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***Fracture Liaison Service***

***Generic Business Plan Template***

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**Executive Summary**

**Fracture Liaison Services improve quality of care and save costs by reducing unscheduled emergency admissions for hip fractures and the incidence of other fractures caused by osteoporosis**

* **XXX** patients from [**Insert locality/healthcare system**] presented with a hip fracture to [**Insert hospital(s)/facility**] in year **20ZZ** incurring an annual cost of **$(Y)Y,YYY,YYY**
* Half of hip fracture patients suffer a fracture of the wrist, shoulder, humerus, hip or other skeletal sites prior to breaking their hip[1-4](#_ENREF_1)
* FDA-approved osteoporosis treatments have the potential to reduce secondary hip fracture incidence by up to 50 percent if initiated when patients present to hospital with their first fracture caused by osteoporosis[5-15](#_ENREF_5)
* National guidance in the United States calls for routine assessment and osteoporosis treatment, where appropriate, for patients that have suffered fractures caused by osteoporosis[16](#_ENREF_16), [17](#_ENREF_17)
* Numerous surveys conducted in the United States at the national level[18-22](#_ENREF_18), regional and healthcare system level[23-30](#_ENREF_23), and in individual organizations[4](#_ENREF_4), [31-50](#_ENREF_31) have reported a significant and persistent secondary fracture prevention care gap
* Medicare Advantage’s Five Star Quality Rating System currently includes one osteoporosis process measure: *Osteoporosis Management: Osteoporosis management in women who had a fracture*[51](#_ENREF_51). The State of Health Care Quality 2012 report from the National Committee for Quality Assurance (NCQA) provides data on this Healthcare Effectiveness Data and Information Set (HEDIS®) osteoporosis measure[18](#_ENREF_18):
  + In 2011, among female Medicare beneficiaries aged 67 years and older, the proportion who had either a bone mineral density test, or prescription for a drug to treat or prevent osteoporosis in the six months after the fracture, was 22.8% (HMO) and 19.3% (PPO). These data show little change compared to 2007 at 20.4% (HMO) and 17.8% (PPO).
  + The proportion of fracture patients aged **XX** and over who presented with fractures to [**Insert hospital(s)/facility**] in year **20ZZ** was **XY%**
* Fracture Liaison Services (FLS) programs have been recognized by the U.S. Surgeon General[52](#_ENREF_52), the American Orthopaedic Association[21](#_ENREF_21), [53](#_ENREF_53), the American Academy of Orthopaedic Surgeons[54](#_ENREF_54), the American Society for Bone and Mineral Research[17](#_ENREF_17), the National Osteoporosis Foundation and the National Bone Health Alliance[55](#_ENREF_55), and analogous groups throughout the world[56-69](#_ENREF_56), as the optimal model of care to reliably deliver secondary preventive care for patients suffering fractures caused by osteoporosis
* Successful FLS programs have been established in the United States[21](#_ENREF_21), [53](#_ENREF_53), [70-75](#_ENREF_70) in both open and closed systems as well as many other countries[76-100](#_ENREF_76) which have substantially reduced the incidence of hip and other fractures caused by osteoporosis and significantly reduced costs. [**Insert name of hospital(s)/facility**] does not have a FLS program as of [**MM-DD-YYYY**]
* Implementation of a FLS program at [**Insert name of hospital(s)/facility**] could prevent **XYZ** hip fractures over a **X** year period resulting in **$UUU,UUU** income generation for the hospital and savings to Medicare of **$T,TTT,TTT**
* These estimates are conservative because FLS will also reduce the incidence of fractures caused by osteoporosis at skeletal sites other than the hip

**This business plan makes the case for *urgent* implementation of a Fracture Liaison Service, structured in accordance with successful models from elsewhere, to reduce the incidence of hip and other fractures caused by osteoporosis amongst the older people we serve and reduce healthcare costs**

**The need for a Fracture Liaison Service in [Insert locality/healthcare system]**

**Hip fractures impose a significant burden on patients and Medicare**

In 2005, 2 million fractures caused by osteoporosis occurred in the United States resulting in annual costs of $17 billion[101](#_ENREF_101). The 300,000 hip fractures cost $12 billion alone. By 2025, it is estimated the number of fractures will exceed 3 million cases annually, at a cost of $25 billion. More than 90% of hip fractures occur in patients age 65 and over, so the majority of associated costs are borne by Medicare. Given that the 76 million baby boomers began to retire in 2011, hip fractures will continue to exert an enormous burden on the U.S. healthcare system and older Americans.

