

IRISH FRACTURE LIAISON SERVICE DATABASE ANNUAL REPORT 2023

Data from January to December 2022








Helping to Make Fracture Prevention a Reality

CONTENTS

FOREWORD - Dr Colm Henry	4
FLS - THE GLOBAL VIEW - Professor Kassim Javid	5
KEY HIGHLIGHTS 2022 INFOGRAPHIC	6
KEY FINDINGS & RECOMMENDATIONS	8
PATIENT'S STORY - MY EXPERIENCE OF AN IRISH FLS	9
WHAT IS A FRACTURE LIAISON SERVICE?	10
WHAT IS A FLS DATABASE?	10
CHAPTER 1 DEMOGRAPHICS	13
• Age and Gender Distribution.....	14
• Site of Fracture.....	14
• Current Osteoporosis Treatments.....	15
• Hospital Admission with Fracture.....	16
CHAPTER 2 DATA ANALYSIS	17
International Osteoporosis Foundation Standards	18
KPI 2: Identification (all fragility fractures).....	19
KPI 3: Identification vertebral (spinal) fractures.....	20
KPI 4: Time to FLS assessment.....	21
KPI 5: Time to DXA.....	22
KPI 6: Falls assessment.....	23
KPI 7: Bone therapy recommended.....	24
KPI 8: Strength and balance training.....	25
KPI 9: Monitoring contact 12-16 weeks post fracture.....	26
KPI 10: Commenced bone therapy by first follow up.....	27
KPI 11: Adherence to prescribed anti-osteoporosis medication at 12 months post fracture.....	28
CONCLUSION	29
REFERENCES	30
RESOURCES	31
APPENDIX - PARTICIPATING HOSPITAL PROFILES	32

ACKNOWLEDGEMENTS

	<p>The National Clinical Programme for Trauma and Orthopaedic Surgery (NCPTOS) The National Clinical Programme for Trauma and Orthopaedic Surgery (NCPTOS) was established in 2011 to improve and standardise the quality of care nationally for all orthopaedic patients. The delivery of cost-effective, evidence-based healthcare is in the best interests of all stakeholders.</p> <p>IITOS – the Irish Institute of Trauma and Orthopaedic Surgery is the clinical advisory body to the programme.</p> <p>In 2015, the programme published its Model of Care which highlighted the need for the establishment of a National Fracture Liaison Service.</p> <p>In 2018, the NCPTOS were members of the trauma steering and working groups which developed “A Trauma System for Ireland”. Recommendation 15 under prevention urges the HSE to develop a comprehensive National Fracture Liaison Service. This has led to the establishment of the current steering group under the governance of the programme and with the support of the National Clinical Advisor and Group Lead for acute operations.</p> <p>The programme continues to work collaboratively with all stakeholders to ensure optimal utilisation of all available resources nationally and to advocate for additional resources as required to ensure that patients requiring orthopaedic care receive this in a safe, effective and timely manner.</p>
	<p>Royal College of Surgeons The Royal College of Surgeons in Ireland provides education and training in the fields of medicine and the health sciences at undergraduate and postgraduate level. The College has a strong international presence with Schools in Malaysia, Dubai and a University in Bahrain. RCSI also provides surgery and emergency medicine training in all recognised specialities and sub-specialities.</p>
	<p>The National Office for Trauma Services - HSE The National Trauma Strategy, published in 2018 recommends the establishment of an inclusive trauma system, where trauma-relevant facilities and services are networked and co-ordinated in the care of injured patients along standardised pathways. The strategy has 45 recommendations covering the entire patient pathway from Prevention, Pre-Hospital Care, Reception and Intervention, Reconstruction and Ongoing Care and Rehabilitation.</p> <p>The National Office for Trauma Services has been established to progress the recommendations of the strategy. The Trauma System will be organised into two Trauma Networks, Central and South. Both will operate a hub-and-spoke model, each with a Major Trauma Centre (MTC) as the hub and a number of supporting Trauma Units. The current network of Local Injury Units will also be incorporated into the Trauma Network. The Trauma Strategy has recommended the development of a comprehensive Fracture Liaison Service and the National Office for Trauma Services continues to work with the National Clinical Programme for Trauma and Orthopaedic Surgery in the development of this service.</p>
	<p>AMGEN / UCB This National Fracture Liaison Service Database (FLS-DB) report was produced as part of a joint working initiative between UCB and Amgen Ireland who provided financial support to facilitate the establishment of the FLS Database.</p>
	

FOREWORD



It gives me great pleasure to endorse and support the second report from the National Fracture Liaison Service Database. Ireland is only the second country behind the UK to have established this database and to publish data annually.

The development of a National Fracture Liaison Service is Recommendation 15 of the HSE's 2018 Report "A Trauma System for Ireland – Report of the Trauma Steering Group" and a strategic priority for the National Clinical Programme for Trauma and Orthopaedic Surgery as outlined in the 2015 Model of Care. Recently published data from the 2019 - 2020 Major Trauma Audit demonstrates that 62% of major trauma injuries resulted from a fall of a low height or with low force, i.e. simple trips/slips. Fractures are the main serious injury from these falls i.e. 'fragility' fractures.

By developing a National Fracture Liaison Service now, over time the number of patients that present with major trauma to our hospitals will decrease. A key tenant of an FLS is the early identification and management of those 'at risk' of a subsequent fracture through clinical assessment, additional investigations where indicated and commencement of the appropriate treatment.

With the establishment of the Strategic Programmes Office under the leadership of Ms Deirdre McNamara, the Fracture Liaison Service pathway is one of 37 that has been prioritised for implementation in 2023/2024. Five ANP posts and four clerical administrative roles have been funded this year and builds on the eight ANP's funded in the National Service Plan 2022. Since last year's report, there has been an increase in the number of acute hospital sites (11 compared to 8 in 2022) that are developing a Fracture Liaison Service and participating with the FLS Database.

This year's report demonstrates the growing understanding within the system of the importance of having a database to capture fragility fractures, with data from nine of the eleven hospitals included in this report. The Mater Misericordiae University Hospital and Connolly Hospital have just established a Fracture Liaison Service and I look forward to seeing their data being included in next year's report.

"By developing a National Fracture Liaison Service now, over time the number of patients that present with major trauma to our hospitals will decrease."

This year's report includes 3,195 cases from 9 sites compared to 2,147 from 8 sites last year. This equates to 33% of the predicted fragility fractures for these sites based on the assumption that for every one hip fracture, there are five other fragility fractures, a figure adapted for Ireland from the UK FLS-DB.

A key finding from this database report is the need for osteoporosis treatment to start earlier following a fracture and there is also a need for improved access to services that can deliver strength and balance exercise programmes for falls prevention.

I would like to acknowledge the support that the initiative has received from the pharma companies (Amgen and UCB) and RCSI over the past three years. Their support has enabled the establishment of the database and I am delighted to confirm that the HSE have given the undertaking to continue funding the Fracture Liaison Service Database from September 2023 onwards.

Finally, I would like to commend the work that has been undertaken by the National Fracture Liaison Service Steering Group since August 2020 and specifically the clinical leadership of Mr Aaron Glynn, Consultant Orthopaedic Surgeon and Professor Frances Dockery, Consultant Geriatrician.

Dr Colm Henry
Chief Clinical Officer

FRACTURE LIAISON SERVICE - THE GLOBAL VIEW



The second Irish Fracture Liaison Service Database annual report demonstrates the impact the audit has had on improving outcomes for patients, their families, the healthcare system and broader society as recognised by the ongoing funding provided by the HSE.

Nationally, this represents a critical step by the HSE to support FLSs actively and is in line with the world-leading Age-Friendly Ireland. Age-Friendly Ireland works to deliver Age-Friendly Environments, Combatting Ageism, Integrated Care and Long-term Care as part of the 2021-2030 UN Decade of Healthy Aging. This commitment is captured by the 2023 Age Friendly Ireland & New York City Department for the Ageing Twinning Agreement to 'Advocate for healthcare policies to benefit healthy ageing and empower older people, including secondary fracture prevention and immunisation'. A key concept is to transition ageing from a disease to be treated as an opportunity to expand the social participation of the elders in our society and enrich their quality of life. The FLSDB, through promoting healthy ageing contributes to the healthcare component of existing work within Ireland such as Age-friendly homes and community share spaces.

Fragility fractures in older adults remain a significant barrier to healthy ageing and social participation by shortening lives, permanently limiting mobility, increasing dependence and reducing mental well-being. Further, there are economic impacts by affecting the capacity of older adults to remain in the workforce and indirect productivity effects from family members needing to deliver informal care after a parent, spouse, or sibling suffers a fragility fracture. National FLSDB programmes aim to make visible the often invisible impact of adults with a fracture from societal, economic, healthcare and patient / family perspectives. National FLSDB audits aim to turn off the flow of adults who present with a fracture to healthcare systems and then come back with avoidable fragility fractures because of simple gaps in effective secondary fracture prevention care.

“Fragility fractures in older adults remain a significant barrier to healthy ageing and social participation by shortening lives, permanently limiting mobility, increasing dependence and reducing mental well-being.”

From the first report, three more hospitals have joined the FLSDB, which now covers 69% of Irish hospitals. There were an extra 1,052 patient records, increasing the level of identification from 26% to 33%, with some FLSs exceeding 60%. There was also an increase in the proportion of patients initiated on therapy by the first follow-up from 18% to 31%. The findings from the audit and recommendations from the steering group provide a clear roadmap toward ensuring no adult with a fragility fracture is left behind to have avoidable fractures. The HSE provision of support for the FLSDB is a clear step towards this aim. Decision-makers at the national, regional and local levels can review the trends in performance from this annual report to prioritise actions to close the care gap. The audit highlights the vital role of administrators, doctors, patient groups, and technology in supporting specialist nurses in delivering an effective and efficient service with good patient experience.

I wish to thank the HSE for their vision in supporting the audit, the Ireland FLSDB Steering group, and all the FLSs who actively participated in this vital audit as a bold step forward to use local data to improve local care delivery for the benefit of patients, families, healthcare systems and wider Irish society.

