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| **Paper F** |
| **Prevention of secondary fragility fractures in East Leicestershire and Rutland** |
| **Business Case** |
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|  |
| **January 2019****“*Championing through GPs and their practices, investment and delivery of healthcare services at scale for patients across East Leicestershire and Rutland”*** |

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## Executive summary

A Fracture Liaison Service (FLS) aims to systematically identify, investigate and initiate treatment and integrate care for all eligible patients over the age of 50 within a local population who have suffered a fragility fracture; with the aim of reducing their risk of subsequent (or secondary) fractures.

This paper proposes the commissioning of a FLS delivered in a primary care setting for the population registered with practices in the East Leicestershire and Rutland GP Federation which serves the population of East Leicestershire and Rutland CCG (ELRCCG). The service could easily be expanded to cover the patient population of West Leicestershire CCG area and Leicester City CCG area once the service has been established in ELR.

Once the cost of service provision has been considered, the estimated financial benefits to the health and social care economies over the next 5 years are £1.44 million

**Why commission a FLS?**

The guidance from NHS England suggests that CCGs commission FLSs in all acute trusts to carry out bone assessments and design patient management plans following their first falls.

Public Health England has issued a consensus statement that recommends that commissioners should establish FLS in line with published clinical standards as part of a coordinated approach[[1]](#endnote-1).

Current national guidance provides evidence that effective case finding and use of appropriate drug therapies reduces the risk of future clinical fractures by up to 50%[[2]](#endnote-2).

The FLS model has demonstrated that it is effective in preventing secondary fractures by delivering assessments to 95-97% of ‘at risk’ patients within the local population; as opposed to 25% of patients in health economies with other service configurations[[3]](#endnote-3).

Organisations with a FLS were found to have a 40% reduction in the 3-year risk of secondary fragility fractures to major bones and a 30% reduction of re-fracture to any bone compared with organisations without a FLS[[4]](#endnote-4).

Current projections suggest that the number of hip fractures will increase by 65% in the next 20 years if secondary fracture prevention care does not improve[[5]](#endnote-5).

Effective secondary fracture prevention throughout the NHS would prevent over 46,000 avoidable fragility fractures (including nearly 20,000 hip fractures) over 5 years in the UK[[6]](#endnote-6).

**Why commission a Fracture Liaison Service in East Leicestershire and Rutland?**

The total estimated gross benefits of implementing a FLS for 5 years in ELR CCG is £2.7m in health and social care costs.

It has been estimated that over 5 years a FLS in this area could prevent around 135 hip fractures, which equates to 1890 acute beds days (average length of stay for LRI is 14.0 days[[7]](#endnote-7)). Prevention of other inpatient fractures is estimated to save around 1,100 additional bed days

Modelling, using estimates of benefits provided by the National Osteoporosis Society (NOS), indicates that implementing an FLS in East Leicestershire and Rutland will prevent approximately 325 fractures over 5 years of which 135 will be hip fractures.

As well as being costly for ELRCCG, each of these fractures can have a serious impact on an individual’s quality of life, including their ability to care for themselves and their risk of further morbidity. Hip fractures lead to a significant loss of healthy life years. In one study, as many as 27 disability adjusted life-years (DALY) per 1,000 people (over the age of 50) were lost due to hip fractures[[8]](#endnote-8).

## Rationale for change

An estimated 3 million people in the UK have osteoporosis[[9]](#endnote-9). The clinical manifestation of this disease is a fragility fracture. It is estimated that in the UK, 500,000 new fragility fractures arise each year, that is one every minute; comprising of approximately 79,000 hip fractures, 66,000 vertebral fractures, 69,000 forearm fractures and 322,000 other fractures[[10]](#endnote-10). Half of all hip fractures occur in patients that have already had a fragility fracture and approximately half of these can be prevented if the patient is identified and treated following an initial non-hip fracture[[11]](#endnote-11).One in five women who have broken a bone, go on to break three bones before they are diagnosed with osteoporosis[[12]](#endnote-12). The prevalence of osteoporosis increases sharply with age: from approximately 2% at 50 years to more than 25% at 80 years[[13]](#endnote-13),[[14]](#endnote-14) and as Britain’s population ages, osteoporosis will become increasingly prevalent[[15]](#endnote-15).

