Welcome!

FLS Bone Health ECHO® TeleECHO Clinic

We will be recording this TeleECHO Clinic for educational and quality improvement purposes.

By participating in this clinic you are consenting to be recorded.

If you do not wish to be recorded, please email andrea.medeiros@nof.org at least one week prior to the TeleECHO Clinic you wish to attend.

Please type in your name, location, and email address in the chat.

Clinic will start in less than 15 minutes

Some helpful tips:

Please mute your microphone when not speaking

Position webcam effectively

Communicate clearly during clinic:

- Speak clearly
- Use chat function

Project ECHO's goal is to protect patient privacy

To help Project ECHO accomplish that goal, please only display or say information that doesn't identify a patient or that cannot be linked to a patient.

References:

For a complete list of protected information under HIPAA, please visit www.hipaa.com

Common HIPAA Identifier Slip-Ups and Easy Ways to Protect Patient Privacy

1st – **Names:** Please do not refer to a patient's *first/middle/last name* or use any *initials*, etc. Instead please use the *ECHO ID*.

2nd – **Locations:** Please do not identify a patient's *county, city or town*. Instead please use only the patient's *state* if you must or the *ECHO ID*.

3rd – **Dates:** Please do not use any dates (like *birthdates*, etc.) that are linked to a patient. Instead please use only the patient's *age* (unless > 89)

4th – **Employment:** Please do not identify a patient's *employer*, work *location* or *occupation*. Instead please use the *ECHO ID*.

5th – **Other Common Identifiers:** Do not identify patient's *family* members, *friends, co-workers, numbers, e-mails*, etc.

NOF Staff Disclosures

Andrea P. Medeiros, Director, Programs, Policy & Membership:
Nothing to Disclose

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Nothing to Disclose

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Preventing the Next Fracture: The Role of a Fracture Liaison Service

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Disclosures

- Clinical Trials
  - Cumberland
  - Corbus
  - Genentech
- Research Grant – Medical Education
  - Rheumatology Research Foundation
    Clinician Scholar Educator award
- Investments
  - Johnson and Johnson
- Advisory Board
  - Gilead Sciences, Inc
  - Clinical Learning Designs
- Committees
  - ACR Committee on Marketing and Communications, Member
  - American Board of Internal Medicine

What We Will Accomplish

Recognize the treatment gap in fragility fracture care

Discuss the benefits of a Fracture Liaison Service

Describe the collaborative approach to implementing a Fracture Liaison Service

Societal Impact

- Two million osteoporotic fractures occur each year
- Morbidity
  - Functional impairment and quality of life
- Mortality associated with hip fractures
  - 5-8x ↑ (first 3 months)
  - 20-25% one-year mortality
- Cost for all fractures
  - $17 billion - direct medical costs (2005)
    - **17x cost of CHF**
  - Projected $25 billion (2025)

LeBlanc et al, *Arch Int Med,* 2011; Haentjens P et al, *Ann Int Med*, 2010; Brauer CA et al, J*AMA*, 2009; Boonen S et al, *Osteoporosis Int*, 2004; Hall Se et al, *Aust NZ Med J*, 2000; Cummings SR et al, *Lancet*, 2002; Liu Z et al, *Osteopor Int*, 2015; Burge R et al *J Bone Min Res*, 2007

Fractures Beget More Fractures

- 2x risk of future fractures
  - Begins in first 6-12 months post-fracture
- Risk highest 2-4 years post-fracture
- Risk remains high for 10 years
  - Following fx of hip, vertebrae, humerus, forearm
- Vertebral fx associated with 4x risk for another vertebral fx

Giangregorio LM and Leslie WD, *J Bone Min Res*, 2010; Eisman JA et al, *J Bone Min Res*, 2012; Lewiecki EM, *Women's Health*, 2015.

Fracture Prevention

Primary vs. Secondary Prevention

FRAX

Oral bisphosphonates

DXA

Falls Assessment

Risk Factor Modification

Anabolic agents

RANKL Inhibition

Weight-bearing Exercise

Calcium/Vitamin D

SERMs

IV bisphosphonates

Fracture Prevention: Secondary

- Treatment of osteoporosis after a fragility fracture is sustained
  - Appropriate screening (DXA scan)
  - Risk factor assessment
  - Utilization of the FRAX tool
  - Risk factor modification
    - Falls assessment
  - Treatment regimen
    - Initiating treatment
    - Ensuring correct administration
    - Ensuring compliance

How Are We Doing with Secondary Fracture Prevention?

Patient Management After Hip Fracture

Results from 4 representative healthcare systems

	Site 1 n (%)	Site 2 n (%)	Site 3 n (%)	Site 4 n (%)
Total hip fractures (N)	**163**	**148**	**140**	**51**
Prescription medication	**43 (26)**	**12 (8)**	**7 (5)**	**19(37)**
Calcium and vitamin D	**44 (27)**	**12 (8)**	**7 (5)**	**13(25)**
DXA	**20 (12)**	**18 (12)**	**18 (13)**	**12(24)**

Low Rates of Treatment After Fracture

HEDIS Measures 2003
Medicare Disease Management Rates

Disease Management	Rate, %
Beta-blocker treatment after MI	**93**
Breast cancer screening	**74**
Colorectal cancer screening	**50**
Treatment after fracture	**18**

HEDIS = Healthcare Effectiveness Data and Information Set; MI = myocardial infarction.

