Fractures & Falls: Osteoporosis Fracture Liaison Service Post-Fracture Prevention Programs as Partners in Falls Prevention

April 5, 2017

National Council on Aging

Improving the lives of 10 million older adults by 2020
Presenters

- **David Lee**, MPA, Executive Director, National Bone Health Alliance

- **Debbie Zeldow**, MBA, Senior Director, Clinical Programs, National Bone Health Alliance

- **Robin Creamer**, DO, FAAFP, Assistant Director, Florida Hospital Family Medicine Residency, Winter Park; Assistant Director, Geriatric Medicine Fellowship Program, Florida Hospital, Orlando; Associate Professor, Florida State University College of Medicine, Tallahassee; Assistant Professor, University of Central Florida College of Medicine
Enhancing Care for Patients at Risk for Falls and Osteoporosis/Fractures

Wednesday, April 5, 2017
2:00-3:00 pm ET
Mr. Lee is executive director of the National Bone Health Alliance (NBHA), a public-private partnership launched in late 2010 that brings together the expertise and resources of its 50 organizational participants from the private and non-profit sectors (in addition to government liaisons from the CDC, CMS, FDA, NASA and NIH) to collectively promote bone health and prevent disease; improve diagnosis and treatment of bone disease; and enhance bone research, surveillance and evaluation.

NBHA's signature initiatives include Fracture Prevention CENTRAL (www.FracturePreventionCENTRAL.org), a resource which enables the development and implementation of fracture prevention programs and the 2Million2Many (www.2Million2Many.org) osteoporosis awareness campaign.

Mr. Lee joined the NBHA in March 2011 and brings to the organization more than 20 years of experience in non-profit management and executive leadership.
Ms. Zeldow Senior Director, Clinical Programs of the National Bone Health Alliance (NBHA), a public-private partnership launched in late 2010 that brings together the expertise and resources of its 50 organizational participants from the private and non-profit sectors (in addition to government liaisons from the CDC, CMS, FDA, NASA and NIH) to collectively promote bone health and prevent disease; improve diagnosis and treatment of bone disease; and enhance bone research, surveillance and evaluation.

Ms. Zeldow directs NBHA’s Fracture Liaison Portfolio, Reimbursement and Quality Initiatives.

Ms. Zeldow joined NBHA in 2013 and has more than 20 years of experience in non-profit management, forging partnerships and collaborations, policy and program development, and marketing.
Overview

• Launched in late 2010 as a public-private partnership that brings together the expertise/resources of its public, private and non-profit sector partners

• **55 organizational participants**
  - 31 non-profit members
  - 19 private sector members
  - 5 government agency liaisons (CDC, CMS, FDA, NASA, NIH)

• **Collective reach: over 100,000 health care professionals and 10 million consumers**

• **Vision:** to improve the overall health and quality of life of all Americans by enhancing their bone health

• Addressing the priorities of the Bone Health Summit National Action Plan:
  - Promote bone health and prevent disease
  - Improve diagnosis and treatment
  - Enhance research, surveillance and evaluation
NBHA provides a platform for:

• Using its collective voice and diverse membership base to weigh in on subjects important to bone health, particularly:
  o Vitamin D
  o Calcium
  o Bone density testing reimbursement and utilization
  o Benefits/risks of the use of bone health therapies
• Ongoing communication among individuals and organizations interested in bone health
• Shared priorities/projects to become reality through pooled funding
• Working together toward the goals and recommendations of the National Action Plan
NBHA’s 20/20 VISION

Reducing bone breaks 20% by the year 2020
The Impact of Osteoporosis and Bone Breaks in the United States

"Cast Mountain" represents just 1 DAY of fractures caused by osteoporosis in the U.S.
- 2 million annually

By 2025, number of fractures estimated to rise to 3 million per year
Former President George H.W. Bush hospitalized after neck injury

By Richard Valdmanis

BOSTON (Reuters) - Former U.S. President George H.W. Bush is in fair condition and recovering in a Maine hospital after breaking a bone in his neck in a fall at his summer home, his spokesman said on Thursday.