ELR CCG has a population aged 50 years and over of 138,543 (GP registered population, NHS Digital); around 42.4% of the population compared to the national figure of 36.7%. The population aged 50 and over is estimated to increase at the rate shown in the table below:

|  |  |
| --- | --- |
| **Year** | **Estimated increase in population aged 50 and over** |
| 2020 | 1.38% |
| 2021 | 1.70% |
| 2022 | 1.34% |
| 2023 | 1.13% |

https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/clinicalcommissioninggroupsinenglandtable3

In 2011, it was estimated that the cost of hip fractures had the potential to increase to over £6 billion by 2036[[16]](#endnote-16). The National Hip Fracture Database Commissioners Report (2015)[[17]](#endnote-17) reported that in 2014, mobility following a hip fracture returned to baseline for only 34% of patients at 30 days and for 58% at 120 days’ post fracture; this not only has a massive impact on patients’ quality of life but also the health and social care economy.

Fragility fractures are broken bones that result from mechanical forces that would not ordinarily cause a fracture, known as low-level (or 'low energy') trauma. The World Health Organization has quantified this as a force equivalent to a fall from a standing height or less[[18]](#endnote-18). Reduced bone density is a major risk factor for fragility fracture. Other factors that may affect the risk of fragility fracture include the use of oral or systemic glucocorticoids, age, sex, previous fractures and family history of osteoporosis[[19]](#endnote-19).

Sustaining a fragility fracture at least doubles the risk of a future fracture[[20]](#endnote-20). Many patients who experience a fragility fracture may go on to have a hip fracture if their falls and osteoporosis risk factors are not assessed or managed[[21]](#endnote-21). There is a need for a systematic approach to identifying patients presenting with fragility fractures and managing their risk factors to prevent subsequent fractures.

The FLS model, as recommended by Public Health England (2016), is an evidence-based, cost effective, preventative intervention that can help to improve the health of the population and reduce health and care service demand[[22]](#endnote-22). The current provision of fragility fracture care is not consistent throughout the UK. The proportion of the ‘at risk’ population covered by an FLS has grown from 43% in 2014 to 55% in 2017.[[23]](#endnote-23), [[24]](#endnote-24)

Based on data from the primary care 2012/2013 Quality and Outcomes Framework (QOF) indicators for secondary fracture prevention, fewer than one in five patients in England who had a fragility fracture requiring therapy were prescribed therapy in the first year[[25]](#endnote-25), [[26]](#endnote-26). Since April 2013 the number of patients on a prescribed treatment for osteoporosis in England has declined by 11.5%[[27]](#endnote-27).

In May 2011, a formal cost-effectiveness analysis of the Glasgow FLS was published. This study concluded that 18 fractures were prevented, including 11 hip fractures and £21,000 was saved per 1,000 patients that were managed though the FLS in the UK[[28]](#endnote-28). Between 1998-2008 the Glasgow FLS saw hip fracture numbers in Glasgow reduced by 7.3% versus an almost 17% increase in England (1.8% per year)[[29]](#endnote-29). This effect has been replicated at other sites in the UK, Netherlands, Australia and other developed economies.

The Department of Health’s strategy paper ‘Falls and Fractures: Effective Interventions in Health and Social Care’[[30]](#endnote-30) outlines four objectives, in order of priority, that have been empirically shown to significantly improve the treatment of osteoporosis and the subsequent management of falls risk factors. An FLS provides a systematic way to locally achieve these objectives.

There is now good evidence that these services are cost-effective and can result in a reduction in the incidence of fragility fractures in the local population[[31]](#endnote-31).

## Local strategy

**Sustainability and transformation plan**

The document, ‘Next steps to better care in Leicester, Leicestershire and Rutland’ (August 2018) states the clear priority to ‘keep people out of hospital through better public health and prevention of illness, early detection and management of disease’. Prevention of secondary fragility fractures will contribute materially to this ambition.

Development of a FLS would dovetail with the newly deployed LLR falls prevention and treatment service.

## Local case for change

**Area and population to be covered by the service**

All practices in East Leicestershire and Rutland. This comprises of 30 GP Practices.

According to data from NHS Digital (Numbers of Patients Registered at a GP Practice) at January 2017 there were 326,521 registered at Federation practices of which 138,543 were aged 50 and over. Five-year age/sex bands have been used to estimate the incidence of fractures.