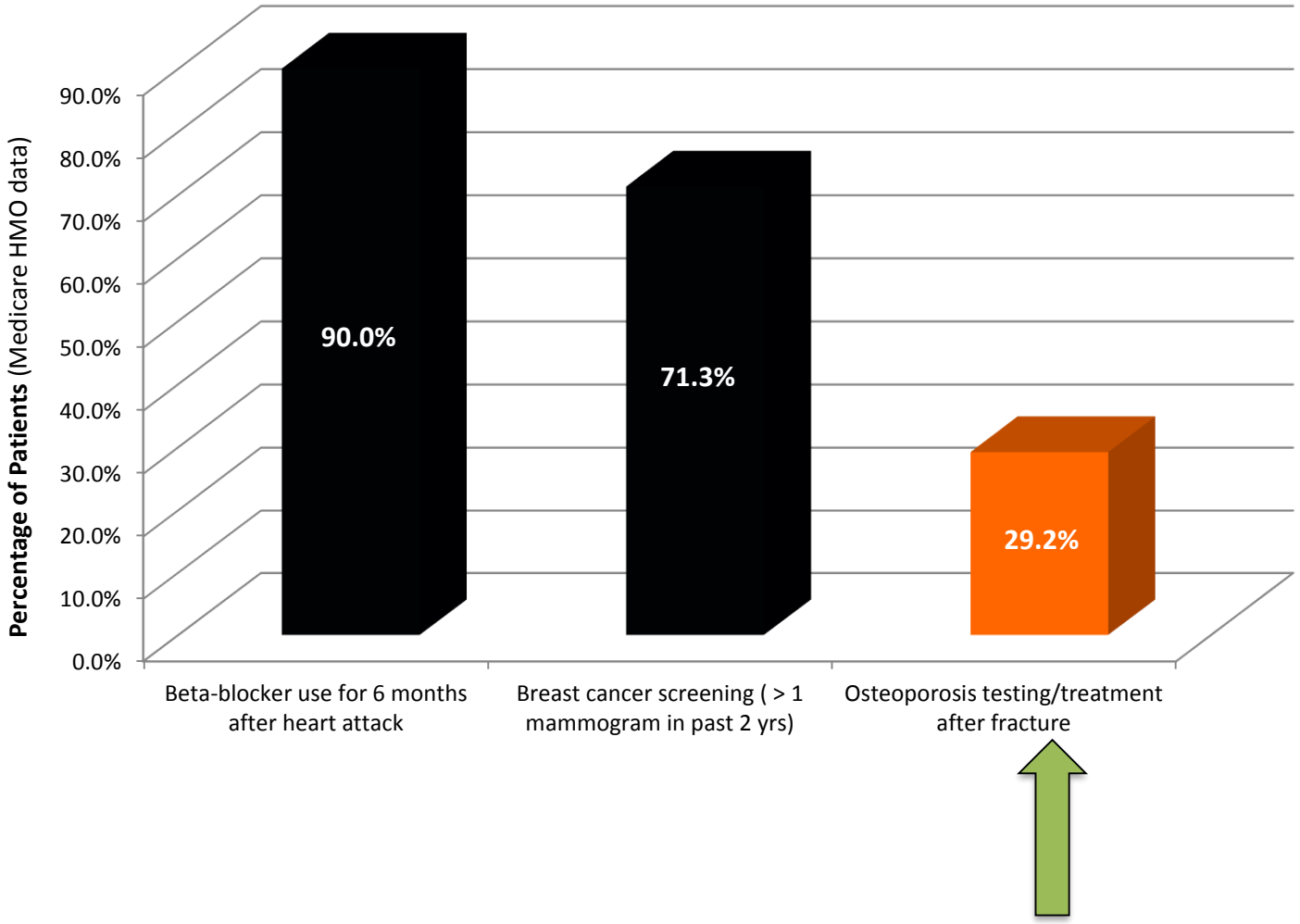
National Committee for Quality Assurance. *The State of Health Care Quality 2004.* Washington, DC: National Committee for Quality Assurance; 2004.

HEDIS (2009)
Post-fracture management (6 mos)
Women ≥ 67 yo with any fragility fx

20.7%

Eisman JA et al, *J Bone Min Res,* 2012; *Agency for Healthcare Research and Quality,* 2012

Healthcare Effectiveness Data and Information Set (HEDIS) Measure 2013



National Committee for Quality Assurance. The State of Health Care Quality 2014. *October 2014.*

ORIGINAL ARTICLE

JBMR®

Osteoporosis Medication Use After Hip Fracture in U.S. Patients Between 2002 and 2011

Daniel H Solomon,[1,2] Stephen S Johnston,[3] Natalie N Boytsov,[4] Donna McMorrow,[3] Joseph M Lane,[5] and Kelly D Krohn[4]

- US administrative insurance claims
  - Commercial or Medicare supplement
- Retrospective observational cohort study
- Hip fracture hospitalizations 2002-2011
- Age ≥ 50 yo
  - Study sample 96,887 patients
  - Average age 80 years
  - 70.3% women
  - 16.1% prior fragility fx (most untreated)

1^0 Outcome

Osteoporosis meds within 12 months of discharge

Solomon DH et al, *J Bone Min Res,* 2014

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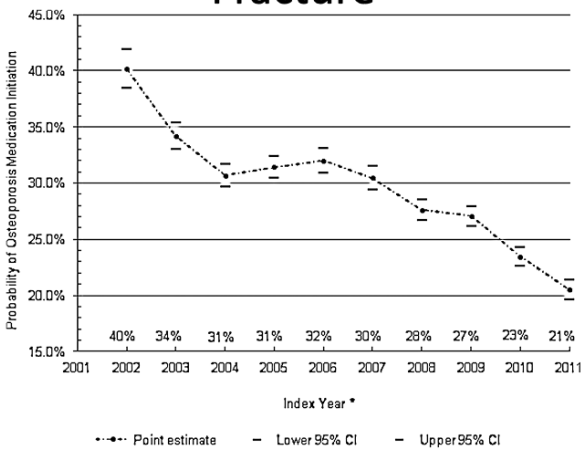
- Estimated probability of OP treatment 28.5%
  - Rates declined significantly
    - 2002 40.2%
    - 2011 20.5%