The 2004 Surgeon General’s Report on Bone Health and Osteoporosis commented on the tremendous impact osteoporosis has upon the individual[52](#_ENREF_52):

‘... *(the) statistics really take on meaning when examining what they mean for individuals. In fact, osteoporosis and other bone diseases have a profound impact on those individuals who suffer from them and on their families*.’

The Report highlighted several key issues including:

* **Premature death:** 9 out of every 100 women with a hip fracture will die prematurely as a result of the fracture[102](#_ENREF_102). One in four hip fracture sufferers will die within a year of their fracture[103](#_ENREF_103).
* **Morbidity, Levels of Disability, and Functional Status:** Two-thirds of hip fracture patients do not return to their previous level of function[104](#_ENREF_104). Notably, hip fracture patients are just as likely as stroke sufferers to have impaired ambulation and other functional deficits[105](#_ENREF_105).
* **Impact on emotional state:** According to a National Osteoporosis Foundation survey, 89% of women who had already had a fracture caused by osteoporosis fear breaking another bone; 80% are afraid that they will be less able to perform their daily activities; 80% fear losing their independence[106](#_ENREF_106).

**Half of hip fracture patients give advance notice ... and an obvious opportunity for prevention**

***Fracture begets fracture***, as illustrated by the ‘fracture cycle’ in figure 1; the optimal outcomes are indicated for the various patient groups. Studies from the United States[1](#_ENREF_1), [4](#_ENREF_4), Australia[2](#_ENREF_2) and the UK[3](#_ENREF_3) have all demonstrated that approximately half of hip fracture patients suffer a fracture caused by osteoporosis at another skeletal site prior to breaking their hip.Among women over 50 years of age, approximately one sixth of the population has a history of fracture caused by osteoporosis[58](#_ENREF_58), [107](#_ENREF_107), as do a smaller proportion of men. These data indicate the major opportunity afforded by secondary fracture prevention strategies. By responding to the first fracture, we can and should reduce the likelihood of the occurrence of second and subsequent fractures, particularly of the hip[17](#_ENREF_17), [55](#_ENREF_55), [56](#_ENREF_56), [58](#_ENREF_58).

**FDA-approved treatments can halve secondary fracture incidence**

A broad choice of FDA-approved treatments are available to treat osteoporosis which can be taken as daily[5](#_ENREF_5), [7-12](#_ENREF_7), weekly[108](#_ENREF_108), [109](#_ENREF_109) or monthly tablets[110](#_ENREF_110), [111](#_ENREF_111), or as daily[13](#_ENREF_13), quarterly[112](#_ENREF_112), semi-annual[6](#_ENREF_6) or annual injections[14](#_ENREF_14), [15](#_ENREF_15). These agents have been shown to reduce the incidence of fractures by up to 50 percent, and fracture reduction efficacy of 50% has been observed for patients with a history of multiple fractures[113](#_ENREF_113). A growing body of evidence also suggests that osteoporosis treatment is associated with reduced mortality[15](#_ENREF_15), [114-117](#_ENREF_114).

**Targeting secondary fracture prevention care to patients age 50 and over who present to hospital with fractures provides a means for early intervention for half of individuals who will otherwise break their hip in the future.**

***Figure 1: Fracture begets fracture: The ‘fracture cycle’ experienced by sufferers of osteoporosis***



**Secondary fracture prevention: A nationwide care gap**

Numerous surveys conducted in the United States at the national level[18-22](#_ENREF_18), regional and healthcare system level[23-30](#_ENREF_23), and in individual organizations[4](#_ENREF_4), [31-50](#_ENREF_31) have reported a significant and persistent secondary fracture prevention care gap.

