

For Health
Systems
Using Cerner®

Bone Health EHR Resource

Automated Cerner Electronic Health Record (EHR) Solutions
to Identify and Address Patients With Osteoporotic Fractures



IDENTIFY

Use criteria from the EHR to generate Patient Reports identifying patients who may benefit from post-fracture follow-up care



EVALUATE

Use Discern Alerts to alert providers to evaluate patients for post-fracture care



ENGAGE

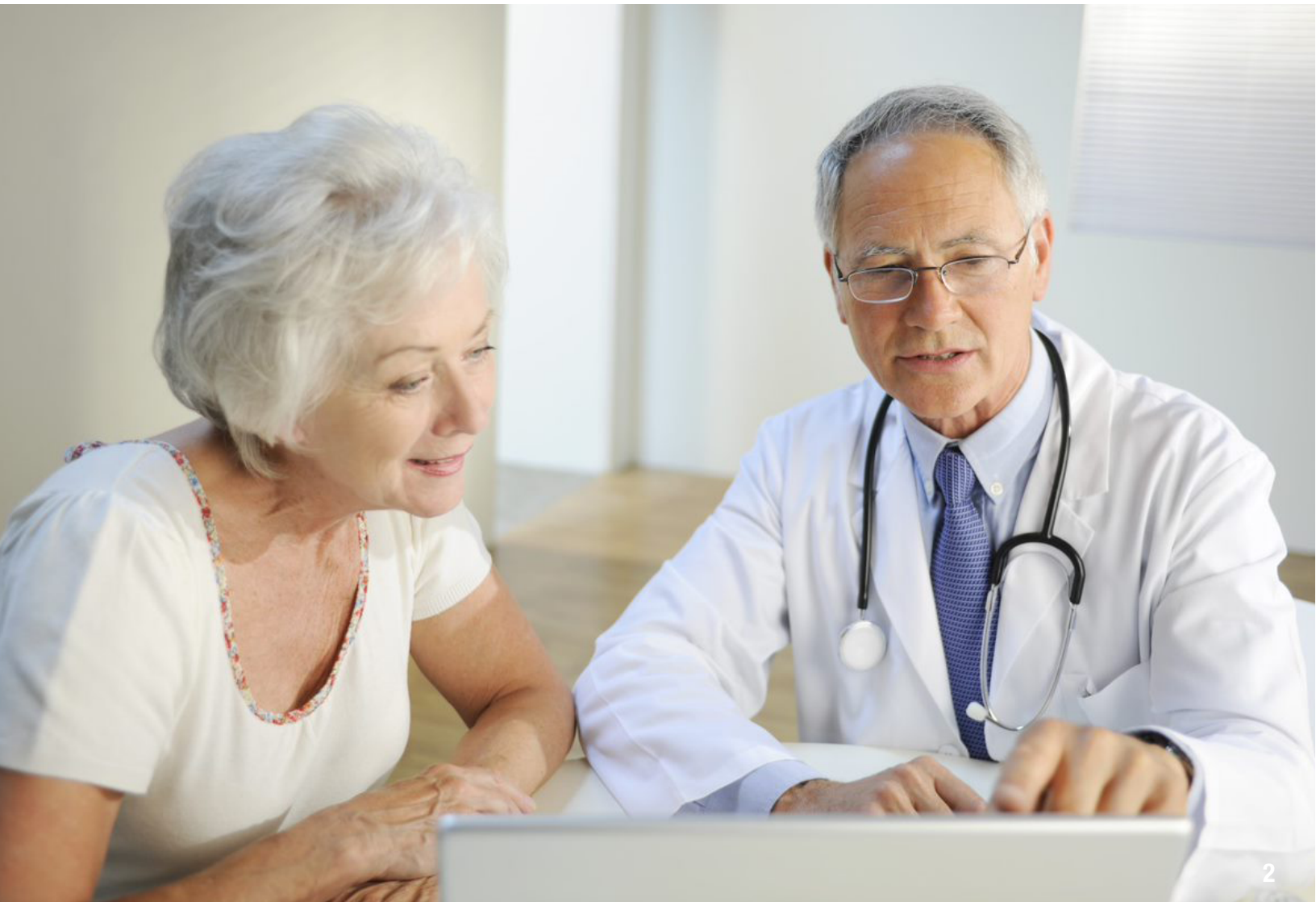
Use Patient Communications and Primary Care Provider (PCP) Communications to send targeted messages encouraging specific patients to seek post-fracture care