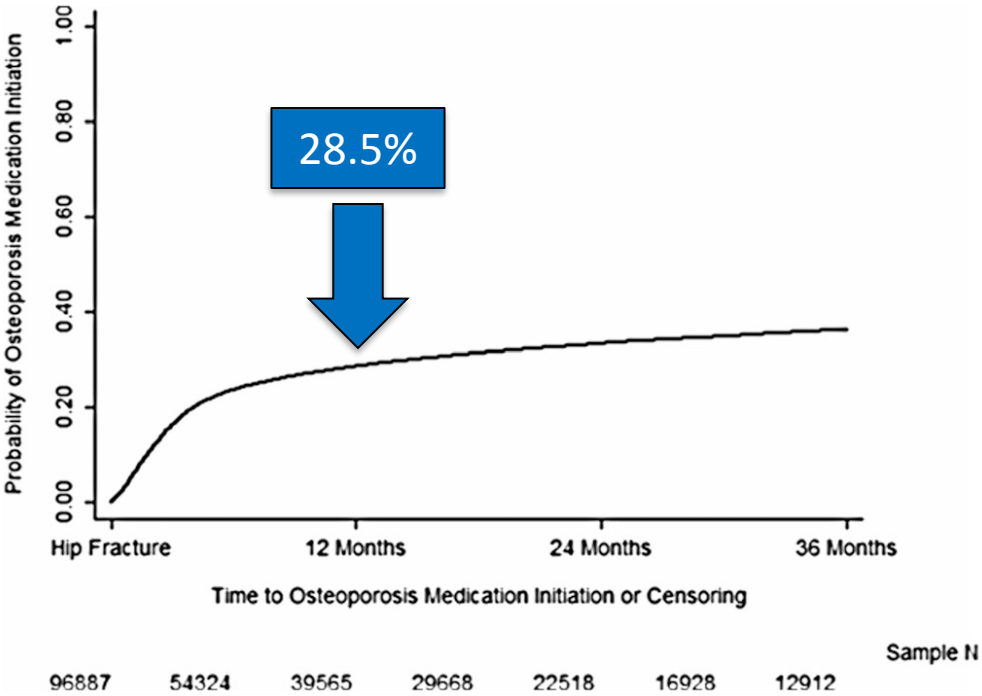
Declining Rates of OP Treatment Post-Hip Fracture



Annual unadjusted probability of osteoporosis medication use within 12 months after discharge (Kaplan-Meier method).

Solomon DH et al, *J Bone Min Res*, 2014

Time to OP Medication



Distribution of time to osteoporosis medication use within 36 months after discharge (Kaplan-Meier method). Six months, all patients = 0.162; patients with 3+ months of enrollment (ie, excluding patients censored before 3 months) = 0.169. Six months: all patients = 0.236; patients with 6+ months of enrollment = 0.254. Nine months: all patients= 0.264; patients with 9+ months of enrollment = 0.290.

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

OP Medication Treatment after Hip Fracture

- Lowest likelihood of treatment
  - Older age (>70 yo)
  - More co-morbidities
  - Male gender
- OP med ***prior*** to fracture correlated most strongly with treatment in 12 months post-fx

Solomon DH et al*, J Bone Min Res*, 2014

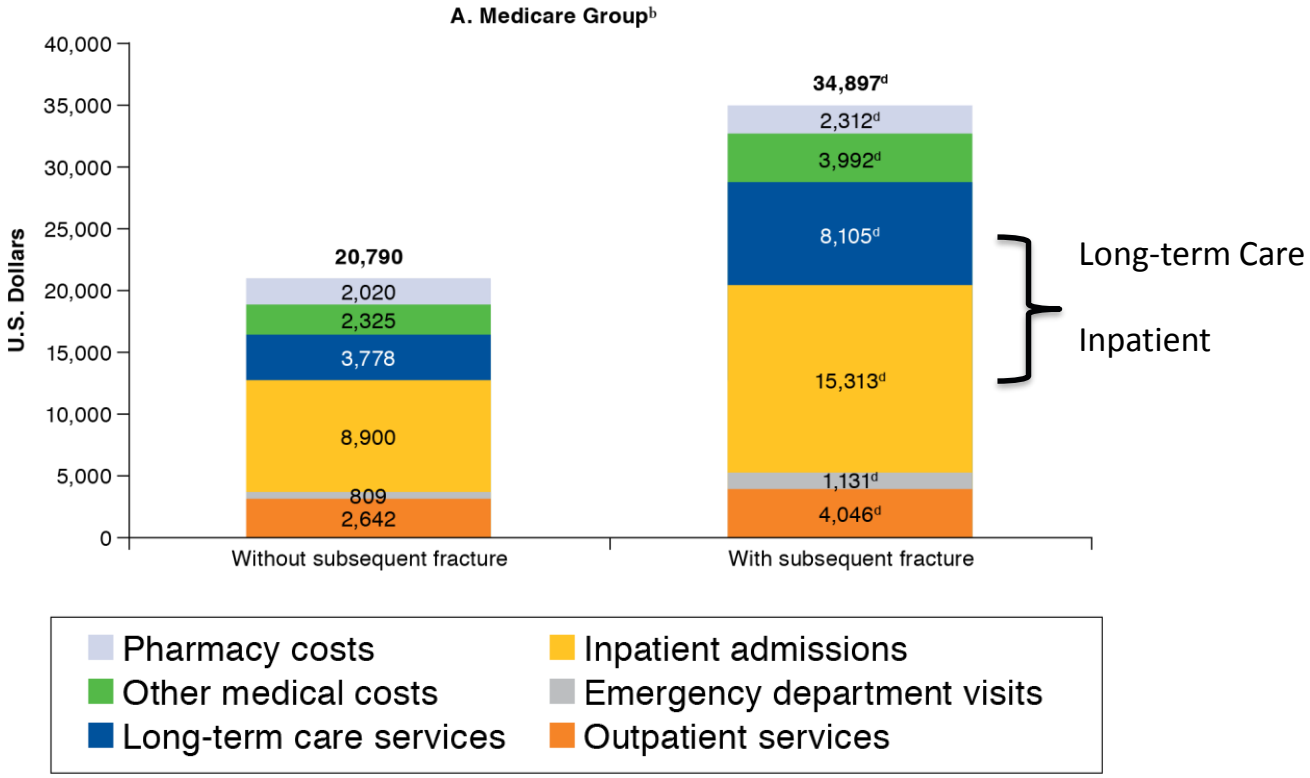
Prevalence and Costs of *Subsequent Fractures* in One Year

