



## 2019 Interdisciplinary Symposium on Osteoporosis

**Wednesday, May 15, 2019**

**1:00 pm – 5:00 pm**

### **FLS Basics Course**

**Andrea Singer, MD; Susan Bukata, MD; Dudley Phipps, PA-C;  
Laila Tabatabai, MD; Susan Greenspan, MD; Anne Lake, NP;  
Freda Hannafon, NP, Deborah Kado, MD**

*Evaluate this session via the app!*

# **THE IMPERATIVE TO IMPROVE OUTCOMES IN OSTEOPOROSIS CARE: Making the Case for a Secondary Fracture Prevention Program**

**Andrea Singer, MD, FACP, CCD**

**MedStar Georgetown University Hospital**

# Disclosures:

## Dr. Andrea Singer

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# OBJECTIVES

- Describe the Fracture Liaison Service (FLS) Model of care and the benefits of an interdisciplinary approach to post-fracture care management
- Adapt FLS principles into the management of patients with osteoporosis-related fractures
- Describe approaches for successful FLS program development and startup and identify potential challenges.
- Identify critical elements of an FLS business case
  - Clearly articulate the problem and the market opportunity for an FLS program
  - Describe the service to be offered
  - Identify the strategic fit within the institution/system
  - Present a realistic business model for an FLS

# Why Should Providers Care?

- 71 year-old woman with the following fracture history:
  - 1993- Left patella fracture – slipped on black ice, landed on knee
  - 1996 - tibial plateau fracture- horseback riding accident
  - 2009- Right femoral neck fracture s/p surgical repair - slipped off pilates chair with fall onto floor
  - March 2014 - Left patella fracture - Missed a step and fell
  - October 2014- Right distal femur fracture – slipped getting out of bed



# What Went Wrong?

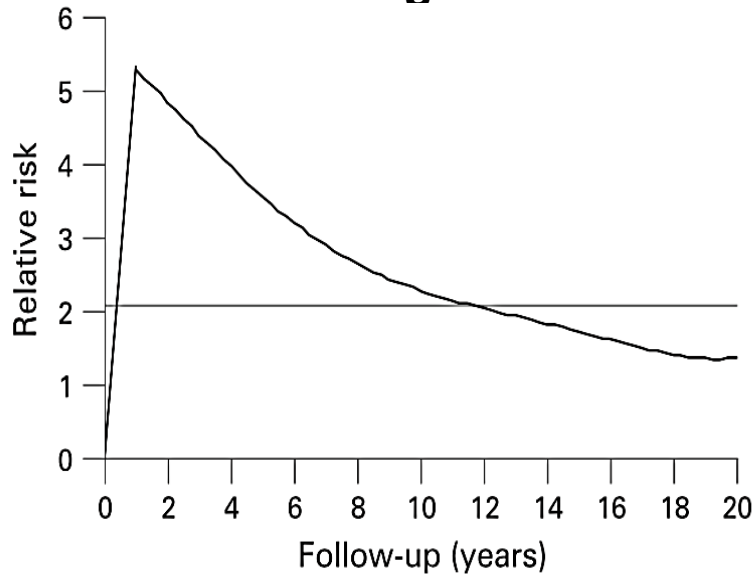
- No diagnostic tests for factors contributing to skeletal fragility
- No DXA since recent fractures
- No calcium, vitamin D, or medications to reduce fracture risk
- No attention to reducing fall risk

**FRACTURE IS A SENTINEL EVENT**

# Why Should Providers Care?

## Fracture Begets Fracture

### The Risk of Subsequent Fracture is Greatest in the Year Following the Fracture



Time after First Fracture	Relative Risk (95% CI)
Within 1 year	5.3 (4.0 to 6.6)
Within 2-5 years	2.8 (2.0 to 3.6)
Within 6-10 years	1.4 (1.0 to 1.8)

### The Risk of Future Fractures at all Sites Increases with the Number of Prior Fractures

	Relative Risk of Subsequent Fracture <sup>2</sup>		
Number of Prior Fractures	Any Bone	Hip	Spine
1	1.81	1.60	2.16
2	2.98	2.95	3.97
3	4.80	3.66	9.05

1. van Geel, TACM, et al. Ann Rheum Dis 2009; 68:99–102
2. Gelbach, S. et al. J Bone Miner Res. 2012; 27 645–653.
3. Center, JR, et al. JAMA 2007; 297:387-394.

# One-half of Patients Presenting with Hip Fractures Have Suffered a Prior Fracture





# Why Should Providers Care?

## National Gap in Osteoporosis Care

### 2016 HEDIS Report Card

Year	Medicare	
	HMO	PPO
2015	40.7	32.8
2014	38.1	30.2
2013	29.2	22.4
2012	25.0	19.1
2011	22.8	19.3
2010	20.7	18.5
2009	20.7	18.1
2008	20.7	18.0
2007	20.4	17.8

#### HEDIS measure

Assesses women 65-85 years of age who had a fracture and who had either a bone mineral density test or a prescription for a drug to treat osteoporosis in the 6 months after the fracture

Medicare Advantage 5 Star measure:

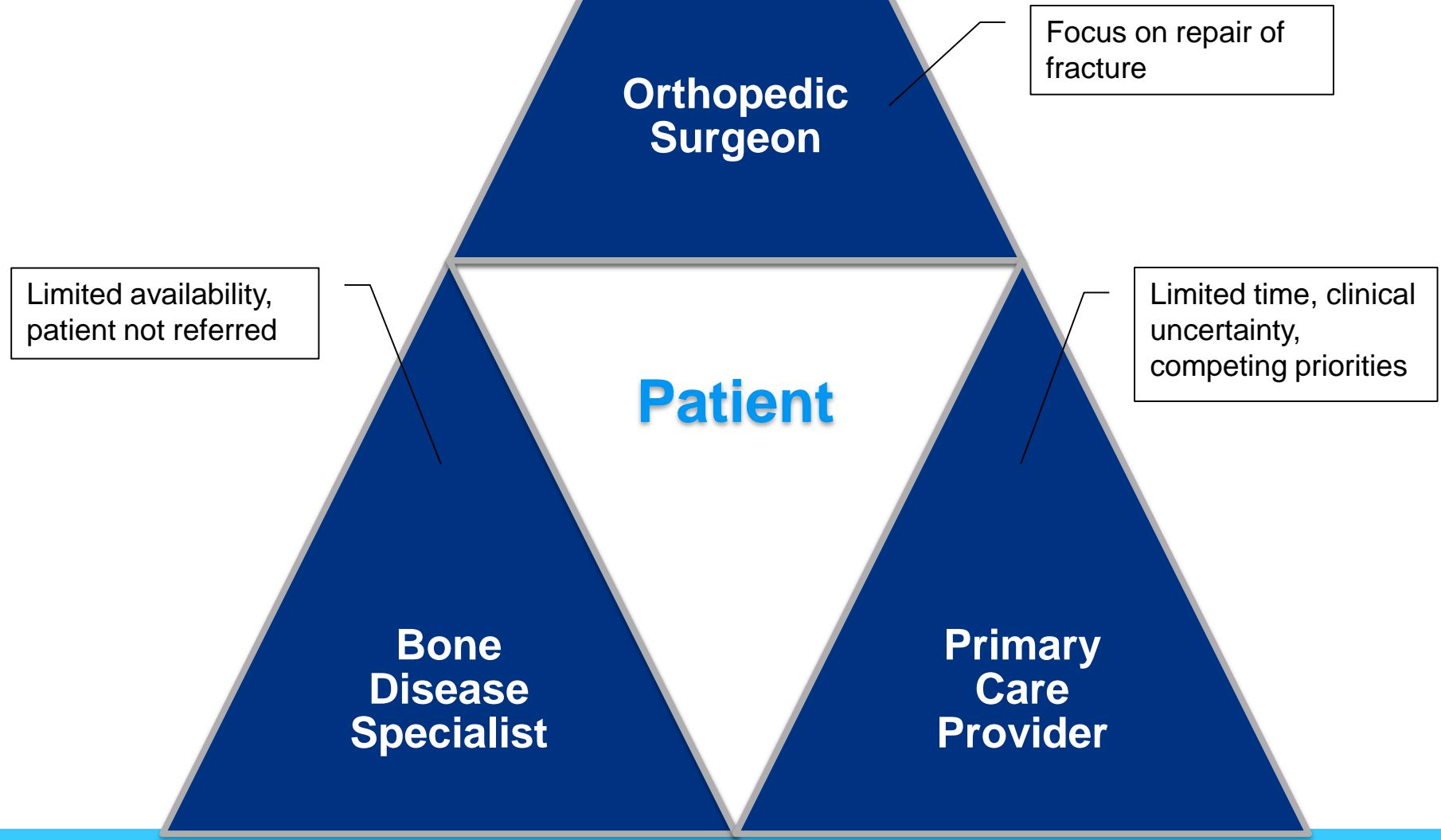
- 1 of 31 “medical/condition-specific” measures

**~60%-70%  
Care Gap**

HMO = health maintenance organization; PPO = preferred provider organization.

National Committee on Quality Assurance. 2016 State of Health Care Quality. <http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2016-table-of-contents/osteoporosis>. Accessed April 11, 2017.

# Osteoporosis Care Gap: Post-fracture Bermuda Triangle



# Identification and Intervention Should Start at the Point of Contact

- Identification of fragility fracture
  - Falls from standing height or less resulting in fracture
    - Majority of fragility fractures happen from a fall
    - Does not matter how “hard” the surface or how “bad” the fall
      - It is about energy transfer and bone strength
- Recognize that in addition to fixing the fracture, osteoporosis needs to be evaluated and treated
- Capitalize on the “teachable moment”
- Start the evaluation
- Coordinate follow-up care for osteoporosis

# How We Improve the Osteoporosis Care Gap: Secondary Fracture Prevention



- Rational background and scientific evidence underpinning secondary fracture prevention

- Key elements
  - Integrated systems
  - Work with orthopedic community
  - Implement FLS service
  - Develop tool kits:

# How We Improve the Osteoporosis Care Gap: Fracture Liaison Service 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
  - FLS programs coordinate post-fracture care through an **FLS coordinator** (generally a nurse, NP, or PA)
  - Patients with recent fractures are tracked via a **population registry**
  - **Processes and timelines established** for patient assessment and follow-up
- FLS programs
  - Recognize that patients who have fractured are at highest risk of future fractures
  - Have greatly reduced the number of fractures and have achieved cost savings by identifying and appropriately treating post-fracture patients

# FLS Effectiveness – Dependent on its Intensity

Osteoporos Int  
DOI 10.1007/s00198-012-2090-y

## REVIEW

### Models of care for the secondary prevention of osteoporotic fractures: a systematic review and meta-analysis

K. Ganda · M. Puech · J. S. Chen · R. Speerin ·  
J. Bleasel · J. R. Center · J. A. Eisman · L. March ·  
M. J. Seibel

Received: 4 June 2012 / Accepted: 10 July 2012  
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**Abstract** Most people presenting with incident osteoporotic fractures are neither assessed nor treated for osteoporosis to reduce their risk of further fractures, despite the availability of effective treatments. We evaluated the effectiveness of published models of care for the secondary prevention of osteoporotic fractures. We searched eight medical literature databases to identify reports published between 1996 and 2011, describing models of care for secondary fracture prevention. Information extracted from each publication included study design, patient characteristics, identification strategies, assessment and treatment initiation strategies, as well as outcome measures (rates of bone mineral density (BMD) testing, osteoporosis treatment initiation, adherence, re-fractures and cost-effectiveness). Meta-analyses of studies with valid control groups were conducted for two outcome measures: BMD testing and osteoporosis treatment initiation. Out of 574 references, 42 articles were identified as analysable. These studies were grouped into four general models of

care—type A: identification, assessment and treatment of patients as part of the service; type B: similar to A, without treatment initiation; type C: alerting patients plus primary care physicians; and type D: patient education only. Meta-regressions revealed a trend towards increased BMD testing ( $p=0.06$ ) and treatment initiation ( $p=0.03$ ) with increasing intensity of intervention. One type A service with a valid control group showed a significant decrease in re-fractures. Types A and B services were cost-effective, although definition of cost-effectiveness varied between studies. Fully coordinated, intensive models of care for secondary fracture prevention are more effective in improving patient outcomes than approaches involving alerts and/or education only.

