

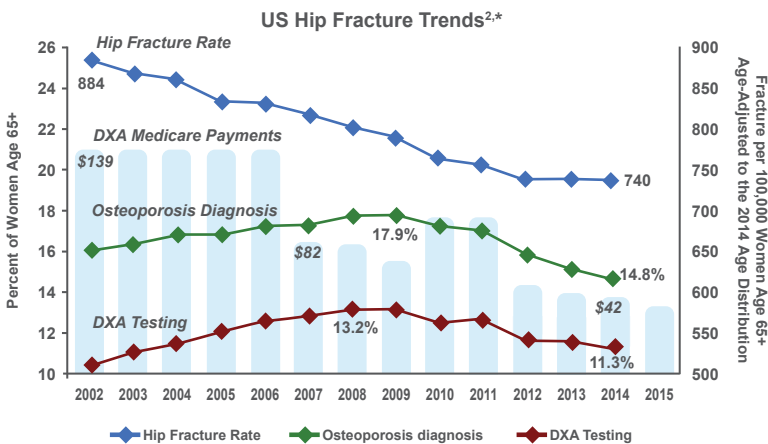


CLINICAL AND ECONOMIC BURDEN OF OSTEOPOROSIS ON THE US HEALTHCARE SYSTEM

Understand and address the impact of osteoporosis and fracture risk

EXPERTS ACKNOWLEDGE THERE IS A CRISIS IN OSTEOPOROSIS MANAGEMENT¹

Postmenopausal osteoporosis diagnosis rates have been declining since 2009, even as a decline in hip fractures has plateaued^{2,*}

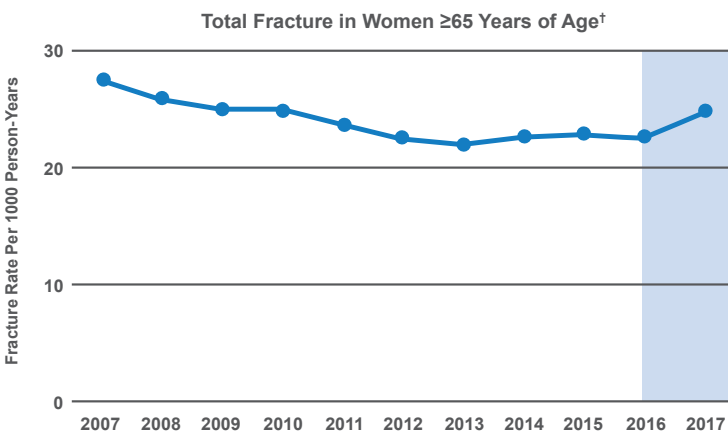


Rates of testing and diagnosis are declining and may be increasing plans' exposure to the high cost of fractures^{1,2}

The increase in fracture-related expenses is likely to outweigh the modest savings to Medicare from decreased DXA reimbursement and fewer DXAs performed²

OSTEOPOROSIS-RELATED FRACTURE RATES ARE ON THE RISE³

More recent data shows an increase in fracture rates³



Total fracture rates increased beginning in 2016 across various fracture sites including spine, hip, and radius/ulna, among other fracture sites

Increased age- and sex-adjusted US fracture rates supports the global call to action to increase screening and treatment of osteoporosis in older adults

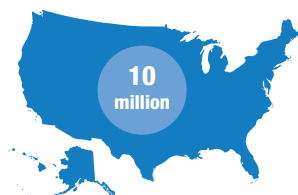
DXA=dual-energy X-ray absorptiometry.

*Adapted from: Lewiecki EM, et al.

[†]Includes fractures of ankle, carpal/wrist, hip, femur, pelvis, radius/ulna, shoulder, spine, tibia/fibula, or multiple sites.³



THERE IS A HIGH PREVALENCE OF OSTEOPOROSIS AND OSTEOPOROSIS-RELATED FRACTURES IN THE UNITED STATES⁴



Approximately **10 million Americans** are affected by osteoporosis⁵



Someone in the US breaks their hip **every 2 minutes**^{6,*}



Every year, there are **1.5 million osteoporosis-related fractures** in the United States^{4,7}



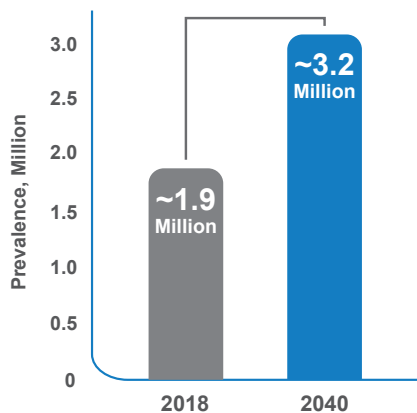
1 in 2 women and **1 in 4 men** over the age of 50 will experience a fracture related to osteoporosis in their remaining lifetime^{4,8}