- Retrospective database claims (2008-2013)
- Medicare (N=45,603) and Commercial insurance (N=54,145) demonstrated similar outcomes
- Medicare
  - ~17% had a subsequent fracture
  - Most likely to have a next fracture:
    - Multiple index fractures (26%)
    - Hip fractures (25%)
    - Vertebral (20%)
  - Subsequent fx most likely to be same as index fx
  - Healthcare costs higher for those with subsequent fractures

Weaver J, et al., *J Man Care Spec Pharm,* 2017

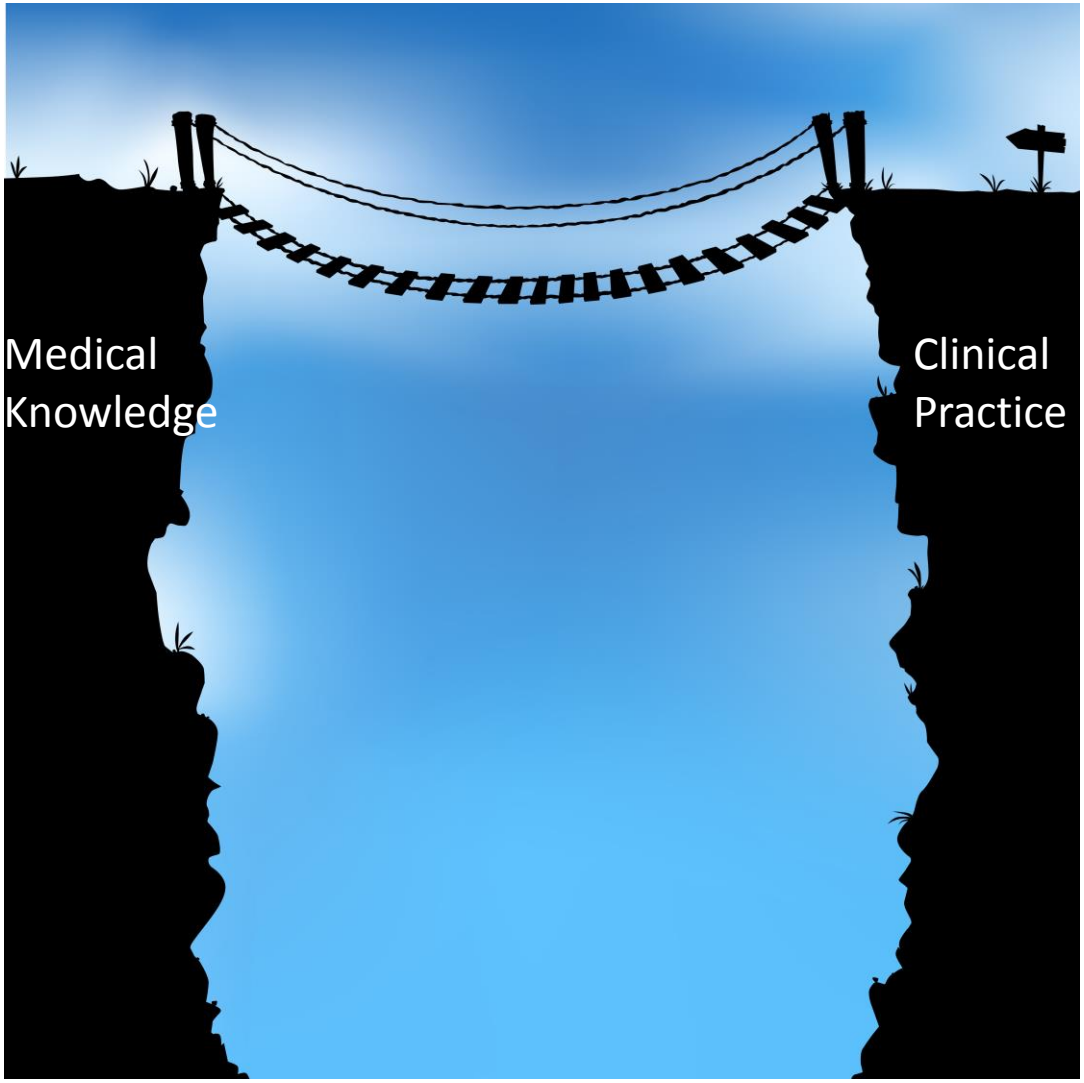
Costs:
Subsequent Fracture Within ONE Year