**Keywords** Cost-effectiveness · Fracture liaison services · Models of care · Osteoporosis treatment · Re-fractures · Secondary fracture prevention

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Published online: 25 July 2012



Model	Description	Proportion receiving BMD testing	Proportion receiving osteoporosis treatment
Status Quo	Manitoba statistics for major osteoporotic fractures (2007/2008)	13%	8%
Type D (Zero i model)	Only provides osteoporosis education to the fracture patient. Primary care provider (PCP) is not alerted or educated.	No study on BMD testing	8%
Type C (1 i model)	<b>1. Identification</b> The PCP is alerted that a fracture has occurred and further assessment is needed. Leaves the investigation and initiation of treatment to the PCP.	43%	23%
Type B (2 i model)	<b>1. Identification</b> <b>2. Investigation</b> Leaves the initiation of treatment for fragility fracture patients to the PCP.	60%	41%
Type A (3 i model)	<b>1. Identification</b> <b>2. Investigation</b> <b>3. Initiation</b> of osteoporosis treatment where appropriate.	79%	46%

1. Ganda K et al. *Osteoporosis International* 2013 Feb; 24(2): 393-406.
2. Osteoporosis Canada. “Make the FIRST break the LAST with Fracture Liaison Services”.

# How to Get Started

**Project Plan, Key Components,  
and Game Changers**

# Key Parts of Investment Leadership – Project Checklist

- ✓ Project Description
- ✓ What is the Business Need/Purpose/"Pain" we are trying to solve
- ✓ Why is this an attractive project/service?
- ✓ Is there a Strategic Fit?
- ✓ Identify Cost/Benefit
  - ✓ What rate of return can we achieve?
- ✓ Identify Risk – what are the major risks?
- ✓ Identify Alternatives – can we consider alternatives? How should we scale the program?
- ✓ What does success look like?
- ✓ Identify Critical Success Factors
- ✓ Measure/Quantify Results – How will we measure progress?



# Project Plan

The pathway to a successful project plan includes:

- The Market Opportunity
- The Product or Service
- The Team
- The Business Model

# **Need and Market Opportunity**

# Project Plan

## The Market Opportunity

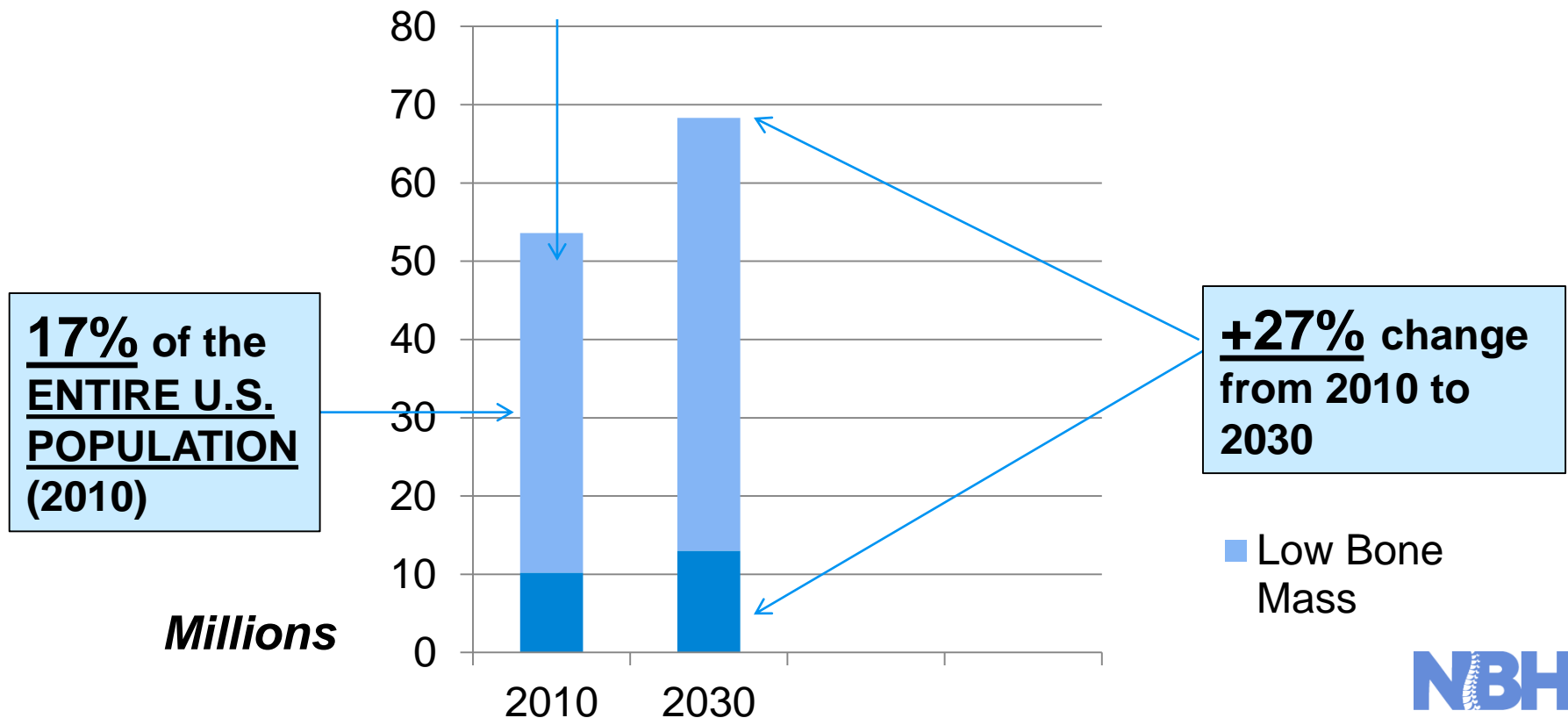
- The “Pain”
- How large/addressable is the opportunity

*It's market before ability to execute -  
Warren Buffet*

# 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)



# The “Pain”

## Use Real Stories that Show the Gap in Care

69-year-old woman with the following history:

- Fracture history
  - 1996 - Left elbow fracture – fell indoors from standing height
  - 1998 – Left wrist fracture
  - 2000- Right elbow fracture – missed step at the theater
  - 2013 - Left humerus fracture – tripped over a box
- Family history
  - Mother – hip fracture at 92; led to her death
  - Sister – wrist fracture
- Outside orthopedist told her to not to take OP medication because “they make it harder for bones to heal after a fracture”

86-year-old independent woman

- August 2016 – right hip fracture – fell in house; no evaluation or treatment
- January 2017 – L1 and L5 vertebral fractures
- Never had a DXA scan

# The Impact of Osteoporosis and Fractures

EVERY YEAR, THERE ARE **2 MILLION BONE BREAKS** THAT ARE NO ACCIDENT, BUT SIGNS OF **OSTEOPOROSIS**.

If you or someone you love breaks a bone, request a test. Learn more at [2MILLION2MANY.org](http://2MILLION2MANY.org)

**2 MILLION 2 MANY**



***“Cast Mountain” represents just 1 DAY of fractures caused by osteoporosis in the U.S.***

- 1 fracture every 15 seconds
- $\frac{1}{2}$  of women and  $\frac{1}{4}$  of men over age 50 will break a bone due to osteoporosis
- 26% of women re-fracture within 1 year after a vertebral fracture

# The Impact of Osteoporosis and Fractures

- Every year, of 300,000 hip fracture patients
  - 20%-25% of patients die  
(greater risk of dying persists for at least 5 years)
  - 25% end up in nursing homes
  - 50% never regain previous function
- **Half of hip fracture patients give advance notice – an obvious opportunity for prevention**
  - **50% of patients with a hip fracture had a prior osteoporotic fracture**

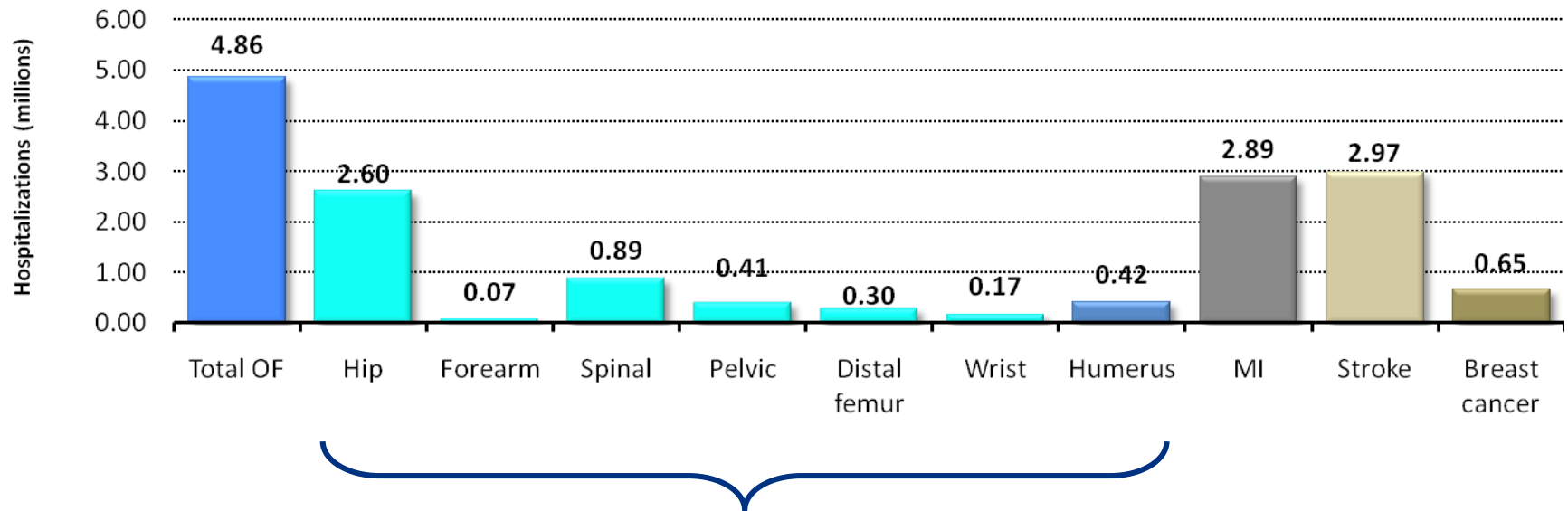
Wright NC, et al. JBMR doi:10.1002/jbmr2269

Burge RT, et al. JBMR. 22(3):465–475,2007.