About This Guide

Amgen has developed this EHR resource for educational purposes only, to assist health systems in configuring their Cerner capabilities to help identify post-fracture care patients in need of additional care. Please see the important statistics about osteoporosis care on the next few pages, followed by an overview of what your Cerner EHR can do to help ensure appropriate follow-up with post-fracture osteoporosis patients.

This resource provides insights, examples and an [Appendix](#) with potential criteria to help clinical decision makers implement automated EHR functionalities as part of a bone health improvement program that can facilitate post-fracture care for patients who have experienced an osteoporosis-related fracture. Clinical decision makers may consider the potential criteria and/or actions in the [Appendix](#) when creating Patient Reports, Reminders, PCP Communications, and Invitations. It does not constitute guidance for medical advice or treatment.

The information listed in this resource is based upon Cerner's 2018 version. Functions and features may change as new software versions are released. The guide is meant to serve as educational examples only and should not replace detailed instructions provided to you by your internal or external EHR support resources. Screen images shown within represent hypothetical screens in Cerner. Amgen makes no claims or warranties about the applicability or appropriateness of this information and does not endorse specific EHR systems.



Some Evidence Suggests That the Rate of Bone Density Testing to Identify At-Risk Individuals Is Low and May Be Declining¹

14%

of female Medicare beneficiaries in 2010 **received a dual-energy x-ray absorptiometry (DXA) scan²**

9%

of female Medicare FFS beneficiaries **were evaluated for osteoporosis** with a bone mineral density (BMD) test within 6 months **following a new osteoporosis-related fracture^{1,*}**

1 in 2 women over the age of 50 will experience a fracture related to osteoporosis in her remaining lifetime.³

<20% of women with postmenopausal osteoporosis who experienced a fracture **received treatment** for the underlying disease of osteoporosis within 6 months following a fracture.^{4,†}

Once postmenopausal women have their first fracture due to osteoporosis, they are **5x more likely to fracture again** within a year and the risk remains elevated over time.^{5,‡}

When considering men and women, hip fracture can result in as much as **80%** of patients unable to return to their functional independence (as measured by ability to walk independently and walking speed).⁶



Experts acknowledge that there is a **decrease in diagnosis and treatment of osteoporosis**, even in patients who have suffered a fracture¹

- Evidence shows **low usage rates** for testing and treatment among high-risk populations¹
- **Even after fracture**, most Medicare beneficiaries do not receive treatment for osteoporosis¹

*Data are based on osteoporosis fractures that occurred in 2016 in the Medicare FFS population medical claims database.¹

†Study period July 1, 2010 through June 30, 2014, and included women 67-85 years of age who experienced one or more fracture and received a prescription for antiosteoporosis medication with or without a BMD test. Patients had continuous Humana MAPD enrollment ≥ 12 months prior and ≥ 6 months after the fracture.⁴

‡Data represent a population-based study of 4140 postmenopausal women aged 50-90 years.⁵

Provider Organizations Are Urged to Prioritize Post-Fracture Care Follow-up to Close the Gap in Osteoporosis Care



The 2020 American Association of Clinical Endocrinology (AACE) guidelines recommend **BMD testing and osteoporosis treatment** for postmenopausal women who have suffered an osteoporotic fracture. Note: according to these guidelines, DXA is not required for osteoporosis diagnosis among patients who have experienced a low trauma fracture of the hip or spine.⁷



Osteoporosis management quality measures such as the **Healthcare Effectiveness**

Data and Information Set (HEDIS) Osteoporosis Management in Women Who Had a Fracture (OMW)* and **Merit-based Incentive Payment System (MIPS) #418†** measure percentage of female patients receiving osteoporosis testing or treatment within 6 months of a fracture.^{8,9}