Bush, who is 91 and the oldest living former American president, was taken to Maine Medical Center in Portland following the fall.

“…breaking a bone in his neck in a fall”

Sonia Sotomayor fractures ankle

By Bill Meyer, The Plain Dealer

Associated Press

Press Supreme Court nominee Sonia Sotomayor, center, walks on crutches on her way to a meeting on Capitol Hill, in Washington, Monday, June 8, 2009. Sotomayor broke her ankle Monday morning in an airport stumble, then boarded her flight as scheduled and made the roughly hourlong trip to Washington to meet with senators who will vote on her confirmation.

“…in an airport stumble”

Hillary Clinton’s Fracture May Serve as Osteoporosis Warning

June 22, 2009

By DAN CHILDS via GOOD MORNING AMERICA

President Barack Obama and Secretary of State Hillary Clinton leave the Oval Office after a meeting today. Secretary Clinton broke her elbow last week and had surgery over the weekend.

Secretary of State Hillary Clinton’s unfortunate fall last week meant a fracture and subsequent surgery Friday to repair the break in her right elbow.

It’s not clear if this was just a nasty fall or if Clinton has any underlying conditions such as osteoporosis that contributed to the fracture. Her spokesperson declined to comment about whether she’d received any such diagnosis after the accident.

“…fell down on her way to the White House”
Prevalence of Osteoporosis and Low Bone Mass

Americans Age 50 and Above Affected by Osteoporosis/Low Bone Mass, 2010 to 2030 (projected)

54 million of 99 million Americans age 50+ (2010)

17% of the ENTIRE U.S. POPULATION (2010)

+27% change from 2010 to 2030

NCQA HEDIS
Post-Fracture Care Gap Measure

Osteoporosis management in women who had a fracture

• Assesses whether women age 65-85 who had one or more bone fracture received, within 6 months of the fracture:
  o a bone density test to determine if osteoporosis was the underlying cause of the fracture and/or
  o appropriate prevention/treatment for osteoporosis

• Secondary fracture prevention measure

• 1 of 53 Five Star measures

• 1 of 31 “medical/condition-specific” measures

<table>
<thead>
<tr>
<th>Testing/Treatment Rate in Women Who Had a Fracture</th>
<th>Commercial</th>
<th>Medicaid</th>
<th>Medicare</th>
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<tbody>
<tr>
<td>Year</td>
<td>HMO</td>
<td>PPO</td>
<td>HMO</td>
</tr>
<tr>
<td>2015</td>
<td>–</td>
<td>–</td>
<td>40.7</td>
</tr>
<tr>
<td>2014</td>
<td>–</td>
<td>–</td>
<td>38.1</td>
</tr>
<tr>
<td>2013</td>
<td>–</td>
<td>–</td>
<td>29.2</td>
</tr>
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<td>2012</td>
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<td>–</td>
<td>25.0</td>
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<td>2008</td>
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<td>–</td>
<td>20.7</td>
</tr>
<tr>
<td>2007</td>
<td>–</td>
<td>–</td>
<td>20.4</td>
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</table>

However, Osteoporosis Care Lags **FAR BEHIND** Other Major Diseases/Conditions (2013 HEDIS HMO data)

<table>
<thead>
<tr>
<th>Service</th>
<th>Coverage</th>
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<tbody>
<tr>
<td>Testing/Treatment After a Fracture</td>
<td>29%</td>
</tr>
<tr>
<td>Fall Risk Discussion</td>
<td>34%</td>
</tr>
<tr>
<td>COPD Spirometry Testing</td>
<td>43%</td>
</tr>
<tr>
<td>Comprehensive Diabetes Care</td>
<td>59%</td>
</tr>
<tr>
<td>Fall Risk Intervention</td>
<td>62%</td>
</tr>
<tr>
<td>Colorectal Cancer Screening</td>
<td>63%</td>
</tr>
<tr>
<td>Controlling High Blood Pressure</td>
<td>64%</td>
</tr>
<tr>
<td>Pneumococcal Vaccinations (2012)</td>
<td>70%</td>
</tr>
<tr>
<td>Breast Cancer Screening</td>
<td>74%</td>
</tr>
<tr>
<td>Beta Blockers (Post-Heart Attack)</td>
<td>84%</td>
</tr>
<tr>
<td>Cholesterol Management (CVD Patients)</td>
<td>87%</td>
</tr>
<tr>
<td>RA Anti-Rheumatoid Therapy</td>
<td>88%</td>
</tr>
</tbody>
</table>