Medicare Advantage’s Five Star Quality Rating System currently includes one osteoporosis process measure: *Osteoporosis Management: Osteoporosis management in women who had a fracture*[51](#_ENREF_51). The State of Health Care Quality 2012 report from the National Committee for Quality Assurance (NCQA) provides data on this Healthcare Effectiveness Data and Information Set (HEDIS®) osteoporosis measure[18](#_ENREF_18):

* In 2011, among female Medicare beneficiaries aged 67 years and older, the proportion who had either a bone mineral density test, or prescription for a drug to treat or prevent osteoporosis in the six months after the fracture, was 22.8% (HMO) and 19.3% (PPO). These data show little change compared to 2007 at 20.4% (HMO) and 17.8% (PPO).

The proportion of fracture patients aged **XX** and over who presented with fractures to [**Insert hospital(s)/facility**] in year **20ZZ** was **XY%.**

The care of patients who have suffered a fracture caused by osteoporosis has been characterized as a ‘Bermuda Triangle’ comprised of surgeons, primary care physicians and osteoporosis experts into which the fracture patient disappears[118](#_ENREF_118). A number of international studies have sought to establish why the care gaps exists[119-121](#_ENREF_119). Common themes evident in all of these studies:

* Cost concerns relating to diagnosis and treatment
* Time required for diagnosis and case-finding
* Concerns relating to poly-pharmacy
* **Lack of clarity regarding where clinical responsibility resides**

**While both surgeons and primary care doctors believe that osteoporosis assessment of fracture patients is important, neither routinely do it nor routinely treat even if an assessment has been done.**

**Fracture Liaison Service Programs: A proven system to close the secondary prevention care gap**

**Definition of a Fracture Liaison Service:** A Fracture Liaison Service (FLS) is a system to ensure fracture risk assessment, and treatment where appropriate, is delivered to all patients with fractures caused by osteoporosis. An FLS is usually comprised of a dedicated case worker, often a Nurse Practitioner or other allied healthcare professional, who works to pre-agreed protocols to case-find and assess fracture patients. An FLS is usually based in hospital and requires support from a medically qualified practitioner. The structure of a hospital-based FLS is illustrated in Figure 2.

Figure 2. The structure of a hospital-based Fracture Liaison Service



\* Older patients, where appropriate, are identified and referred for falls assessment

(adapted from *The care of patients with fragility fracture*[*66*](#_ENREF_66)*)*

**FLS is clinically and cost-effective:** Successful FLS programs have been established in the United States[21](#_ENREF_21), [53](#_ENREF_53), [70-75](#_ENREF_70) and many other countries[76-100](#_ENREF_76) which have substantially reduced the incidence of hip and other fractures caused by osteoporosis and significantly reduced costs.

[The business plan authors may choose to insert one or more of the case studies on successful U.S. FLS programs described below]

**The American Orthopaedic Association “Own the Bone” Program**

The American Orthopaedic Association’s (AOA) “Own the Bone” program, in operation since 2009, is the only national FLS secondary fracture prevention quality improvement initiative in the open healthcare system. Own the Bone was designed to address the osteoporosis treatment gap and prevent secondary fragility fractures. It aims to:

* Increase overall awareness and improve utilization of evidence-based management of osteoporosis and low bone density in fragility fracture patients age 50 years and older
* Change physician and patient behavior to reduce the incidence of future fractures and improve patient care by promoting bone health
* Encourage clinicians to identify, evaluate, diagnose, and treat patients with poor bone health after a fragility fracture
* Close the treatment gap documented in the RAND[124](#_ENREF_124) and NCQA[125](#_ENREF_125) studies
* Capitalize on the ‘Teachable Moment’ after a fracture

Own the Bone is currently being implemented by more than 120 teaching hospitals, community hospitals, medical centers and private practice groups. Own the Bone has achieved statistically significant changes in established healthcare professional behavior, treatment, and referral measures (most significantly, prescribing calcium and vitamin D, exercise, and fall prevention measures in addition to bone mineral density (BMD) testing, and recommendation for pharmacologic treatment)[21](#_ENREF_21). Through its clinically-proven, web-based patient registry that tracks ten prevention/treatment measures, Own the Bone provides tools and helps institutions establish a Fracture Liaison Service program in their setting.