Mean Per-Patient Costs for Patients in the Medicare Commercial Groups



Weaver J et al., *J Man Care Spec Pharm*, 2017

Closing the Gap

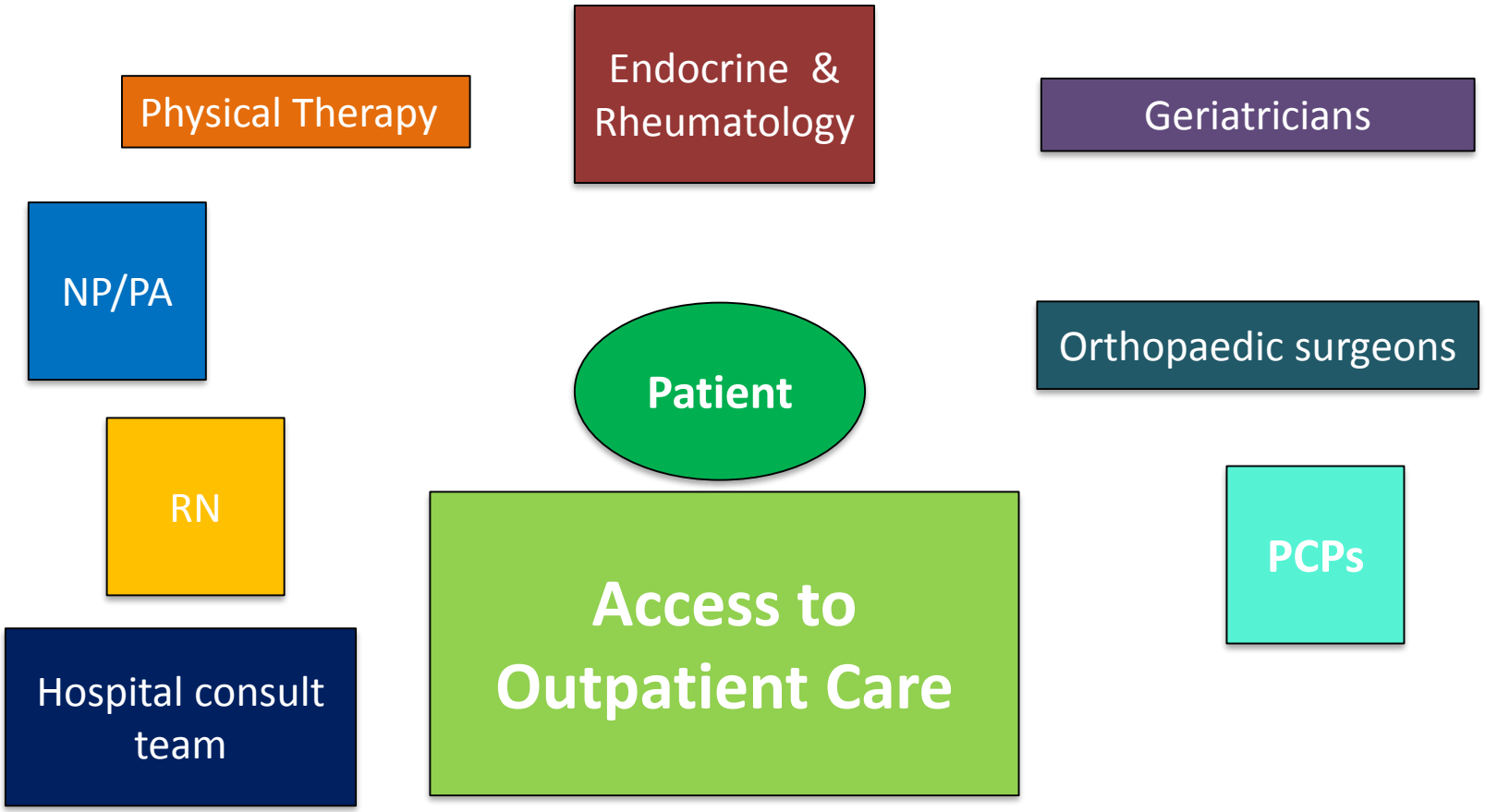


A Systems Approach: The Fracture Liaison Service

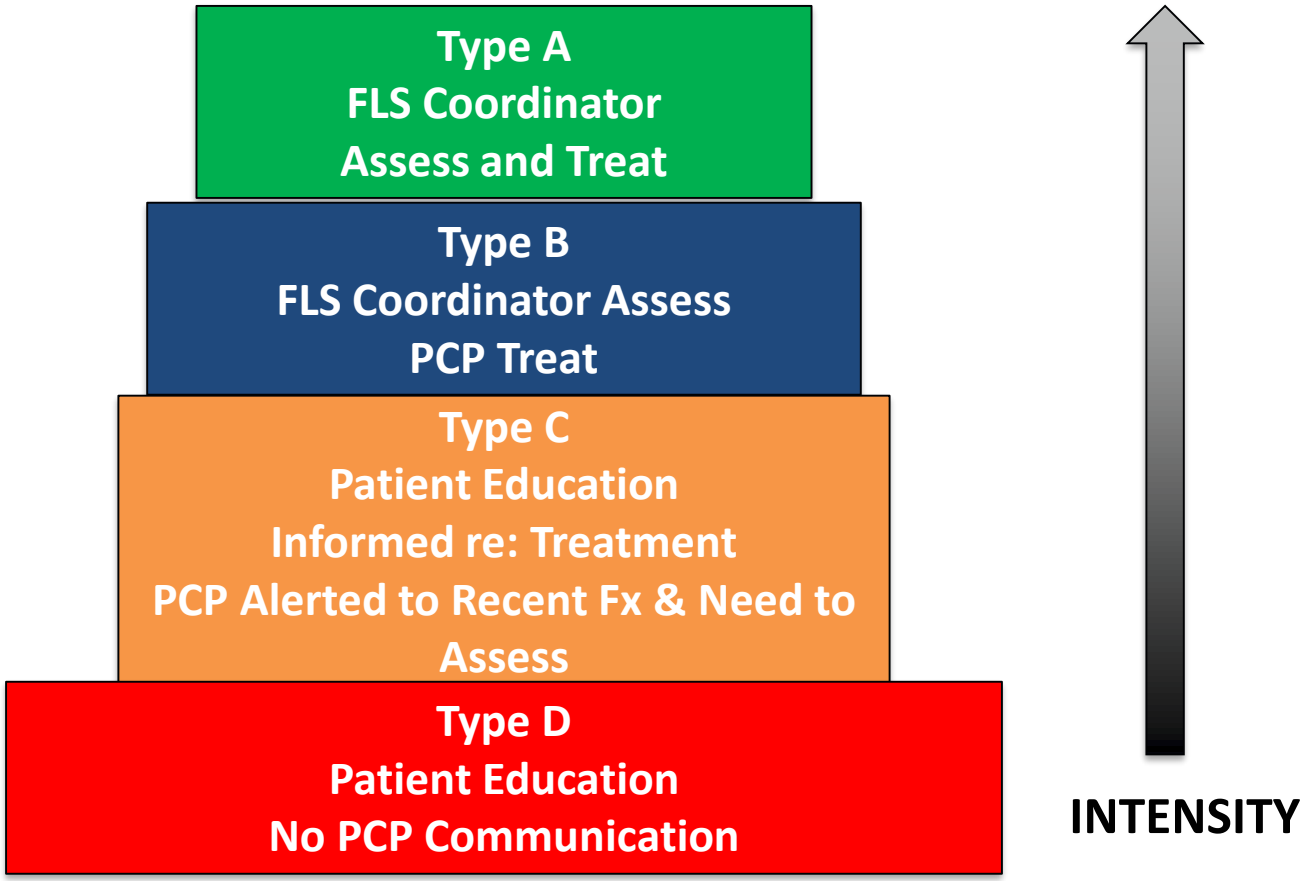
- ➢ Reduces subsequent fracture
- ➢ Reduces mortality
- ➢ Cost-effective
- Patient-centered care
  - **It's the right thing to do!**

