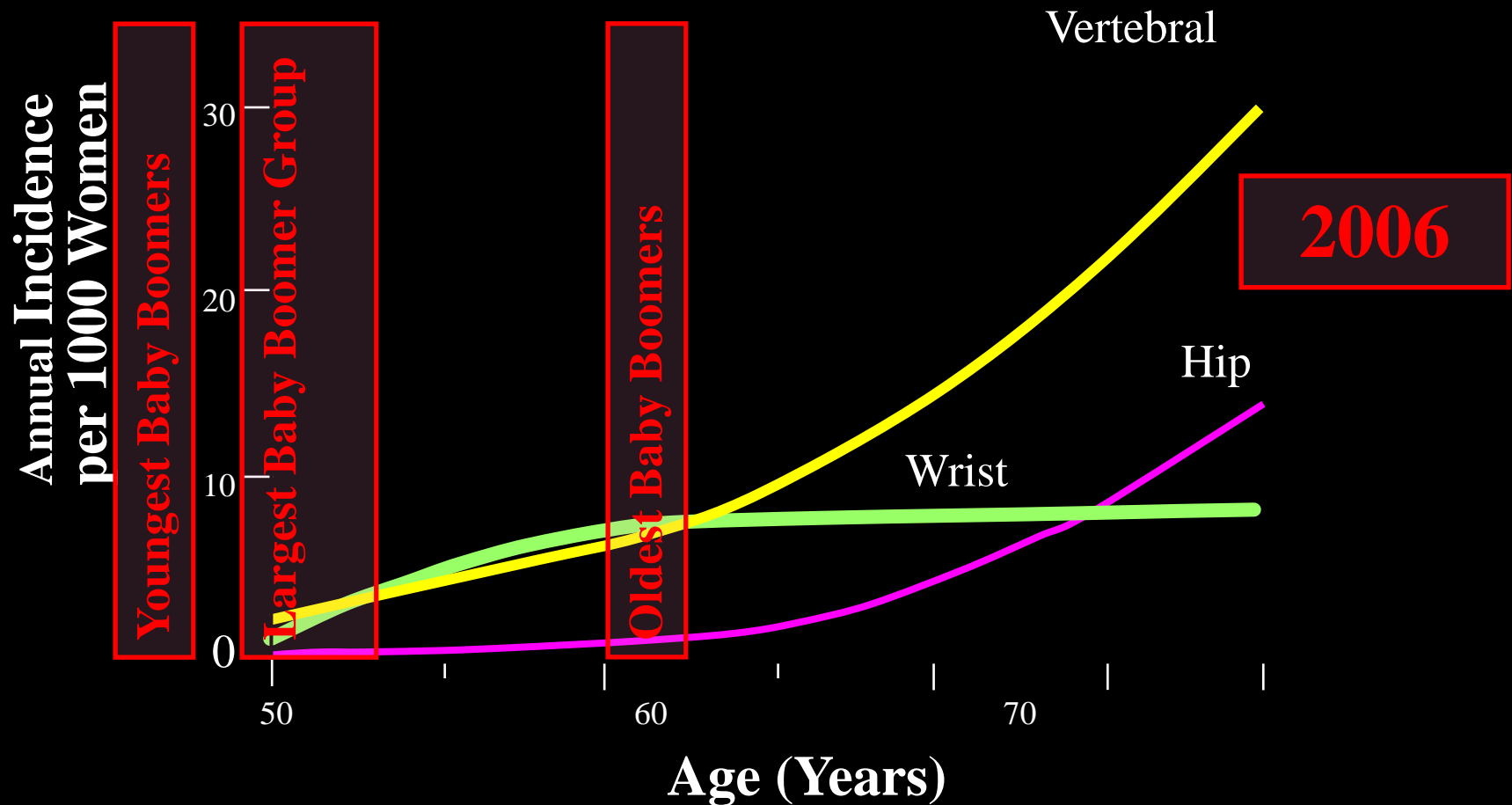
**Other Fractures:
300,000+**



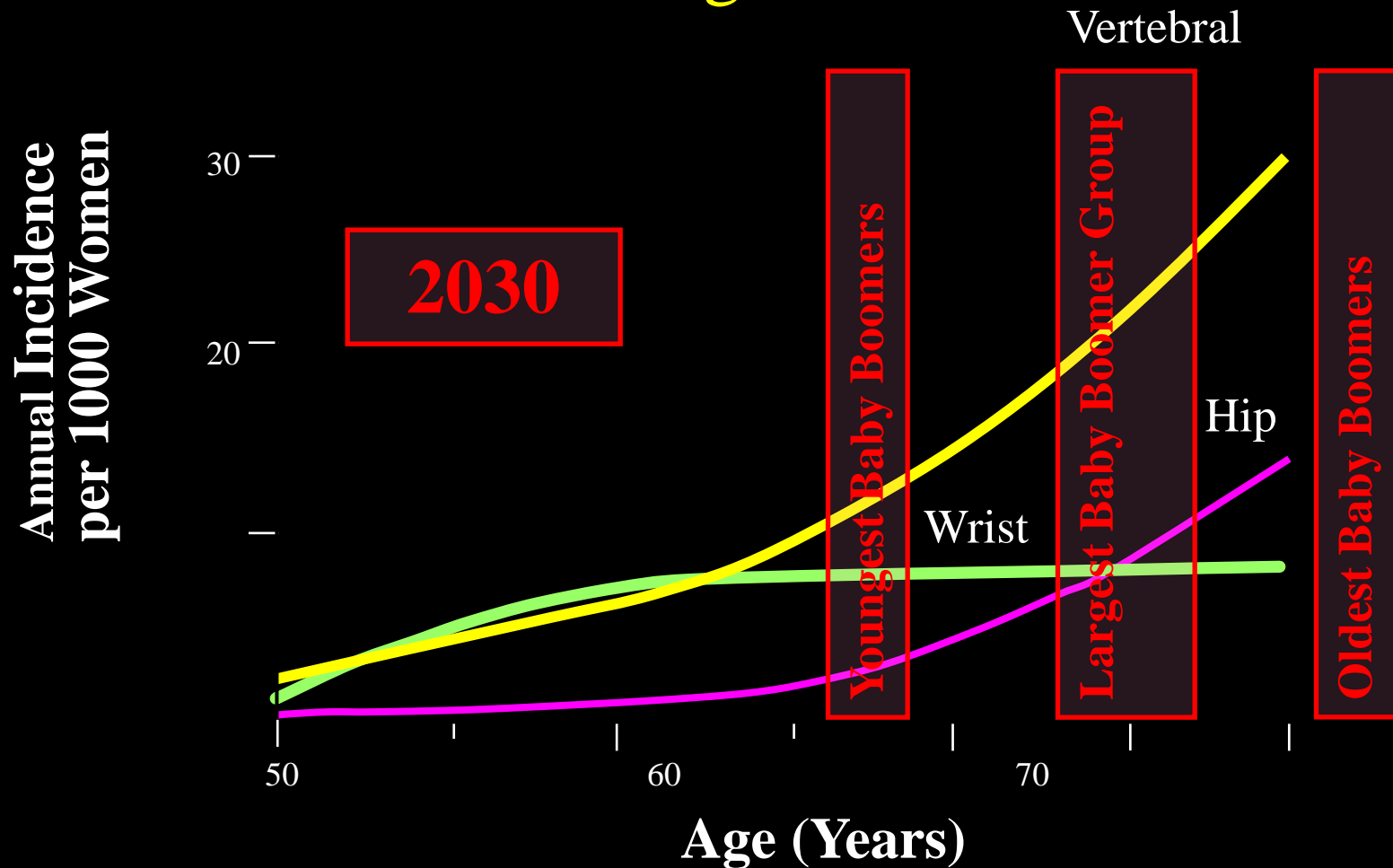
Incidence Rates for Vertebral, Wrist, and Hip Fractures in Women After Age 50



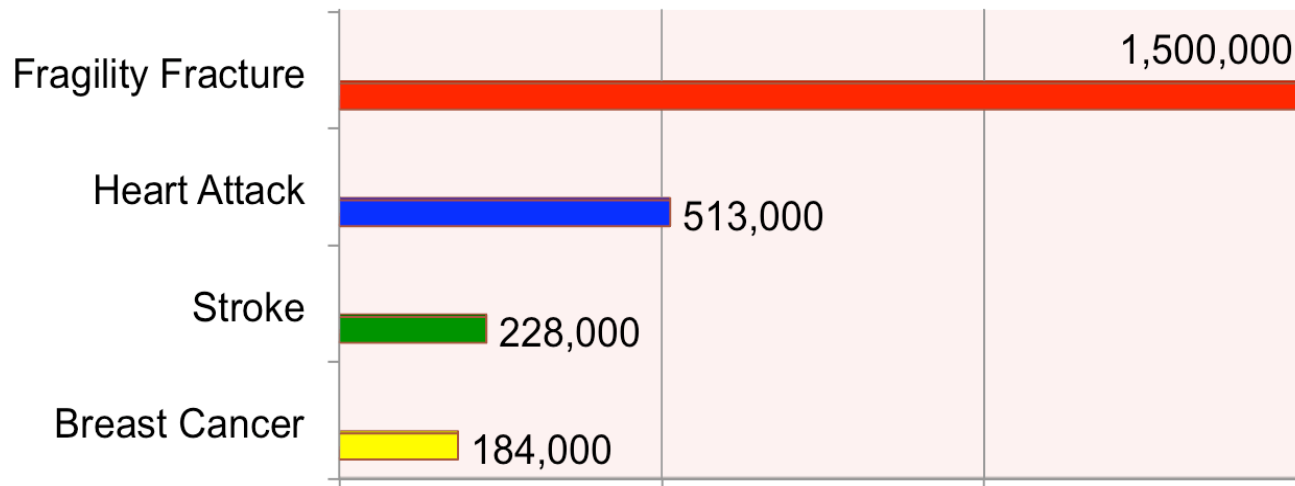
Incidence Rates for Vertebral, Wrist, and Hip Fractures in Women After Age 50



Incidence Rates for Vertebral, Wrist, and Hip Fractures in Women After Age 50



FRAGILITY FRACTURES: A HUGE PUBLIC HEALTH ISSUE



Call to Action

Bone & Joint Decade (2002-2011)

“... raise awareness of musculoskeletal conditions, as well as to enhance public and professional knowledge, encourage research, and promote advocacy issues within this area through a multidisciplinary approach.

*... its primary focus is on the greatest burden of disease, ... **osteoporosis** ...”*

Call to Action

Surgeon General & US Dept of Health & Human
Services - 2004

“... with appropriate nutrition and physical activity throughout life, individuals can significantly reduce the risk of osteoporosis and fractures. Health professionals can also make significant improvements in our Nation’s bone health by proactively assessing, diagnosing, and treating at-risk patients and then helping them apply this scientific knowledge in their everyday lives. ”

*Richard H. Carmona, M.D., M.P.H., FACS
Surgeon General, 2004*

Healthcare Costs \$\$\$

- Low energy fractures
 - Hospital length of stay - 13% longer
 - Inpatient cost - 8% greater
 - Annual direct cost (2004) = **\$24.2 Billion**
 - Cost of hip fracture = \$40,000
3 X by 2040
 - Osteoporotic fractures account for more hospital days than for heart attack, breast cancer, or prostate cancer!