Adapted from NOF. *Clinician's Guide to Prevention and Treatment of Osteoporosis*. 2013 and US Department of Health and Human Services. *Bone Health and Osteoporosis: a Report of the Surgeon General*. Rockville, MD. 2004.

# Osteoporotic Fractures Account for More Hospitalizations than do Cardiovascular Disease, Stroke, and Breast Cancer

## Hospitalizations for Osteoporotic Fractures and Other Serious Conditions From 2000 to 2011 in women $\geq 55$ years

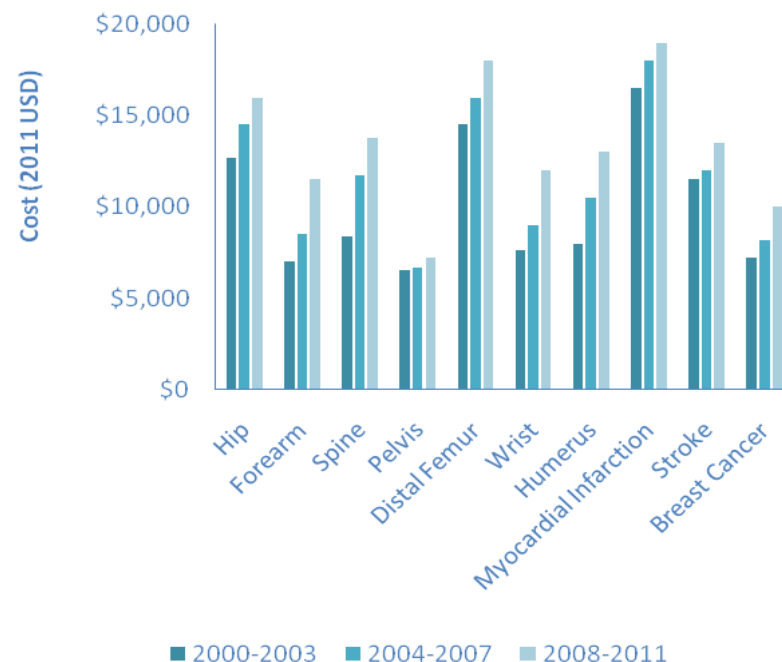
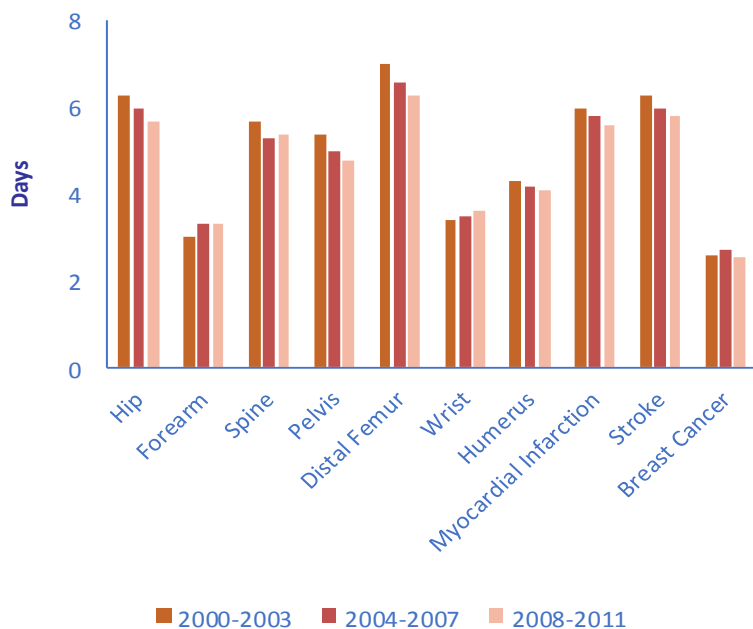


**~4.9 Million Hospitalizations for Osteoporotic Fractures during a 12-year Study Period**

*Singer A, et al. Mayo Clin Proc. 2015;90:53-62*



# Average Length of Stay and Cost per Hospitalization for Osteoporotic Fracture and Other Serious Diseases

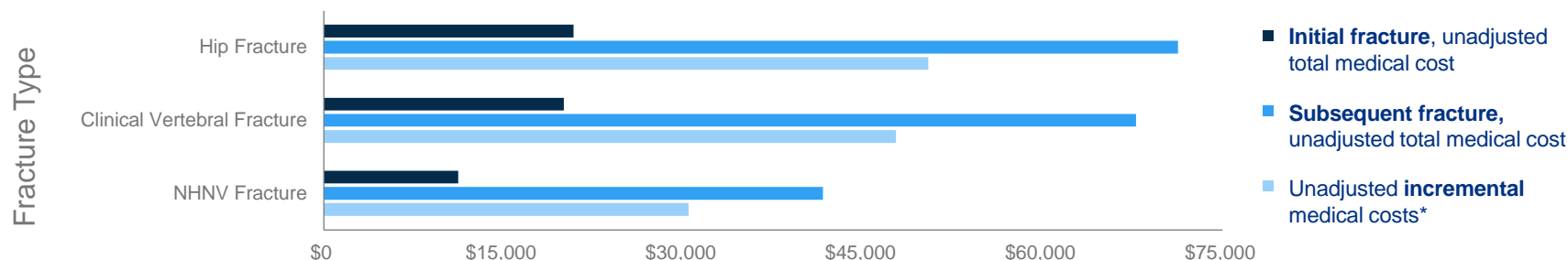


**Total population cost for hospitalization per year for the 2000-2011 time period:**

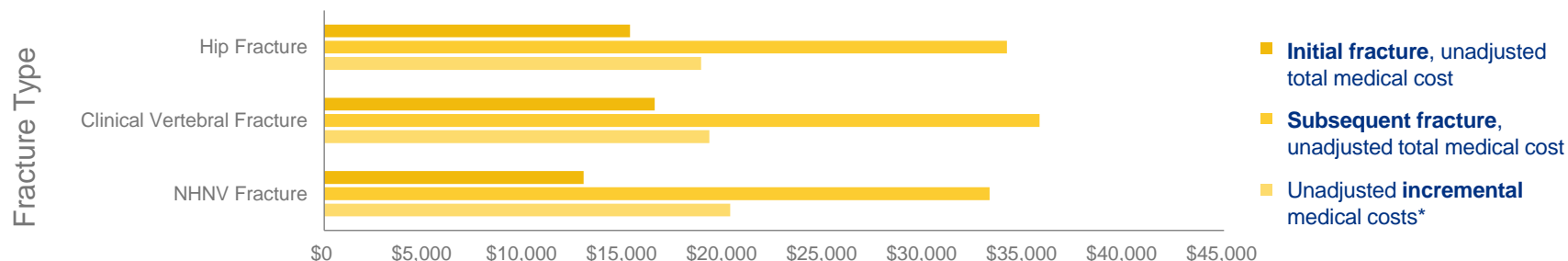
- \$5.1 billion for osteoporotic fractures
- \$4.3 billion for myocardial infarction
- \$3.0 billion for stroke
- \$0.5 billion for breast cancer

# Incremental Healthcare Cost Associated with Second Fracture

## Commercial Population<sup>1</sup>



## Medicare Population<sup>1</sup>



NHHV = nonhip, nonvertebral.

Both Commercial and Medicare costs were measured over a 12-month period and include inpatient, emergency room, outpatient including nursing home and rehab, and pharmacy costs. Costs were collected from 2002-2008 and are expressed in 2008 dollars.<sup>1</sup>

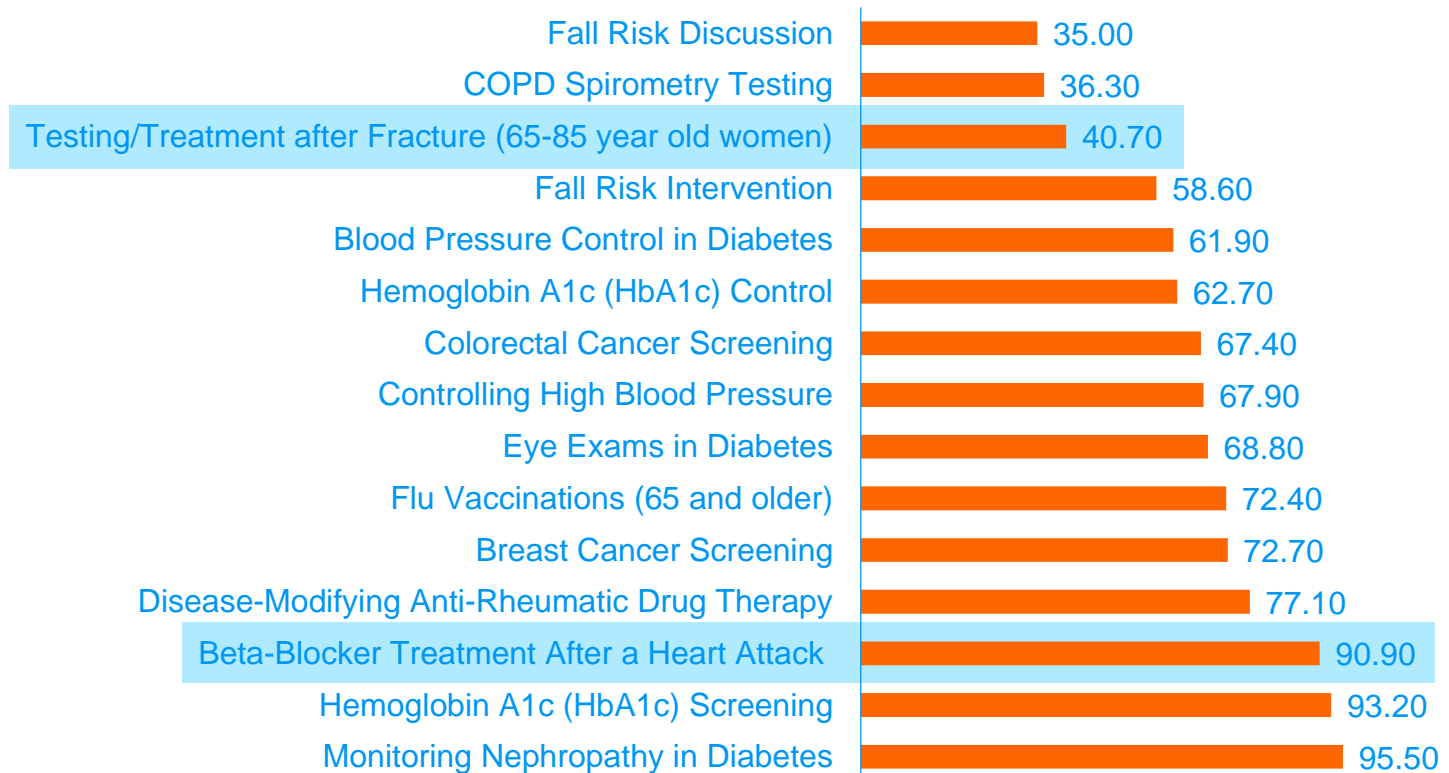
\* Adjusted for differences between the single-fracture vs repeat-fracture cohorts in the use of select medications, presence of concurrent fracture near the time of the first fracture, 12-month preperiod total medical costs, and patient comorbidity profiles.<sup>1</sup>