* Medicare Advantage women enrollees age 67-85 years.⁸

† Women age 50-85 years.⁹

Historically, the osteoporosis management quality measure has been *one of the lowest quality measures* of all the Part C measures. The average 2022 plan Medicare Star Rating was 3.1[‡] out of 5 stars¹⁰



[‡]3.1 equates to 47% receiving testing or treatment within 6 months of a fracture.⁸

EHR Capabilities Can Help to Identify and Address At-Risk Patients

Clinical Champions within an organization can advocate for the configuration of EHR capabilities such as **Patient Reports, Reminders, Patient Communications, and PCP Communications** that can serve as automated methods to identify and address patients who may require post-fracture care follow-up.



IDENTIFY

Use criteria from the EHR to generate Patient List Reports identifying patients who may benefit from post-fracture follow-up care



EVALUATE

Use Discern Alerts to alert providers to evaluate patients for post-fracture care



ENGAGE

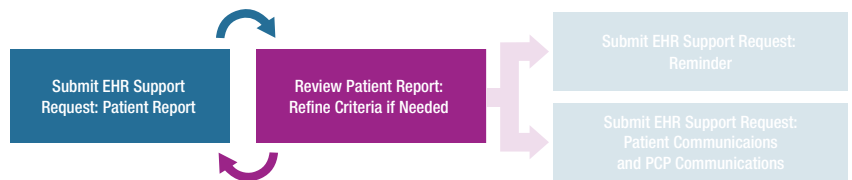
Use Patient Communications and Primary Care Provider (PCP) Communications to send targeted messages encouraging specific patients to seek post-fracture care

Actions for a Clinical Champion as Part of Bone Health Improvement Program



Patient Reports

Role of Patient Reports



Patient Reports are Cerner system reports that can be used to identify patients who may have experienced an osteoporotic fracture. A Cerner Patient Report can be created using Discern Analytics 2.0, and saved to the requester’s Reports folder for on-demand running or scheduling.

Patient Reports can be used to demonstrate and champion the need for post-fracture care follow-up within an organization. They can also be used for planning purposes to understand which patients could be flagged for Reminders, Patient Communications, and PCP Communications.

Clinical decision makers may refer to the [Appendix](#) for potential clinical parameters to consider when making a request to their EHR support team to create a Patient Report.

Patient at Risk for Future Fracture				
Current Selections				
Fields	Values			
Diagnosis	M84.30XA			
Patients -1,322				
Last Name	First Name	Sex	Encounter Date	Diagnosis
Smith	Mary	F	07/15/2020	M84.30XA
Jones	Donna	F	03/01/2020	M84.30XA
Washington	Jane	F	01/18/2020	M84.30XA
Lincoln	Thelma	F	12/09/2020	M84.30XA
Truman	Flo	F	02/12/2020	M84.30XA

Hypothetical example of a Patient Report

Discern Alerts

Role of Discern Alerts



Discern Alerts are messages displayed at the point of care to remind or flag providers to consider taking measures to identify osteoporotic fractures.

As part of an organization’s bone health EHR initiative, Discern Alerts can help proactively identify and intervene with at-risk patients when they come in for an appointment.

Reminders can be configured in a meaningful way which specifies the patient criteria, milestones within the EHR workflow, provider types (eg, care team member, Fracture Care Liaisons), and clinical action. Note that the 2020 AACE guidelines state that a DXA is not required for a diagnosis of osteoporosis when patients experience a low trauma fracture of the hip or spine.

Clinical decision makers may consider providing the following information to their EHR support team for their use in setting up a Reminder:

- Reminder topic name (eg, Postfracture care)
- Message included in reminder (eg, Based on previous fracture, this patient is at high risk for future fracture due to osteoporosis, according to the 2020 AACE guidelines)
- Message may include hyperlinks to important references
- Display Restrictions
- Clinical actions to take based on the reminder dependent on what is built in your system

Risk factor for future fracture

Based on previous fracture, this patient is at high risk for future fracture due to osteoporosis, according to the 2020 AACE guidelines.