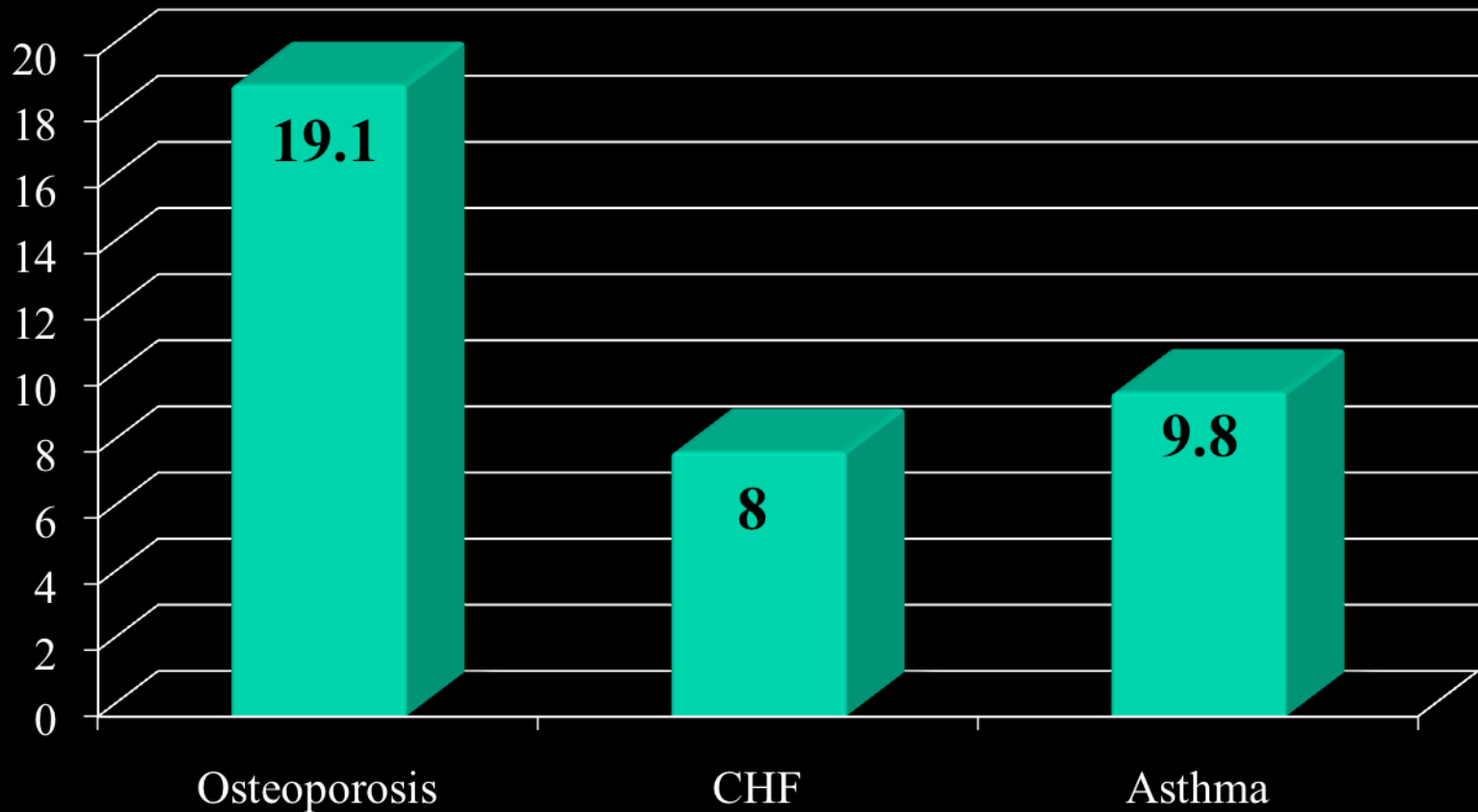
Healthcare Cost \$\$\$

- Cumulative osteoporosis related cost over next 2 decades estimated
= \$474 billion
- Kaiser Permanente – Southern CA Osteoporosis Treatment & Fracture Prevention
= Savings of \$50 Million/5 years