³ *The data were derived from an HCUPnet Hospital Inpatient National Statistics query and represent the total number of hip fractures per year. The results do not list the specific causes of the fractures.⁶



THERE IS AN URGENT NEED TO ADOPT A PROACTIVE APPROACH TO REDUCING FRACTURES⁹

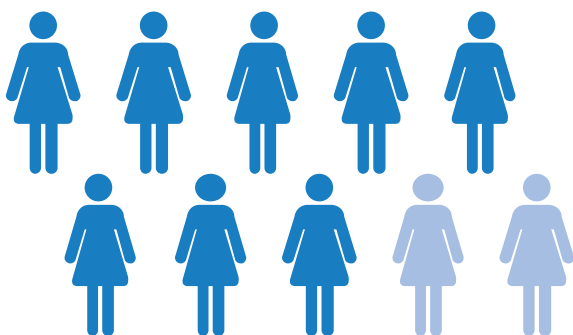
The incidence of fractures is increasing:



68%

Estimated increase by 2040 in the prevalence of osteoporosis-related fractures in the US among women ≥ 65 years old^{10,*}

But treatment for the disease is not:



83%

of women with postmenopausal osteoporosis who experienced a fracture **were not treated** for the underlying disease of osteoporosis within 6 months following a fracture^{11,†}

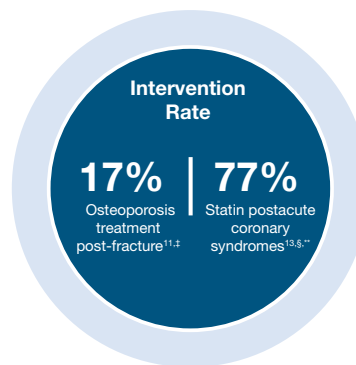
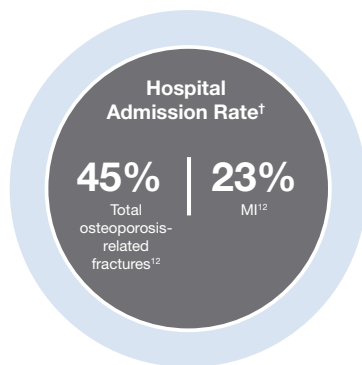
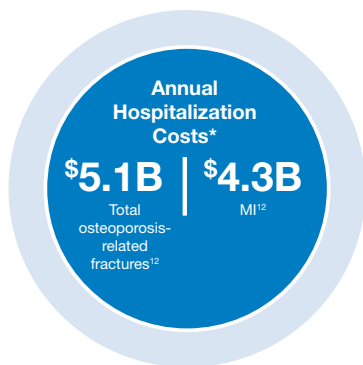
BMD=bone mineral density; MAPD=Medicare Advantage prescription drug.

*Estimate based on a microsimulation forecasting model utilizing risk assessment tool, NHANES, data from published literature, and the US Census Bureau.¹⁰

†Study period July 1, 2010, through June 30, 2014, and included women 67-85 years of age who experienced one or more fractures and received a prescription for an antiosteoporosis medication with or without a BMD test. Patients had continuous Humana MAPD enrollment 12 months prior to and 6 months after the fracture.¹¹



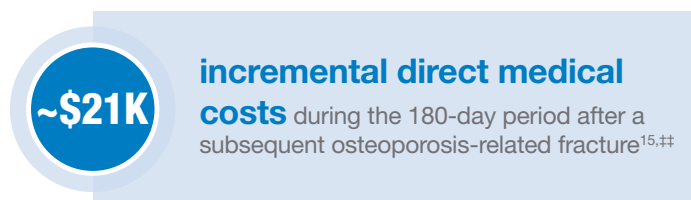
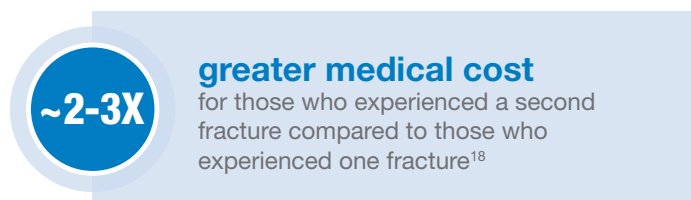
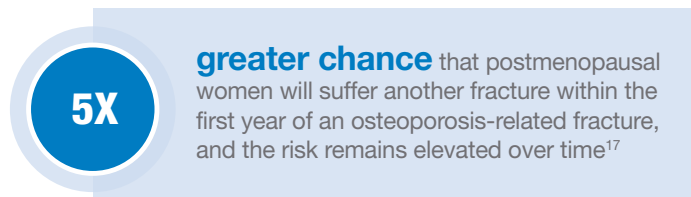
OSTEOPOROSIS-RELATED FRACTURES CAN IMPACT YOUR SYSTEM AS MUCH AS MYOCARDIAL INFARCTIONS¹²



However, treatment rates after hospitalization for hip fracture are declining^{14,††}

INITIAL FRACTURES INCREASE THE RISK OF MORE COSTLY SUBSEQUENT FRACTURES¹⁵

Among those experiencing an initial fracture, the statistics are not promising:



BMD=bone mineral density; HMO=health maintenance organization; MI=myocardial infarction; PPO=preferred provider organization.

