

CLINICAL PATHWAY

Musculoskeletal Health



Vertebral Fragility Fracture



CHRISTIANA CARE
HEALTH SYSTEM

Vertebral Fragility Fracture

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INTRODUCTION

To establish a health system-wide approach in providing evidence- and value-based care to patients who have sustained a vertebral fragility fracture (VFF), this pathway starts with identification of a vertebral fracture and provides a well-defined path to efficiently navigate the patient through the health system with appropriate referrals and an optimized treatment plan.

Key Points of the Vertebral Fragility Fracture Pathway

- For every vertebral fragility fracture, transition of bone health care from the inpatient to outpatient provider will be coordinated by the [Strong Bones](#) Nurse Navigator.
- Recommend consultation to the [Strong Bones](#) service for every new vertebral fragility fracture admission for coordination of bone health management at the time of hospitalization.
- Pathway emphasis is osteoporosis treatment and education to prevent further fractures. A focus on surgical intervention is minimized.
- Immediate spine consultation would be an unnecessary utilization of resources if spinal pain can be adequately controlled and ADL function maintained with conservative measures (pain regimen, back bracing, etc.).
- In the inpatient setting, if the patient's pain is uncontrolled and ADLs are severely impaired, potentially leading to an unsafe discharge to their home, then surgical evaluation would be warranted for consideration of vertebral augmentation procedure.



- In the outpatient setting, if the patient's pain remains severe and refractory for >2-3 weeks despite an adequate pain regimen, spine surgery evaluation can be considered for consideration of vertebral augmentation procedure.

Scope of this Pathway

This pathway is for patients with both acute and chronic vertebral fragility fractures identified by:

1. ER/hospital presentation with a vertebral compression fracture.
2. Identification of acute or chronic compression fracture by PCP or other provider on routine X-ray/CT/MR spinal imaging.

Pathway Contacts

The content of this pathway is developed and maintained by the Musculoskeletal Health service line of Christiana Care Health System. Questions or feedback about the content may be directed to:

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CLINICAL PATHWAY

Patients presenting to the ED with newly identified vertebral compression fragility fracture

1. Stable patients can be discharged home with a pain control regimen until seen by PCP. Timely follow-up with the PCP or other provider for post fracture osteoporosis care is key.
2. Automated patient ED discharge instructions will be generated using Exit Care, at the time of discharge, outlining the following (currently being developed by the Strong Bones program). Items to be addressed on the document:
 - A. Osteoporosis diagnosis and a review of the risk for fracture at other sites.
 - B. Discussion of the importance of timely outpatient follow-up with an osteoporosis provider to coordinate bone density screening and start appropriate treatment.
 - C. Informing the patient that a representative from Christiana Care (Strong Bones Nurse Navigator) will contact the patient to help them coordinate outpatient provider follow-up.
3. Coordinated communication for post ED follow-up is key to provide baseline bone density scanning and start appropriate osteoporosis treatment. This would be addressed as follows:
 - A. Strong Bones referral is automatically generated through an ICD 10 code tag. This eliminates missed referrals by not requiring a physician to manually order a referral.
 - B. Within 24 hours, a Strong Bones Nurse Navigator will contact the patient at home to coordinate osteoporosis care follow-up with their PCP or, if the primary care provider prefers, to establish the patient with a Strong Bones network provider for post fracture osteoporosis management. Weekend referrals would be addressed the next workday.



- C. The Nurse Navigator will provide communication with the assumed outpatient provider outlining the fracture case.
- D. Other responsibilities of the Nurse Navigator during this patient contact.
 1. Provide education on the importance of osteoporosis follow-up to coordinate bone density screening and start outpatient osteoporosis treatment.
 2. Mail a Strong Bones packet containing information about osteoporosis, including:
 - a. Smoking cessation information and referral programs.
 - b. Fall prevention.
 - c. Vitamin supplementation recommendations based on National Osteoporosis Foundation guidelines.

Challenges

- Ultimately, post-fracture outpatient care will rely on patients establishing follow-up care. The Nurse Navigator outreach will be a resource to establish importance, expedite, and hopefully clarify coordination of the outpatient follow-up.
- Many post-fracture patients are discharged to nursing homes or other outpatient facilities, making contact difficult.