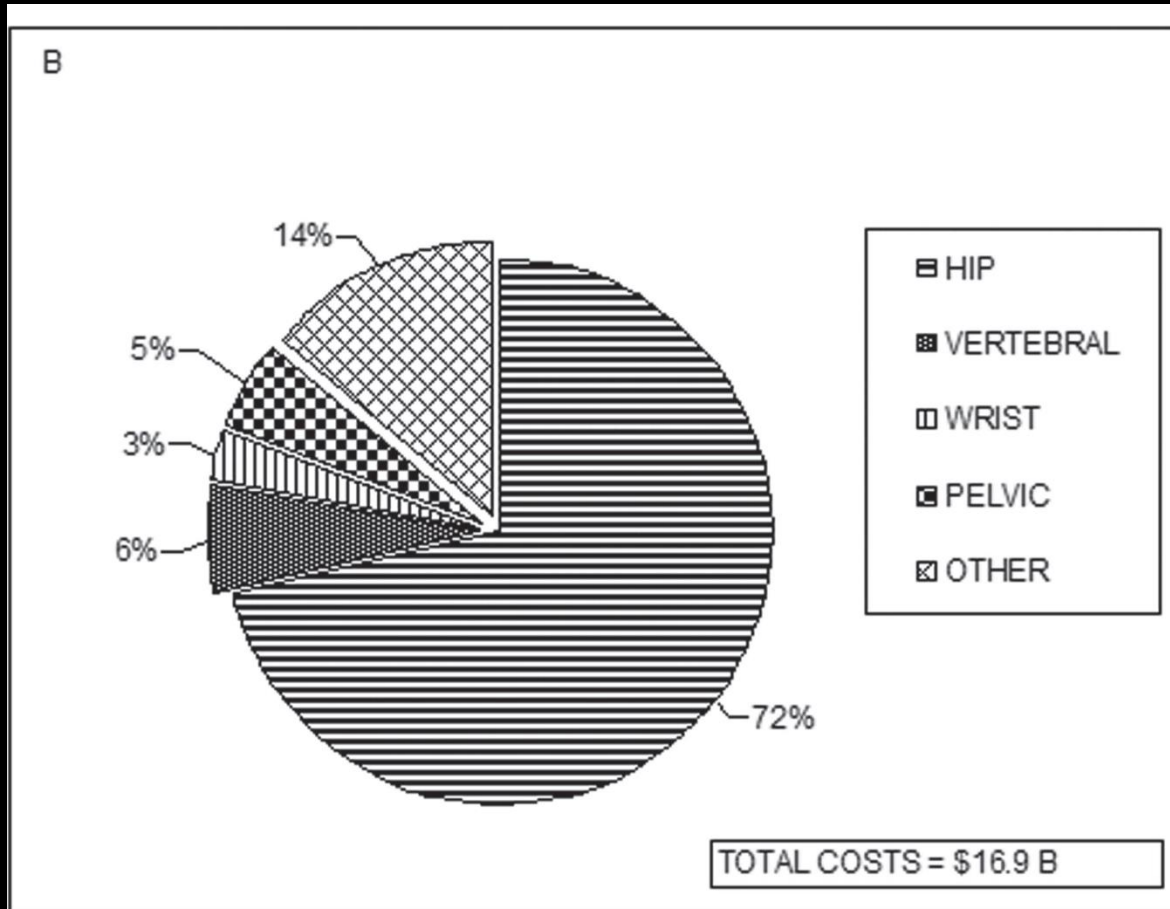
Burge et al. (2007) *J Bone Miner Res*

Cost Comparison

Annual Cost in Billions of \$



Hip Fractures - 72% of Cost



Burge R, et al. J Bone Miner Res. 2007

Other Costs - Burden of Disease

- Pain
- Disability
- Time lost from work
- Decreasing ability to perform ADLs
- Emotional
- Effects on family
- **Quality of life**



Burden of Disease

- Most patients with hip fractures are hospitalized for about one week.
- One in four adults who lived independently before their hip fracture has to stay in a nursing home for at least a year after their injury.
- One in five hip fracture patients dies within a year of injury (mortality 20% within year).

*Source: National Center for Injury Prevention and Control,
Centers for Disease Control and Prevention*

Ethnicity & Osteoporosis

- Osteoporosis undertreated in African-American women
- Risk doubles every 7 years
- African-American women more likely to die from hip fractures



Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Department of Health and Human Services

Ethnicity & Osteoporosis

- African-American women get 50% of RDA of calcium
- Lupus and sickle-cell anemia can raise osteoporosis risk



Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Department of Health and Human Services

Ethnicity & Osteoporosis

- 10% of Hispanic women over 50 have osteoporosis now
- 49% are estimated to have low bone mass, putting them at risk for the disease



Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Department of Health and Human Services

Ethnicity & Osteoporosis

- Hispanic women get less calcium than RDA
- Twice as likely to develop diabetes
- Rate of hip fractures on the rise



Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Department of Health and Human Services

Ethnicity & Osteoporosis

Native American
Very High Risk

Smokers, poorer
health/DM, lower
vitamin intake



*Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases,
National Institutes of Health, Department of Health and Human Services*

Ethnicity & Osteoporosis

Asian-American Women also at high risk



- 50% less Calcium intake
- But higher bone density
- than Caucasians
 - 50% less Hip Fractures
- Yet equal Spine Fractures

*Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases,
National Institutes of Health, Department of Health and Human Services*

Men & Osteoporosis

Lifestyle
Age
Heredity
Meds
Disease
Testosterone

Underdiagnosed

Unrecognized

Underreported

Inadequately researched

Men & Osteoporosis



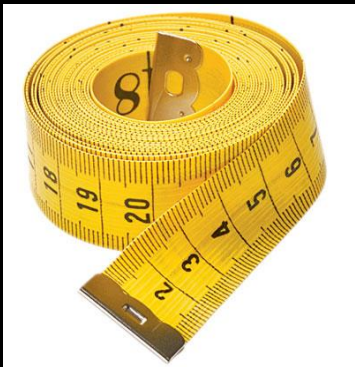
- 2 million American men suffer from Osteoporosis
- Millions more are at risk
- 80,00 hip fractures each year
- One-third die one year after fracture

Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Department of Health and Human Services

WHAT SHOULD WE DO?



Think of fractures as a sentinel events that signal the presence of a frail skeleton and an increased risk of future fractures.



Just like a heart attack is an opportunity to intervene to prevent future heart attacks...the first fracture is also an indication you and your patient can't ignore.

CARE BEYOND THE FRACTURE IS POOR

RAND study (McGlynn EA et al. *NEJM* 2003)

- Americans have ~50-50 chance of getting appropriate care
- Patients with hip fracture, only 23%

NCQA Medicare evaluation (2004 and 2009)

- Appropriate osteoporosis care after a fragility fracture – 18%-20%

WHAT SHOULD WE DO?

- This is a COMMUNITY issue – not just a hospital or orthopaedic or primary care issue!
- Communities must develop a solution to this issue
- Orthopaedists can help lead
 - We touch every patient with a fragility fracture
 - At the very least, we should be part of the solution!