### Reference:

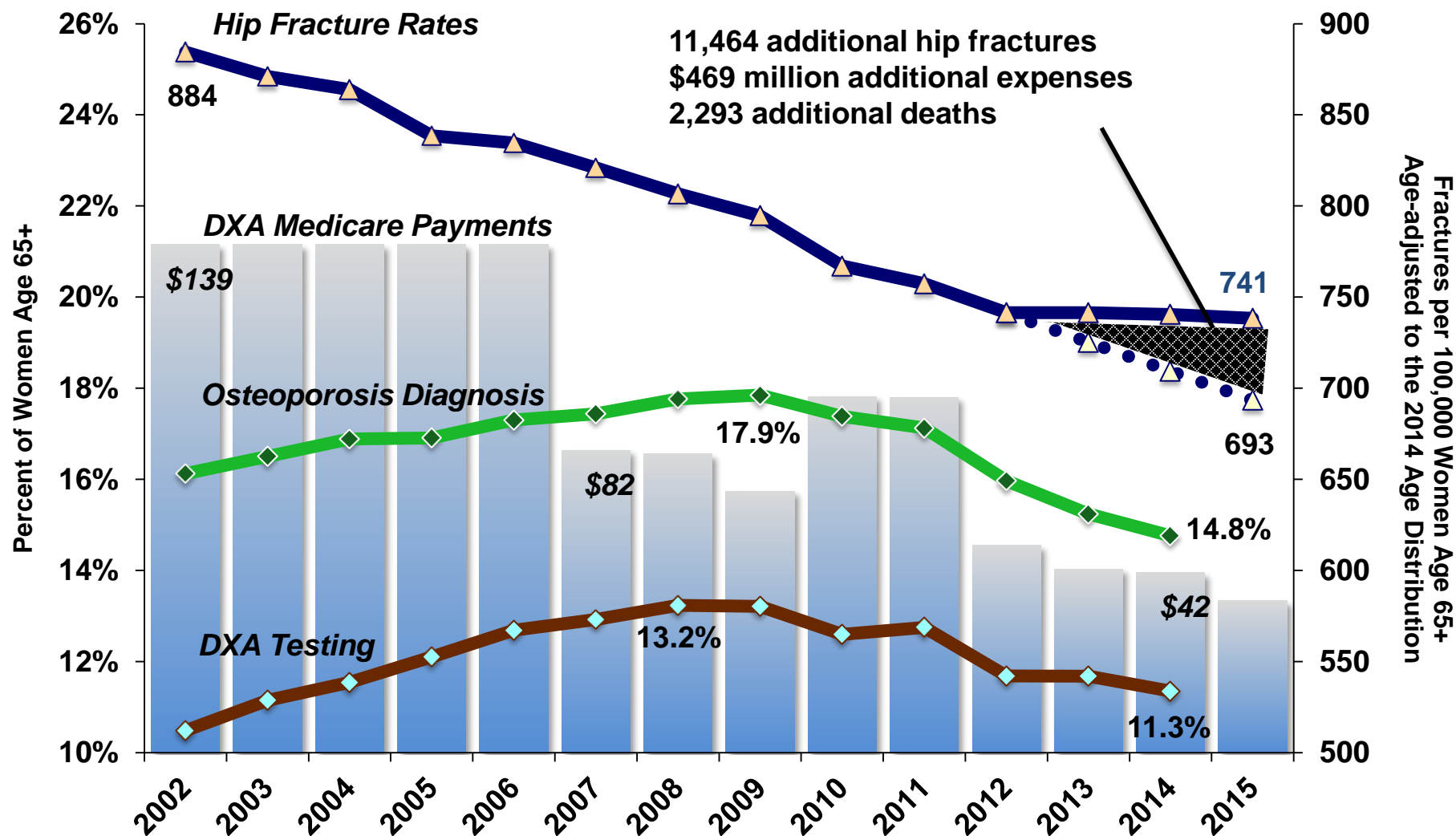
1. Song X, et al. Cost burden of second fracture in the US Health System. *Bone*. 2011;48:828-836.

# Osteoporosis Care Lags FAR BEHIND Other Major Diseases/Conditions

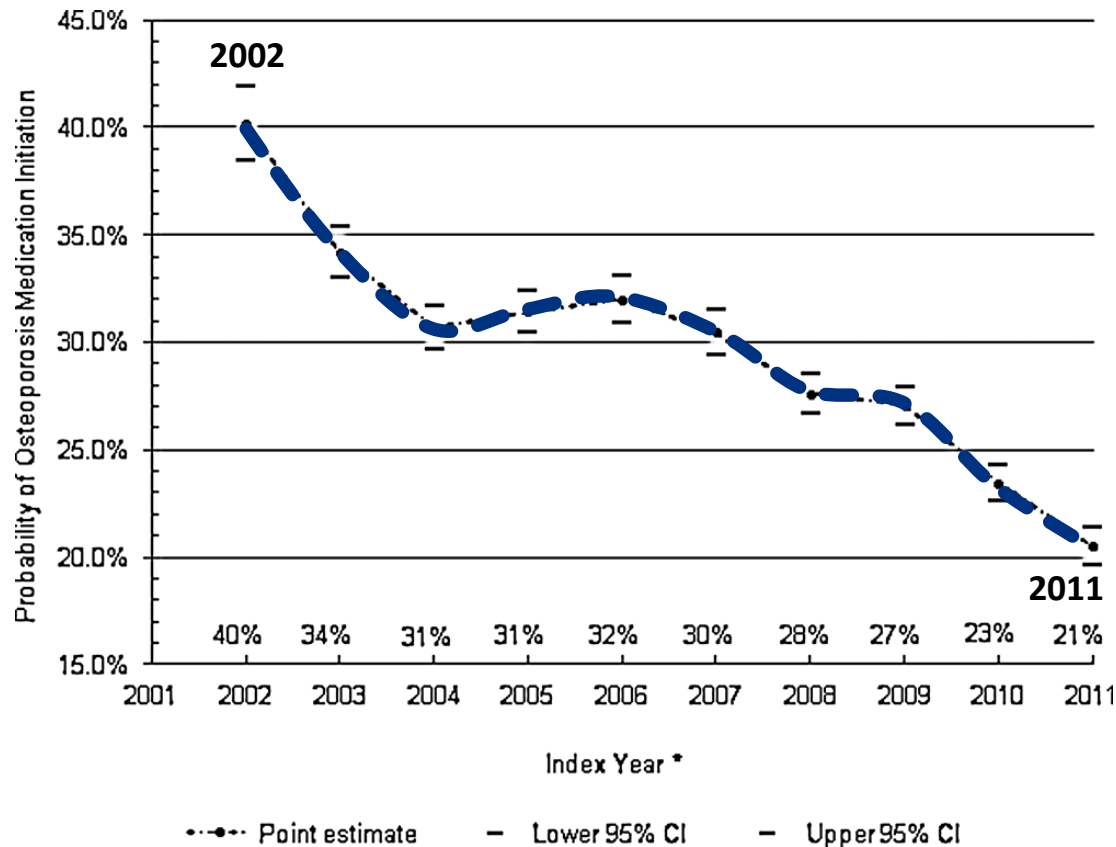
## 2016 State of Health Care Quality (2015 HEDIS Medicare HMO data)



# US Hip Fracture Trends 2002-2015



# Osteoporosis Care Gap: Treatment After Hip Fracture



Review of US insurance claims data (commercial + Medicare) in 96,887 patients hospitalized with hip fracture, 2002-2011

Solomon DH et al. *J Bone Miner Res.* 2014;29:1929–1937.

# FLS: Key Components and Game Changers

- **Baseline audit**

# Baseline Audit

- A baseline audit should be undertaken to define the extent of the care gap before service implementation.
- Will also provide an idea of the number of fractures within the system
- Sources of baseline data:
  - EHR
  - Unified billing system
- Query system for all low trauma fractures in women and men  $\geq$  50 years of age
  - Exclude trauma codes, fingers, toes, skull
  - Identify location of care
  - Obtain information on DXA scans, lab tests/evaluation for secondary causes, calcium and vitamin D, and prescription medications, if possible
  - If data is not available or attainable, note reasons why

# MedStar Market Opportunity

Fracture	Total number*		Baltimore area market	Washington area market
Hip	1390		840	470
Vertebral	1930		860	950
Wrist	1210		670	490
Radius	2810		1660	970
Pelvic	610		230	320
Humerus	1560		890	580
Leg	1890		840	870
Clavicle	750		420	250
Arm	160		90	30
Rib	1390		720	570
Total	13700		7220	5500

\*Active patients, 2 years or less; Data from Exploirs search 2011-2013. Does not include foot or metatarsal fractures.



# MGUH Osteoporosis Care Gap



## Fracture Liaison Service Demonstration Study

### Demonstration sites:

- Alegent Creighton Health [*PI: Dr. Robert Recker*]
- **MedStar Georgetown University Hospital [*PI: Dr. Andrea Singer*]**
- University of Pittsburgh Medical Center [*PI: Dr. Susan Greenspan*]

**Know your  
baseline data  
and any  
limitations to  
obtaining it**

### Baseline Data:

**Inclusion criteria – Women and Men,  $\geq 50$  years of age, with low trauma fractures**

- **19% received osteoporosis management (DXA and/or medication)**

# **Project (Service) Description**

# Project Plan

## The Product or Service

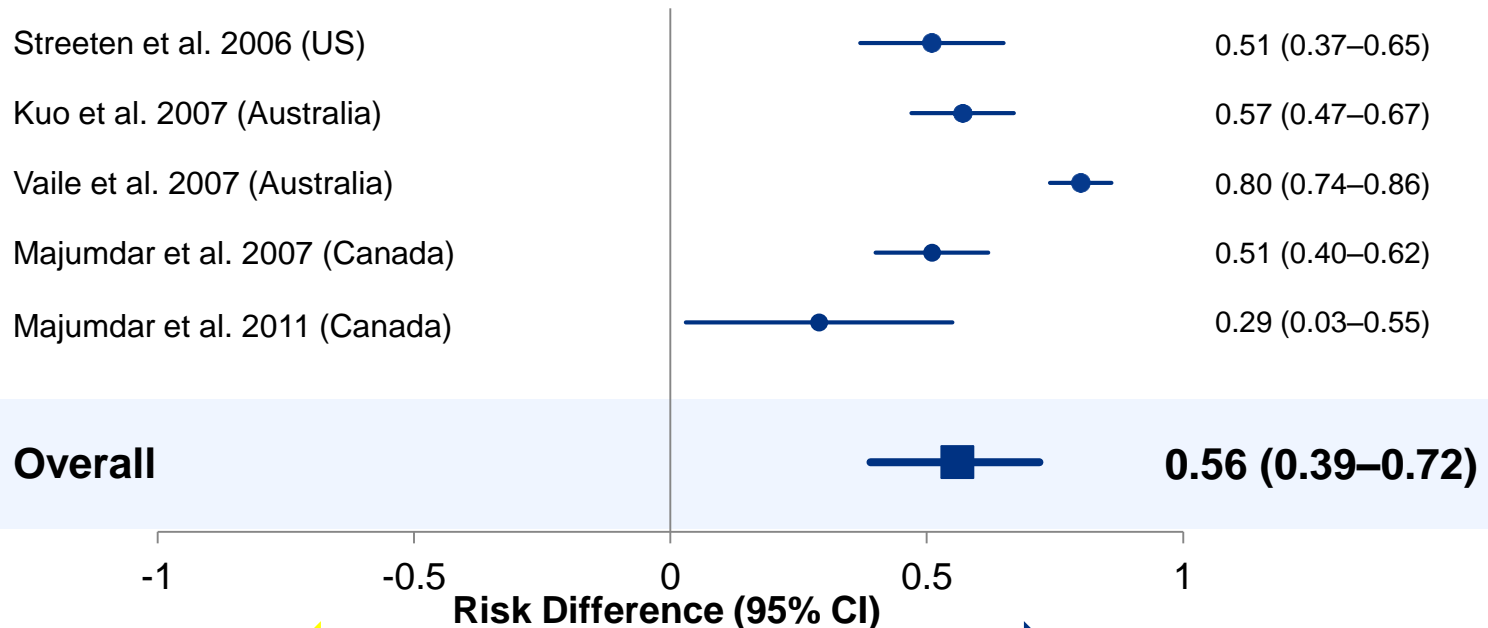
- Does it solve the problem/address a need?
- Is there a competitive advantage?