Patients admitted with vertebral compression fragility fracture

1. Admission considerations for an acute vertebral compression fracture are outlined below.
2. Establish a pain control regimen at the time of DC by the primary inpatient provider.
3. Obtain PT and OT consults to determine the mobility/ability to perform ADLs of the patient.
4. Automatic spine consultation is not required and would be an unnecessary utilization of resources if spine pain can be adequately controlled and ADL function maintained with conservative measures.
5. Immediate spine consultation should be obtained in any patient with neurologic deficit, myelopathy or spinal cord compression/instability on radiographic studies.
6. Consideration of spine consultation in patients with severe enough spinal pain to limit ADL performance as defined as reduced ability to ambulate and perform ADLs due to vertebral fracture pain and if not treated with vertebral augmentation would otherwise require a change in living environment (i.e. patient that normally lives at home requiring inpatient rehab, or a patient in an assisted living facility needing to go to inpatient rehab).
7. Inpatient Strong Bones referral for coordination of osteoporosis medical management and post-discharge outpatient follow-up.
 - A. A Strong Bones nurse practitioner inpatient referral by the hospitalist or other inpatient primary provider. The referral would provide the following intervention:
 1. Education on osteoporosis including importance of outpatient bone density testing and establishing treatment.
 2. Provide a Strong Bones education packet.
 3. Order appropriate labs. A Fragility Fracture Panel order set is already established.



4. Identify osteoporosis risk factors (i.e. high-risk drugs, smoking, prior fracture history) to communicate with the outpatient osteoporosis provider.
 5. Establish whether a patient is a fall risk.
 - a. Coordination with PT for gait assessment and appropriateness of assistive device and back bracing.
 - b. Coordination of home PT or skilled nursing for home safety evaluation.
 6. With assistance with the nurse navigator, coordinate outpatient follow-up with the patient and PCP, other osteoporosis provider, or with a Strong Bones network provider if necessary.
 7. Provide patients with a prescription for an outpatient bone density scan. Results would be forwarded to the patient's primary care physician.
 8. Documentation of visits outlining the above.
8. Admitted patients, in which a Strong Bone inpatient consult is not obtained, will still have the opportunity for Strong Bones contact through the nurse navigator through post discharge follow-up (outlined in V.3)

Challenges

- Patient capture relies on the hospitalist or other primary inpatient provider to manually consult the Strong Bones program. Education of this referral resource to admitting physicians (most likely the hospitalist) is key to optimize the number of Strong Bones inpatient consults.
- Nurse practitioner coverage is limited to the weekday only. Weekend and holiday admissions and discharges are potential patient capture losses.
- Current resources are limited to a Strong Bones Nurse Navigator and Nurse Practitioner, who may be overloaded if the patient population exceeds current resources.



Patients identified outpatient with a compression vertebral fracture

1. If the provider wishes to defer post-fracture osteoporosis treatment to a specialist, referral to the Strong Bones program would provide a coordinated approach to establish with a Strong Bones network provider.
 - A. Primary referral contact would be the Strong Bones Nurse Navigator and Nurse Practitioner who would coordinate the appropriate specialist follow-up and also coordinate bone density testing.
 1. A Strong Bones referral option already exists in Centricity.
 2. Referral through the Centricity ECOMM tool would be an alternative option.
2. If the PCP wishes to manage post-fracture osteoporotic care, the following resources will be available:
 - A. Referral to the Strong Bones program will still be a resource specifically for education opportunities from the Nurse Navigator. Helping to coordinate bone density testing with the patient, if ordered by the PCP, can also be a potential benefit.
 - B. A Strong Bones ECOMM tool already established for EMR communication with a Strong Bones provider.
 - C. Access to care management guidelines for postvertebral compression fracture osteoporosis treatment. Osteoporosis treatment guidelines have already been developed by the Bone Health Advisory Committee at Christiana Care.



Challenges

- Disseminating the Strong Bones referral resource information as outlined above to the outpatient community.
- Referrals will likely be limited to outpatient providers who utilize Centricity.