**Incidence of fragility fractures**

Using the registered population of member practices, the estimate of fragility fractures for 2019 is shown below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** | **All** |
| Number of fractures expected based on incidence data | 448 | 511 | 1,776 | 412 | 3,147 |

Note that not all of these fractures present at NHS services (especially vertebral fractures) and a further proportion will not be properly recorded on relevant clinical records. Using data provided by the National Osteoporosis Society the expected number of incident cases found by the service is shown below. These are the figures that have been used to estimate the costs and benefits of the service described in this business case:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** | **All** |
| Predicted number of FLS patients by category | 396 | 270 | 883 | 123 | 1,672 |

**Service and care pathway in East Leicestershire and Rutland**

According to the National Hip Fracture Database, 96.9%[[32]](#endnote-32) of people admitted for hip fracture receive a bone health assessment. This is in line with the average for England. However, the absence of a pathway and service for other fracture types means that 1,300 – 2,700 patients that might benefit from treatment do not receive any kind of assessment.

The National Osteoporosis Society has attempted to develop a FLS at UHL but this has not progressed over 2 ½ years working with clinicians at the Trust. The existence of an established GP Federation covering the entire population of ELR CCG offers the opportunity to develop a clinically and cost-effective services that is available to all patients at risk.

NHS Right Care data[[33]](#endnote-33) show that:

* The percentage of people with osteoporosis aged 50-74 treated with a Bone Sparing Agent is significantly lower than for peer CCGs
* The percentage of people with osteoporosis aged 75+ years with fragility fracture treated with a bone sparing agent is significantly lower than for peer CCGs
* There is an opportunity to reduce MSK bed days by around 1,977

## Aims and Outcomes of the FLS

The overall aim of the service is to respond to the first fracture to prevent the second.

## The outcomes of the FLS:

* Increase cost-effectiveness by reducing variation and delivering best practice through locally agreed standardised pathways for bone health interventions for secondary fracture prevention
* Reduce costs to the local health economy through effective secondary fracture prevention
* Reduce the incidence of fragility fractures
* Increase equity of service, with equal access to services for the whole population.
* Improve the quality of the experience for the individual and their family by developing high-quality education around the opportunities for intervention

**Performance and benefits realisation**

***Real time data*** - FLS is almost unique in having a national audit database that provides real time performance data for all sites uploading to the audit, refreshed on a monthly basis. These real-time reports tell the clinical team about their achievement and progress on each step of the care pathway and highlight areas for improvement. You can see the run charts at:

<https://www.fffap.org.uk/FLS/charts.nsf/vwPcharts/PatientIdentification?opendocument&org=ADD>

***Prescribing data*** - In addition to this source it is recommended that commissioners monitor the number of people who are dispensed medicines for the treatment of osteoporosis. In an effective service this metric should show a statistically significant change within a year of commencement. The National Osteoporosis Society also collects and reports these data at CCG level.

***Reducing fracture admissions*** – The financial and system benefits of an FLS are predicated on reductions in admission for low-trauma fractures as a result of more people receiving appropriate treatment and thereby reducing their risk of secondary fracture. A number of important studies that have shown the effectiveness of FLS with two recent examples shown below:

*There was a ∼30 % reduction in the risk of any re-fracture and a ∼40 % reduction in major re-fracture in patients presenting to a hospital with a FLS, when compared to a similar hospital without a FLS. The magnitude of effect of a FLS equates to a number needed to treat of 20, to prevent one re-fracture in 3 years.[[34]](#footnote-1)*

*Patients seen at the fracture liaison service had a significantly lower mortality and subsequently a lower risk of non-vertebral fracture than those not seen at the fracture liaison service, with a reduction of 35% and 56%, respectively, over two years of follow-up. A fracture liaison service appears to be a successful approach to reduce the number of subsequent fractures and premature mortality in this cohort of patients.[[35]](#footnote-2)*

However, there are some practical challenges to using fracture admission data as a metric, for example:

* ***Definition*** – at present many fractures may not be accurately coded or recorded as fragility fractures. The introduction of a FLS is likely to improve this leading to an apparent increase in recorded fractures even though the numbers of patients with fragility fractures attending A&E, admitted to hospital and/or seen in fracture clinic will not have changed (other than through normal variation and background trends).
* ***Counting hip-fractures*** – the number of hip fractures admitted to a hospital is counted accurately but is highly variable from one year to the next, +/- 20% from year to year is not unusual. This means that this metric is not suitable for evaluation of a FLS.
* **Demographic change**, i.e. the number of people over the age of 50 is rising at between 1.5% and 2.5% per year with considerable local variation
* **Seasonal fluctuations** in that the number of hip fracture patients admitted will vary depending on the time of year. In general, more patients are admitted in the winter months with particularly bad weather leading to ‘spikes’ in numbers
* **Longer term trends** observed in the National Hip Fracture Database show that the number of hip fractures is rising, but not in a smooth or predictable way. There have been periods where the rise has been less pronounced (2014/15). Such trends will not be evident over short periods e.g. one year or less
* **Local factors** such as changes to services; localised weather events; local demographic changes; availability of falls services and primary care quality are just some of the local factors which can affect the number of fracture events

## Outline of the proposed service

The proposed fracture liaison service is for patients aged over 50, who sustain a low impact (fragility) fracture, acquired following a fall, slip or trip from a standing height; with the primary aim of preventing subsequent fracture.

ELR GP Federation will employ and train nursing and administration staff (via one of its member practices). The nurses will visit all ELR GP practices at regular intervals and identify all patients over 50 who have sustained a fragility fracture in the previous 2 years via standard searches.

The service will promote coordination between acute, community and primary care to ensure that care is seamless and consistent. This integrated approach will include:

* Case finding using a validated query to be used in all participating practices.
* Triage and assessment of identified patients by appointed nurse coordinators. Approximately, 50% of people over the age of 50 with a fragility fracture will be appropriate for an assessment each year.
* Diagnosis of osteoporosis using the existing DEXA service at UHL or Loughborough University. Approximately 50% of the fragility fracture cohort will undergo DEXA bone density measurements at the spine and hip (NICE TA161[[36]](#endnote-34)).
* Assessment of fracture risk using validated tools (e.g. FRAX)
* Initiation of pharmacological treatment for fracture risk reduction in line with agreed guidelines. Osteoporosis treatment is typically recommended in about 66% of cases.
* Identification of the modifiable faller and referral to the existing falls prevention service.
* Provision of appropriate diet and lifestyle advice, in line with local guidelines.
* Liaison with the patient’s general practitioner with the aim of optimising long-term treatment.
* Telephone follow-up of patients to maximise compliance and adherence and provide education/support in primary care.
* Modification of treatment as required.
* A database of patients assessed through the service to support follow-up and quality reporting. This will be done through the National FLS Database run by the Royal College of Physicians.
* Engagement with secondary care services to optimise the treatment pathway, particularly ortho-geriatric consultants, rheumatology, radiography and orthopaedics.

**Case finding in primary care**

FLS services provided elsewhere in the UK and internationally are delivered in acute hospitals to patients with new, incident fractures only. Case finding is done on patients that are attending as inpatients or outpatients through a combination of electronic searches, notes review, clinic list review and radiography protocols.

We propose an innovative primary care-based service where case finding will be done using a comprehensive search query drawn up and validated in collaboration with the National Osteoporosis Society (see Figure 1 below). This method allows more cost-effective identification of patients in other risk categories including:

* Patients previously on treatment but no longer compliant – this means that their risk of fracture is very high.
* Patients with historical fragility fractures that would benefit from treatment
* Patients with vertebral fractures, potentially the costliest group.

The evidence presented in this business case, including all financial benefits is based on the identification and effective treatment of new, incident fractures only.