Read more about Own the Bone at <http://www.ownthebone.org/> or for more information on how to become a participating site, contact Sarah Murphy, Senior Program Manager, at [Murphy@aoassn.org](mailto:Murphy@aoassn.org).

The American Orthopaedic Association's "own the bone" initiative to prevent secondary fractures. Tosi LL, Gliklich R, Kannan K, Koval KJ. J Bone Joint Surg Am. 2008 Jan;90(1):163-173. PubMed ID 18171971

**The Kaiser Permanente Healthy Bones Program**

Over the last 15 years, the Kaiser Permanente Healthy Bones Program[70](#_ENREF_70) has grown to become one of the most successful fracture prevention initiatives in the world[56](#_ENREF_56). In 2007, it was estimated that the program prevented 970 hip fractures among the 3.2 million members of Kaiser Permanente in Southern California[122](#_ENREF_122). Since launch in 1998, the Healthy Bones Program has led to an overall 38% reduction in the expected hip fracture rate. The Agency for Healthcare Research and Quality [Service Delivery Innovation Profile](http://www.innovations.ahrq.gov/content.aspx?id=2826) provides an overview of the program. Further, the Healthy Bones Program has been recognized by CEOs of leading health systems in the U.S. as an example of patient-engaged care that simultaneously improves quality and reduces cost:

Ten Strategies To Lower Costs, Improve Quality, And Engage Patients: The View From Leading Health System CEOs. Cosgrove DM, Fisher M, Gabow P, Gottlieb G, Halvorson GC, James BC, Kaplan GS, Perlin JB, Petzel R, Steele GD, Toussaint JS. Health Aff (Millwood). 2013 Feb;32(2):321-327. [PubMed ID 23381525](http://www.ncbi.nlm.nih.gov/pubmed/23381525)

Read more at:

Fracture prevention in Kaiser Permanente Southern California. Dell R. Osteoporos Int. 2011 Aug;22 Suppl 3:457-460. [PubMed 21847765](http://www.ncbi.nlm.nih.gov/pubmed/21847765)

**Geisinger Health System Osteoporosis Disease Management Program**

The award winning[123](#_ENREF_123) Geisinger Health System Osteoporosis Disease Management Program has transformed osteoporosis care in Pennsylvania[72](#_ENREF_72), [73](#_ENREF_73). The mantra of the Geisinger team is ‘make it easy to do the right thing.’ Key elements of the program include employing a ’champion’ (a physician or nurse who has the passion and commitment to make the program work); raising patient awareness; educating physicians and allied health care professionals; developing comprehensive, concise guidelines for osteoporosis diagnosis and treatment; providing detailed information on all aspects of osteoporosis care for staff and patients; establishing a dedicated osteoporosis faculty across the health system; facilitating access to appropriate diagnostic tools; identifying and minimizing financial barriers to necessary testing and treatment; and thoroughly measuring outcomes. During the first five years of the Geisinger program[123](#_ENREF_123):

* Diagnosis of osteoporosis increased by 400%
* Bone density testing increased by 1,000%
* Use of prescription osteoporosis treatments increased by 600%
* The hip fracture rate decreased by 36%
* **An estimated saving of $7.8 million was achieved**

Read more at:

<http://www.geisinger.org/professionals/services/osteo/index.html>

Osteoporosis disease management in a rural health care population: hip fracture reduction and reduced costs in postmenopausal women after 5 years. Newman ED, Ayoub WT, Starkey RH, Diehl JM, Wood GC. Osteoporos Int. 2003 Apr;14(2):146-151. [PubMed ID 12730773](http://www.ncbi.nlm.nih.gov/pubmed/12730773)