Professor MK Javid
Chair of the UK FLS-DB

KEY HIGHLIGHTS - FLS DATABASE 2022

11

11 of the 16 existing hospitals managing trauma patients have an FLS and participate in the FLS-DB



9



Data from 9 hospitals is included in this report

3,195
NON-HIP FRAGILITY FRACTURES IN 2022



2,561
(81%)

FEMALE

MEDIAN AGE

69

YEARS

[range 50-100]



634
(19%)

MALE

MEDIAN AGE

70

YEARS

[range 50-99]

ONLY
33%
of the expected number were identified

74%

had an FLS assessment within 90 days of their fracture



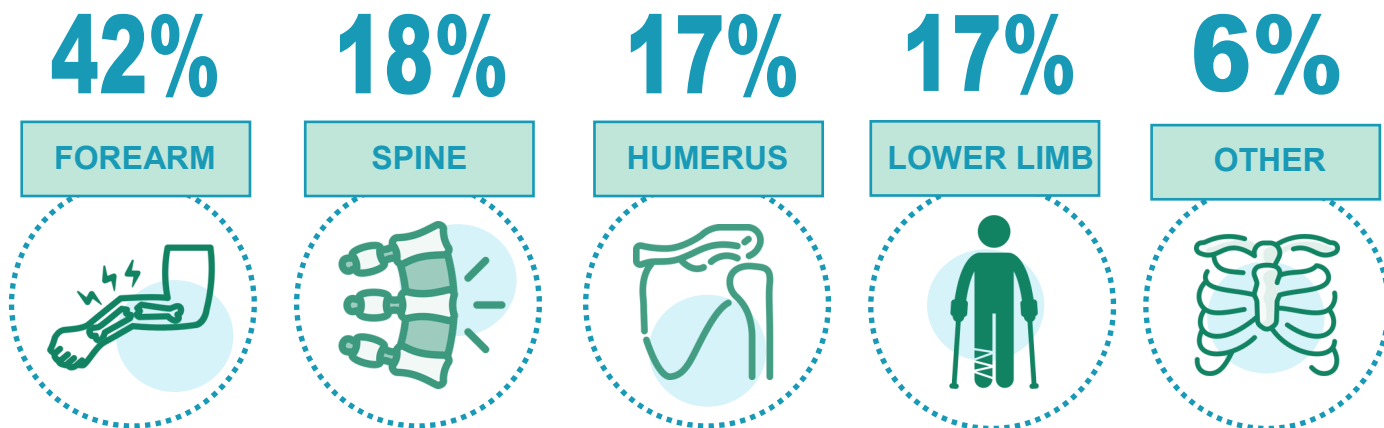
11%



were referred or recommended an exercise programme for falls prevention, just **5%** confirmed starting it by 4 months.

KEY HIGHLIGHTS - FLS DATABASE 2022

The Most Common Sites of Fracture (Excluding Hip Fractures) From This Database Were:



35%

of all patients were recommended osteoporosis drug treatment during 2022



31%

of these patients confirmed commencing osteoporosis drug treatment by 4 months



1,186

(39%) of patients were admitted to hospital



KEY FINDINGS & RECOMMENDATIONS

KEY FINDINGS

1. Eleven hospitals in Ireland are participating in the FLS-DB.
2. Nine hospitals submitted 2022 data on 3,195 patients with fragility fractures for inclusion in this report.
3. The reported fracture identification rate was 33% of the expected overall number when compared with 26% in 2021.
4. Time to FLS assessment improved with 74% being assessed within 90 days compared to 69% in 2021.
5. There was a decrease in the recommendation of osteoporosis drug treatments to 35% in 2022 down from 53% in 2021.
6. The number of patients being referred to or recommended for strength and balance exercise classes for falls prevention increased to 5% compared to 1% in 2021.
7. Monitoring contact by the FLS practitioner at 12-16 weeks post fracture improved from 35% in 2021 to 40% in 2022. This was the first year that contact made with patients at 12 months following their fracture was reported on (for patients who sustained their fracture in 2021). Only 4% of patients had this conducted.

KEY RECOMMENDATIONS

Recommendations for Patients and Carers

Patients and their relatives and/or carers who have ever sustained a fracture from low impact falls (termed 'fragility fracture'), or are worried that they are at risk of osteoporosis should discuss this with their doctor. A list of available resources is provided at the back of this document.

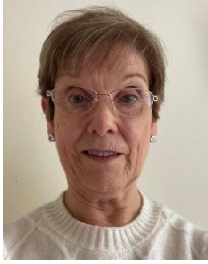
Recommendations for Individual FLS

1. Each FLS needs to review case finding methodology and aim to identify a minimum of 80% of expected fragility fracture numbers.
2. Vertebral (spine) fractures should be prioritised for case finding as these patients are at greatest risk of further fractures. Methods to case find this patient group need to be agreed locally and a specific national strategy should be developed.
3. Each FLS should review steps required to reduce the interval from patient identification to assessment. All sites should review barriers to DXA access, and its impact on treatment decisions.
4. All sites should review their falls risk assessment rates and be made aware of effective falls risk reduction strategies. Collaborative working with integrated care teams and social prescribing services in the community should be encouraged to assist patients in accessing strength and balance exercise classes.
5. Each FLS should seek to continuously improve their expertise in osteoporosis treatments and related guidelines.
6. All sites should examine their practice to enable and record monitoring contact, as the FLS assessment process may be wasted if a check on recommended interventions does not take place. The surveillance of treatment initiation and concordance is critical in reducing fracture risk.
7. Improved treatment strategies and adherence to recommendations for patients with osteoporosis should form part of local audit and quality improvement projects.

Recommendation for Senior Decision Makers

1. All sixteen sites managing trauma in Ireland should have a FLS with appropriate resourcing and governance structures as outlined in the 2018 Report "A Trauma System for Ireland".
2. Senior decision makers should commit to meeting with FLS Service Leads to ensure the implementation of appropriate governance structures along with the inclusion of quality improvement projects and audit into their service.
3. All FLS should contribute to the national FLS-DB and have their performance reviewed regularly by senior decision makers.

PATIENT'S STORY - MY EXPERIENCE OF AN IRISH FLS



“Simple things which can make a real difference.”

Sheila Harkin

As a 73 year old mother and grandmother, I am delighted to be living an independent life.

This is partly due to the professional care and interventions offered to me when I had a few serious falls over the past twenty years.

My mother suffered with osteoporosis so I was aware that I may be at risk of developing this also.

In 2002, I fell in the yard and fractured my ankle – my GP referred me for a DXA scan which diagnosed osteopenia. From 2003 – 2015, I was on treatment for osteoporosis until it was discontinued by my doctor who felt it would be of no further benefit to me. In 2011, I fractured my other ankle. Luckily I recovered well from these fractures with no ongoing problems. A repeat DXA scan showed osteopenia, but no further deterioration. In 2020, I experienced another fall, when I missed a curb in a car park. I recovered well after physiotherapy and had no further problems.

In September 2022, I tripped over a small speed bump at the entrance to the local football field, went down on my right side and broke my wrist. This was the worst break, it required surgery involving a plate and screws. The surgeon said it had been difficult due to the poor quality of the bone. However, within six months and after physiotherapy my wrist was working perfectly and pain free.

Following this last fall, my GP was keen to find a suitable treatment for my bones because although I didn't fall often, when I did I seemed to break a bone easily.

I was referred to the Fracture Liaison Nurse at Our Lady of Lourdes Hospital, Drogheda, who explained the treatment options that were available before referring me to the consultant endocrinologist. He then recommended the best treatment for me which is administered over a two year period.

The Fracture Liaison Nurse continues to assist and support me which is reassuring. We've discussed topics such as diet and exercise. I have been attending strength and balance exercise classes in my local Community Centre. I find these very useful and I've also learned about being aware of my surroundings, walking, balancing etc. I also do similar exercise at the local Active Ageing classes and I continue to walk about 3km three or four days a week.

I would like to add that the Fracture Liaison Service is a very valuable one as the nurse has the specialist knowledge to assist the patient. It was only because of my doctor's referral to Drogheda that I benefited from the service in that hospital. I think a Community FLS would be very valuable in falls prevention, advice and information before and after a patient falls.

This vital service seems to be very thinly spread over the country at present. I am very thankful for all the help and information I have received over the years and if my story can help anyone else then that is a positive outcome.

“I would like to add that the Fracture Liaison Service is a very valuable one as the nurse has the specialist knowledge to assist the patient.”

What is a Fracture Liaison Service and FLS Database

What is a Fracture Liaison Service?

A Fracture Liaison Service (FLS) is a system of healthcare whereby people aged 50 years and over who have suffered a fracture resulting from a low level of trauma (termed ‘fragility fracture’) are identified proactively, assessed, treated and monitored for osteoporosis and falls risk. FLS is a globally recognised service that has been implemented in 55 countries to date [Javaid et al \(2023\)](#). Ireland is the second country after the UK to have produced a national FLS database (FLS-DB) report.

What is Osteoporosis and what are Fragility Fractures?

Osteoporosis is characterised by reductions in bone mineral density and quality, leading to disruption of the normal bone architecture, increased bone fragility and a greater propensity to fracture. Osteoporosis is often described as a silent disease as most people do not know that they have the condition until they suffer the pain of a fracture.

Osteoporosis is extremely common and affects an estimated 300,000 - 500,000 people in Ireland [Erjiang et al \(2020\)](#). In the 2021 Irish Hip Fracture Database Report 3,806 hip fractures were reported nationally.

Using the ratio adapted from the UK FLS-DB for Ireland of **5:1** (non-hip to hip fragility fractures) this would equate to over 19,000 fragility fractures occurring annually in Ireland, which in itself is thought to be a conservative estimate given that only those admitted to hospital are captured in national data systems.

Ideally all fractures would be prevented through increased public awareness of, and screening for osteoporosis, but given the sheer numbers at risk, managing those who have sustained an index/first fracture would be of significant benefit in reducing subsequent fracture numbers. FLS can be considered a ‘secondary prevention’ service, provided to those following an initial fragility fracture, and it addresses falls risk reduction as well as the management of osteoporosis.

FLS is globally acknowledged as the gold standard for reducing repeat fragility fracture numbers ([IOF](#)).

Establishing a National Fracture Liaison Service is not only beneficial to patients, it is also effective in terms of cost and patient outcomes in the long term. ([IOF](#)).

The HSE have invested €1.5M in the implementation of a Fracture Liaison Service in Ireland since 2022.

The Fracture Liaison Service Pathway is one of 37 which has been prioritised for implementation through the HSE’s Strategic Programmes Office Modernised Care Pathways initiative.

2022 - 8 ANP posts funded

2023 - 5 ANP posts & 4 Clerical Grade IV posts funded

2023 - Funding for the FLS Database and national FLS coordinator role secured.

As of September 2023, 61% (11 out of 16) of all adult hospitals that manage trauma in Ireland have a FLS.

Ring-fenced funding for education and professional development for FLS staff to develop a community of practice is required long-term.

What is a Fracture Liaison Service Database? (FLS-DB)

The Fracture Liaison Service Database (FLS-DB), collects, measures and reports on the care provided by FLS’s nationally. The International Osteoporosis Foundation (IOF) have devised a comprehensive international evidence based best practice framework “**Capture the Fracture**”, which makes implementation of FLS measurable and effective.

The FLS-DB for Ireland is an online portal managed by **Crown Informatics Limited**, who also manage the UK FLS and Hip Fracture databases. The **inclusion and exclusion criteria** for this report as well as the **data quality statement** are available for download on <https://www.rcsi.com/fls>. The database is hosted by the Royal College of Surgeons in Ireland (RCSI) under the governance of the National Clinical Programme for Trauma and Orthopaedic Surgery (NCPTOS).