Treatment Works!



Kaiser Permanente – Southern CA Osteoporosis
Treatment & Fracture Prevention

= Savings of \$50 Million/5 years

Risk reduction for secondary fractures 3-7 fold with
treatment

Problem- A Fracture but Is that All?



Problem – What Should we be seeing?

- Fear of orthopedic surgeon treating osteoporosis
- Lack of interest – not my role or problem

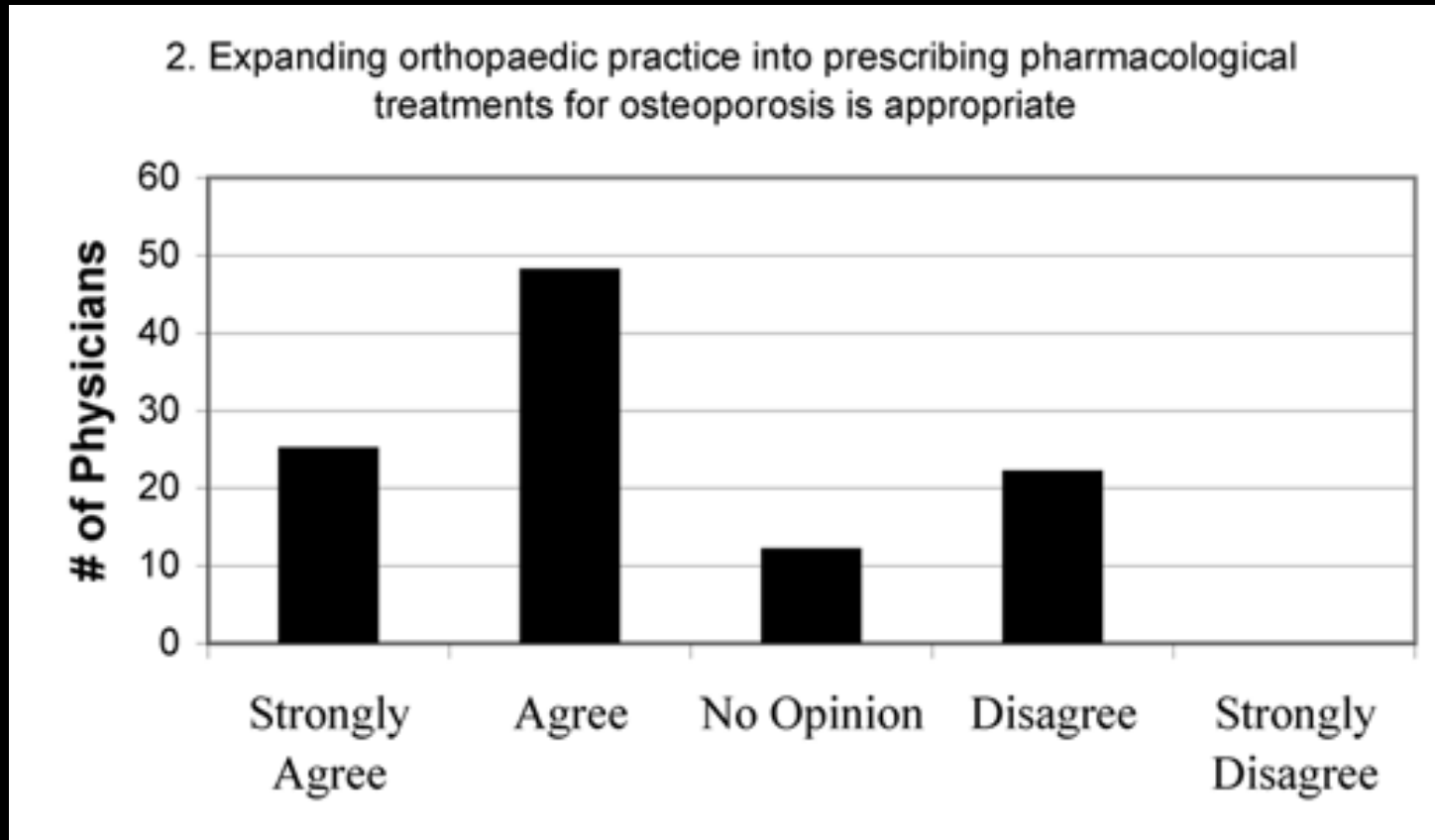