**Benefits of finding patients in these other risk groups and initiating effective treatment are not included.**

**Figure 1 – Proposed ELR pathway**



## Financial assessment

**Estimated benefits**

The National Osteoporosis Society has estimated the benefits for the ELR CCG health and social care system, based on the local population and using estimates of tariff cost for UHL. For additional information on how the benefits are calculated please see Annex B. Estimated benefits by point of care are shown below:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Acute care** |   |   |   |   |   |   |   |   |
| **Year** | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** |   | **Total** |   | **Average benefit per year** |
| **Year 1** | £98,196 | £14,760 | £3,056 | £8,024 |   | £124,036 |   |   |
| **Year 2** | £163,660 | £20,295 | £4,202 | £14,042 |   | £202,199 |   |   |
| **Year 3** | £237,307 | £27,675 | £5,730 | £20,060 |   | £290,772 |   |   |
| **Year 4** | £286,405 | £33,210 | £6,876 | £24,072 |   | £350,563 |   |   |
| **Year 5** | £319,137 | £36,900 | £7,640 | £26,078 |   | £389,755 |   |   |
|  |   |   |   |   |   |   |   |   |
| **All years** | **£1,104,705** | **£132,840** | **£27,504** | **£92,276** |  | **£1,357,325** |  | **£271,465** |
| **Community and primary care** |   |   |   |   |   |   |
| **Year** | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** |   | **Total** |   | **Average benefit per year** |
| **Year 1** | £5,376 | £456 | £456 | £236 |   | £6,524 |   |   |
| **Year 2** | £8,960 | £627 | £627 | £413 |   | £10,627 |   |   |
| **Year 3** | £12,992 | £855 | £855 | £590 |   | £15,292 |   |   |
| **Year 4** | £15,680 | £1,026 | £1,026 | £708 |   | £18,440 |   |   |
| **Year 5** | £17,472 | £1,140 | £1,140 | £767 |   | £20,519 |   |   |
|   |   |   |   |   |   |   |   |   |
| **All years** | **£60,480** | **£4,104** | **£4,104** | **£2,714** |  | **£71,402** |  | **£14,280** |
| **Social care** |   |   |   |   |   |   |   |   |
| **Year** | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** |   | **Total** |   | **Average benefit per year** |
| **Year 1** | £98,844 | £1,200 | £1,200 | £11,632 |   | £112,876 |   |   |
| **Year 2** | £164,740 | £1,650 | £1,650 | £20,356 |   | £188,396 |   |   |
| **Year 3** | £238,873 | £2,250 | £2,250 | £29,080 |   | £272,453 |   |   |
| **Year 4** | £288,295 | £2,700 | £2,700 | £34,896 |   | £328,591 |   |   |
| **Year 5** | £321,243 | £3,000 | £3,000 | £37,804 |   | £365,047 |   |   |
|   |   |   |   |   |   |   |   |   |
| **All years** | **£1,111,995** | **£10,800** | **£10,800** | **£133,768** |  | **£1,267,363** |  | **£253,473** |
| **All benefits**  |   |   |   |   |   |   |   |
| **Year** | **Hip fracture (inpatient)** | **Other fracture site (inpatient)** | **Other fracture site (outpatient)** | **Clinical vertebral** |   | **Total** |   | **Average benefit per year** |
| **Year 1** | £202,416 | £16,416 | £4,712 | £19,892 |   | £243,436 |   |   |
| **Year 2** | £337,360 | £22,572 | £6,479 | £34,811 |   | £401,222 |   |   |
| **Year 3** | £489,172 | £30,780 | £8,835 | £49,730 |   | £578,517 |   |   |
| **Year 4** | £590,380 | £36,936 | £10,602 | £59,676 |   | £697,594 |   |   |
| **Year 5** | £657,852 | £41,040 | £11,780 | £64,649 |   | £775,321 |   |   |
|   |   |   |   |   |   |   |   |   |
| **All years** | **£2,277,180** | **£147,744** | **£42,408** | **£228,758** |  | **£2,696,090** |  | **£539,218** |

**Service costs**

Numbers of staff to provide a service that meets all published standards have been worked out with the assistance of the National Osteoporosis Society. The annual cost for staff is £142,331, including 15% Federation overhead charge.

Detail is given in Annex A.

**Other costs**

This service will identify patients that are not currently being assessed or treated for osteoporosis. Staffing costs are included above but additional cost will be incurred as a result of prescribing for newly identified patients and for DEXA scans conducted on patients in the 50-75 age cohort. The precise impact will vary according to current activity and prescribing levels. The estimates below have been provided by the National Osteoporosis Society and are based on the numbers of additional cases that the service will find multiplied by local cost data.

**Prescribing costs in East Leicestershire CCG**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | 2014/15 | 2015/16 | 2016/17 | 2017/18 |
| Average prescribing cost per patient year | £45.95 | £45.46 | £47.40 | £48.72 |

Source: [www.openprescribing.net](http://www.openprescribing.net)

**Estimated impact on prescribing costs**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Expected additional cases on treatment** | **Cumulative cases on treatment** | **Cost of cumulative cases** |
| **Year 1** | 542 | 542 | £26,384 |
| **Year 2** | 549 | 1036 | £50,495 |
| **Year 3** | 558 | 1491 | £72,650 |
| **Year 4** | 566 | 1908 | £92,954 |
| **Year 5** | 572 | 2289 | £111,537 |

|  |
| --- |
| **Estimated additional cost of scans at tariff for each year** |
|  |   | A Expected additional scans |  BCost of additional scans |
|  | **Year 1** | 383 | £27,574 |
|  | **Year 2** | 388 | £27,956 |
|  | **Year 3** | 395 | £28,432 |
|  | **Year 4** | 400 | £28,812 |
|  | **Year 5** | 405 | £29,136 |

Note that these costs apply only where scans are provided at tariff. The true cost to commissioners will be lower where block contracts or marginal prices are in place.