**Endorsement of FLS:** A growing body of professional organizations[59](#_ENREF_59), [60](#_ENREF_60), [66](#_ENREF_66), [126](#_ENREF_126), patient societies[58](#_ENREF_58), [64](#_ENREF_64), [67](#_ENREF_67), [126](#_ENREF_126) and policymakers[52](#_ENREF_52), [61-63](#_ENREF_61), [65](#_ENREF_65), [68](#_ENREF_68), [69](#_ENREF_69), [127](#_ENREF_127) in the United States and throughout the world have recognized the need for systematic approaches to secondary fracture prevention. A number of expressions have been adopted to describe exemplar service models, including ‘Fracture Liaison Services’ [76-80](#_ENREF_76), [87-91](#_ENREF_87), [93](#_ENREF_93), [97-100](#_ENREF_97), ‘Care Coordinator Programs’[81-84](#_ENREF_81) and ‘Care Manager Programs’[74](#_ENREF_74), [75](#_ENREF_75), [122](#_ENREF_122). Regardless of the terminology, all of these service models deliver high quality secondary preventive care through ***identification, investigation and intervention*** for sufferers of fractures caused by osteoporosis, with the aim of preventing future fractures.

**[Insert hospital(s)/facility]** does not have a FLS program as of **[MM-DD-YYYY]**.

**A Fracture Liaison Service for [Insert hospital(s)/facility]**

**This business plan makes the case for urgent implementation of a Fracture Liaison Service program** **in [Insert hospital(s)/facility]**, structured in accordance with successful models from elsewhere, to reduce the incidence of hip and other fractures caused by osteoporosis amongst our older patients.

**Aim:** The aim of the proposed Fracture Liaison Service (FLS) program is to ensure that all patients age 50 and over presenting to urgent care services with fractures caused by osteoporosis receive assessment and treatment, where appropriate, for osteoporosis and referral to local falls prevention services to reduce their risk of subsequent fractures.

**Current provision:** An assessment of current service provision sets a context for financial decision-makers to consider the merits of the business plan.

**Service models:** The FLS program will be structured in accordance with successful models from elsewhere. **Author(s) of the business plan: efer to the publications below to inform the description of the proposed FLS program in the business plan including:**

**U.S. FLS Programs**

Fracture prevention in Kaiser Permanente Southern California. Dell R. Osteoporos Int. 2011 Aug;22 Suppl 3:457-460. [PubMed 21847765](http://www.ncbi.nlm.nih.gov/pubmed/21847765)

Osteoporosis disease management in a rural health care population: hip fracture reduction and reduced costs in postmenopausal women after 5 years. Newman ED, Ayoub WT, Starkey RH, Diehl JM, Wood GC. Osteoporos Int. 2003 Apr;14(2):146-151. [PubMed ID 12730773](http://www.ncbi.nlm.nih.gov/pubmed/12730773)

**International FLS Programs**

Seibel MJ, Lih A, Nandapalan H et al. Targeted intervention reduces refracture rates in patients with incident non-vertebral osteoporotic fractures: a 4-year prospective controlled study. *Osteoporosis International*. 2011 Mar;22(3):849-858. [PubMed ID 21107534](http://www.ncbi.nlm.nih.gov/pubmed/21107534)

Bogoch ER, Elliot-Gibson V, Beaton DE et al. Effective initiation of osteoporosis diagnosis and treatment for patients with a fragility fracture in an orthopaedic environment. *Journal of Bone and Joint Surgery (Am)*. 2006 Jan;88(1):25-34. [PubMed ID 16391246](http://www.ncbi.nlm.nih.gov/pubmed/16391246)