Role of vertebral augmentation

1. Evidence for surgical intervention is mixed with kyphoplasty having some limited evidence of short-term pain improvement when performed for acute vertebral compression fractures. The importance of the surgical intervention has been downplayed by the American Academy of Orthopedic Surgeons given the mixed evidence for the procedures. Regardless, Christiana Care still performs a significant number of these procedures every year.
2. The majority of vertebral compression fractures will have improvement in spinal pain with conservative treatment (i.e. pain control and time) and not require spinal surgery evaluation and intervention. The primary focus of treatment in these patients would be medical management with appropriate osteoporosis treatment to prevent further fractures. Surgical intervention should not be an immediate response to an acute fracture.
3. Any patient with neurologic deficit, myelopathy or spinal cord compression/instability on radiographic studies requires an immediate spine consultation.
4. In patients with severe refractory spinal pain, despite conservative, non-surgical intervention, for a minimum of 2-3 weeks, further testing to determine the acuity of the fracture should be considered. An MRI with STIR images will better ascertain the acuity of the fracture. If the patient is not eligible for MR, a CT or bone scan will provide this information as well.
5. Surgical intervention would be considered in the minority of patients who have severe refractory spinal pain for a minimum of 2-3 weeks due to a



compression vertebral fracture despite optimization of conservative interventions.

6. Surgical intervention can be considered in individuals with disability defined as having any of the following: Difficulty with ADLs, difficulty with independent activities, and/or difficulty with standing/walking, despite 2-3 weeks of conservative management.
7. Whenever appropriate, spine surgery should direct/conduct any surgical treatment or percutaneous vertebral augmentation. Kyphoplasty would be favored over vertebroplasty for percutaneous vertebral augmentation.

Admission considerations for vertebral compression fractures

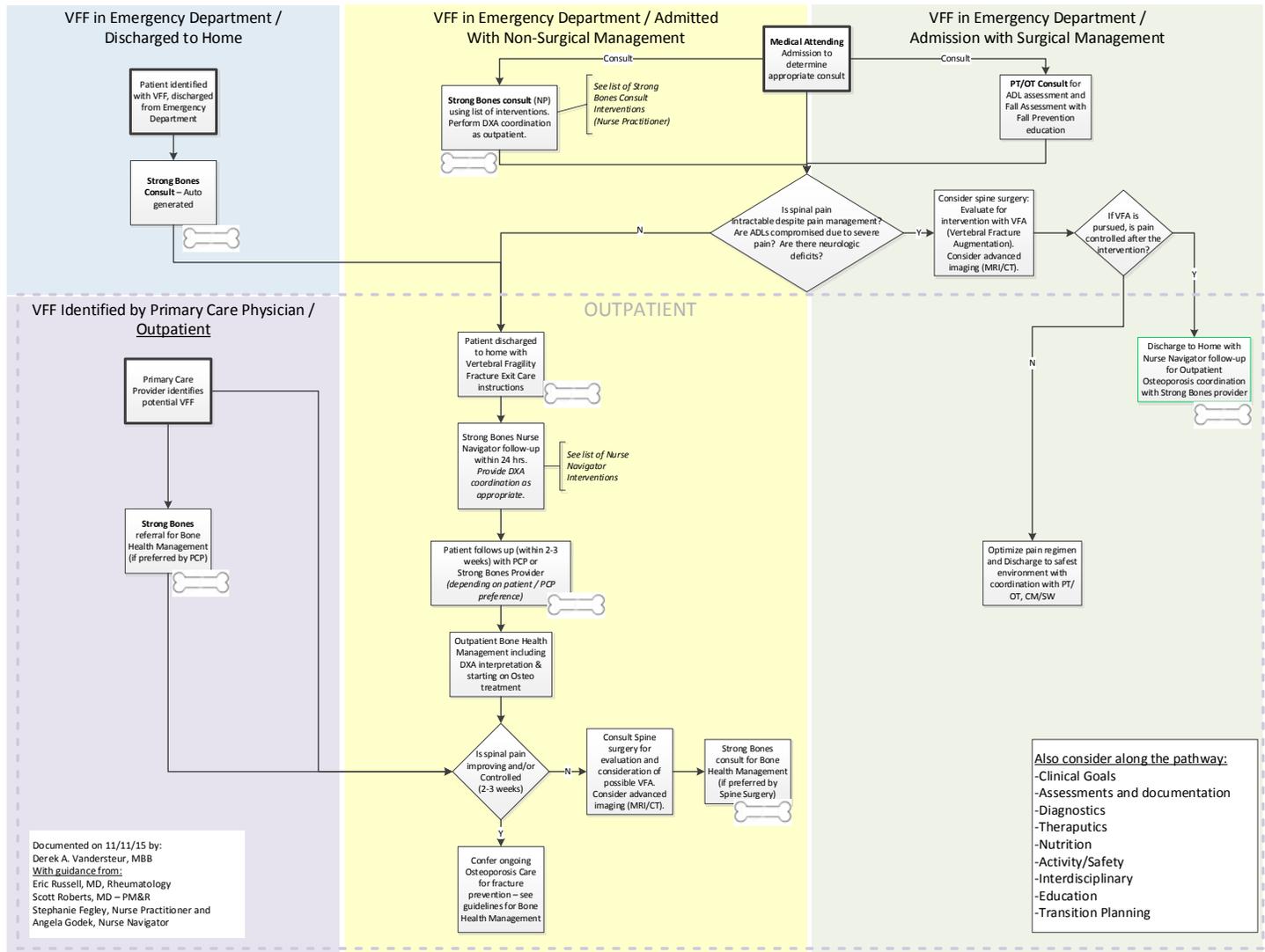
1. The majority of new vertebral compression fractures will have improvement in spinal pain with appropriate pain management and time. Many of these patients can be discharged home with appropriate follow-up for outpatient osteoporosis care and pain management by their PCP or other osteoporosis provider.
2. Consideration of admission for an acute vertebral compression fracture would include:
 - A. Severe spinal pain that is would be difficult to manage at home until follow-up by the patients PCP.
 - B. Neurologic compromise related to the new fracture that would necessitate neurosurgical evaluation in an expedited manner.
 - C. Uncertainty if the spinal pain is related to an acute fracture. Further imaging may be needed to determine whether the fracture is acute or chronic.
 - D. Uncertainty if the new fracture is specifically due to osteoporosis. Further imaging may be necessary if there is concern for other causes such as multiple myeloma.