# 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
  - FLS programs coordinate post-fracture care through an **FLS coordinator** (generally a nurse, NP, or PA)
  - Patients with recent fractures are tracked via a **population registry**
  - **Processes and timelines established** for patient assessment and follow-up
- FLS programs
  - Recognize that patients who have fractured are at highest risk of future fractures
  - Have greatly reduced the number of fractures and have achieved cost savings by identifying and appropriately

# BMD Testing Rates Are Increased With FLS Models of Care \*

## Meta-Analysis of BMD Testing Rates Among Worldwide FLS Models of Care vs Standard of Care



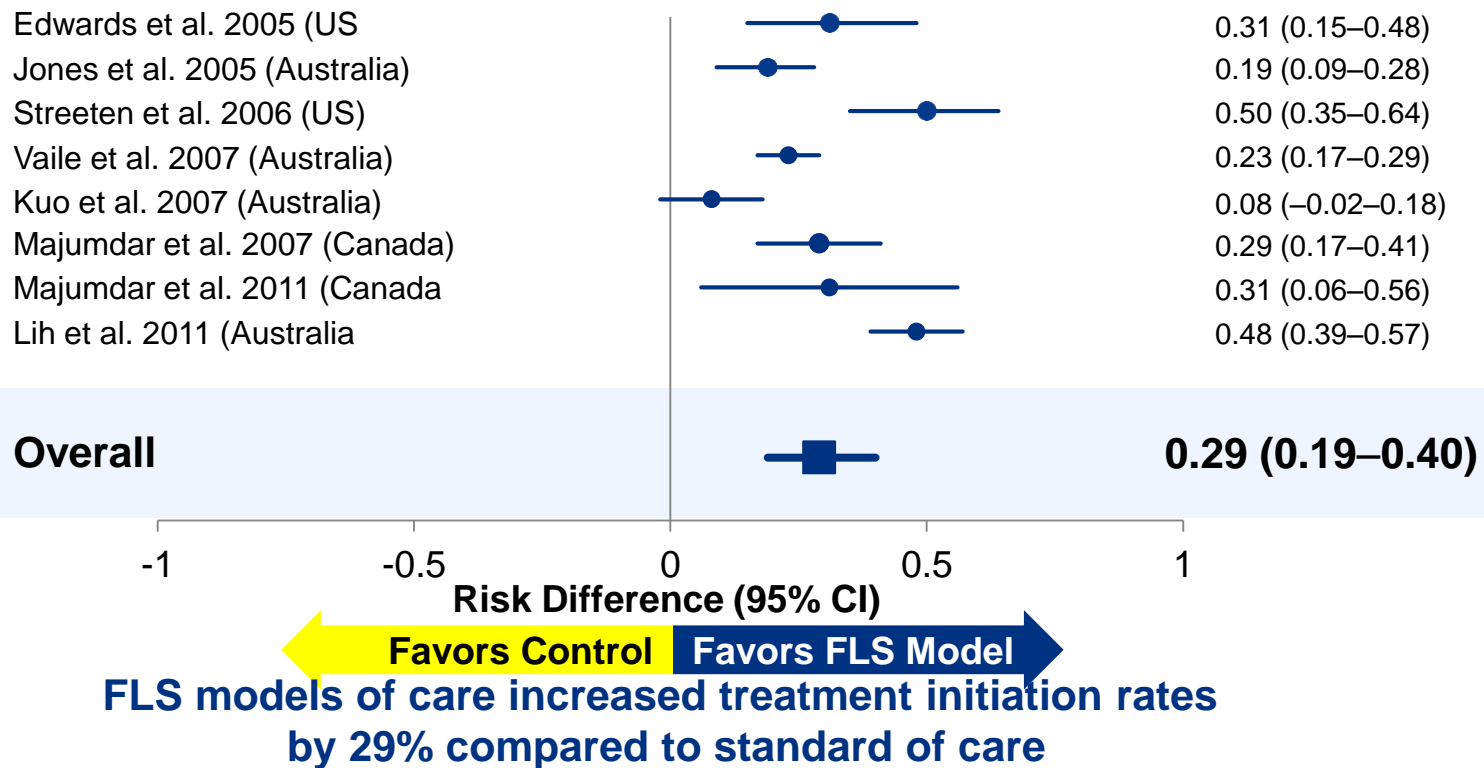
**Favors Control** **Favors FLS Model**

**FLS models of care increased BMD testing rates  
by 56% compared to standard of care**

\*Only studies with valid control groups were included in the meta-analysis.  
CI = confidence interval

# Treatment Initiation Rates Are Increased With FLS Models of Care\*

## Meta-Analysis of Treatment Initiation Rates Among Worldwide FLS Models of Care vs Standard of Care



\*Only studies with valid control groups were included in the meta-analysis.

Adapted from: Ganda K, et al. *Osteoporos Int.* 2013;24:393-406.

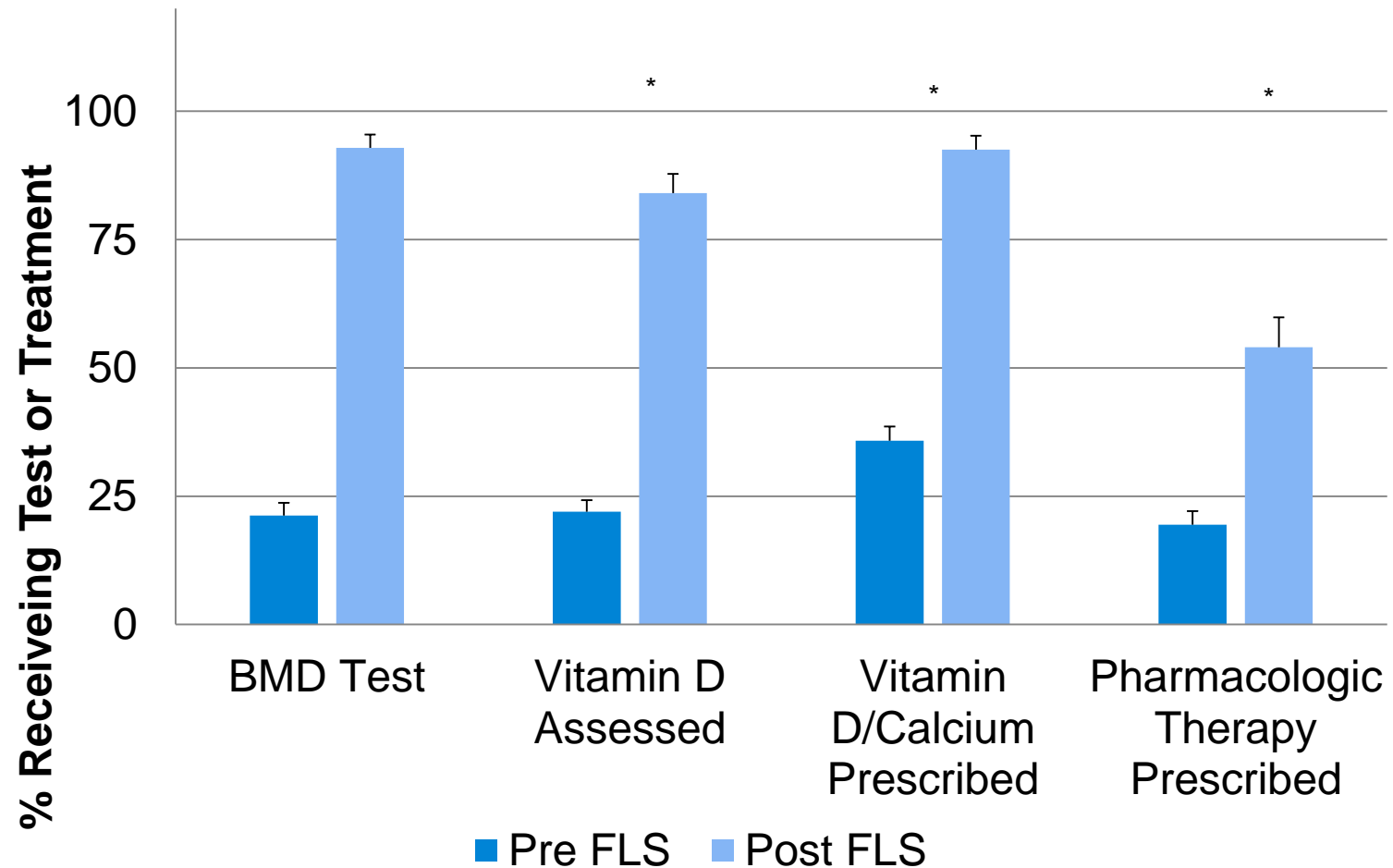
# FLS in an “Open” System

MedStar Georgetown, UPMC, Alegant Creighton Health

- **Study design:** Pre-post comparison of fracture care before and after FLS program
- **Facilities:** 3 independent health care systems
  - Each serves 450-600 adults hospitalized with low-trauma fractures
  - Open System: payers, hospitals, patients and physicians *not* closely aligned
- **Participants:** Men and women  $\geq 50$  years old with an acute fracture
- **Outcomes:** the proportion of participants who received:
  - Bone mineral density (BMD) test by dual x-ray absorptiometry (DXA)
  - Serum vitamin D assessment
  - Calcium/vitamin D supplementation
  - Appropriate pharmacologic therapy for osteoporosis
- **Tool:** Cloud-based App, independent from EMR

# FLS Results in a “Open” System

## The Impact of the FLS Program





# United States FLS Outcomes

## 1. Kaiser Permanente (integrated “closed system”)

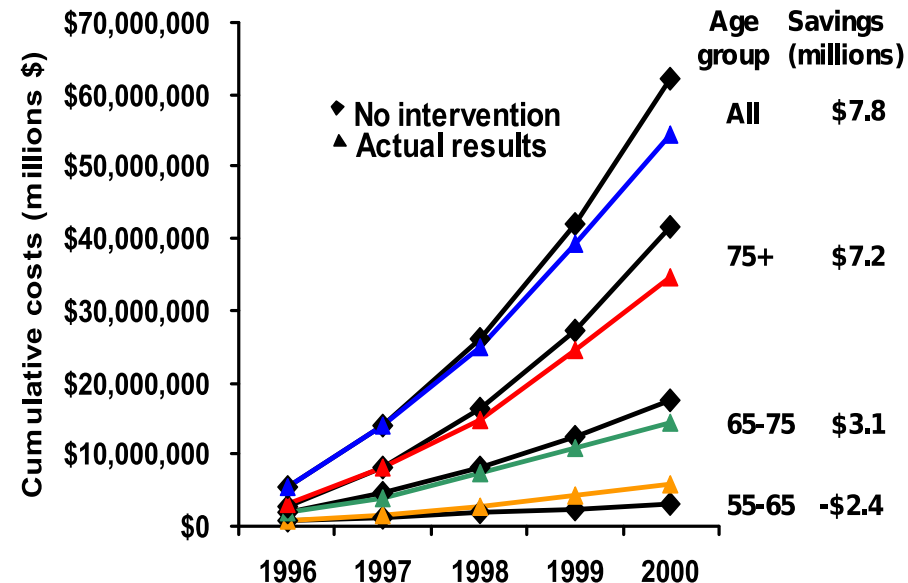
Identifying and treating high risk patients reduced hip fracture risk by 37%, preventing 935 hip fractures in 2006, saving \$30.8 million

If implemented nationally, 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

1. Dell R et al. J Bone Joint Surgery Am. 2008;980(Suppl 4):188-194. 2. Newman ED et al. Osteoporos Int. 2003;14:146-151



## **The Potential Economic Benefits of Improved Postfracture Care: A Cost-Effectiveness Analysis of a Fracture Liaison Service in the US Health-Care System**

Daniel H Solomon,<sup>1,2</sup> Amanda R Patrick,<sup>2</sup> John Schousboe,<sup>4</sup> and Elena Losina<sup>1,3</sup>

- Markov computer simulation model
- Projection of lifetime costs and benefits of FLS in men and women with hip fracture
- Assumptions
  - CNP FLS coordinator paid ~ \$100,000/yr.
  - 42% of patients treated with BP with 58% adherence at 1 yr.
  - Estimated that CNP could manage 500-1000 patients/yr.