Alert Action

<input type="radio"/> Order Metabolic Panel, Phosphorus, Calcium, Vitamin D	<input type="radio"/> Refer to Fracture Care Liaison or a Specialist Who Manages Osteoporosis
<input type="radio"/> Order DXA Scan	<input type="radio"/> Open Osteoporosis PowerPlan

OK

Hypothetical example of an Discern Alert

A link to a PowerPlan can be added to a Reminder. This allows clinical decision makers to select appropriate treatment options for the patient based on their determined criteria.

Patient Communications

Role of Patient Communications



Patient Communications are used to engage the patient for follow-up care. Messages can be letters sent either electronically via the HealthLife patient portal or by mail to all patients who have had an osteoporotic fracture without the appropriate follow-up evaluation. These communications are recorded in the patient's chart for reference.

Patient Communications can be used as the basis to proactively reach out to specified patients identified as part of an organization's bone health EHR improvement effort. The communication can indicate the reason for follow-up along with a call-to-action, such as to schedule an appointment for evaluation.

Clinical decision makers may consider providing the following information to their EHR support team for their use in configuring Patient Follow-ups:

- Patients to exclude
- Methods of communication
- Preferred language
- When to send and appropriate qualifier, for example, XX days after a previous fracture
- Reply Options, for example, call for an appointment or reply to this message to request an appointment
- Attachment Options
- Message to include to patients, for example,
 - [[Patient Name]]:
 - Preventive medicine plays an important part in your health and overall well-being. Given the risk factors for osteoporosis and your history of fracture, you may be at elevated risk for another fracture. It's important to schedule an appointment for follow-up evaluation and to discuss your bone health plan.
 - To schedule your bone health appointment, contact your specialist who manages osteoporosis or a post-fracture care program.
 - Sincerely,
 - [[Organization Name]]

Invitations														
	Schedule		Status		Export		View Documents		View History		Generate Communications		Find	Customize
Program: Post-Fracture Care Evaluation											Display: Patients			
Patients														
<input checked="" type="checkbox"/>	Consumer	Name	DOB	Tracking Status	Recommendation Status									
<input type="checkbox"/>		Mary Smith	4/6/1949	Qualified for Invitation										
<input checked="" type="checkbox"/>		Donna Jones	3/28/1967	Qualified for Invitation										
<input type="checkbox"/>		Jane Washington	4/23/1969	Qualified for Invitation										
<input type="checkbox"/>		Thelma Lincoln	6/18/1955	Qualified for Invitation										
<input type="checkbox"/>		Flo Truman	6/18/1955	Qualified for Invitation										
<input type="checkbox"/>		Elizabeth Robinson	5/12/1959	Qualified for Invitation										

Hypothetical example of a Health Maintenance Expectations List

Primary Care Provider Communications

Role of PCP Communications



PCP Communications are used to engage and advise the identified patient’s Primary Care Provider. For PCPs within the health system, message communications can be an internal Message Center letter. To reach PCPs outside of the health system, messages can be sent electronically as a Direct Message or fax. Much like a referral letter, these communications can be recorded in the patient chart.

PCP Communications can be used proactively reach out to the identified patient’s PCP as part of an organization’s bone health EHR improvement effort. The communication can indicate the reason for follow-up along with a call-to-action, such as to schedule an appointment for evaluation. Discharge plans can include an option to automatically send a message and appropriate documentation to the patient’s PCP.