What is a Fracture Liaison Service and FLS Database

The data is collected in hospitals by FLS practitioners, Clinical Nurse Specialist (CNS) or Advanced Nurse Practitioners (ANP) who enter the data from patient’s healthcare records. A customised data collection template has been designed for this purpose and the data can be entered into the database in one of three ways – manual data entry, csv file upload or by uploading a csv report to the database from an existing hospital system. Standards of care are driven upwards through auditing and benchmarking processes as has been evidenced through audits such as the Irish Hip Fracture Database.

The first step in creating consistency and providing the best possible care for all patients is to establish a baseline which identifies what care patients are currently receiving, which areas of the country are not well served with an FLS, and how successful each service is at identifying, assessing, and treating those with osteoporosis following a fragility fracture.

This data can then be used to identify service gaps and improve the quality and coverage of secondary fracture prevention care. A National FLS Facilities Audit was completed in 2021 to explore service infrastructure and processes, and will be repeated in 2024.

The FLS-DB itself enables patient-level data to be monitored by each local site allowing data review and plans for quality improvement. This annual report for the database presents the results of secondary fracture prevention care received by patients aged 50 years and older following a fragility fracture between January – December 2022.

The Fracture Liaison Service Database (FLS-DB) collects, measures and reports on the care that is provided by the Fracture Liaison Service.

The FLS database will help:

- **Identify** differences in availability, access and quality of care and service provision.
- **Highlight** areas of good quality care and areas for improvement
- **Make** recommendations based on Irish data to healthcare providers, voluntary agencies and policy makers on the provision of fracture liaison services and best practice.
- **Identify** if hospitals are following international standards through an agreed set of key performance indicators (KPI’s).

The Key Facts



A common disease

It is estimated that worldwide, a fragility fracture occurs every three seconds.



One fracture leads to another

Having suffered a prior fragility fracture almost doubles a patient’s future fracture risk.



Fracture signs are warning signs

Half of patients presenting with hip fractures have suffered a prior fracture.



We fail to ‘capture’ the first fracture

The majority of fragility fracture patients are neither assessed, nor treated by their health care system to reduce fracture risk.



The care gap

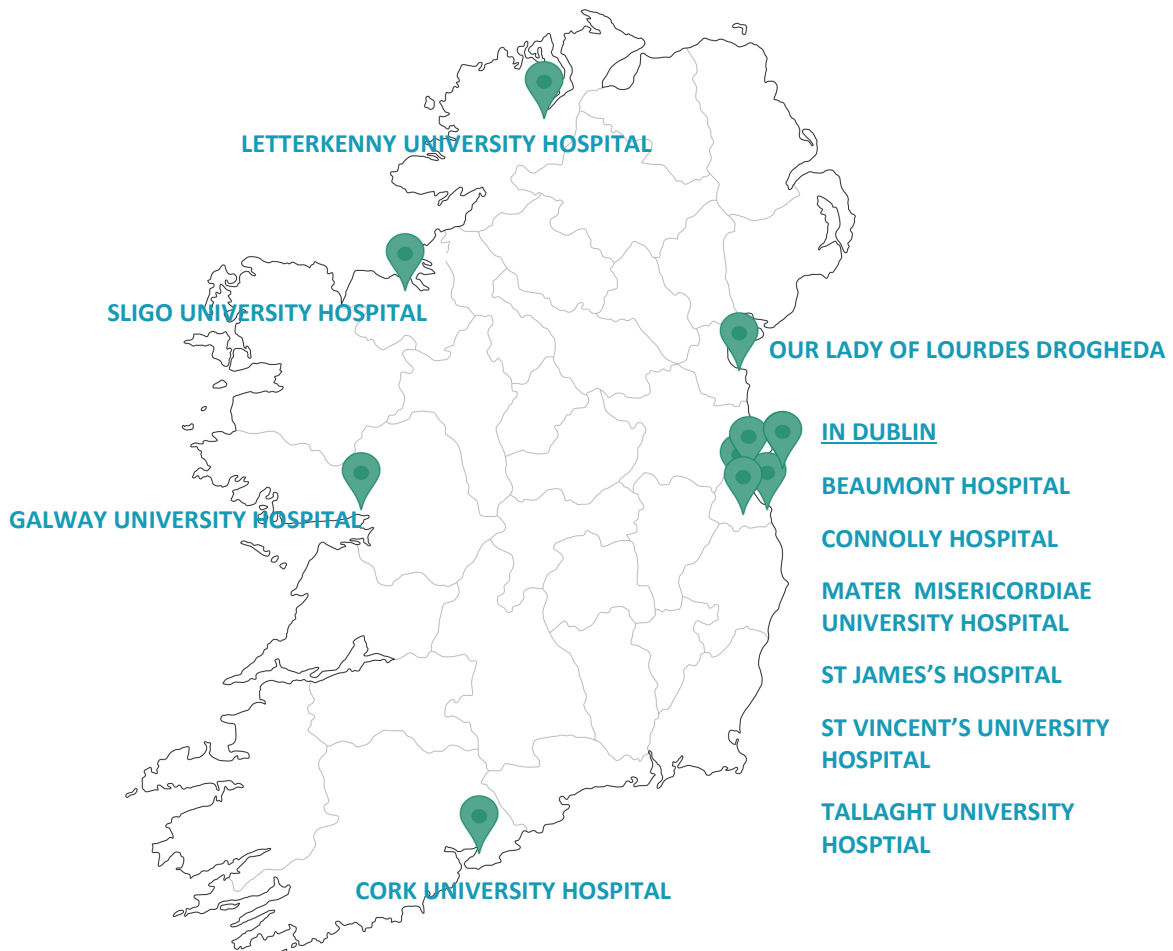
To achieve a significant reduction in future rates and resulting healthcare costs, healthcare systems must target those patients who have already suffered a fracture, as they are the ones at highest risk for future fractures.

860 FLS Across 54 Countries



Image: <https://www.osteoporosis.foundation/our-network>

11 FLS Across Ireland



CHAPTER 1 DEMOGRAPHICS

Age & Gender Distribution

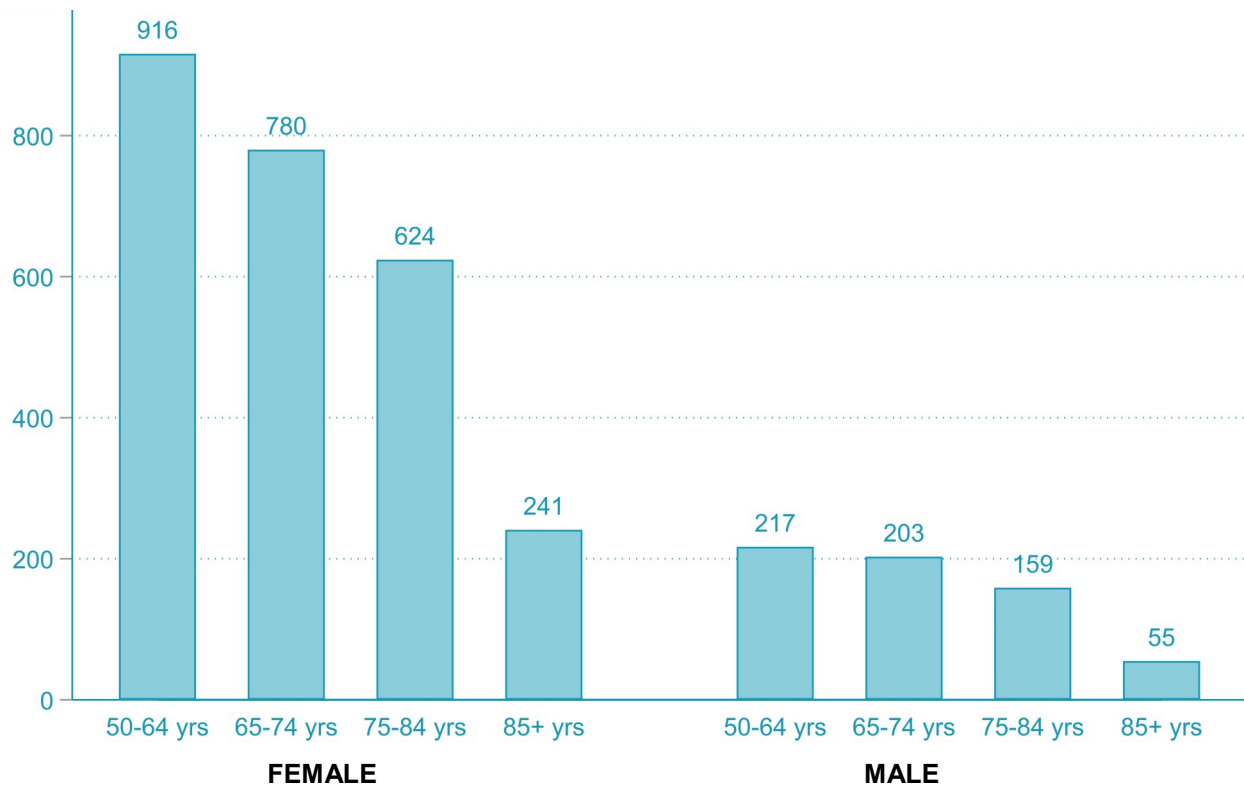


Figure 1 Age & Gender Distribution

For the reporting period January – December 2022, there were **3,195** non-hip fragility fracture patient records submitted to the FLS-DB from the nine hospitals contributing patient data.

In the 2021 Irish Hip Fracture Database Report (IHFD) 3,806 hip fractures were reported nationally. Using the ratio adapted from the UK FLS-DB for Ireland of a 5:1 ratio of non-hip to hip fragility fractures, this would equate to over 19,000 fragility fractures occurring annually in Ireland, which is considered to be a conservative estimate

The nine hospitals included in this report manage 51% of the total number of hip fractures reported nationally in the 2022 IHFD report. It would be anticipated that around 10,000 fragility fractures would have presented to these nine hospitals. Only 33% of this projected figure was captured. There was a preponderance of fragility fractures recorded in females which is in line with the known increased fracture risk amongst women. Most fractures recorded (35%) were in the 50-64 age range group.