# FLS is Cost-effective in the USA

- FLS results in 153 fewer fractures, 37 more QALYs, and saves \$66,879 per 10,000 post fracture patients compared with typical care
- With 2.5 million osteoporotic fractures per year in the USA, total annual cost savings: up to \$16.7 million

# FLS: Key Components and Game Changers

- Baseline audit
- **Clear mission and scope of program**
- **Measurable goals**

# Mission

Establish a mission statement:

- To enhance the care of patients following a low trauma fracture and close care gaps for this group at high risk for secondary fractures through an FLS coordinated model of care.

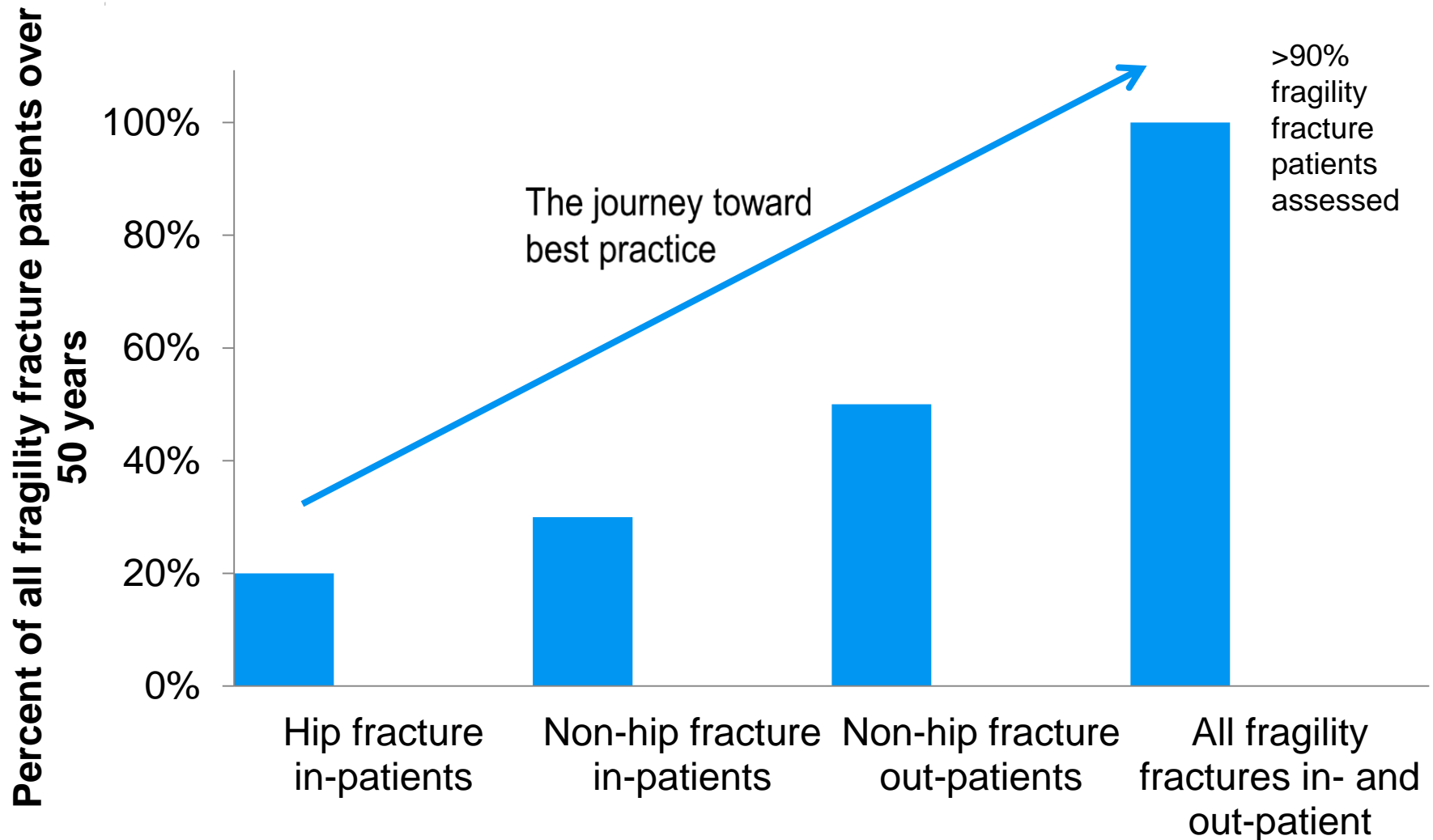
Establish core objectives to achieve this mission through FLS:

- Institute inclusive case finding
- Employ evidence-based assessment
  - Stratify risk
  - Identify secondary causes of osteoporosis
  - Tailor therapy
- Recommend or initiate treatment in accordance with appropriate guidelines
- Improve long-term adherence with therapy

# Measurable Goals and Scale of Program

- These should be simple and achievable.
- **Identify, investigate and treat, where appropriate, all women and men 50 years of age and older with low trauma fractures for prevention of secondary fractures.**
- May subdivide goals into more manageable components:
  - Identify, investigate and treat all patients after a hip fracture
  - Identify, investigate and treat all inpatients and patients presenting to the ED
  - Identify and extend the service to include all fracture patients.
  - Proactively identify vertebral fracture patients

# Outcome Targets: Reaching for Best Practice



# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- **Champions/Leaders with PASSION**



# Champions/Leaders with PASSION

- Champion Healthcare Provider
- FLS Coordinator
- The Team – speaks to credibility
  - Experience
  - Expertise
  - Understanding of the market

# FLS Coordinator – Job Profile and Qualifications

Central to the success of the FLS model of care is the FLS coordinator (usually a nurse, nurse practitioner, or physician assistant. The FLS coordinator's responsibilities are to:

- Orchestrate the identification of fragility fracture/eligible patients
- Perform clinical/risk assessments and examinations
- Orchestrate bone mineral density testing, appropriate laboratory evaluation, and other necessary testing (in conjunction with the bone health expert as needed)
- Provide education
- Determine indications for treatment (in conjunction with the bone health expert as needed and in accordance with national guidelines)
- Facilitate communication between the specialists and primary care physician
- Follow-up with patients (in person or by phone) to ensure adherence with therapy and care
- Gather data to follow the success of the program

# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- Champions/Leaders with PASSION
- **Support/ buy-in from administration**

# Support From Administration: Find an Administrative Champion

- Administrative Support in the “C” Suite
  - CEO or COO
  - CNO
  - CFO
- Administrative support in Hospital or Health System Leadership
  - President
  - VPMA
  - Center for Patient Safety and Quality
- Think about mission and values of your institution
  - Is there a strategic fit?

# **Identify Strategic Fit**

**Think from a systems perspective**

# MedStar and FLS Strategic Fit

## Vision

*To be the*

**TRUSTED LEADER**

To be the trusted healthcare leader  
in the region

*in*

**CARING FOR PEOPLE**

To care for people in a manner that  
transforms their healthcare experience

*and*

**ADVANCING HEALTH**

To be the place where the future of  
healthcare is created

# TRUSTED LEADER: Strengthen the System Brand

- First and only FLS Program in the DC/Baltimore area



DXA Scans Provided to  
Osteoporosis  
By Alison Starling



THE WALL STREET JOURNAL. | LIFE & CULTURE

\$12 FOR 12 WEEKS [SUBSCRIBE NOW](#)

HEALTH & WELLNESS

## Men Are New Target for Osteoporosis Treatment

Pilot program pushes routine testing for the bone-wasting disease, which strikes as many as one in four men



Robert Spezzano, 54, of Washington, D.C., fell off his bicycle in the fall, breaking his wrist and elbow. When a test showed he had osteoporosis, Mr. Spezzano says he was "blown away." You just think it's a woman's disease." PHOTO: LEE TORRES