PATHWAY ALGORITHMS

ALGORITHM 1: CARE FOR PATIENTS WITH VERTEBRAL FRAGILITY FRACTURE (VFF)

CLINICAL PATHWAY FOR PATIENTS WITH VERTEBRAL FRAGILITY FRACTURE (VFF)



ALGORITHM 2: REFERENCE FOR PATIENTS WITH VERTEBRAL FRAGILITY FRACTURE (VFF)

*Strong Bones Consult Interventions
(Nurse Practitioner)*

- Inpatient Strong Bones referral for coordination of osteoporosis medical management and post discharge outpatient follow-up.
- A Strong Bones nurse practitioner inpatient referral by the hospitalist or other inpatient primary provider. The referral would provide the following intervention.
 - Education on osteoporosis including importance of outpatient bone density testing and establishing treatment.
 - Provide a Strong Bones education packet.
 - Order appropriate labs –a Fragility Fracture Panel order set is already established.
 - Identify osteoporosis risk factors (i.e. high risk drugs, smoking, prior fracture history) to communicate with the outpatient osteoporosis provider
 - Establish whether a patient is a fall risk
 - Coordination with PT for gait assessment and appropriateness of assistive device and back bracing.
 - Coordination of home PT or skilled nursing for home safety evaluation
 - Coordinate outpatient follow-up with the patient and PCP, other osteoporosis provider, or with a Strong Bones network provider if necessary.
 - Provide patients with a prescription for an outpatient bone density scan. Results would be forwarded to the patient’s primary care physician.
 - Documentation of visits outlining the above.

Strong Bones Nurse Navigator Interventions

- Within 24 hours, a Strong Bones Nurse Navigator will contact the patient at home to coordinate osteoporosis care follow-up with their PCP or, if the primary care provider prefers, to establish the patient with a Strong Bones network provider for post fracture osteoporosis management. Weekend referrals would be addressed the next workday.
- The Nurse Navigator will provide communication with the assumed outpatient provider outlining the fracture case.
- Other responsibilities of the Nurse Navigator during this patient contact.
 - Provide education on the importance of osteoporosis follow-up to coordinate bone density screening and start outpatient osteoporosis treatment.
 - Mail a Strong Bones packet containing information about osteoporosis, including:
 - Smoking cessation information and referral programs.
 - Fall prevention
 - Vitamin supplementation recommendations based on National Osteoporosis Foundation guidelines



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THE CHRISTIANA CARE WAY

We serve our neighbors as respectful, expert, caring partners in their health. We do this by creating innovative, effective, affordable systems of care that our neighbors value.



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