CHAPTER 1 DEMOGRAPHICS

Site of Fracture

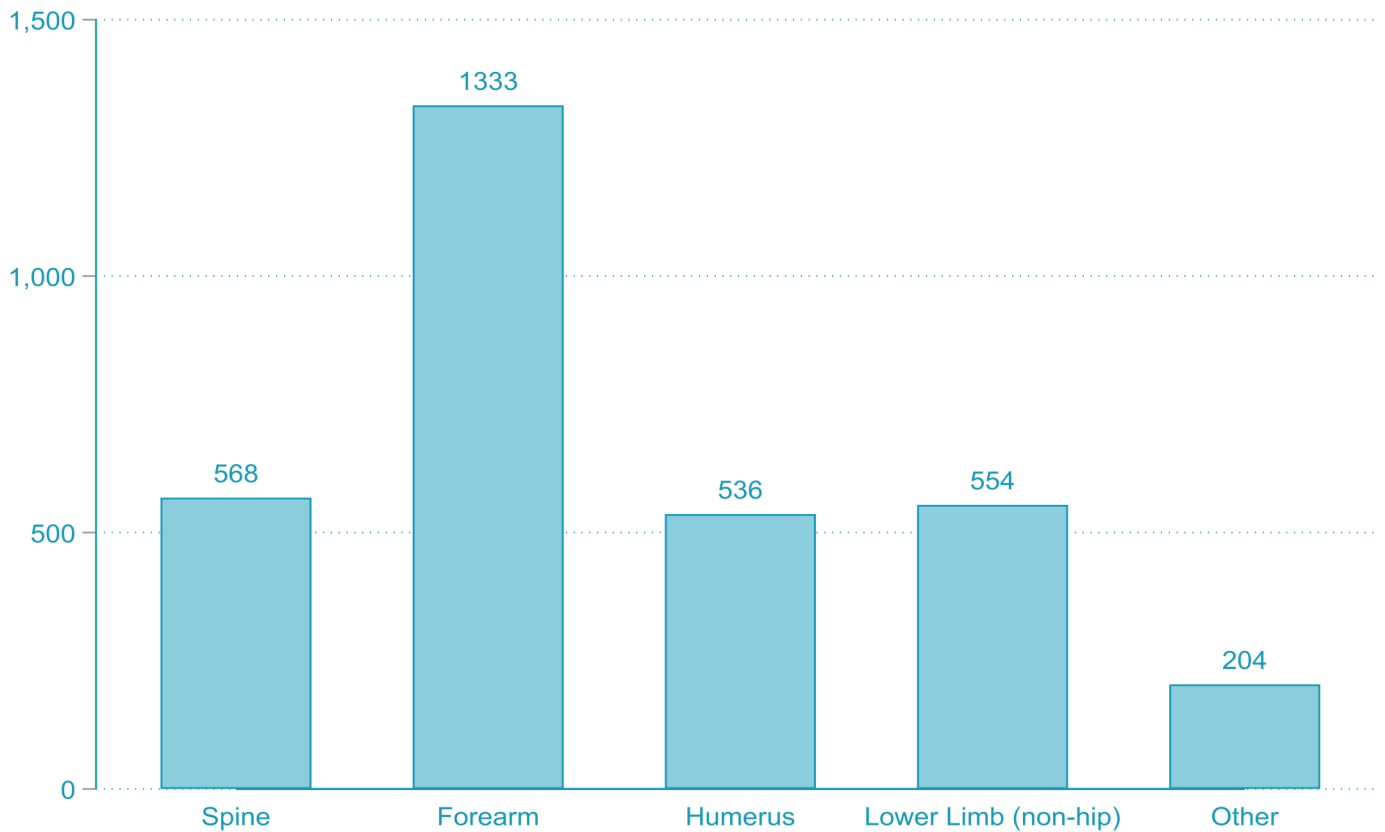


Figure 2 - Site of Fracture

The majority of fragility fractures identified occurred in the forearm (42%). This may reflect the true increased incidence of this injury, or the higher presentation at the Emergency Department with this type of fracture (versus e.g. vertebral fracture), or simply that higher identification and inclusion of this fracture type in the FLS-DB is because it is a commonly recognised fragility fracture. There was a similar distribution between spine, humerus and non-hip lower limb fragility fractures which varied between hospitals as per case-finding methods.

CHAPTER 1 **DEMOGRAPHICS**

Current Osteoporosis Treatments in Patients Presenting with Fragility Fractures

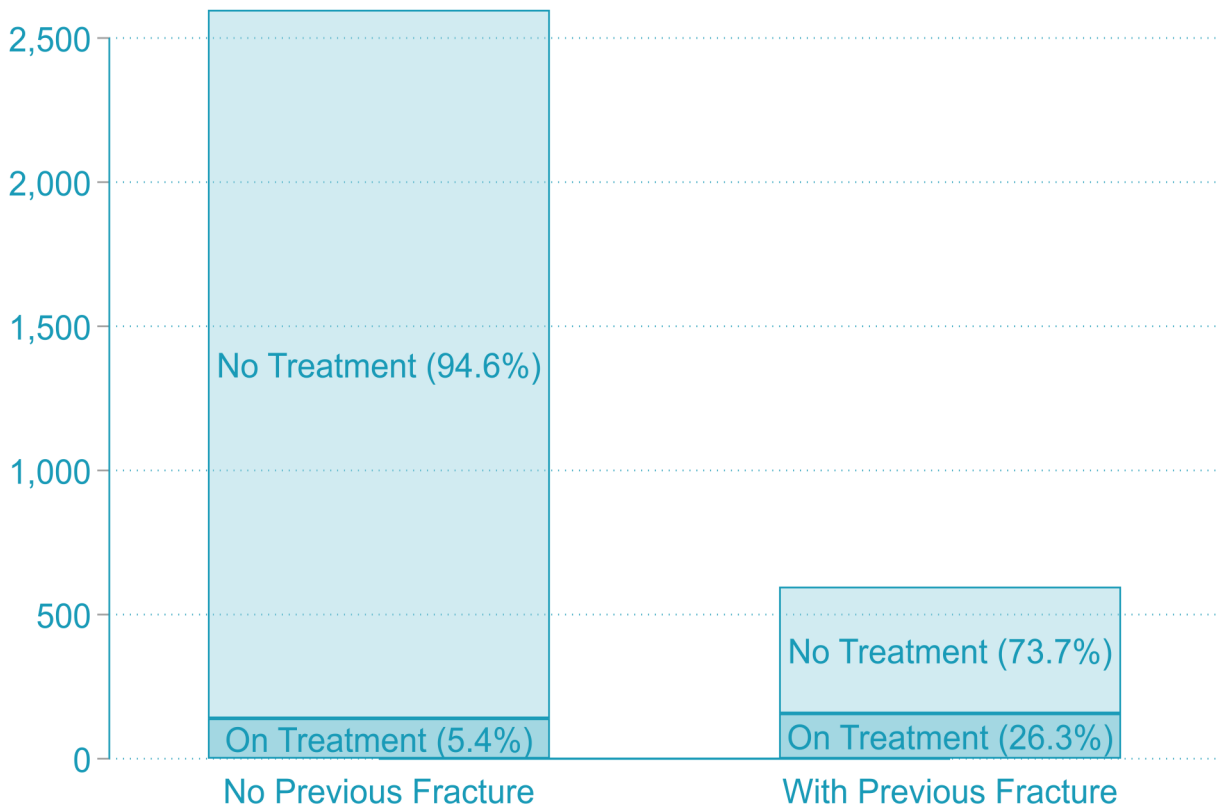


Figure 3 - Current Osteoporosis Treatments in Patients Presenting with Fragility Fractures

For the majority of patients, this was their first reported fragility fracture. Of the patients who had sustained a previous fracture, only 26% were already on anti-osteoporosis treatment, confirming the large treatment gap which exists for patients who are at risk of recurrent fragility fractures.