*Based on the total population cost for hospitalization per year for the 2000-2011 time period in women ≥55 years of age.¹²

†Hospitalization rate during 2000-2011 in women ≥55 years of age.¹²

‡Based on the 6-month follow-up period for women aged 67-85 years who had an osteoporosis-related fracture and received a BMD test and/or an osteoporosis-specific medication, with or without a BMD test.¹¹

§Statin therapy for patients with cardiovascular disease who received and adhered to statin therapy: Medicare HMO=77.3% and Medicare PPO=76.8%.¹³

**Statin Therapy for Patients With Cardiovascular Disease assesses males 21-75 years

of age and females 40-75 years of age who have clinical atherosclerotic

cardiovascular disease (ASCVD) and who received and adhered to statin therapy.¹³

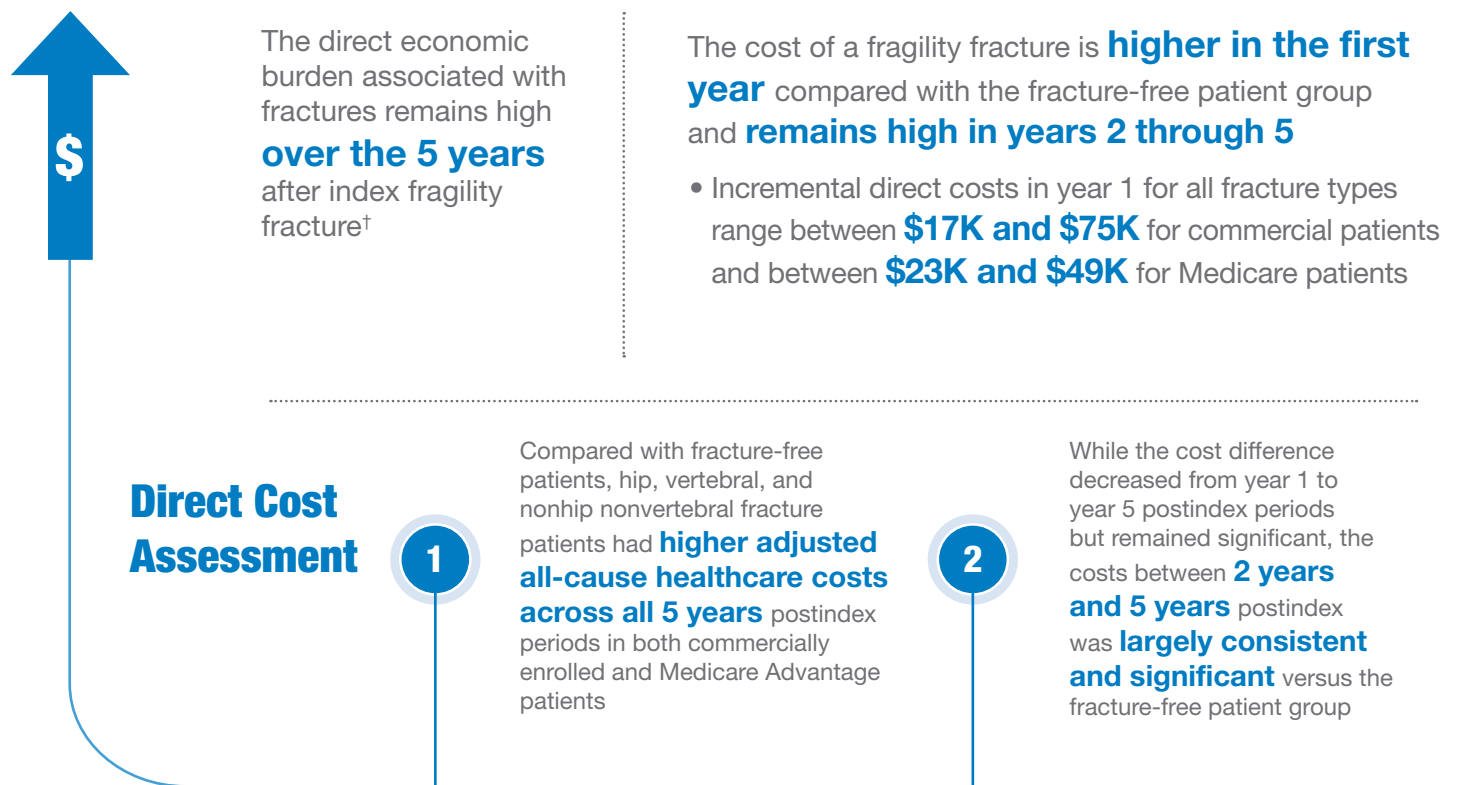
††Study includes both male and female patients.¹⁴