McLellan A, Gallacher S, Fraser M et al.The fracture liaison service: success of a program for the evaluation and management of patients with osteoporotic fracture. *Osteoporosis International*. 2003;14(12):1028-1034. [PubMed ID 14600804](http://www.ncbi.nlm.nih.gov/pubmed/14600804)

**Reimbursement and Economic Modeling for FLS Programs in the United States**

Business plan authors are recommended to visit the Reimbursement section of the [Fracture Prevention CENTRAL](http://www.fracturepreventioncentral.org/) website for up-to-date illustrations of how some of the services provided as part of a FLS program could be reimbursed by Medicare in the United States. NBHA is committed to ongoing engagement with the Centers for Medicare & Medicaid Services (CMS) and other payers with the intention of refining further the reimbursement guidance provided. The information regarding Reimbursement for FLS at the time of launch of the [Fracture Prevention CENTRAL](http://www.fracturepreventioncentral.org/) website is summarized below.

**American Orthopaedic Association “Own the Bone” Program Economic Models**

The American Orthopaedic Association “Own the Bone” program has developed a user-friendly, interactive calculator to help decision-makers estimate the economic benefit of implementing a secondary fracture prevention program. The site-specific Executive Summary generated by the calculator can help demonstrate if the financial impact of the program, including revenue and expenses, can be beneficial or cost neutral to institutions. Further, Own the Bone has preliminary economic modeling of the Nurse Practitioner model for implementing an FLS from four hospitals in the program.

Read more at:

<http://www.ownthebone.org/program-toolbox/economic-models.aspx>

**National Bone Health Alliance Reimbursement Guidance for FLS Programs**

NBHA has developed the post-fracture care coordination and reimbursement guidance based on experience from existing FLS programs within the United States. The Quality measures section of [Fracture Prevention CENTRAL](http://www.fracturepreventioncentral.org/) should be considered in parallel to the reimbursement guidance.

**Publications Relating to FLS Reimbursement**

Enhancing Fracture and Osteoporosis Care: Implementing a fracture liaison service can improve outcomes, reduce costs. Lee D, Filler B, Twetten. AAOS Now. January 2013 Issue. Available for download from <http://www.aaos.org/news/aaosnow/jan13/managing1.asp>

**Projected Costs and Income**

Having utilised the Reimbursement and economic modeling tools in the Reimbursement section of the [Fracture Prevention CENTRAL](http://www.fracturepreventioncentral.org/) website, business plan authors could summarize the economic case as illustrated below.

**Capital Expenses** **$XX,XXX**

**Recurrent Expenses**

1 Full time equivalent, Fracture Liaison Coordinator **$XX,XXX**

Clerical/administrative support as required **$X,XXX**

Acquisition of FLS database and support package **$XXX**

Production and postage of reports and questionnaires **$X,XXX**

Support literature **$XXX**

DXA equipment service contract **$X,XXX**

DXA equipment depreciation/replacement costs **$X,XXX**

Room charges **$XXX**

Other **$X,XXX**

**Total Recurrent Costs** **$XX,XXX**

**Revenue**

FLS Coordinator inpatient consult Medicare billing **$XXX,XXX**

FLS Coordinator outpatient consult Medicare billing **$XXX,XXX**

Additional DXA scans **$XX,XXX**

Additional outpatient appointments **$XX,XXX**

Additional procedures e.g., i.v. therapy **$X,XXX**

**Total Additional Revenue** **$XXX,XXX**

**Revenue Surplus Generated (revenue-costs) $UUU,UUU**

**Summary**

Hip fractures exert a substantial toll on our local older people and Medicare budgets. Half of hip fracture patients give us considerable advance notice that one day they will present to the local orthopaedic unit. Half of hip fracture patients suffer prior fractures caused by osteoporosis that could and should serve as a trigger for secondary preventive care.

Implementation of a Fracture Liaison Service program in **[Insert hospital(s)/facility]** will close the secondary fracture prevention gap in our area. The Fracture Liaison Service program will improve the quality of care we give and reduce costs associated with preventable fractures. This business plan recommends implementation of this service as a matter of urgency.

**References**

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