Medicare Data Trends: Bone Density Testing/Diagnosis/Hip Fracture Rates

Fearing Drugs’ Rare Side Effects, Millions Take Their Chances With Osteoporosis

“Last month, three professional groups — the American Society for Bone and Mineral Research, the National Osteoporosis Foundation and the National Bone Health Alliance — put out an urgent call for doctors to be more aggressive in treating patients at high risk, and for patients to be more aware of the need for treatment.”

“You only need to treat 50 people to prevent a fracture, but you need to treat 40,000 to see an atypical fracture,” said Dr. Clifford J. Rosen...
“Hip fractures could be opportunities to identify and treat osteoporosis. Yet few patients receive timely services.”

“Women 80 years and above are 1/3 less likely than those 50-79 to receive osteoporosis-related services after hip fracture.”

**Spotlight**

**Few Hip Fracture Patients Receive Osteoporosis Care**

Catherine W. Gillespie  
AARP Public Policy Institute and  
Visiting Fellow, OptumLabs™

Pamela E. Morin  
OptumLabs™

**Background: Osteoporosis and the Current State of Play**

Maintaining independence is a topic at the forefront of the aging field—and on the minds of millions of aging Americans. Yet, few are taking the appropriate actions to address a common culprit of disability and loss of independence. This analysis of national health insurance claims by the AARP Public Policy Institute highlights the importance of providing older women who have suffered hip fractures with recommended post-fracture care, including screening for underlying osteoporosis and initiating use of evidence-based osteoporosis drug therapies, if appropriate. Failure to adhere to these recommendations may increase the likelihood of a second hip fracture, particularly among women ages 80 and older.

Osteoporosis—a bone disease that increases bone fragility and risk for fractures—is a leading cause of disability and loss of independence among older women. In the United States, more than 5.8 million women ages 50 and older have osteoporosis, a number that will only grow as our population continues to age. Osteoporosis prevalence increases markedly with age, and approximately half of all postmenopausal women will experience bone fractures due to osteoporosis during their remaining lifetimes. Hip fractures are particularly common, with often serious health implications: 10–20 percent of older adults will die in the year after a hip fracture, and just 40 percent will return to their prior level of independence.

But there is good news. Research has clearly shown the benefits of treatment for women with osteoporosis. Based on this evidence, experts suggest that older women with hip fractures should undergo bone density testing to evaluate whether osteoporosis may have played a role, and begin using osteoporosis drugs, if appropriate. Nevertheless, prior research suggests that few women are evaluated or treated for osteoporosis following hip fractures. Addressing these missed opportunities might make a big difference.

www.aarp.org/ppi/info-2016/few-hip-fracture-patients-receive-osteoporosis-care.html
Annual Unadjusted Probability of Osteoporosis Medication Use Within 12 Months After Discharge*

In September 2016, ASBMR issued a call to action to address the osteoporosis treatment crisis, stating:

- New evidence is emerging that the 30-year downward trend in hip fractures in the U.S. has hit a plateau in the last few years, indicating that **the field as a whole must take action to aggressively reduce fracture risk in our aging population**
- Many experts are now acknowledging that **there is a crisis caused by the declining rate of testing, diagnosis and treatment of high-risk patients**
- Allowing these patients to go untested and untreated frequently leads to **debilitating fractures that cause disability, loss of independence and even death**

To date, this call to action has been signed by **37 organizations**
Solution to the Osteoporosis Diagnosis, Screening and Treatment Gap?