**Summary of all costs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **FLS cost** | **Additional prescribing cost** | **Additional DXA scans at tariff** | **Other costs (travel)** | **All costs** |
| **Year 1** | £142,331 | £26,384 | £27,574 | £5,000 | £206,289 |
| **Year 2** | £142,331 | £50,495 | £27,956 | £5,000 | £230,781 |
| **Year 3** | £142,331 | £72,650 | £28,432 | £5,000 | £253,413 |
| **Year 4** | £142,331 | £92,954 | £28,812 | £5,000 | £274,097 |
| **Year 5** | £142,331 | £111,537 | £29,136 | £5,000 | £293,005 |
| **All years**  | **£711,655** | **£354,020** | **£141,910** | **£25,000** | **£1,257,584** |

**Note;** indemnity costs to be finalised

**Cost v benefit summary (NHS costs only)**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Costs** | **Benefits (NHS only)** | **Difference** |
| **Year 1** | £206,289 | £130,560 | -£75,729 |
| **Year 2** | £230,781 | £212,826 | -£17,955 |
| **Year 3** | £253,413 | £306,064 | £52,651 |
| **Year 4** | £274,097 | £369,003 | £94,906 |
| **Year 5** | £293,005 | £410,274 | £117,269 |
| **All years**  | **£1,257,584** | **£1,428,727** | **£171,143** |
|  |  |  |  |

|  |
| --- |
| **Cost v benefit summary (NHS and social care)** |
|   | **Costs** | **Benefits (NHS + social care)** | **Difference** |
| **Year 1** | £206,289 | £243,436 | £37,147 |
| **Year 2** | £230,781 | £401,222 | £170,441 |
| **Year 3** | £253,413 | £578,517 | £325,104 |
| **Year 4** | £274,097 | £697,594 | £423,497 |
| **Year 5** | £293,005 | £775,321 | £482,316 |
| **All years**  | **£1,257,584** | **£2,696,090** | **£1,438,506** |

##  Implementation

The Federation has worked closely with the National Osteoporosis Society (NOS) on the production of this Business Case.

The NOS will continue to support us through the implementation phase right up to the point of realising benefits of this proposed service. Support might take the form of:

* Development of a suitable case-finding query for use on member practice systems
* Provision of evidence and calculations to support decision-making
* Access to fracture practitioner training at low cost (free course, £50 fee for certification)
* Provision of job descriptions and other material to aid recruitment
* Support to upload to National FLS Database
* Support with demonstration of outcomes and benefits as an out-of-hospital demonstrator site

|  |  |
| --- | --- |
| **Key Milestones** | **Months from decision** |
| Funding approved by LLR Alliance | 0 |
| Approval by GP Federation Board  | 1 |
| Secure approval and publish advert | 1  |
| Interview for new posts | 1 - 2  |
| New staff in post | 4 - 5 |
| Search query tested and in place | 5 |
| First patient | 6 |
| Uploading of patient data to FLS Database commences | 7 |
| Staff complete fracture practitioner training | 6 |
| Performance data available | 8 |
| 4 month –follow-ups’ commence | 10 |
|  |  |

## Risk and issues management

**Risks to successful mobilisation of the FLS**

|  |  |
| --- | --- |
| **Risk** | **Mitigation** |
| Suitably qualified nursing staff is not available through recruitment | Consider role enhancement for nurses already working in Federation practicesConsider secondment opportunitiesResearch best options for advertisement |
| DEXA capacity at UHL may not be adequate to cope with additional demand | Consult with local radiography services to check capacityAdditional capacity is available at Loughborough University |
| Alliance approval of business case is delayed | First year savings will be reduced. Business case will need amending |

**Risks following commencement of the service**

|  |  |
| --- | --- |
| **Risk** | **Mitigation** |
| Patient numbers do not reach the expected levels | Modify query  |
| Patient numbers exceed the expected levels | Review model estimatesConsider change to queryConsider making request for additional staff |

## Recommendations

Alliance Leadership Board is asked to consider the following recommendation:

Agree the business plan and instruct Leicester City CCG Contract team to contract the service via the LLR Provider Company Pillar Contract (LLR Provider Company has agreed to subcontract the service to ELR GP Federation).