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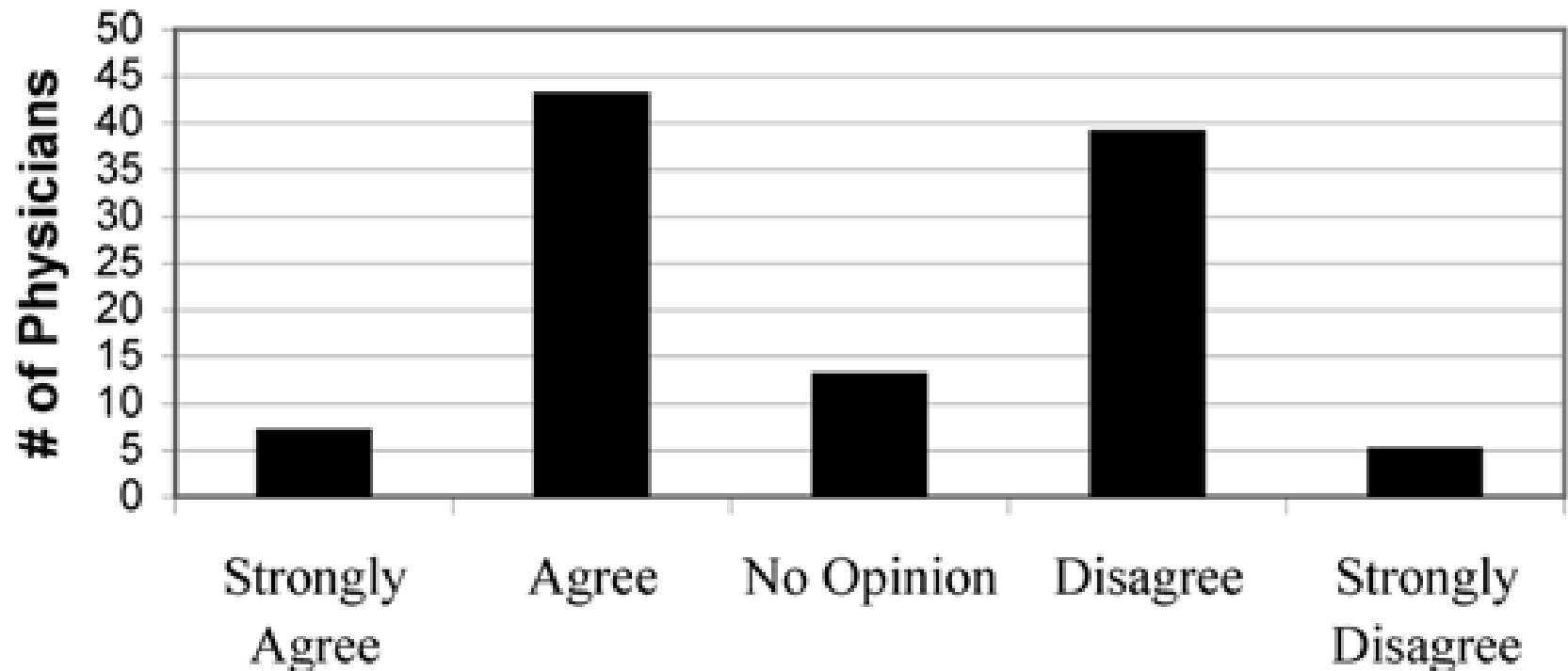
Opinions of Orthopedic Surgeons



Skedros et al, JBJS 2006

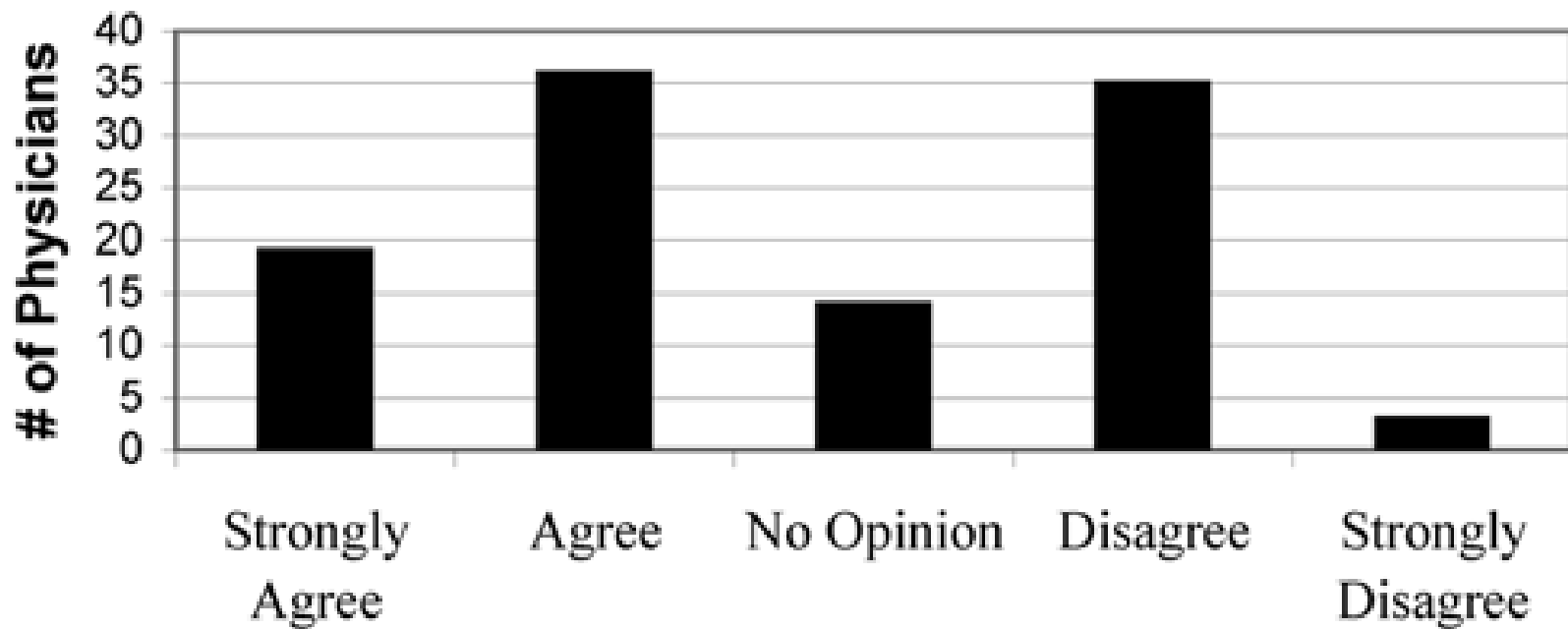
50% Uneasy Prescribing Medications

4. I am concerned enough about adverse events with pharmacological agents that I would rather avoid prescribing these agents for osteoporosis