Clinical decision makers may consider providing the following information to their EHR support team for their use in configuring PCP Communications:

- Patients to include
- Methods of communication
- When to send and appropriate qualifier, for example, XX days after a previous fracture

- Message to Primary Care Provider, for example,
 [[PCP Name]]:
 Regarding: [[Patient Name]], [[DOB: DOB]]
 We saw your patient at the ED on XX/XX/XXXX and treated them for a hip fracture. We recommend follow-up for possible osteoporosis for this patient. Follow-up may include a BMD scan and evaluation for additional treatment to reduce the possibility of a secondary fracture.
 For your review, we have attached pertinent information regarding their care at this facility.
 Sincerely,
 [[Facility contact information]]
- Attachments, for example, procedure notes or lab results

Manage Auto Text
⌵ □ ×

Abbreviation	Description	<input checked="" type="checkbox"/> Show Auto Text Notifications	<input checked="" type="checkbox"/> Show Advanced View
zbone			

Dynamic Documentation (HTML)
PowerNote/Clinical Notes/Message Center (RTF)

Tahoma ▾
Size ▾
🔊 📄 📋 ↶ ↷
B *I* U | A* ☰ ☷ ☹
📎

[Patient Full Name] [Birth Date]
 Dear [@SPECIALISTNAME@]
 I am writing this letter on behalf of my patient, [@PatientName@].
 Please note the patient’s condition as documented:

- **History of established bone health:**
[@MEDICALHISTORY@]
- **High risk of future fracture:**
[@CMEDNAMEONLY@]
- Current Medications:
[@CMEDNAMEONLY@]

 Please call my office at [@OfficePhoneNumber@] if any additional information is required.
 Sincerely,
 [@Physician’s Name@]

Convert to RTF >
< Convert to HTML

Save
Cancel

Example PCP Communications using Auto Text

A Bone Health Improvement Effort Can Use Automated EHR Solutions to Help Identify Patients Following an Osteoporosis-Related Fracture¹¹

Raise awareness of **low usage rates for testing and treatment among high-risk populations.**

Prioritize post-fracture care using EHR capabilities.

Identify a risk-stratified patient group that is most likely to benefit from a bone health intervention. Use **Patient Reports** capability to evaluate which inclusion and exclusion criteria will yield this viable patient group.



Evaluate BMD testing rates and medication use.

Further customize and determine additional or alternative inclusion/exclusion criteria to refine patient population to be targeted for **Reminders** and **Patient Communications.**

Identify at-risk patients when they come in for appointments by triggering a **Reminder.**

Proactively reach out to at-risk patients and their primary care providers using **PCP communications** and **Patient Communications.**

Appendix

Inclusion Criteria:

This inclusion criteria is provided as an example and all categories can be altered to meet health system protocols.

Patient age 50-85 years ⁹			
CATEGORY	VALUES		
Fractures/Diagnoses	Description	Diagnoses Codes ^{12,13,*}	SNOMED Codes ^{14,*}
Osteoporosis diagnoses	Age-related osteoporosis with current pathological fracture	M80.0-M80.8A	443165006 (parent)
	Age-related osteoporosis without current pathological fracture	M81.0	64859006
Fractures^{7, 15, 16}	Clinical vertebral (Spine and Pelvis)	S32.0-S32.9; M84.454	125608002 (parent-spine) 77493009 (parent-pelvis)
	Femur (Hip)	S72.0-S72.9 S79.0-S79.9; M84.45-M84.453; M84.459	71620000 (parent) 125600009
	Humerus/Clavicle	S42.0-S42.9; M84.42-M84.429	16250001000004107 (parent) 66308002 (parent)
	Radius/Ulna (forearm)	S52.0-S52.9; M84.43-M84.439	65966004 (parent) 263208005 (parent) 208388003 (parent) 20511007 (parent)
	Tibia/Fibula (including ankle)	S82.0-S82.9; M84.46-M84.469; M84.471-M84.473	414292006 (parent)
Patients who've had certain procedures⁷		CPT Code^{12,13,*}	
	DXA bone density scan	77080, 77081, 77085-77086	241686001
	Vertebral Fracture Assessment (VFA) via dual-energy x-ray absorptiometry (DXA)	77086	385690008
	Computed tomography, bone mineral density study, 1 or more sites; axial skeleton (eg, hips, pelvis, spine)	77078	22059005
	Bone strength and fracture risk using finite analysis of functional data and bone mineral density	0554T, 0555T, 0556T, 0557T	736955003
	Computed tomography scan taken for the purpose of biomechanical computed tomography analysis	0558T	71040008
	Trabecular bone score (TBS), structural condition of the bone microarchitecture; using dual X-ray absorptiometry (DXA) or other imaging data on gray-scale variogram, calculation, with interpretation and report on fracture-risk ¹⁷	77089	...
	Bone Mineral Density Studies	0508T, 0691T, 3095F-3096F, 76977-77078, 77080-77081, 78350-78351	312681000, 23572007, 82066000
	Vertebroplasty	22510-22512	401226007
	Kyphoplasty	22513-22515	431995006