By DANA WECHSLER LINDEN  
March 23, 2015 11:52 a.m. ET

5 COMMENTS

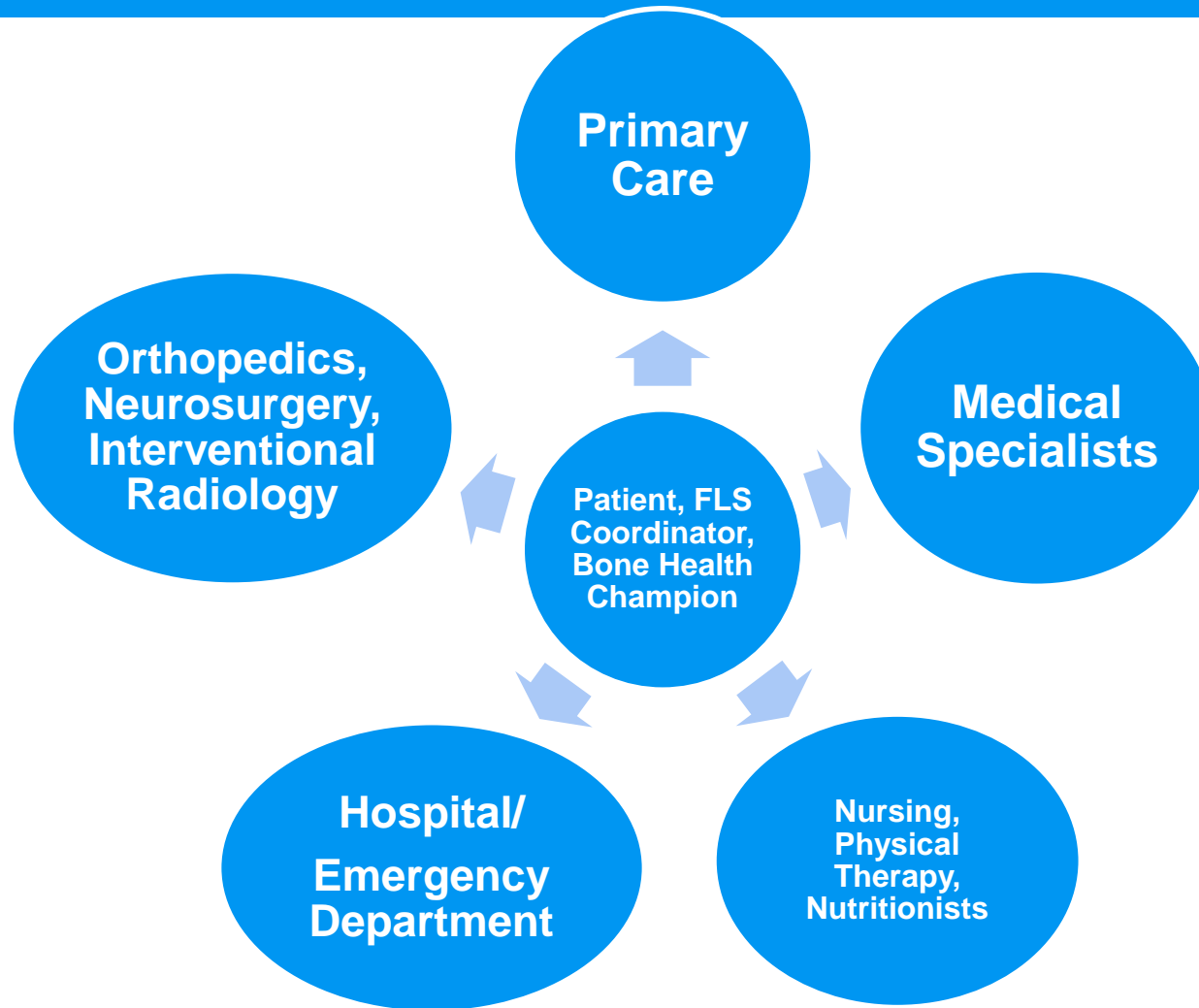
Bone-health experts are making a new push to reduce rates of osteoporosis, with a particular focus on controlling the bone-wasting disease in men.

**MGUH  
and FLS  
Demon-  
stration  
Project  
featured  
in March  
23, 2015  
Wall  
Street  
Journal**

## Just Affect Women

... risk factors for osteoporosis. But when he broke his  
... h to catch his doctors' attention. Doctors say a lot of  
... s, they're not getting tested.

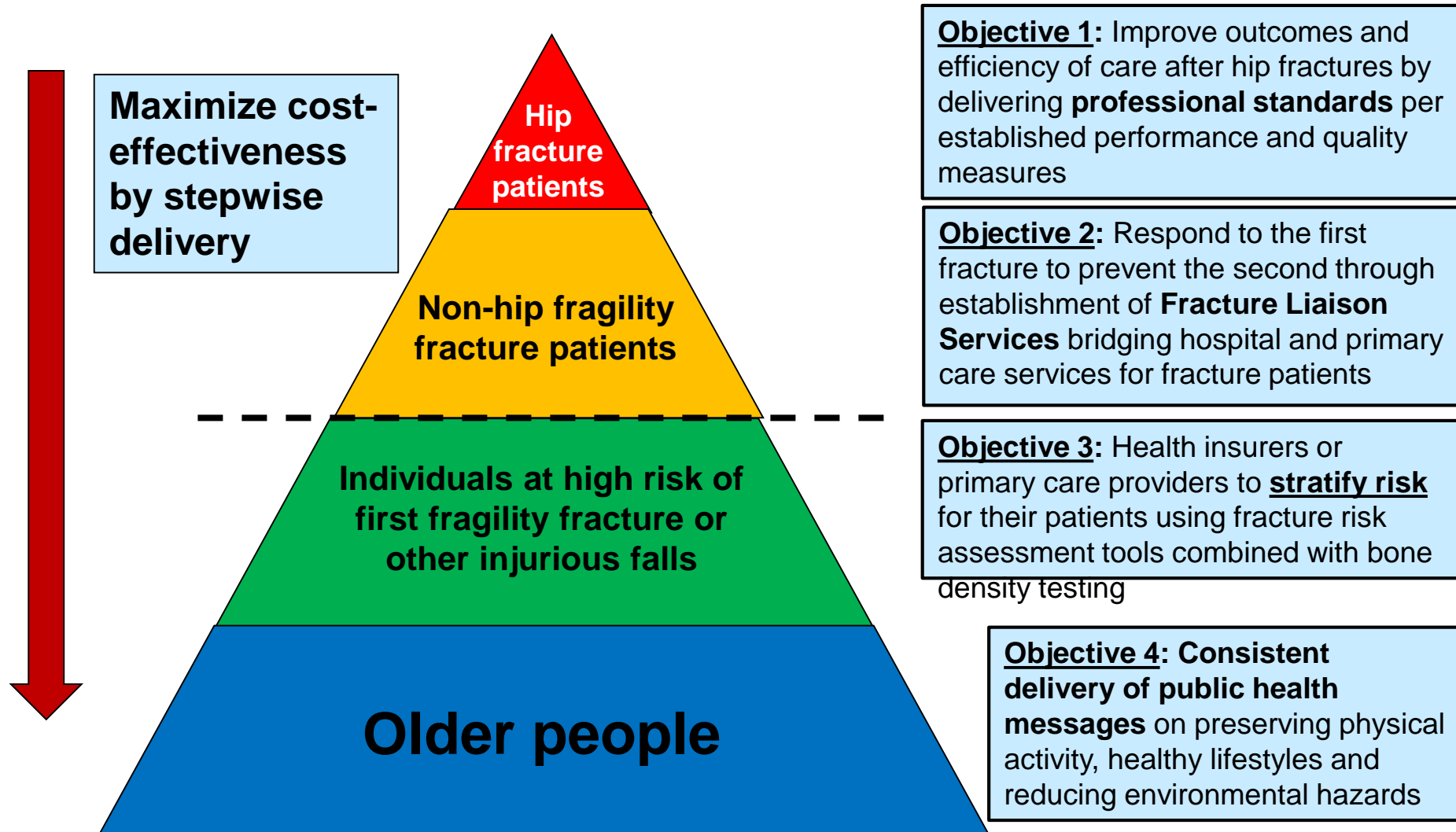
# CARING FOR PEOPLE: Develop Coordinated Care/ Redesign Clinical Care



**Improving Collaboration**



# CARING FOR PEOPLE: Population Health Management Strategies & Stepwise Delivery of Coordinated Care



# CARING FOR PEOPLE

## Redesigning Clinical Care: Quality, Safety, and Cost

- Implementation of the FLS Model of Care will help meet quality and safety standards for osteoporosis
- Fulfilling metrics will drive implementation and close the care gap
  - PQRS
  - MIPS/MACRA
  - HEDIS measures
  - Medicare 5 star criteria
  - Joint Commission

# ADVANCING HEALTH: Innovate, Discover, Learn

## Grant/Foundation funding:

- Osteoporosis Quality Improvement and Reporting Project
- Implementation of a Continuous Quality Improvement Project via a Cloud-Based Scalable Platform to Demonstrate the Impact on Improving Patient Outcomes and Healthcare Professional Performance on Osteoporosis and Post-Fracture Measures
- Opportunistic Vertebral Fracture Finding QI Project
- Use of Telehealth

## Opportunities/Collaborations:



# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- Champions/Leaders with PASSION
- Support/ buy-in from administration
- **Sound business plan and realistic expectations/FUNDING**

# Challenges in a Fee for Service System

## **Barriers:**

- Although short-sighted, hospitals may complain that revenues are at risk as a result of services not being rendered when fractures are prevented
- Convincing hospital administrators with limited resources and competing priorities
- Convincing physicians this is not competition for patients

## **Funding Questions:**

- Who pays for the coordinator and computer systems to identify and manage fracture patients?
- What is the return on investment for a hospital?

# Business Considerations with Initiation of FLS

- Income at risk with current care
  - Medicare incentives and disincentives
- FLS expenses
  - Nurse coordinator
  - Computer and software
- Potential new income sources
  - Reimbursement for DXA
  - Reimbursement for coordinator services
  - Charges for laboratory tests, other diagnostic studies, PT, balance and gait training, treatment
- Don't forget about the system's covered lives in a hybrid model

# Additional Financial Drivers of FLS

- US healthcare reform (“Affordable Care Act”) is transforming the healthcare system from fee for service to paying for quality, outcomes and care coordination
- Centers for Medicare & Medicaid Services (CMS) initiatives include:
  - Accountable Care Organizations
  - Patient-Centered Medical Home model
  - Bundled payment initiatives
  - Qualified Clinical Data Registries (QCDR)
  - Medicare Advantage “5 Star” program

# **The Business Model**



# Project Plan

## The Business Model

- How does the service make money/earn a return on investment?
- How and when will you pay the money back?
- Are the business risks fully understood?

# Business Plan - Expense Assumptions

- Expenses may vary based on site
- At many sites, equipment already exists, and there will be no capital expense for equipment.
- Many of the operating expenses are “sunk” costs in that they already exist within established budgets.
- Some personnel positions may be able to be shared between sites.
- Program Director Salary Support - distribute across system

# Projected Expenses

## One-time Expenses

Acquisition/installation of FLS database	\$4000	}	\$ 5,000
DXA training and certification	\$1000		

## Recurring Expenses

<u>Personnel</u> – assumes 1.0 FTE for each position including fringe			
Full time equivalent, Fracture Liaison Coordinator(s)	\$120,000	}	\$236,400
Administrative support	\$ 54,000		
DXA technician	\$ 62,400		

## Operating Expenses

Database and support package or IT/coding costs	\$ 12,000	}	\$ 48,659.40
Production and postage of reports and questionnaires	\$ 2,500		
Support literature	\$ 5,000		
DXA lease	\$ 18,527.40		
DXA office equipment and supplies	\$ 756		
Office Rent	\$ 9,456		
Other operating expenses (phone, etc)	\$ 420		

\$290,059.40

UBS Billing Services (volume dependent)

# Projected Expenses (with sunk costs)

## One-time Expenses

Acquisition/installation of FLS database	\$4000	}	\$ 4,000
DXA training and certification	-		

## Recurring Expenses

<u>Personnel</u> – assumes 1.0 FTE for each position including fringe			
Full time equivalent, Fracture Liaison Coordinator(s)	\$120,000 *	}	\$174,000
Administrative support	\$ 54,000		
DXA technician	-		

## Operating Expenses

Database and support package or IT/coding costs	\$ 12,000	}	\$ 19,500
Production and postage of reports and questionnaires	\$ 2,500		
Support literature	\$ 5,000		
DXA lease	-		
DXA office equipment and supplies	-		
Office Rent	-		
Other operating expenses (phone, etc)	-		

UBS Billing Services	(volume dependent)	\$197,500
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# Business Plan - Revenue Assumptions

- Determine number of new fracture patients per year and from which services/portals of entry they will come (ie, orthopedics and neurosurgery)
- Decide whether or not to include patients referred from other sources – interventional radiology, ED, Physical Medicine and Rehabilitation, other services
- Determine insurance coverage and average reimbursement for Medicare vs Commercial insurance (ie, half of patients seen have Medicare and half have Commercial insurance)
- Determine typical level of care for initial visit (ie, half of visits are level 4 and half are level 5)
- Decide whether or not model includes billing for consultation visits
- Decide whether or not model includes billing for inpatient visits
- Determine typical level of care for first return office visit (ie, level 4)
- Decide whether or not to include revenue from additional office visits (ie, 1-2 additional visits not included)