‡‡Adjusted for differences in risk characteristics between populations of Medicare FFS beneficiaries with a new osteoporosis-related fracture who had a subsequent fracture and those who did not.¹⁵



PATIENTS WITH OSTEOPOROSIS-RELATED FRACTURES HAD HIGHER MEAN ALL-CAUSE HEALTHCARE COSTS ACROSS ALL 5 YEARS AFTER FRACTURE¹⁹

Amgen studied the impact of all-cause healthcare costs in select Medicare and commercial populations*



*The study compared direct healthcare costs between female fracture patients (both commercially enrolled patients and Medicare supplemental patients) and demographically matched fracture-free patients for the 5 years after index fracture, by site of fracture using claims from the IBM MarketScan[®] Commercial Claims and Encounters Database (Commercial) and MarketScan[®] Medicare Supplemental and Coordination of Benefits Database (Medicare). The assessment included all-cause healthcare costs, which include total payment by both patient and payer on direct costs from: inpatient admissions, ER visits, outpatient services and visits (such as outpatient office visits, skilled nursing facility [SNF] services, and other outpatient services), and outpatient pharmacy claims. Inclusion criteria included one or more nondiagnostic medical claims with a closed or pathological fracture diagnosis in any position between 1/1/2008 through 12/31/2016.

[†]Index fracture refers to the initial osteoporosis-related fracture during the study design period.

MANY PATIENTS WHO EXPERIENCE AN OSTEOPOROSIS-RELATED FRACTURE DO NOT RECEIVE OPTIMAL CARE²⁰

Currently, the care for many patients who have experienced an osteoporosis-related fracture can be fragmented and ineffective^{4,20}

Quality is an element of a post-fracture care (PFC) program^{21,22}

- **Institutionalize PFC quality improvement** as part of the organizational culture^{21,22}
- Develop a method to **track administrative data** and identify patients who have had a fracture¹¹
- Establish a baseline for post-fracture patients from which an **improvement of PFC service can be assessed**²²
 - The program provides a centralized source and tools for management of the population at risk for subsequent fractures through patient-centered care and improved communication pathways²²
 - Compare your current program to the HEDIS quality measure. This measure has been used to assess the quality of care in women with osteoporosis²³

A post-fracture care program, such as an FLS, is a systematic approach that can help address gaps in osteoporosis care^{20,22}

THE QUADRUPLE AIM GUIDES HEALTHCARE ORGANIZATIONS TO OPTIMIZE HEALTH SYSTEM PERFORMANCE AND MEET THEIR POPULATION HEALTH GOALS²⁴



A formalized post-fracture care program, such as a fracture liaison service, may be associated with post-fracture treatment rates higher than typical rates^{25,26}

HELP PATIENTS AT RISK FOR OSTEOPOROSIS-RELATED FRACTURES RECEIVE EVALUATION AND PROPER DIAGNOSIS

Improving patient outcomes begins with the three “I”s^{4,7}



Identification

Identify individuals who are at risk of osteoporosis-related fracture

1



Investigation

Investigate, evaluate, assess, and diagnose these patients

2



Intervention

Initiate appropriate treatment in those patients who need therapy

3

Consider implementing a post-fracture care program to proactively screen, evaluate, and treat appropriate patients with PMO who are at risk for fractures²¹

SUMMARY



Rates of testing and diagnosis may be declining and **increasing plans' exposure to the high cost of fractures**^{1,2}



Osteoporosis-related fracture rates **began increasing** between 2016 and 2017³



Initial fractures increase the **risk of costly subsequent fractures**¹⁵



A formalized post-fracture care program is one way to help meet population health goals for patients with osteoporosis at high risk for fractures²⁷

Ensure patients at risk for osteoporosis-related fractures receive evaluation and proper diagnosis. Appropriate treatment can help reduce the risk of osteoporosis-related fractures^{1,3,15}



AMGEN AND UCB CAN PROVIDE EDUCATIONAL RESOURCES TO SUPPORT POST-FRACTURE CARE.

CONTACT YOUR ACCOUNT MANAGER FOR MORE RESOURCES

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