CHAPTER 1 DEMOGRAPHICS

Hospital Admission with a Fracture

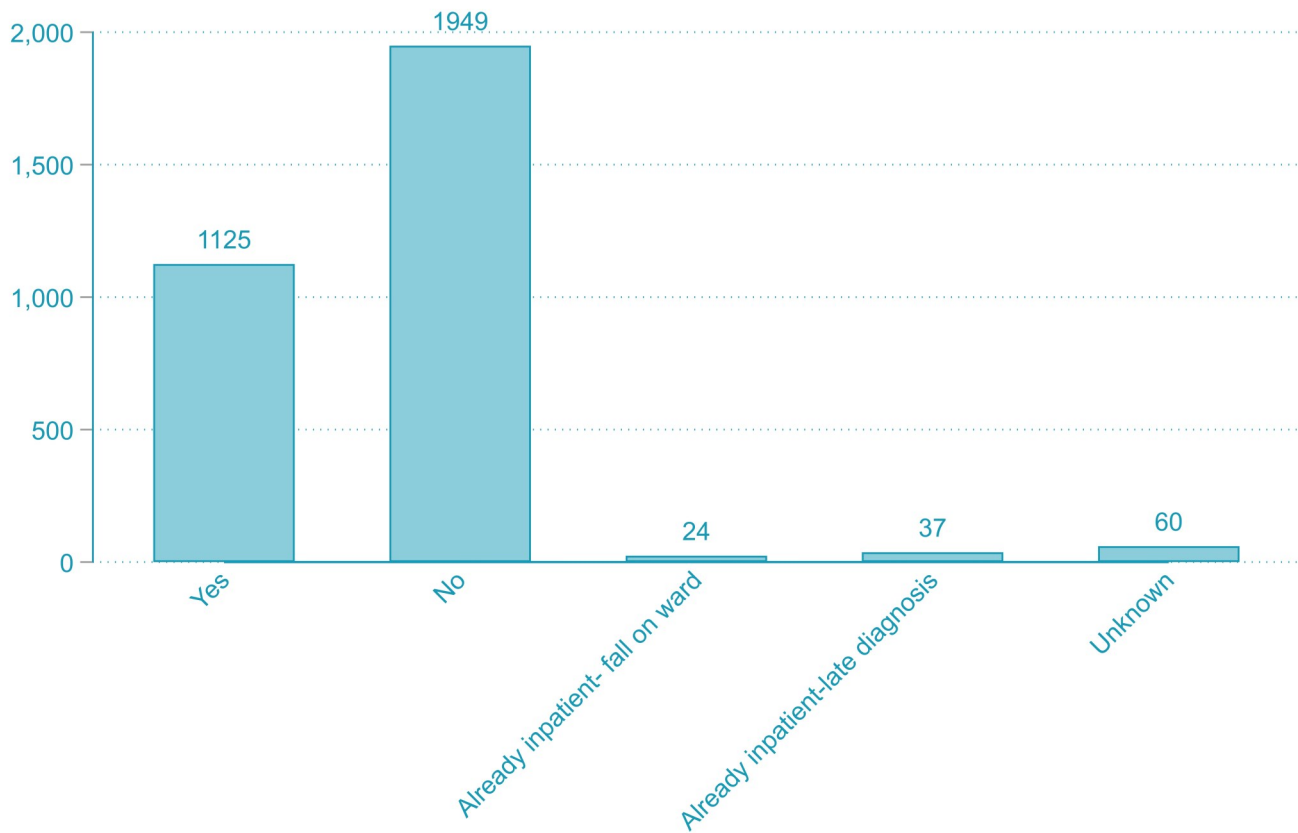


Figure 4 - Hospital Admission with a Fracture

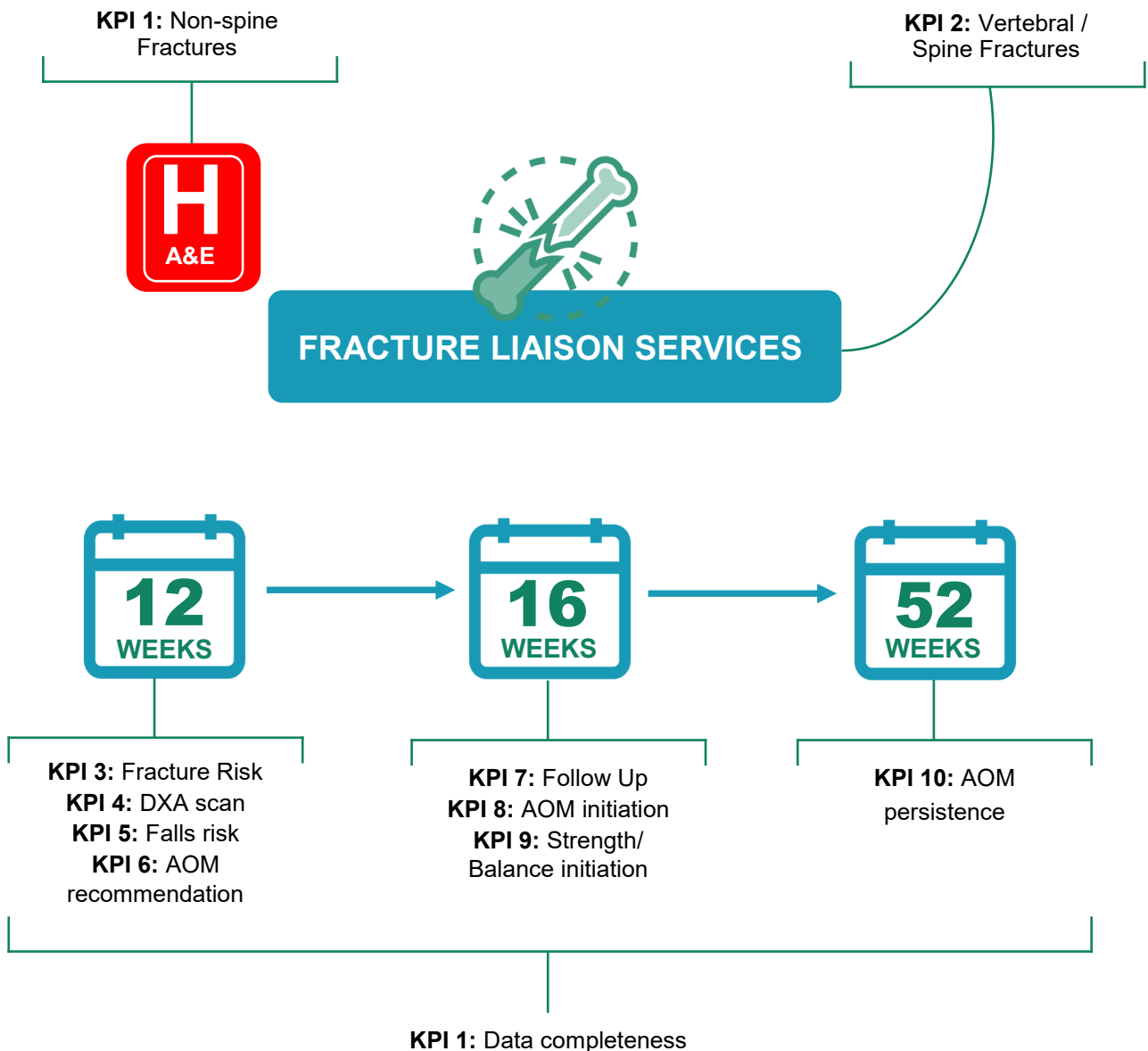
Of the 3,195 patients - 1,186 (39%) were managed as an inpatient for their fracture.

It is known that fragility fractures are responsible for a high utilisation of inpatient bed days per year in Irish hospitals, [O'Sullivan et al \(2022\)](#). Given that this data reports on just one third of expected fracture numbers, with a predominance of forearm fractures in the younger age demographic, the true figure of in-patient hospital bed utilisation for fragility fractures is likely to be considerably higher.

The low proportion of fractures occurring as a result of an in-patient fall is no doubt also underestimated due to the variance in case finding methodology used by different hospitals.

CHAPTER 2 DATA ANALYSIS

This section focuses on the individual hospital performance as per the [International Osteoporosis Foundations](#) (IOF) Key Performance Indicators (KPIs) as set out in their ‘Capture the Fracture’ campaign. These 11 KPI’s were adapted from the existing metrics of the [UK-based Fracture Liaison Service](#) Database in collaboration with the IOF’s Fragility Fracture Network and the National Osteoporosis Foundation. These standards have been made available globally to measure service impact and standardise patient care in a FLS [Javaid, \(2020\)](#). By comparing performance to international standards, the database is central to identifying service gaps and guiding service developments.



Mapping the key performance indicators to the patient pathway following a fragility fracture [Javaid, \(2020\)](#)

CHAPTER 2 DATA ANALYSIS

Comparison of International Osteoporosis Foundation (IOF) Standards KPIs for Ireland 2021 & 2022

Indicator	Description	2021 (%)	2022 (%)
KPI 1 – Data completeness	FLSs with a good level of data completeness (greater than 80% complete)	0	0
*KPI 2 – Identification (all fragility fractures)	The percentage of patient records submitted compared with the local estimated caseload	26	33
**KPI 3 – Identification vertebral (spine) fractures	The percentage of patients with a spine fracture as their index fracture site compared with local estimated caseload	31	26
KPI 4 – Time to FLS assessment	The percentage of patients who were assessed by the FLS within 90 days of their fracture	69	74
KPI 5 – Time to DXA	The percentage of patients who had a DXA ordered or recommended and were scanned within 90 days of fracture	20	13
KPI 6 – Falls assessment	The percentage of patients who received a falls assessment or were referred or recommended for a falls assessment	40	29
KPI 7 – Bone therapy recommended	The percentage of patients who were recommended anti-osteoporosis medication	53	35
KPI 8 – Strength and balance training	The percentage of non-hip fracture patients who had started strength and balance training within 16 weeks of their fracture	1	5
KPI 9 – Monitoring contact 12–16 weeks post fracture	The percentage of patients who were followed up within 16 weeks of their fracture	35	40
KPI 10 – Commenced bone therapy by first follow up	The percentage of patients who had commenced (or were continuing) anti-osteoporosis medication within 16 weeks of their fracture	18	31
† KPI 11 – Adherence to prescribed anti-osteoporosis medication at 12 months post fracture	The percentage of patients who had confirmed adherence to a prescribed anti-osteoporosis medication at 12 months post fracture	4	-

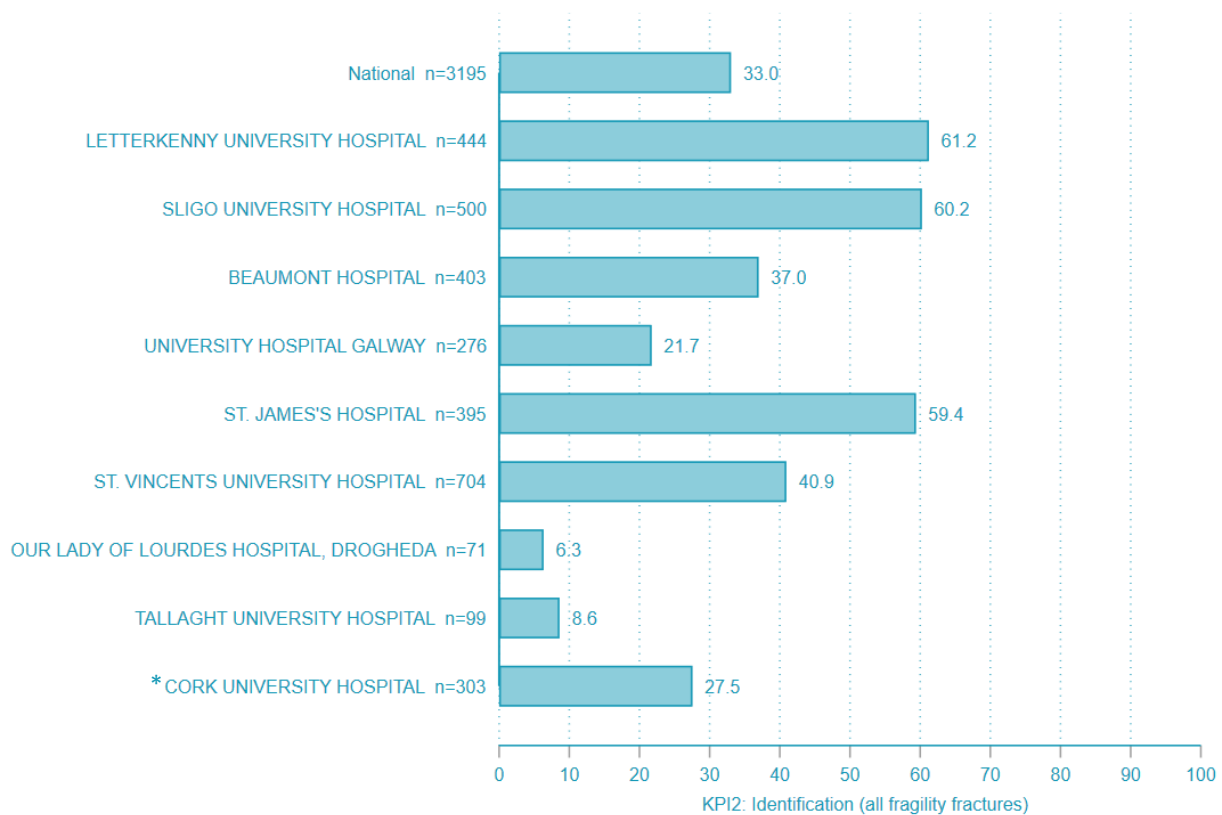
** Defined as five times the number of hip fractures per hospital, extrapolated from UK estimates, as local audit data suggests the number of non-hip fragility fractures in Ireland to be at least 5-8 times that of hip fracture numbers.*

*** Defined as equal to the number of hip fractures per hospital.*

† 1-year follow-up reported on preceding year only.

CHAPTER 2 DATA ANALYSIS

KPI 2 – Identification (All Fragility Fractures)



* Half year only, as joined FLS-DB in July 2022

KPI 2: Identification (all fragility fractures) vs. expected: The percentage of patient records submitted compared with the local estimated caseload.