FRACTURE LIAISON SERVICE (FLS) MODEL OF CARE
Fracture Liaison Service (FLS) Model of Care

• A **coordinated preventive care model** which operates under the supervision of bone health specialists and collaborates with the patient’s primary care physician
  - Coordinates post-fracture care through a **FLS coordinator** (a RN, NP, PA or other healthcare professional) who ensures individuals who fracture receive appropriate diagnosis, treatment and support
  - Patients with recent fractures are tracked via a **population registry**
  - **Processes and timelines** for patient assessment and follow-up

• FLS programs have been **successful in a number of closed and open settings, both in the U.S. and abroad, over the last 15 years**

• These programs have **greatly reduced the number of costly and serious recurrent fractures** by identifying and appropriately treating post-fracture patients
FLS Care Coordination in Action: Operationalizing a Multidisciplinary Approach to Osteoporosis Disease Management
**Why Secondary Fracture Prevention?**

1. **Objective 1**: Improve outcomes and efficiency of care after hip fractures by delivering professional standards per established performance and quality measures.
2. **Objective 2**: Respond to the first fracture to prevent the second through establishment of Fracture Liaison Services bridging hospital and primary care services for fracture patients.
3. **Objective 3**: Health insurers or primary care providers to stratify risk for their patients using fracture risk assessment tools combined with bone density testing.
4. **Objective 4**: Consistent delivery of public health messages on preserving physical activity, healthy lifestyles and reducing environmental hazards.

(Maximized cost-effectiveness by stepwise delivery)

(Adapted from *Falls and fractures: Effective interventions in health and social care*)
United States FLS Outcomes

1. Kaiser Permanente
   • **Reduced the hip fracture rate expected by over 40%** (since 1998)
   • If implemented nationally, Kaiser estimates a similar effort could reduce the number of hip fractures by over 100,000 (and save over $5 billion/year)

2. Geisinger Health System
   • Achieved **$7.8 million in cost savings** from 1996-2000

3. American Orthopaedic Association
   **Own the Bone®** Program
   • Achieved statistically significant changes in health professional behavior/referral (calcium and vitamin D, exercise, fall prevention, etc.)
   • Over **190 sites and 22,000+ patients** involved from 46 states and the District of Columbia (since mid-2009)

4. NBHA Demonstration Project Cloud-Based FLS Application
   • Accessible suite of FLS registry, quality improvement and care coordination tools
   • Delivered through a secure HIPAA-compliant cloud-based platform
www.FracturePreventionCENTRAL.org

Over 3,900 individual users have signed up to access these tools since March 2013.
Fracture Prevention CENTRAL, an Online FLS Resource: this publicly-accessible website was launched in March 2013 (available at www.FracturePreventionCENTRAL.org) to help healthcare professionals and administrators implement a coordinator-based, post-fracture FLS model of care to reduce secondary fractures and the associated costs while increasing patient outcomes:

- NBHA compiled materials from a number of successful domestic and international post-fracture care programs
  - highlights the work of leading FLS programs including the American Orthopaedic Association Own the Bone program, Kaiser Permanente and Geisinger Health System

Fracture Prevention CENTRAL enables sites to implement a FLS program in support of NBHA’s 20/20 vision to reduce fractures 20% by the year 2020
August 2016: 2016 CMS-approved NBHA, NOF and CECity Osteoporosis Qualified Clinical Data Quality Improvement Registry (QCDR) launched. 2017 anticipated to be launched this summer. 

www.medconcert.com/FractureQIR/

The NOF and NBHA Quality Improvement Registry
The only QCDR focused on measuring, reporting, and improving patient outcomes in osteoporosis and post-fracture care.

Avoid up to a 9% penalty
Automate your EHR Data
Track performance against benchmarks
Close gaps in patient care
Manage your patient population
Satisfy PQRS, VBM & MU

About this Registry
The NOF and NBHA Quality Improvement Registry, in collaboration with CECity, is intended for all providers and specialists caring for patients with osteoporosis.

This registry is accredited by CMS as a Qualified Clinical Data Registry (QCDR) for Eligible Professionals and GPRO Practices.