# Projected Revenue

Projected Revenue – 100% model	
100% of identified patients are seen for an initial visit	
100% get full DXA scans	
100% return for one follow-up visit	
<b>Revenue</b>	
FLS initial visit	\$182,227.50
DXA studies	\$185,508.75
Additional outpatient appointments	\$110,437.50
<b>Revenue Total</b>	<b>\$478,173.75</b>

Intangible benefits: fractures prevented, community goodwill, public relations  
**Savings for covered lives**

# Projected Revenue

Projected Revenue 50% model	
50% of identified patients are seen for initial visit	
75% get DXA scans	
50% return for follow-up visit	
<b>Revenue</b>	
FLS initial visit	\$91,091.06
DXA studies	\$139,007.06
Additional outpatient appointments	\$55,218.755
<b>Revenue Total</b>	<b>\$285,316.87</b>

Intangible benefits: fractures prevented, community goodwill, public relations  
**Savings for covered lives**

# Projected Revenue

<b>Projected Revenue Surplus from 50% model</b>	
<b>Revenue</b>	\$285,316.87
<b>Expenses</b>	\$197,500.00
<b>Revenue Surplus</b>	\$ 87,816.87

Intangible benefits: fractures prevented, community goodwill, public relations



# Projected Revenue

<b>Downstream Revenue</b>	
Injectable treatment in office – Denosumab, Romosozumab	
IV Zoledronic acid at infusion center	
Additional Radiology Studies	
X-rays	
Parathyroid Sestamibi, 4DCT	
Other	
Surgical consultation and Parathyroid surgery	
Laboratory testing	
Physical therapy visits/balance and gait training	

Intangible benefits: fractures prevented, community goodwill, public relations

# Projected Revenue

Other Revenue	
<b>Medicare penalties avoided and incentives received</b>	
Telehealth visits	
Complex chronic care coordination fees	
<b>Savings for covered lives</b>	
<b>Savings for hospital global budget payment program</b>	

Intangible benefits: fractures prevented, community goodwill, public relations

# FLS Return on Investment Calculator

[NBHA.org](#)



FRACTURE PREVENTION

**CENTRAL**

an initiative of the  
National Bone Health Alliance

[LOGIN](#) | [SIGN UP](#)

**HELPING HEALTHCARE ORGANIZATIONS AND PROFESSIONALS COORDINATE POST-FRACTURE PREVENTION AND CARE**

## FLS RETURN ON INVESTMENT CALCULATOR

We are pleased to release our newest tool to estimate the cost and revenue generated from your FLS program to help you make the business case.

[DOWNLOAD THE FLS ROI CALCULATOR »](#)



FRACTURE PREVENTION  
**CENTRAL**

Fracture Prevention Central: Promoting the Widespread Implementation of Post-Fracture Prevention and Care Coordination Programs

[FLS RETURN ON INVESTMENT CALCULATOR](#)

[FLS 1-ON-1 CONSULT SERVICE SIGN UP](#)

[FREE WEEKLY BONE HEALTH TELE ECHO CLINIC SESSIONS](#)

[KAISER PERMANENTE FLS RESOURCES](#)

### OUR 20/20 VISION: REDUCING FRACTURES 20% BY 2020

With the help of member initiatives and resources, institutions like yours can launch their own fracture prevention programs and achieve our 20/20 vision.

[LEARN MORE »](#)

### WEBINARS, BUSINESS PLANS, AND MORE TOOLS YOU CAN USE

Our tools and resources offer a wealth of information to help begin and maintain an FLS program at your institution.

[SEE WHAT'S NEW »](#)

### SIGN UP AT NO CHARGE TO START YOUR OWN FLS PROGRAM

Not a FPC subscriber yet?

Register for free to access our ever-growing collection of tools, resources, studies, and more. Registration is fast and easy.

[SIGN UP NOW »](#)

# FLS ROI Calculator

586 [Read-Only]

	A	B	C	D	E	F	G	H
1	<b>National Bone Health Alliance FLS Calculator</b>							
2	The purpose of this tool is to estimate the cost and revenue associated with implementing an FLS program, as well as to describe the impact of an FLS program on subsequent fracture outcomes of patients with initial fragility fractures in the 2, 3, and 4 years following their initial fracture. To use the calculator, please input the information below, entering data into the shaded cells only.							
3								
4	Name of Organization Sponsoring the FLS Program:							
5								
6	<b>Initial Fracture Data Entry:</b>							
7	Select your data entry preference and characterize patient population and fragility fractures. Choose simplified to enter demographics and fracture counts separately, or detailed to provide fracture counts by demographic group.							
8								
9	Data Entry Type:							
10	<input type="radio"/> Simplified							
11	<input checked="" type="radio"/> Detailed							
32	<b>Fragility Fractures by Demographic Group:</b>							
33	Use the checkboxes below to select the fracture types that would lead to a referral to the FLS. Then, enter the number of fragility fractures cases you've treated <b>over the past year</b> for patients in each demographic group. If an incident involved fractures at multiple sites, count it toward the primary (most severe) fracture site.							
34	Fracture sites to include: <input checked="" type="checkbox"/> Ankle <input checked="" type="checkbox"/> Clavicle <input checked="" type="checkbox"/> Femur <input checked="" type="checkbox"/> Hip <input checked="" type="checkbox"/> Humerus <input checked="" type="checkbox"/> Pelvis <input checked="" type="checkbox"/> Radius/Ulna <input checked="" type="checkbox"/> Spine <input checked="" type="checkbox"/> Tibia/Fibula							
35	Fracture Site	Male 65-74	Male 75-84	Male 85+	Female 65-74	Female 75-84	Female 85+	
36	Ankle							
37	Clavicle							
38	Femur							
39	Hip							
40	Humerus							
41	Pelvis							
42	Radius/Ulna							
43	Spine							
44	Tibia/Fibula							

Inputs Report Next Steps Sources

# FLS ROI Calculator

## 46 FLS Recruitment Rate:

47 What percentage of patients with initial fractures will be recruited into the FLS protocol.

48

49 FLS Recruitment Rate:

80.00%

50

## 51 FLS Coordinator:

Based on the number of fragility fractures you've treated over the past year, you will need an estimated 0.5 full time equivalents (FTEs) of FLS coordinator support. You may use this value by default or modify it below. To revert to the estimated level of effort, check the box to the right of the FTE input. Note that the estimated level of effort will change as the input number of fractures change.

Choose the type of staff that will serve as an FLS coordinator, and the salary box will be populated with a default value. Please adjust this value with local salary data, if available, using FTE salaries. If you choose the 'other staff' option, the salary box will remain empty, so be sure to provide a salary value. Please also adjust the fringe benefit rate if your facility's rate differs from the default of 30%. The fringe benefit rate includes benefits such as paid time off and employer-paid health insurance as well as payroll taxes for Social Security and Medicare.

52

53

54 Estimated level of effort for FLS Coordinator:

0.5 FTEs

55

56 FLS Coordinator level of effort for calculation (FTEs):

0.50

☒ Use Estimated Level of Effort?

57

58 FLS Coordinator Type:

59

60 FLS Coordinator FTE Salary<sup>1</sup>:

61

62 Fringe Benefit Rate:

63

## 64 Other Costs:

Describe other labor and non-labor costs incurred by the FLS program. For labor costs, briefly describe the staff and their level of effort with the FLS program. Enter a full-time salary for an individual in this position, and a fringe benefit rate, if applicable. For non-labor costs, briefly describe and provide the annual cost for each resource. If the FLS program incurs an overhead cost, specify the rate and whether it is applied to labor costs or all costs.

65

66

67 Labor:

# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- Champions/Leaders with PASSION
- Support/ buy-in from administration
- Sound business plan and realistic expectations/FUNDING
- **Stakeholders/Multidisciplinary teams – support of key departments, specialties, and services**

# Multidisciplinary Stakeholders

The Dedicated  
**Team** of  
Stakeholders



# FLS: Key Components and Game Changers

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- Clear mission and scope of program
- Measurable goals
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- Sound business plan and realistic expectations/FUNDING
- Stakeholders/Multidisciplinary teams – support of key departments, specialties, and services
- **Centralized workflow with key personnel to support functions**



# Centralized Team of Players

- **Physician Lead**
  - Clinical issues
  - Provider/staff education and communication
  - Quality monitoring
- **Administrative Lead**
  - Staffing / Team management
  - Performance Monitoring
  - Process design and workflow (as things evolve)
  - Trouble shooting/problem solving
- **Administrative Support Staff**
  - Works the Regional “At Risk Database” to identify patients
  - Phone / Letter Outreach
  - Scheduling

# Centralized Team of Players

- **FLS Coordinator**

- Identification of patients
- Review /interpret DXA/FRAX Results
- Assessment / Treatment for Osteoporosis
- Patient Education:
  - Osteoporosis, Fall Prevention, Calcium and Vitamin D, Exercise Rx
- Medication adherence follow-up
- PCP notification and collaboration

- **Why an advanced practice provider?**

- DXA Quality Review / ISCD Certification
- Authority to diagnose and treat
- Simplification, less people involved with the patient

# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- Champions/Leaders with PASSION
- Support/ buy-in from administration
- Sound business plan and realistic expectations/FUNDING
- Stakeholders/Multidisciplinary teams – support of key departments, specialties, and services
- Centralized workflow with key personnel to support functions
- **IT infrastructure**
  - **Regional “At Risk” Database**
  - **In-reach / Outreach supported by Electronic Health Record**
  - **Robust Performance Reporting**

# FLS: Key Components and Game Changers

- Baseline audit
- Clear mission and scope of program
- Measurable goals
- Champions/Leaders with PASSION
- Support/ buy-in from administration
- Sound business plan and realistic expectations/FUNDING
- Stakeholders/Multidisciplinary teams – support of key departments, specialties, and services
- Centralized workflow with key personnel to support functions
- IT infrastructure
- **Education materials - easy to access, simple and relevant tools**

# FLS Design and Implementation: Keep it SIMPLE

- **S** – Simple in design
  - Start smart and small with protocols, quickly make changes as needed
- **I** - Inexpensive to start and maintain
  - Cost effective and cost-saving
  - Start-up and maintenance costs of the program must be affordable for hospital administrators.
- **M** - Measurable outcomes
  - Ability to measure the program's outcomes, effectiveness and costs
  - If it cannot be measured, it cannot be changed
- **P** - Pays for itself to make it last
- **L** - Lasts (the program must survive)
- **E** - Evolves with time in order to survive

# Key Parts of Investment Leadership – Project Checklist

- ✓ Project Description
- ✓ What is the Business Need/Purpose/"Pain" we are trying to solve
- ✓ Why is this an attractive project/service?
- ✓ Is there a Strategic Fit?
- ✓ Identify Cost/Benefit
  - ✓ What rate of return can we achieve?
- ✓ Identify Risk – what are the major risks?
- ✓ Identify Alternatives – can we consider alternatives? How should we scale the program?
- ✓ What does success look like?
- ✓ Identify Critical Success Factors
- ✓ Measure/Quantify Results – How will we measure our progress?

# **THE IMPERATIVE TO IMPROVE OUTCOMES IN OSTEOPOROSIS CARE: Making the Case for a Secondary Fracture Prevention Program**

**Andrea Singer, MD, FACP, CCD**

**MedStar Georgetown University Hospital**