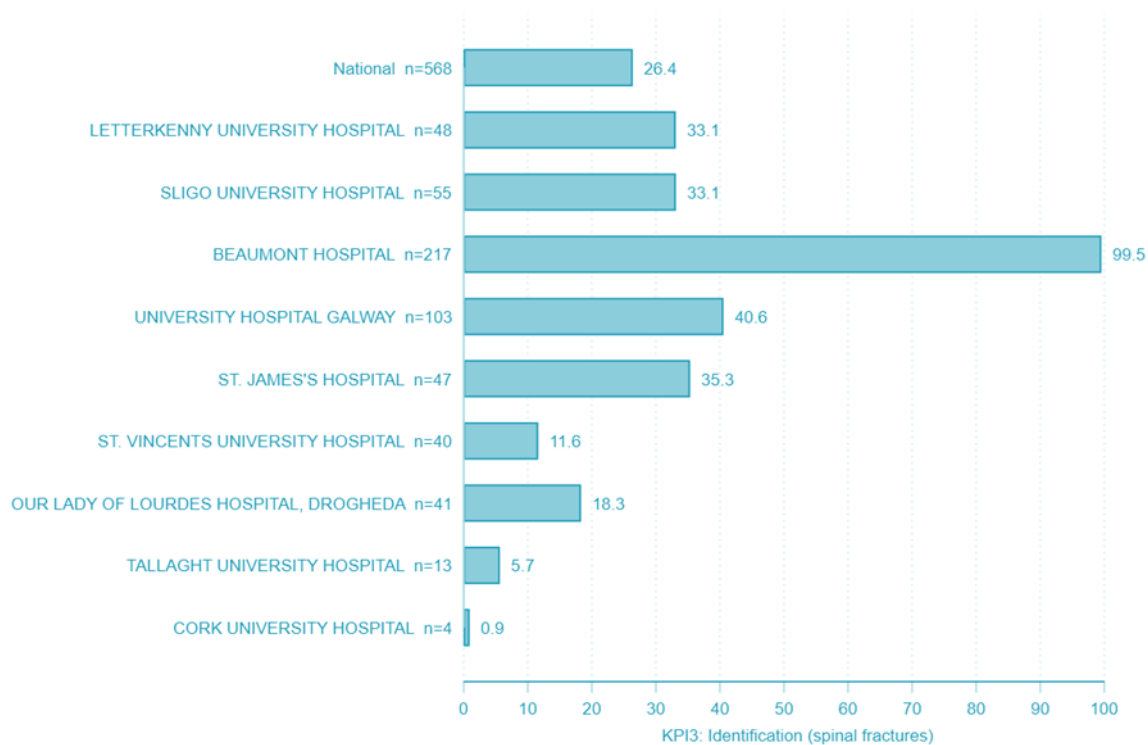
Nationally there were 3,195 (non-hip) fragility fracture patient records submitted from the nine hospitals. These nine hospitals managed 1,917 hip fractures (IHF 2021), i.e. over half of all hip fractures nationally.

The denominator used throughout this report is a '5:1' non-hip: hip fracture ratio. This case ascertainment rate is just a third of the expected number of fractures, however it represents an improvement in performance from 2021 (26%).

Considerable variation in patient numbers is seen between hospitals. This is multifactorial in nature but includes: varying case finding methodology/strategies, limited dedicated resources to FLS and long waiting times for FLS assessment (reported in KPI 4).

CHAPTER 2 DATA ANALYSIS

KPI 3 – Identification Vertebral (Spine) Fractures



KPI 3: Identification of vertebral (spine) fractures: *The percentage of patients with a spine fracture as their index fracture site compared with local estimated caseload.*

Vertebral (spine) fractures are of high importance for an FLS due to their particularly high re-fracture rates and the marked benefits in fracture risk reduction from osteoporosis drug treatments.

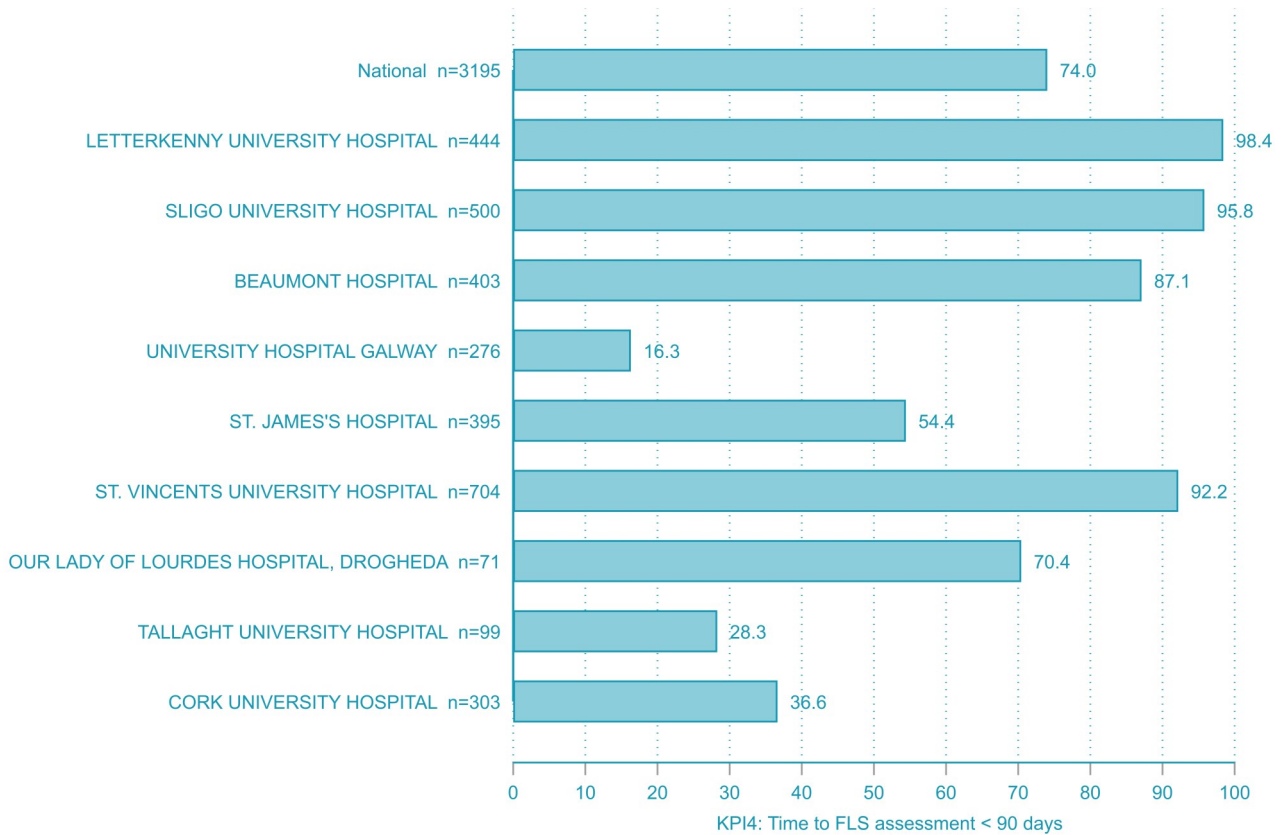
Vertebral fractures that present clinically represent only about one third of all vertebral fractures; the remaining two thirds are identified as incidental findings. The UK FLS-DB estimated that the number of 'clinical' vertebral fractures roughly equates to that of hip fractures so this denominator has been used for the Irish FLS-DB.

Twenty-six percent of the expected number of vertebral fractures were identified nationally, showing that some systems are in place to identify this patient group. These patients may present to a number of different services including Emergency Departments, GP practices, and other outpatient department clinics. Most do not appear in fracture clinics so services using the fracture clinic as their main case finding strategy will miss these.

Direct comparisons of spine fracture incidence between hospitals cannot be made due to varied case-finding methods, although one site stands out as having signs of a robust screening process in place for these fractures specifically. The majority of hospitals fall far short of predicted numbers.

CHAPTER 2 DATA ANALYSIS

KPI 4 – Time to FLS Assessment



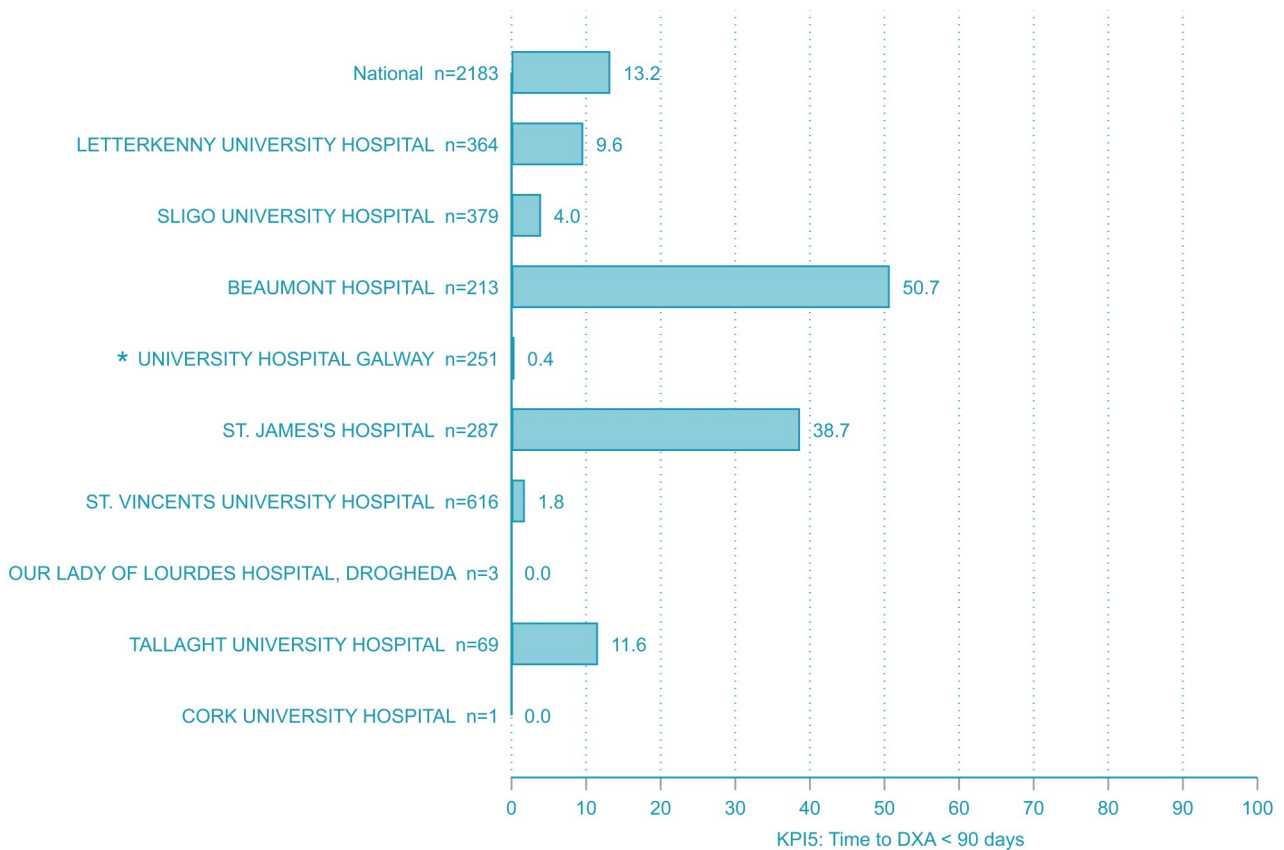
KPI 4: Time to FLS Assessment: Percentage of patients who were assessed by the FLS within 90 days of their fracture.

The likelihood of a repeat fracture is significantly greater in the first one to two years following a major osteoporotic fracture (MOF), termed '*imminent fracture risk*', [Adachi et al \(2021\)](#). Getting those in need assessed and managed as early as possible after their index fracture is essential to reduce re-fracture risk in the local population.