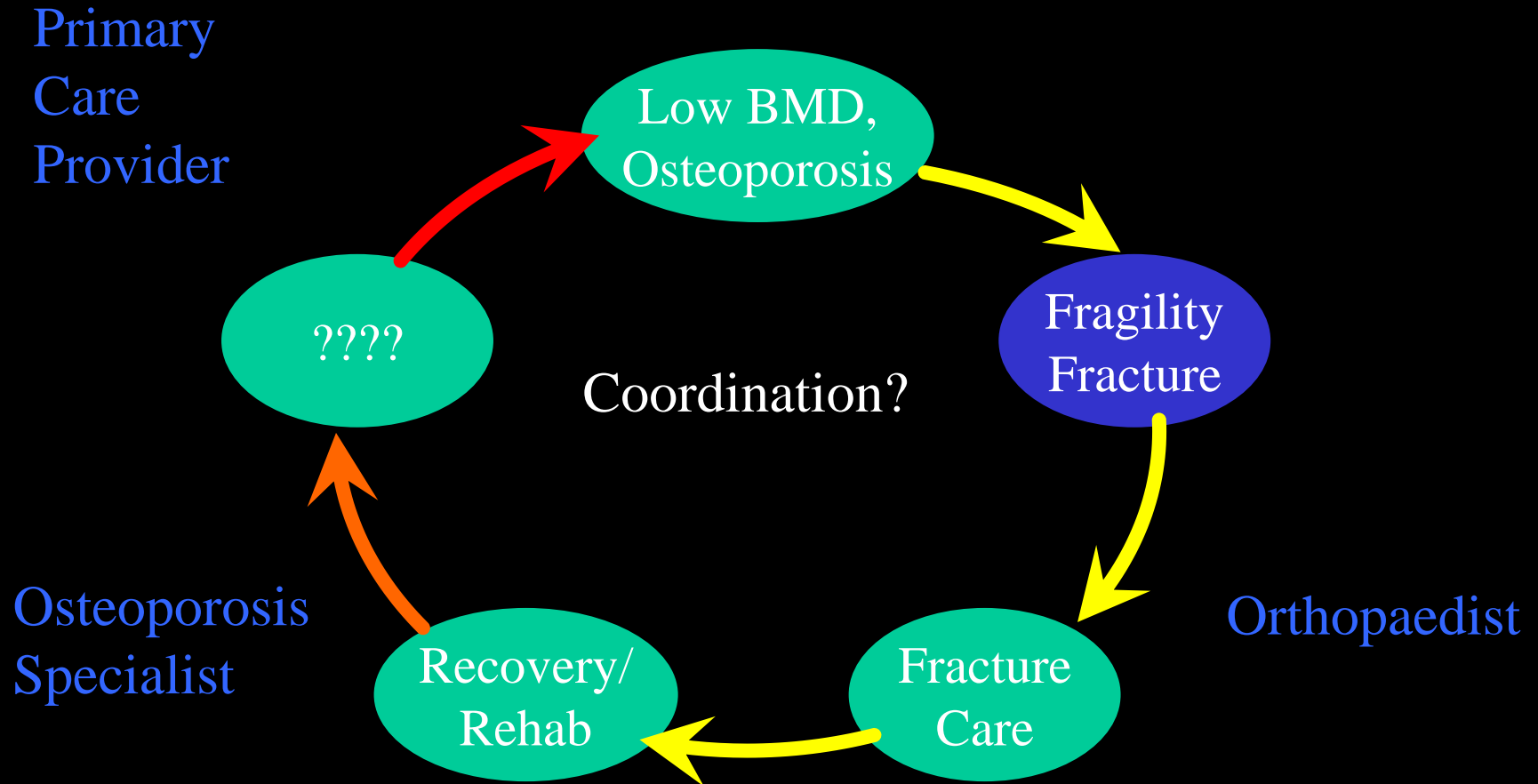


Even with MD-patient relationship > 50% Uneasy Treating

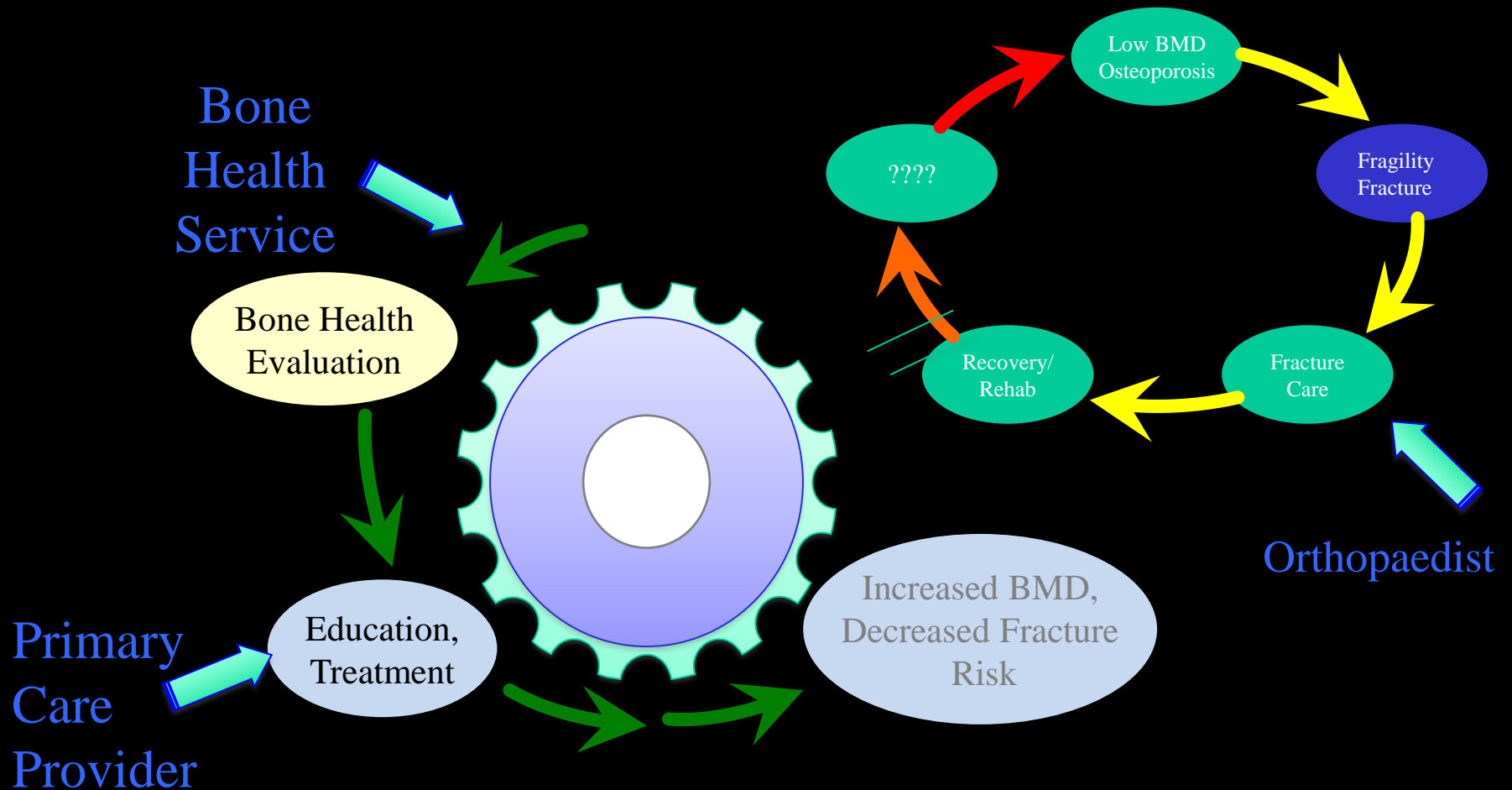
6. I would consider initiating pharmacologic treatment for patients who have fallen and sustained a fracture of the hip, proximal humerus, or wrist and have several risk factors for osteoporosis (assume that no DXA has been obtained)



WHAT'S THE SOLUTION?



BREAKING THE CYCLE WITH MULTIDISCIPLINARY PROGRAM



Goal to Success

- Site champion interested in treating bone health for his/her patients
- Implementing a Program to Address Osteoporosis



AMERICAN ORTHOPAEDIC ASSOCIATION

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BONE**

TEN IMPORTANT MEASURES TO ACHIEVE SUCCESS

Nutrition Counseling*

1. Calcium supplementation
2. Vitamin D supplementation

Physical Activity Counseling*

3. Exercise, especially weight-bearing and muscle strengthening
4. Fall prevention education

Lifestyle Counseling*

5. Smoking cessation