Measures That Matter
The NOF and NBHA Quality Improvement Registry is comprised of 18 quality measures.

Avoid penalties under the PQRS, VBM, and MU programs with easy-to-use registry reporting

Up to a 9% of your 2016 Medicare payments are at risk for non-participation in the Meaningful Use, PQRS, & VBM programs.
Staff Contacts

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www.nbha.org
www.FracturePreventionCENTRAL.org
www.medconcert.com/FractureQIR
Osteoporosis and Fall Prevention
Together we Stand

NCOA-NBHA WEBINAR
4/5/17
ROBIN CORNELL CREAMER, DO, FAAFP
Educational Resources

- National Osteoporosis Foundation (NOF) Professional Learning Center - Bone Source
  https://www.cme.nof.org/Resources.aspx
- NOF Clinicians Guidelines www.nof.org or APP
- National Bone Health Alliance. http://www.nbha.org/resources
- FRAX:  http://www.shef.ac.uk/FRAX
- National Institute of Health (NIH); http://www.niams.nih.gov
- Mayo Clinic Shared Decision-Making National Resource Center
  https://osteoporosisdecisionaid.mayoclinic.org/
- University New Mexico. Telementoring Bone Health TeleECHO Clinic. http://www.ofnm.org/project-echo
- AAFP  http://familydoctor.org
Osteoporosis

Bone disease marked by reduced bone strength leading to an increased risk of fractures.

Bone Strength = Bone Mass (density) + Bone Quality

Slide used with permission from the National Osteoporosis Foundation
Osteoporosis Fracture = Fragility fractures
A fracture that occurs from standing height or less

• Fragility Fracture Definition

• A **fragility fracture** (a fracture caused by osteoporosis or low bone mass) is **any fall from a standing height or less that results in a fracture**
  • we should be able to sustain a fall from standing height without fracturing unless there is an underlying cause that makes the bones fragile

• **A fragility fracture suffered by a man or woman age 50 or above is a sign of an underlying disease: osteoporosis**

• **Continuum:**
  • Frailty/sarcopenia
  • Falls

• Fractures
Osteoporosis is the Most Common Bone Disease

Only 23% of women age 67+ who have fractured receive either a BMD test or prescription for an anti-osteoporosis medication

Slide by permission from the National Bone Health Alliance
Human Impact of Osteoporosis and Bone Breaks

- 50% of osteoporosis-related repeat fractures can be prevented with appropriate treatments.
- Osteoporosis fractures will likely cost us $25 billion per year by 2025.
- Over 1/3 of patients with a hip fracture had a prior fracture.

Slide by permission from the National Bone Health Alliance
Importance of Spine Fractures

Most common osteoporotic fractures
75% are not clinically evident
Patients with a spine fracture have a 5-fold future risk of a spine fracture and 2-fold risk of a hip fracture
9% decrease in lung capacity per vertebral fracture
Disease of Aging. Prevention Starts in Childhood
Screening BMD (DXA) Recommendations

• All women $\geq 65$ years
• Younger women with risk factors for osteoporosis
• Men:
  • USPSTF: Evidence is insufficient recommend screening in men without previous fractures or secondary causes of osteoporosis.
  • NOF: $\text{Men} \geq 70$ years
## Current Diagnosis of Osteoporosis

1. Bone Mineral Density as defined by WHO **or**
2. Fragility fracture of hip or spine

<table>
<thead>
<tr>
<th>Condition</th>
<th>T-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Equal to -1.0 or higher</td>
</tr>
<tr>
<td>Low Bone Mass (Osteopenia)</td>
<td>Between -1.0 and -2.5</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Equal to -2.5 or lower</td>
</tr>
<tr>
<td>Severe Osteoporosis</td>
<td>Equal to -2.5 or lower with fracture</td>
</tr>
</tbody>
</table>

Case: FRAX with DXA result

Calculation Tool

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

Country: US (Caucasian)  Name/ID:  