*Codes are intended to guide provider efforts to identify patients potentially eligible for post-fracture follow-up. They are provided for reference purpose only and may not be all-inclusive. The responsibility to determine coverage and reimbursement parameters, and appropriate coding for a particular patient and/or procedure, is always the responsibility of the provider or physician.

Exclusion Criteria to Consider:

This exclusion criteria is provided as an example and all categories can be altered to meet health system protocols.

CATEGORY	VALUES		
Fractures/ Diagnoses	Description	Codes ^{9,12-15,*}	SNOMED Codes ^{12,13,16,*}
	Ostitis deformans [Paget's disease of bone]	M88.0-M88.9	2089002
	Pathological fracture of bone at site of neoplasm (disorder)	M84.5	203449003
	Pathological fracture of ankle at site of neoplasm (disorder)	M84.57, M84.571-M84.573	704255005
	Pathological fracture of bone of foot at site of neoplasm (disorder)	M84.57, M84.574-M84.576	704251001
	Pathological fracture of bone of hand at site of neoplasm (disorder)	M84.54	704250000
	Pathological fracture of shoulder (clavicle, scapula) at site of neoplasm (disorder)	M84.51	704254009, 704246007
	Pathological fracture of femur at site of neoplasm (disorder)	M84.55, M84.551-M84.553	704253003
	Pathological fracture of fibula at site of neoplasm (disorder)	M84.56, M84.563-M84.564	704252008
	Pathological fracture of humerus at site of neoplasm (disorder)	M84.52	704248008
	Pathological fracture of pelvis at site of neoplasm (disorder)	M84.55, M84.550	11307961000119106
	Pathological fracture of radius at site of neoplasm (disorder)	M84.53, M84.533-M84.534	704247003
	Pathological fracture of tibia at site of neoplasm (disorder)	M84.56, M84.561-M84.562, M84.569	704245006
	Pathological fracture of ulna at site of neoplasm (disorder)	M84.53	704244005
	Pathological fracture at site of neoplasm, other specified sites (disorder)	M84.58	11311681000119101
	Finger	M84.44	18171007
	Toe	M84.47	21351003
Skull	M84.48	71642004	
Face	S02-S02.9	157176002	
Patients who've had certain procedures ⁷		CPT Code ^{12,13,*}	
	DXA bone density scan	77080, 77081, 77085-77086	241686001
	Vertebral Fracture Assessment (VFA) via dual-energy x-ray absorptiometry (DXA)	77086	385690008
	Computed tomography, bone mineral density study, 1 or more sites; axial skeleton (eg, hips, pelvis, spine)	77078	22059005
	Bone strength and fracture risk using finite analysis of functional data and bone mineral density	0554T, 0555T, 0556T, 0557T	736955003
	Computed tomography scan taken for the purpose of biomechanical computed tomography analysis	0558T	71040008
	Trabecular bone score (TBS), structural condition of the bone microarchitecture; using dual X-ray absorptiometry (DXA) or other imaging data on gray-scale variogram, calculation, with interpretation and report on fracture-risk ¹⁷	77089	...
	Bone Mineral Density Studies	0508T, 0691T, 3095F-3096F, 76977-77078, 77080-77081, 78350-78351	312681000, 23572007, 82066000
	Vertebroplasty	22510-22512	401226007
	Kyphoplasty	22513-22515	431995006

*Codes are intended to guide provider efforts to identify patients potentially eligible for post-fracture follow-up. They are provided for reference purpose only and may not be all-inclusive. The responsibility to determine coverage and reimbursement parameters, and appropriate coding for a particular patient and/or procedure, is always the responsibility of the provider or physician.