Timely FLS assessment is the first critical step. This standard remains high in most centres, but it is notable that sites where low numbers of fractures were captured appeared to have longer delays in their time to assessment. For a FLS to have the optimal fracture capture rate combined with timely assessment, adequate resourcing is essential.

CHAPTER 2 DATA ANALYSIS

KPI 5 – Time to DXA



* Date of DXA scan unavailable

KPI 5: Time to DXA < 90 days: Percentage of patients who had a DXA ordered or recommended and were scanned within 90 days of fracture.

The denominator for KPI 5 is the number of patients who had a DXA ordered or recommended by the FLS, which was 2,183 of the 3,195 cases (68%). One site did not have an appointment date for the next available DXA Scan and as a result their data could not be analysed .

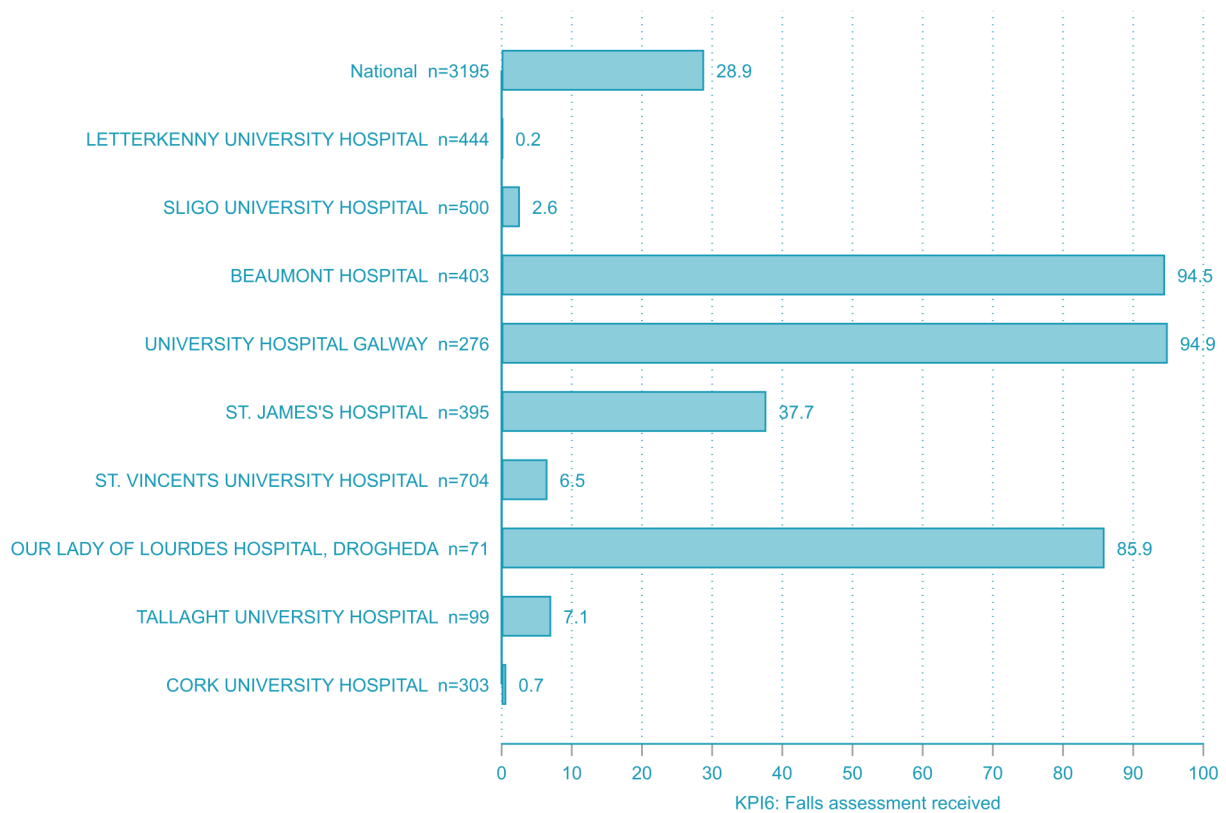
Delays from time of fracture to undergoing DXA were noteworthy, with very low numbers overall getting their DXA within three months of their fracture, even when the site without data is excluded.

DXA scanning is very important in assessing the likelihood of future fractures and for subsequent treatment monitoring. Quality of DXA scanning is also critical as errors in DXA acquisition, reporting and interpretation are common which could lead to under-treatment.

It is concerning if sites withhold drug treatment until a DXA scan is conducted as this delays treatment decision, which may contribute to imminent recurrent fracture risk. Many patients can be treated without a DXA scan such as those with a fragility fracture of a vertebrae or those of advanced age where osteoporosis is highly prevalent.

CHAPTER 2 DATA ANALYSIS

KPI 6 – Falls Assessment



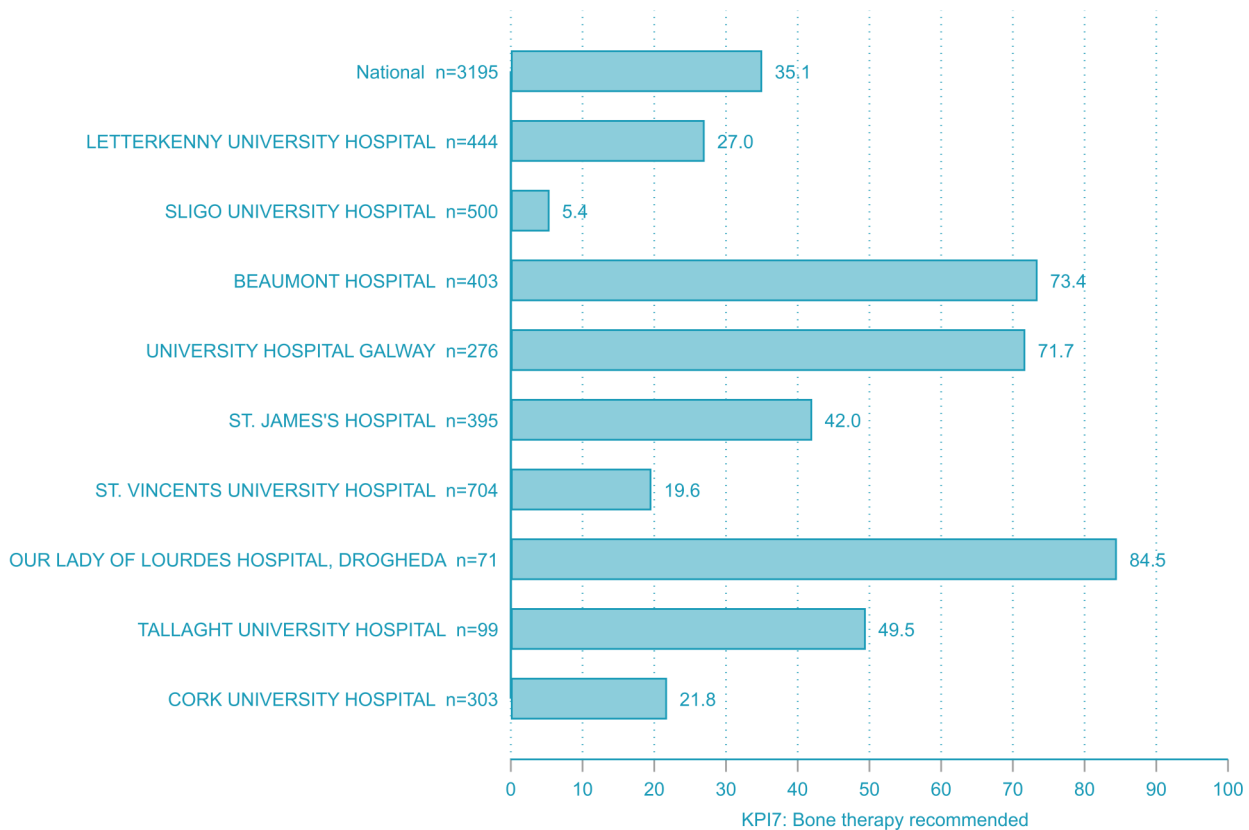
KPI 6: Falls Assessment: Percentage of patients who received a falls assessment or were referred or recommended for a falls assessment.

A multifactorial falls risk assessment is warranted following any fall that requires medical attention in an older person, [Montero-Odasso et al \(2022\)](#); [Kim et al \(2022\)](#). This assessment should address gait and balance impairments, medication use, cardiovascular risks, vision, cognition and continence. The majority of fragility fractures occur following a fall but even where spontaneous, e.g. many osteoporotic vertebral fractures, these patients will still benefit from falls risk assessment as they are at much higher fracture risk if they do fall. No FLS can therefore overlook the importance of assessing falls risk unless there is certainty that it is being addressed by an alternative service.

Though this recommendation is in 'older' people, the event of a fragility fracture is an opportunity to do a brief assessment of falls risk in all-age patients, therefore we did not restrict this to older age but included the entire cohort in the denominator. Sub-selecting only those aged 65 years and older, 45% of this age group had a falls risk assessment, compared to 29% for the group overall.

CHAPTER 2 DATA ANALYSIS

KPI 7 – Bone Therapy Recommended



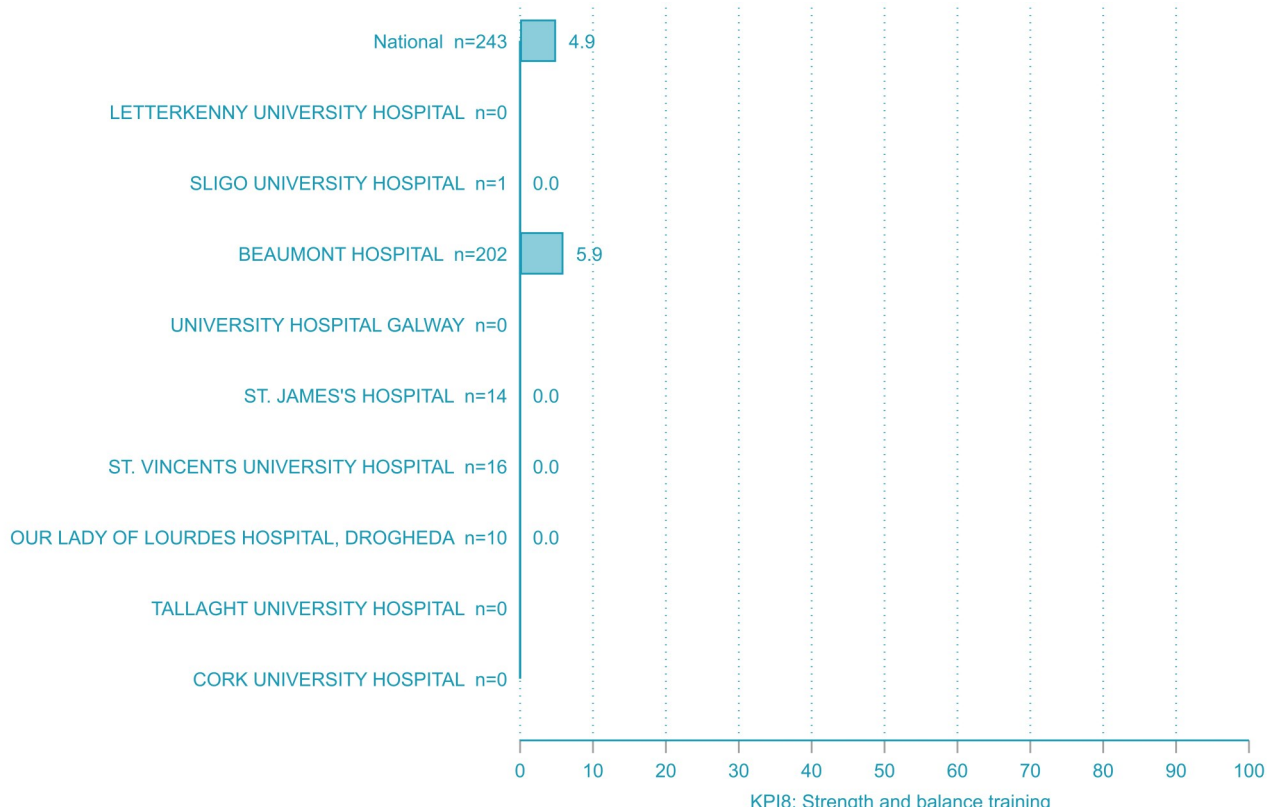
KPI 7: Bone Therapy Recommended: Percentage of patients who were recommended anti-osteoporosis medication.

