Development and Implementation of a Fracture Liaison Service at a High Performing Regional Community Health Network Hospital.

Steven Baltic

USF MCOM-LVHN Campus, Steven.Baltic@lvhn.org

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Introduction/Background

Data for the year 2000 has shown 9 million fragility fractures worldwide accounted for 0.83% of the economic burden from all non-communicable diseases. Nearly 20% of men and 30% of women over the age of 50 will sustain a low impact traumatic fracture through their lifetime. The increase in the aging population of developing nations all but assures the growing financial and health care burden. Over 2 million fragility fractures occurred in 2005 and accounted for nearly $17 billion in cost to the US healthcare system. Patients who have experienced fragility fractures are at an even greater risk of subsequent fracture compared to their age-adjusted counterparts. Some 16% of patients over 50 who have experienced a low impact hip fracture account for almost 50% of all hip fracture cases. LVHN has treated 248 hip fractures within the last 7 months and it is also well known that patients who sustain fragility fractures, especially hip fractures, are at greater risk to experience severe morbidity and even mortality. However, medical management has shown to decrease the risk for subsequent fractures in osteoporotic patients and is the mainstay of treatment for fragility fractures and osteoporosis. LVHN and the surrounding community is not different from the rest of the world and other areas of the United States in that they have a growing elderly population who are at risk for osteoporotic fractures. The health network does not currently have an organized and effective Fracture Liaison Service (FLS). A meta-analysis study suggests a coordinator-based Fracture Liaison Service is the best model to adequately identify patients for secondary prevention of fractures after experiencing an initial fragility fracture. The International Osteoporosis Foundation and American Orthopedic Association advocate for better care by secondary prevention of subsequent fractures with their campaigns “Capture the Fracture” and “Own the Bone”, respectively. These available resources and the FLS are not currently utilized at this institution.

Problem Statement

What structure for a Fracture Liaison Service is recommended by current research to identify patients as having fragility fractures for follow-up and treatment for the secondary prevention of subsequent fractures at a Regional Community Hospital?

Methodology

Background information was obtained on current status of the LVHN fragility clinic and osteoporosis clinic for the purpose of a prospective quality improvement data collection. It was determined that the scope of this research project would be quality improvement and not needing IRB approval. A literature search on “Fracture Liaison Service” and “Economic Burden of Fractures”. Information was also taken from the International Osteoporosis Foundation (IOF) and their “Capture the Fracture” literature, as well as the American Orthopaedic Association (AOA) and their “Own the Bone” program.

Results

Research coming from the US on FLS has come from Wake Forest and championed by Anna Miller, MD and Anne Lake, DNP. According to Lake and Miller, an “FLS is a coordinated care model of multiple providers who help guide the patient through osteoporosis management after a fragility fracture to help prevent future fractures.” Based on the current understanding in the literature, the development and implementation should include the following:

- Invest / Enroll in Own the Bone™ program from American Orthopaedic Association, compassionate, integrated, and culturally sensitive patient-centered care.
- Identify an orthopaedic surgeon and a hospitalist to champion the FLS
- Develop a business plan for the FLS that includes a single referral service (orthopaedic) first
- Identify / hire a nurse navigator and FLS coordinator who is an advanced provider
- Grow to encompass referrals for all network patients with fragility fractures (fig 1)

Table 1. Costs and Benefits of Fracture Liaison Service (FLS) Implementation

<table>
<thead>
<tr>
<th>FLS Costs</th>
<th>FLS Benefits</th>
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<tbody>
<tr>
<td>Salary and employee benefits for FLS coordinator and nurse navigator</td>
<td>Cost savings from a reduction in the number of secondary fractures</td>
</tr>
<tr>
<td>Office space</td>
<td>Incremental increases in office visits if current fee-for-service model used</td>
</tr>
<tr>
<td>Advertising costs</td>
<td>Additional income from laboratory, radiology, and pharmacy services</td>
</tr>
<tr>
<td>Educational materials for patients</td>
<td>Quality measurements and reporting to avoid financial penalty</td>
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Figure 1. Algorithm for patient referral and recruitment to a fracture liaison service (FLS). PCP = primary care practitioner, and FX = fracture.

Conclusions and Future Implications

The economic burden for Lehigh County due to fragility fractures in 2025 will be $5.7 billion. Although there are clear costs and benefits (table 1), it is one of LVHN’s goal to reduce admissions and the economic burden on the healthcare system and local community. With the economic burden of fragility fractures to be projected to be $759 million annually by the year 2025 for the state of Pennsylvania, this is a definite area where LVHN can play a role to ease this burden and provide quality values-based care for the local community.

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