Exclusion Criteria to Consider (cont):

This exclusion criteria is provided as an example and all categories can be altered to meet health system protocols.

CATEGORY	VALUES
Patients with upcoming bone-health appointments, for example, bone density scan	
Appointment type (Use the locally preferred health system appointment type)	
Patients who have had a documented discussion about a BMD study or osteoporosis medication	Discussion may be documented via a visit note, patient education, or referral. Documentation could occur using SmartText, SmartLink, or Notewriter template.

References: **1.** Hansen D, Bazell C, Pelizzari P, Pyenson B. Milliman Research Report. <https://www.milliman.com/en/insight/medicare-cost-of-osteoporotic-fractures-2021-updated-report>. Accessed August 17, 2022. **2.** King AB, Fiorentino DM. Medicare payment cuts for osteoporosis testing reduced use despite tests' benefit in reducing fractures. *Health Aff (Millwood)*. 2011;30:2362-2370. **3.** U.S. Department of Health and Human Services. Bone Health and Osteoporosis: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Office of the Surgeon General, 2004. **4.** Boytsov NN, Crawford AG, Hazel-Fernandez LA, et al. Patient and provider characteristics associated with optimal post-fracture osteoporosis management. *Am J Med Qual*. 2017;32:644-654. **5.** van Geel TACM, van Helden S, Geusens PP, Winkens B, Dinant G-J. Clinical subsequent fractures cluster in time after first fractures. *Ann Rheum Dis*. 2009;68:99-102. **6.** Orwig DL, Chan J, Magaziner J. Hip fracture and its consequences: differences between men and women. *Orthrop Clin N Am*. 2006;37:611-622. **7.** Camacho PM, Petak SM, Binkley N, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines for the diagnosis and treatment of postmenopausal osteoporosis—2020 update. *Endocr Pract*. 2020;26(supp1):1-46. **8.** Centers for Medicare and Medicaid. 2022 Part C & D Star Ratings Technical Notes. <https://www.cms.gov/files/document/2022-star-ratings-technical-notes-oct-4-2022.pdf>. Accessed August 17, 2022. **9.** Centers for Medicare and Medicaid. Quality ID #418 (NQF 0053): Osteoporosis management in women who had a fracture. https://qpp.cms.gov/docs/QPP_quality_measure_specifications/Claims-Registry-Measures/2020_Measure_418_MedicarePartBClaims.pdf. Accessed August 17, 2022. **10.** Centers for Medicare and Medicaid. Fact Sheet 2022 Part C and D Star Ratings. <https://www.cms.gov/files/document/2022-star-ratings-fact-sheet1082021.pdf>. Accessed May 17, 2022. **11.** Chow S. Health information technology is transforming osteoporosis care management. *CareManagement*. December 2017/January 2018:12-17. **12.** Medical billing codes search. Codify by AAPC. <https://www.aapc.com/codes/code-search/>. Accessed June 24, 2022. **13.** Hansen D, Bazell C, Pelizzari P, Pyenson B. Milliman Research Report: Supplement. <https://www.milliman.com/en/insight/medicare-costof-osteoporotic-fractures-2021-updated-report>. Accessed August 17, 2022. **14.** Health terminology code search. SNOMED CT Browser: National Library of Medicine. <https://browser.ihtsdotools.org/>. Accessed August 11, 2022. **15.** LeBoff M, Greenspan S, Insogna K, et al. The clinician's guide to prevention and treatment of osteoporosis. *Osteoporos Int*. 2022 Jul 28. **16.** Balasubramanian A, Zhang J, Chen L, et al. Risk of subsequent fracture after prior fracture among older women. *Osteoporos Int*. 2019;30:79-92. **17.** Trabecular Bone Score Reimbursement Guide 2022. Medimaps Group. Published January 1, 2022. <https://www.medimapsgroup.com/doc/trabecular-bone-score-reimbursement-guide/>. Accessed August 17, 2022.