6. Limiting excessive alcohol intake

Pharmacology*

7. Pharmacology for the treatment of osteoporosis

Testing*

8. DXA to test bone mineral density

Communication*

9. Physician referral letter
10. Follow-up note and educational materials provided to patient

*Unless contraindicated.



Measures listed here are consistent with recommendations from the National Osteoporosis Foundation, the Centers for Medicare & Medicaid Services, the Joint Commission, the World Health Organization, and the American Medical Association.

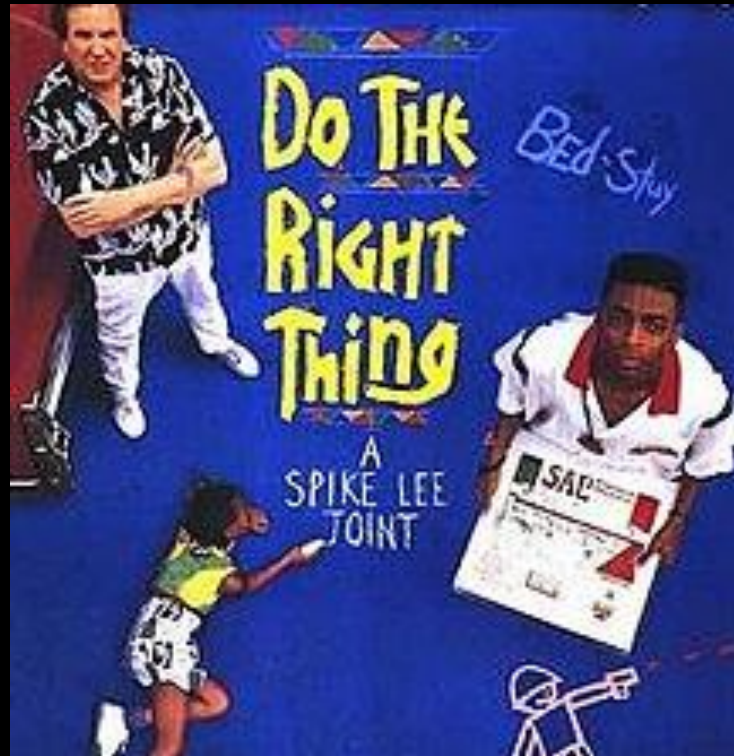
BENEFITS FOR ORTHOPEDIC SURGEONS TO TREAT:

- Future regulatory requirements
 - *CMS PQRI, Jt. Commission*
 - *Stay ahead of the curve*
- Liability
 - *Failure/delay in diagnosis*
- Increase treatment volume
 - *Positive ROI*
- Positive public relations



But Really... Why Own the Bone?

- Caring for your patients and your community



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Thank You