**Questionnaire:**

1. Age (between 40 and 90 years) or Date of Birth
   - Age: 61
   - Date of Birth: Y:  M:  D:  

2. Sex
   - Male  Female  

3. Weight (kg)  49.9  

4. Height (cm)  160  

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/day
    - No  Yes

12. Femoral neck BMD (g/cm²)
    - T-Score  -2.3

**BMI: 19.5**

The ten year probability of fracture (%) with BMD

- Major osteoporotic  18
- Hip Fracture  1.8

If you have a TBS value, click here: Adjust with TBS

Used with Permission from International Osteoporosis Foundation
Advise Universal Recommendations for Bone Health Regardless of Bone Density

• Advise adequate dietary calcium intake, supplement if diet is insufficient
• Advise adequate Vitamin D intake, supplement if diet is insufficient
• Avoid Tobacco and excess alcohol
• Recommend exercise program for strength, posture and balance
• Fall Prevention
Institute of Medicine: Dietary Reference Intakes for Calcium and Vitamin D -- 2011

<table>
<thead>
<tr>
<th>YEARS</th>
<th>CALCIUM (mg/d) Recommended Dietary Allowance</th>
<th>VITAMIN D (IU/d) Recommended Dietary Allowance</th>
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<tbody>
<tr>
<td>19-50 y M/F</td>
<td>1,000</td>
<td>600</td>
</tr>
<tr>
<td>51-70 y Males</td>
<td>1,000</td>
<td>600</td>
</tr>
<tr>
<td>51-70 y Females</td>
<td>1,200</td>
<td>600</td>
</tr>
<tr>
<td>&gt;70 y M/F</td>
<td>1,200</td>
<td>800</td>
</tr>
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</table>
Too Fit To Fracture Recommendations

For preventing bone loss and falls, recommend a combination of:
• Strength training for major muscle groups ≥ 2x/week
• Balance challenges daily
• Moderate-to-vigorous aerobic physical activity ≥ 150 min/week, or 20-30 min per day

To reduce spine loads, recommend:
• Exercises for back extensor muscles daily
• Spine sparing strategies – hip hinge for bending, step-to-turn instead of twisting, holding loads close to body

Physical Therapy for Osteoporosis and/or Fall Prevention

• Physical Therapy
  • Medicare accepts Physical Therapy with diagnosis codes for Osteoporosis, Osteopenia and/or Fall Prevention.
  • To develop a safe and appropriate exercise program improve strength, posture and balance, which may reduce the risk of falls. Exercises for bone health and fall prevention overlap. Both aim to decrease sarcopenia.
  • As little as 1-3 sessions may be all that is needed to review posture and exercise routine.
Pharmacology

- **Antiresorptive**
  - Bisphosphonates
    - Alendronate
    - Ibandronate
    - Risedronate
    - Zoledronic Acid
  - Denosumab
  - Raloxifene
  - Estrogen
  - Calcitonin

- **Anabolic (Bone Forming)**
  - Teriparatide (PTH 1-34)
Fall Prevention = Fracture Prevention

• 90% fractures are due to a fall
• The fear of falling is a risk itself
• Formal Fall Prevention Assessment - STEADI
• Assess risk factors for fall:
  • Medications
  • Medical conditions
  • Environmental hazards
Practice Recommendations

• Actively counsel participants on the prevention of osteoporosis and falls.
• Recommend women 65 ≥ yrs and men ≥ 70 yrs speak with their physician about a screening DXA scan.
• Recommend participants 50 ≥ with a history of a fragility fractures speak to their physician about a DXA.
• Include the Universal Bone Health recommendations in fall prevention education.
  • Adequate dietary calcium, supplement to meet RDA
  • Adequate Vitamin D
  • Exercise
  • Avoid tobacco, excess alcohol
References


• National Bone Health Alliance. http://www.nbha.org/resources
References

• WHO publication - Kanis JA, on behalf of the World Health Organization Scientific Group. Assessment of osteoporosis at the primary health care level. WHO Collaborating Centre for Metabolic Bone Diseases, University of Sheffield 2007.
Questions?