Curtis JR & Silverman SL, Curr Osteoporos Rep, 2013

FLS Stakeholders



4 FLS Models of Differing Intensity



Briot K, *Curr Op Rheum*, 2017

FLS: How To's

- Enhanced care with geriatric co-management
- Initial focus on a sub-group
- FLS navigator
  - Case-finding
- Risk assessment
  - Fall risk
  - Risk factor modification
  - Metabolic assessment
  - DXA (Vertebral Fracture Assessment, VFA)
- Education
- Management recommendations
- Plan for patient follow-up

Vranken L et al., *Calcif Tiss Int*, 2017

What is the potential?

Let's look at the evidence

FLS:
Prospective Studies and Re-fracture Rates

Table 2. Refracture rates in longitudinal studies in Fracture Liaison Service and control groups

Studies	Duration of follow-up	Refractures in FLS	Refractures in control group
Lih *et al.* [14]	37.7 months	10/246 (4.1%)	31/157 (19.7%)
Nakayama *et al.* [15]	36 months	63/515 (12%)	70/416 (17%)
Huntjtens *et al.* [16]	24 months	95/1412 (6.7%)	130/1910 (6.8%)
Axelsson *et al.* [17▪]	344 days	216/2616 (8.3%)	228/2713 (8.4%)
Van der Kallen *et al.* [18]	48 months	14/214 (6.5%)	41/220 (18.6%)

FLS, Fracture Liaison Service.

*Control group had follow-up with PCP's

Briot K. *Curr Opin Rheumatology*, 2017

System Strategies: **Integrated** Healthcare Systems

Geisinger Medical Center

- **Implementation of an osteoporosis disease management program (all women > 55 yo), 1996**
  - **Outpatient program**
  - **Clinical practice guidelines**
  - **Physician and allied healthcare provider education**
  - **BMD testing program**
- **Outcomes (5 years):**
  - **Significant decline in age-adjusted incidence of hip fracture**
  - **Overall reduction in health care costs of $7.8 million over 5 years**

Newman ED et al. *Osteoporos Int.* 2003;14:146–151.

Kaiser Permanente Healthy Bones

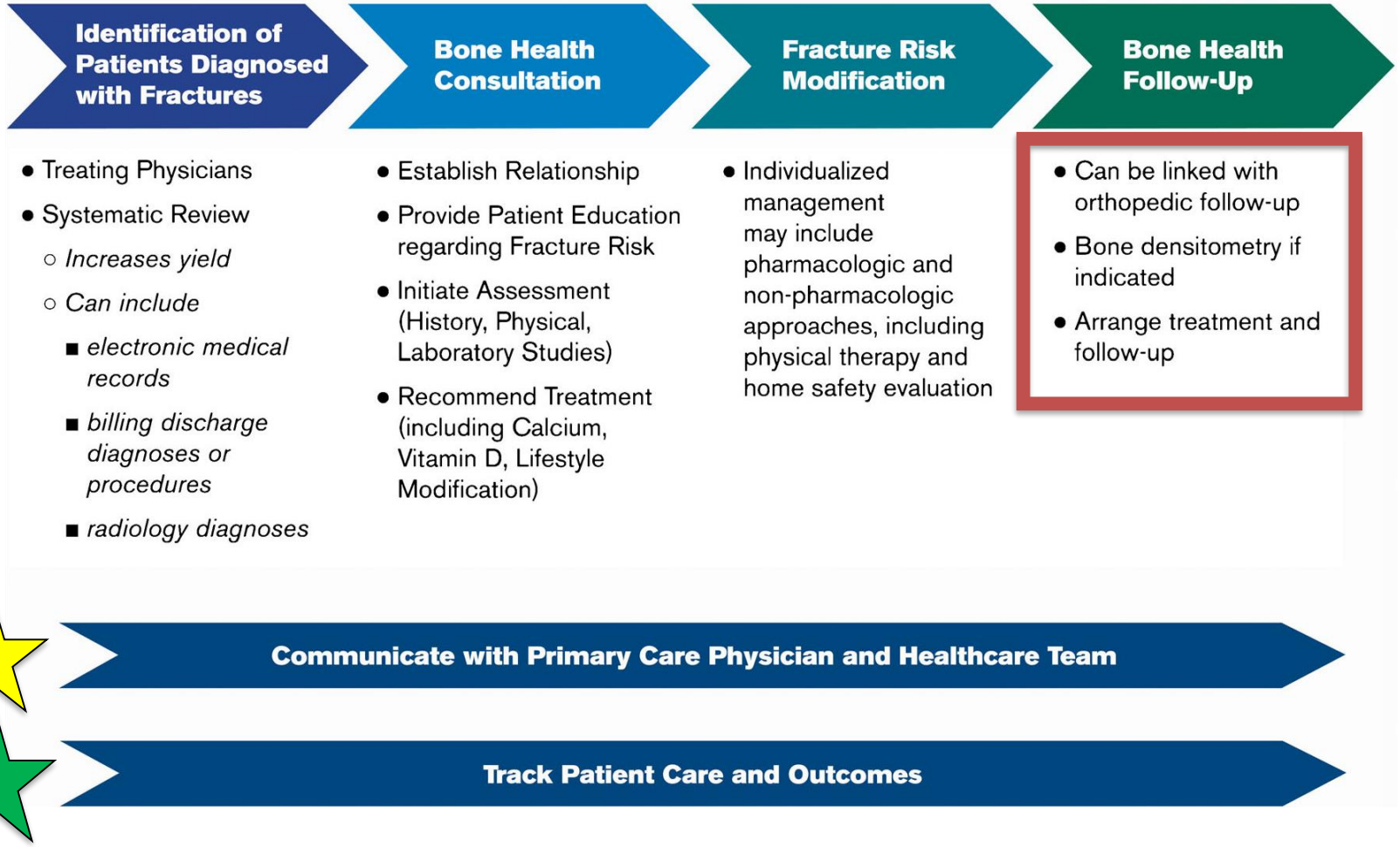
- Established 1998
- 12 medical centers
- Healthy Bones Care Manager
- Inpatient identification, education, evaluation
- Outpatient management x 3 months
- PCP then maintains therapy plan
- Endocrine consultation if warranted