**Annex A – Workforce and costs**



**Note;** Indemnity costs to be finalised.

**Annex B – Calculating benefits**

# The FLS Benefits Calculator

The FLS Benefits Calculator has been created by the National Osteoporosis Society and has been used to develop business cases for FLS in over 40 health and social care economies in the UK. It has been reviewed by NHS England and was used by Public Health England to develop the consensus statement on falls and fracture prevention published in March 2017. The Calculator is regularly updated and is available on line at <http://benefits.nos.org.uk/>.

# Calculating benefits

The Calculator combines local population data with evidence on incidence of different types of fractures by age group to create an estimate of how many secondary fragility fractures can be expected for a given population. The model then estimates the number of fractures that will be prevented in four categories and multiplies these by the average NHS and social care cost of treatment. The Calculator also allows local audit or activity data to be substituted to give a more accurate baseline.

Using the number of fragility fractures admitted or seen in outpatients, the model applies two important parameters which give the estimate of the number of fractures likely to be prevented by implementing an FLS; these are:

1. The number of fragility fracture cases found by the FLS – this is a lower number than the incident fractures for a number of reasons
2. The number of secondary fractures prevented as a result of patients being given effective treatment for osteoporosis

The rates we use are modelled estimates based on data from real FLS sites which are themselves subject to variation and diversity of provision– for example the number of cases found will depend on a range of factors including staffing complement; clinical leadership; engagement of hospital specialities (especially radiology, rheumatology and orthopaedics) and partner services (general practice, falls services etc). The same complexity applies to starting and adhering to treatments that deliver the reduction in risk of fracture.

The parameters we use are based either on the mean value (as in case finding) or in levels of service that have been achieved and replicated across a number of sites. They are not drawn solely from the best handful of services in operation, giving confidence to all partners that the modelled benefits will be delivered where published standards[[37]](#footnote-3) are being achieved.

A number of important studies that have shown the effectiveness of FLS with two recent examples shown below:

*There was a ∼30 % reduction in the risk of any re-fracture and a ∼40 % reduction in major re-fracture in patients presenting to a hospital with a FLS, when compared to a similar hospital without a FLS. The magnitude of effect of a FLS equates to a NNT of 20, to prevent one re-fracture in 3 years.[[38]](#footnote-4)*

*Patients seen at the fracture liaison service had a significantly lower mortality and subsequently a lower risk of non-vertebral fracture than those not seen at the fracture liaison service, with a reduction of 35% and 56%, respectively, over two years of follow-up. A fracture liaison service appears to be a successful approach to reduce the number of subsequent fractures and premature mortality in this cohort of patients.[[39]](#footnote-5)*

# Realising benefits over time

The effectiveness of FLS is dependent ultimately on the numbers of patients found, diagnosed and treated with bone strengthening medication. The FLS Benefits Calculator estimates the financial benefits achievable annually over a period of five years. There is an established and growing body of evidence that supports the outputs of the model across a five year period, based on large numbers of patients receiving effective treatment.

Modelling benefits over much shorter periods of time, for example the first 12 months of operation, is more difficult as these will depend on how quickly and effectively a service can be mobilised (see Quick wins, below). The preventative benefit of medication in a single patient begins very soon after commencement of treatment and we know that 23% of second fractures occur within 12 months of the first.

The Calculator estimates benefits based on treating a number of patients in year 1 for each of the 5 years of the model, including in year 1. Of course year 1 lasts 12 months and patients identified in the later months of year 1 will not see any prevention effect in that year. As with most business case models this is simplified by assuming that the benefits in year 1 apply for the totality of patients treated in year 1.

The benefits of FLS rise significantly for every year of the 5 years of operation included in the model. This is not the result of increasing protection offered by treatment but rather the accumulation of greater numbers of patients treated by the service.

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Additional detail and references is available for all figures supplied by the National Osteoporosis Society. Note that for any information supplied by the National Osteoporosis Society there is no guarantee as to the accuracy of the or reliability of any information contained in this report and use of the information contained is at the user’s risk and no liability whatsoever is accepted by the National Osteoporosis Society.

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