Kaiser Permanente Healthy Bones

- 11,000 new fragility fractures per year
  - 7500 in women
- > 90% are prescribed treatment
  - >80% initiate treatment
- Impact
  - ↓ Fragility fractures by 40%
  - Prevent 1000 hip fractures/year
  - Cost savings > $30 million/year

Eisman JA et al, JBMR suppl, 2012

Fracture Liaison Service



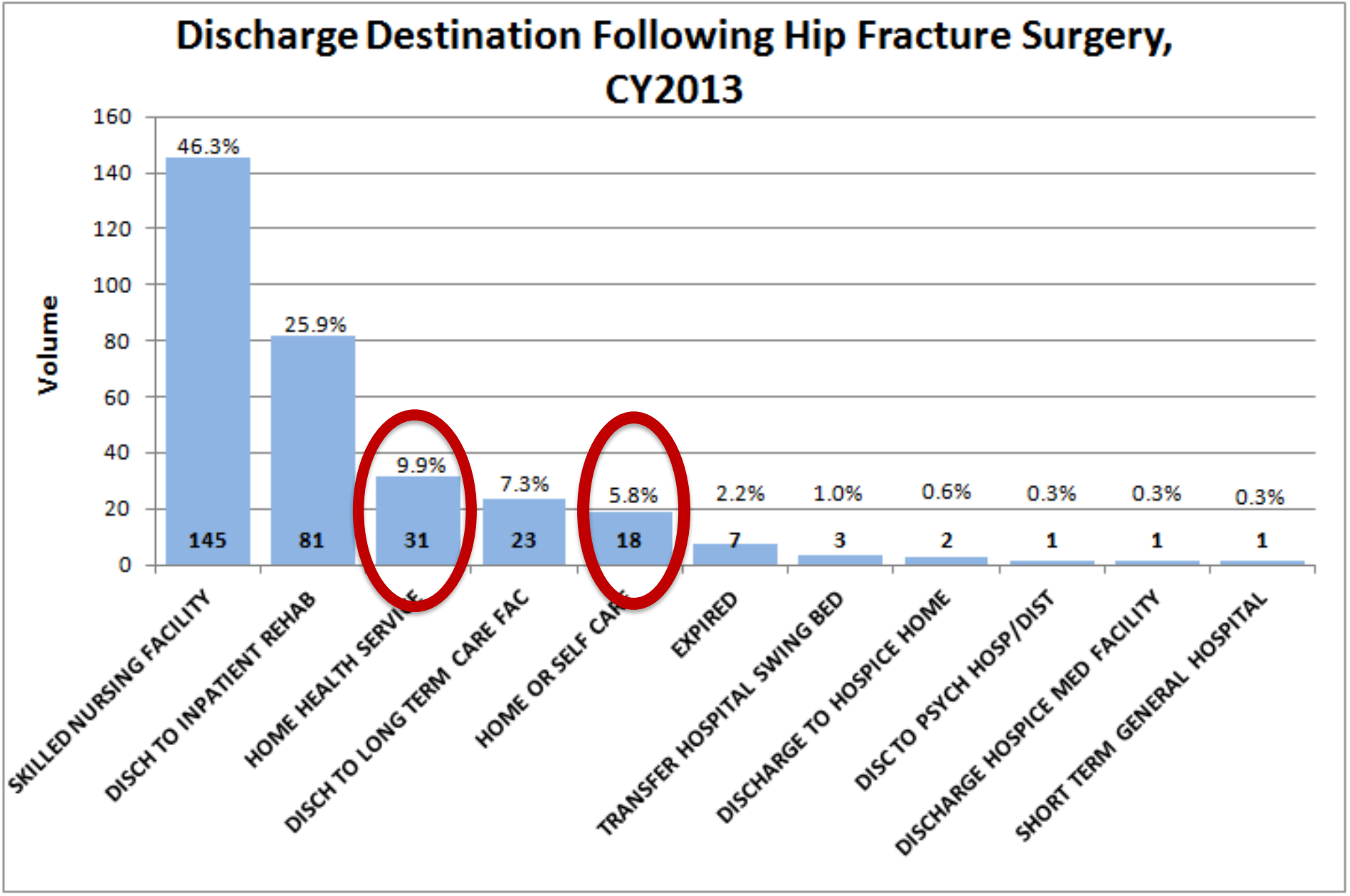
Aizer J and Bolster MB. Curr Rheumatol Rep *2014;16:455.*

Geriatrics-Orthopaedics Co-Management Program

- Geriatric Inpatient FracTure Service (2011)
- Patients > 65 years old with fractures
- Co-man ho Trauma
- Goals
  - Optim ies
  - Reduc
  - Reduc
  - Improve communication with families and rehabilitation centers

Additional Opportunity

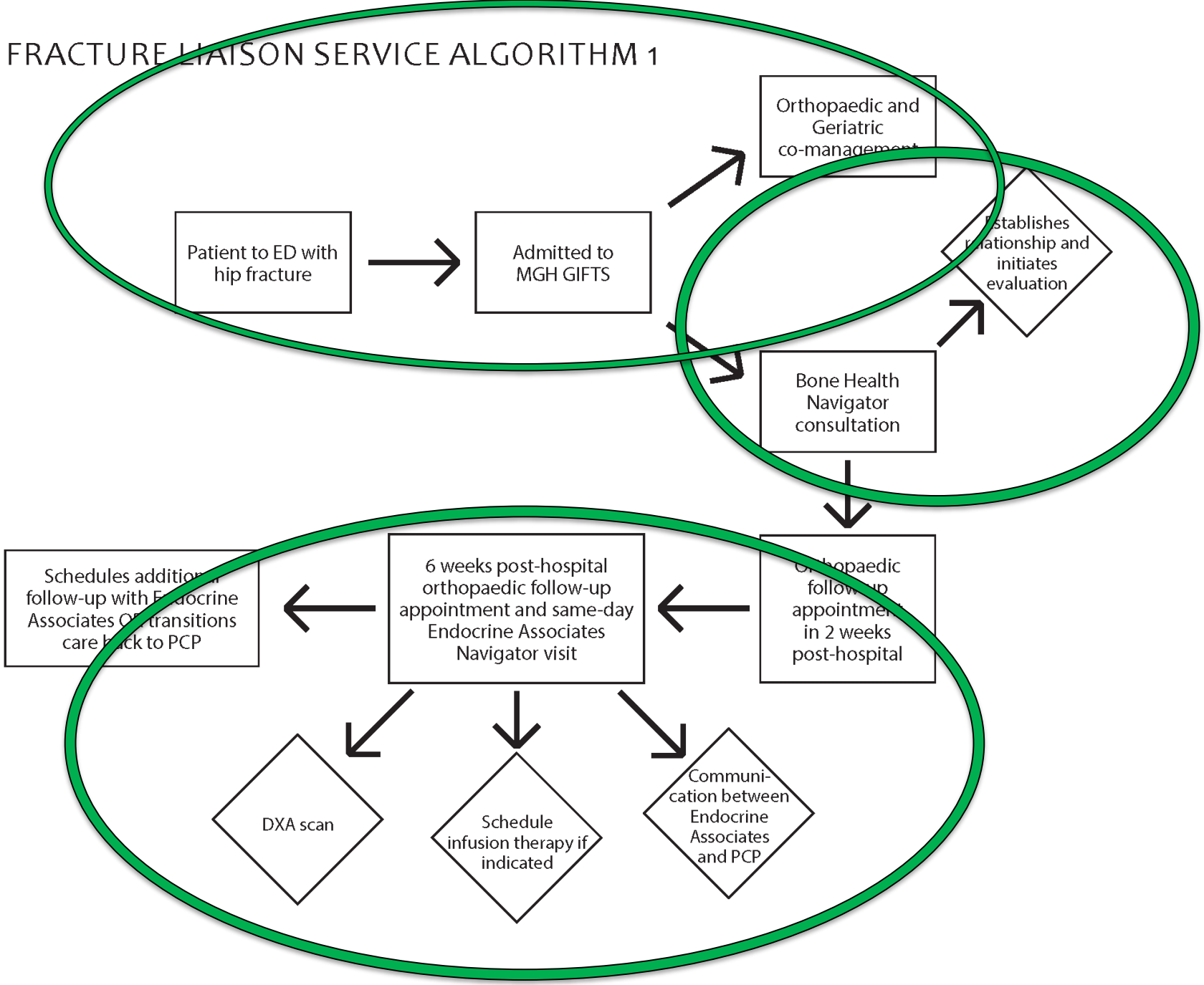
Ensuring treatment of the patient's underlying osteoporosis


Discharge Destination Following Hip Fracture Surgery, CY2013
Volume
160
140
120
100
80
60
40
20
0
46.3%
25.9%
9.9%
7.3%
5.8%
2.2%
1.0%
0.6%
0.3%
0.3%
0.3%
145
81
31
23
18
7
3
2
1
1
1
SKILLED NURSING FACILITY
DISCH TO INPATIENT REHAB
HOME HEALTH SERVICE
DISCH TO LONG TERM CARE FAC
HOME OR SELF CARE
EXPIRED
TRANSFER HOSPITAL SWING BED
DISCHARGE TO HOSPICE HOME
DISC TO PSYCH HOSP/DIST
DISCHARGE HOSPICE MED FACILITY
SHORT TERM GENERAL HOSPITAL

Fracture Liaison Service: Additive Process

- 2011
  - GIFTS program (Geriatrics-Orthopaedics co-management)
    - Patients ≥ 65 yo
- 2016 FLS
  - Inpatient: hip fragility fractures
    - All patients > 50 yo
- 2017
  - Inpatient: all fragility fractures
  - Vertebral insufficiency fractures
  - Inpatient zoledronic acid infusions
- 2018
  - Follow-up phone calls
- 2019
  - Med/Ortho transition
- 2020
  - COVID-19

MGH FRACTURE LIAISON SERVICE ALGORITHM 1



Fracture Liaison Services

What We Know

- Increased rates of:
  - Osteoporosis diagnosis
  - Evaluation for 2^0 causes
  - Fall risk assessments
  - Treatment
  - Adherence to treatment
- Cost-effectiveness
- Reduced subsequent fracture rates
- Resources

Opportunity

Specialty and subspecialty collaboration for patient-centered care

Aizer J and Bolster MB, *Curr Rheumatol Rep,* 2014; Leal J et al., *J Bone Min Res,* 2017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EAST LAKE RD
MADISON CO CR 87
EAST LAKE RD
MADISON CO. RT. 87
EAST LAKE RD
15
M.P.H.
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REAL ESTATE
FOR SALE

Next Steps

- Develop Med/Ortho service
  - Comprehensive management of geriatric patients admitted with a fragility fracture
- Expand more broadly to vertebral insufficiency fractures
  - Involves many inpatient and outpatient settings
- Expand to outpatient/ED fragility fractures
- Expand data capture
  - Medication treatment and compliance
  - Subsequent fractures
  - Mortality
- Telemedicine to hospitals in our network
  - Hospitals outside our network

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Questions?

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