Osteoporosis drug treatment is the cornerstone of fracture risk reduction. Not all of those who are assessed following a fragility fracture will require treatment. Some may already be on treatment and will require a review of this treatment while others may have contraindications to drug treatment. Treatment guidelines vary as per fracture types, age and other fracture risk categories. Reflecting this, the International Osteoporosis Foundation suggests a standard of 50% of patients would be expected to commence or continue osteoporosis treatment following a fragility fracture.

The 35% of all patients being recommended treatment is below the IOF standard, but with wide variation. Those sites with high treatment rates probably reflect the fracture types they capture e.g. predominantly vertebral fractures or an older aged cohort, as both of these criteria would prompt treatment in almost all cases unless contraindicated.

CHAPTER 2 DATA ANALYSIS

KPI 8 – Strength and Balance Training



KPI 8: Strength and Balance Training: The percentage of non-hip fracture patients who had started strength and balance training within 16 weeks of their fracture.

One of the leading interventions in falls risk reduction in older people is a strength and balance exercise programme. As the vast majority of fragility fractures result from a fall this is an important component of FLS guidance for patients. The UK FLS-DB report this data on only those age 75+ years though the recently published World Falls Guidelines, Montero-Odasso et al (2022) cite 'older' as over 60-65 years. We report on the whole cohort for this report given the very small numbers.

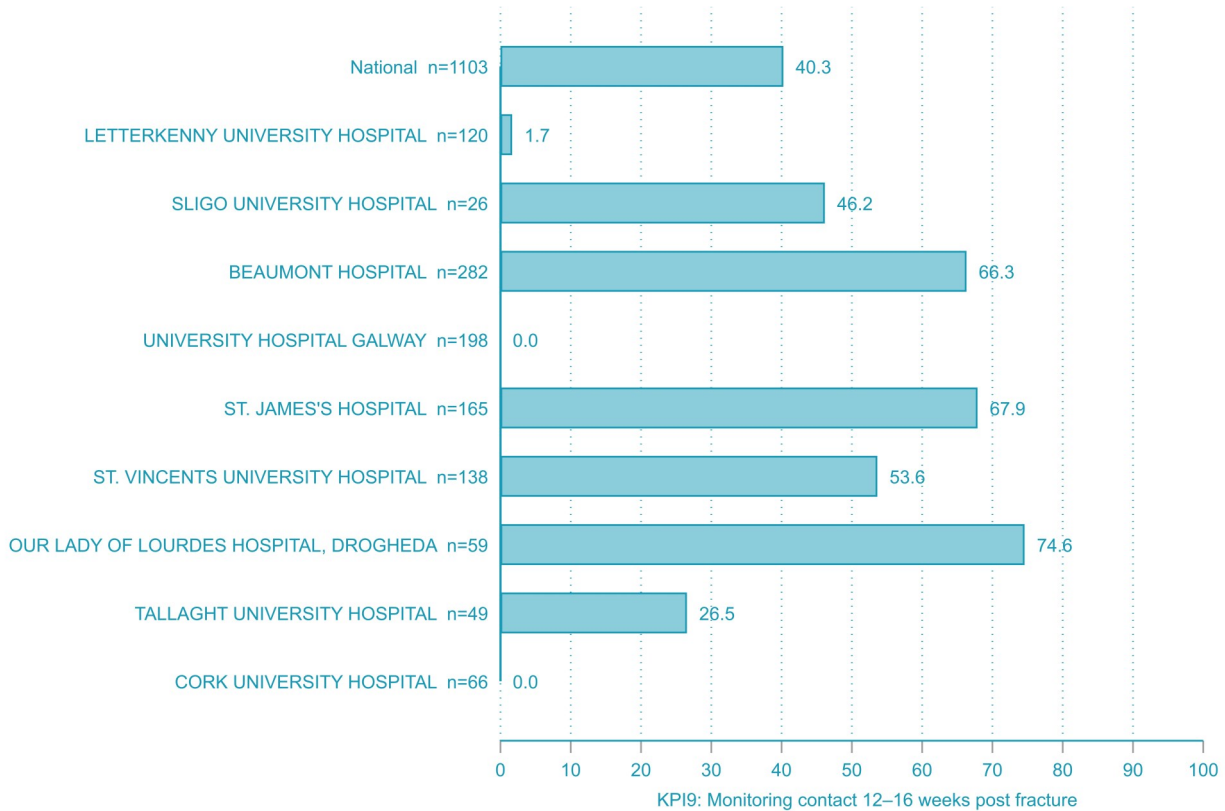
This KPI only applies to those eligible for a 16-week follow up call i.e. only those recommended osteoporosis drug treatment *and* a strength and balance exercise programme; this was selected purely to ease the burden of follow up calls, as is the current practice in the UK FLS-DB.

This represented a denominator of just 243 of the full cohort. The total number who were recommended to undergo an exercise programme initially (regardless of the need for 16 week follow up) was 337 but this question was unanswered for the vast majority so this is presumed to be an underestimate.

Only one FLS could confirm that a very small number of patients had started a recommended exercise programme. This highlights the need for additional education in relation to the importance of this intervention in falls prevention and the lack of awareness of availability of such programmes nationally. It also varies with patient characteristics as sites with a predominantly younger age group may decide that it is not necessary following a falls risk assessment if one is conducted.

CHAPTER 2 DATA ANALYSIS

KPI 9 – Monitoring Contact 12-16 Weeks Post Fracture



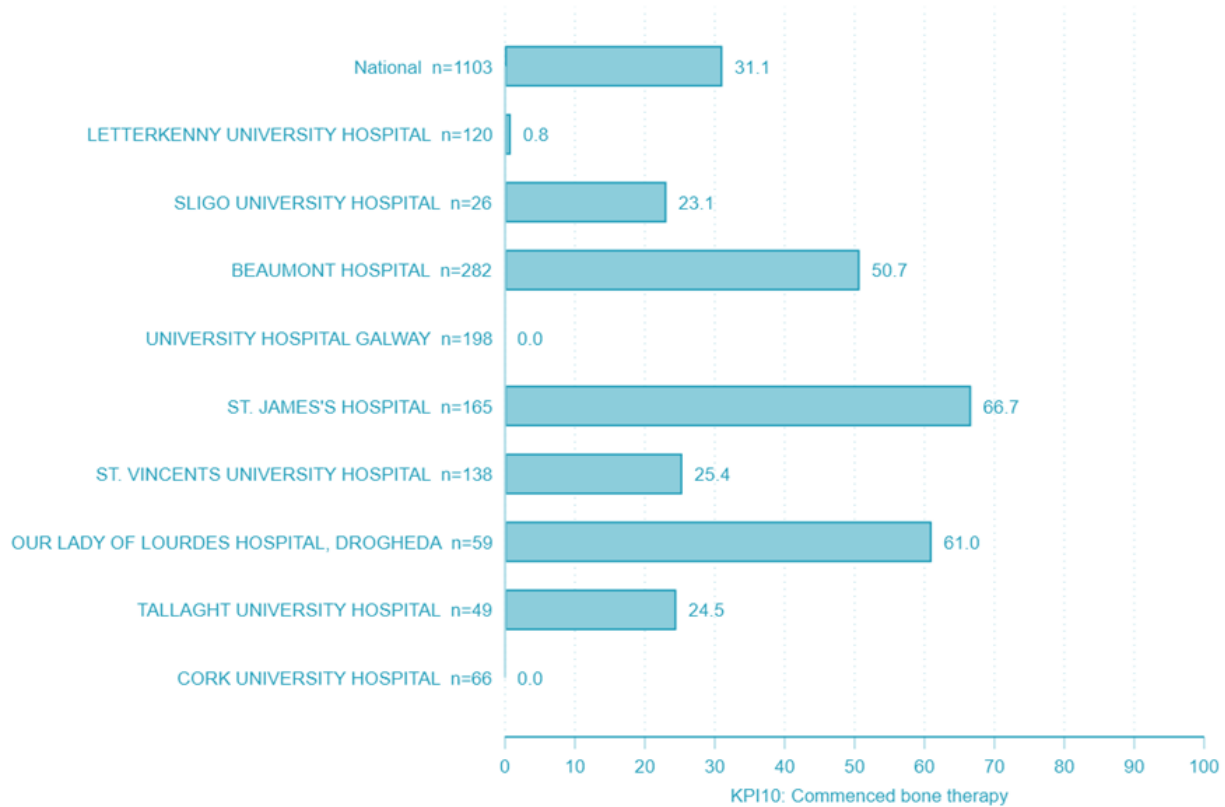
KPI 9: Monitoring Contact 12–16 Weeks Post Fracture: *The percentage of patients who were followed up within 16 weeks of their fracture.*

Not all FLS prescribe osteoporosis drug treatment, instead referring to the patient's GP or other specialist services to decide or to arrange injectable therapies. In addition, many patients do not tolerate oral bisphosphonate therapy. A monitoring contact therefore must take place, to ensure treatment initiation and concordance. This is also an opportunity to reinforce the need for strength and balance exercises where indicated. This follow up occurred in 40% of cases which is encouraging given many FLS are relatively new sites and under-resourced.

The standard is '12-16 weeks post fracture' rather than '12-16 weeks post FLS assessment', so in some hospitals with long delays for FLS assessment, follow up may well have occurred but outside of the recommended time frame. Time since fracture remains the standard, as no patient requiring drug treatment should wait longer than four months following a fracture for it to start. It is notable that no post-treatment monitoring contact takes place in two hospital sites.

CHAPTER 2 DATA ANALYSIS

KPI 10 – Commenced Bone Therapy by First Follow Up



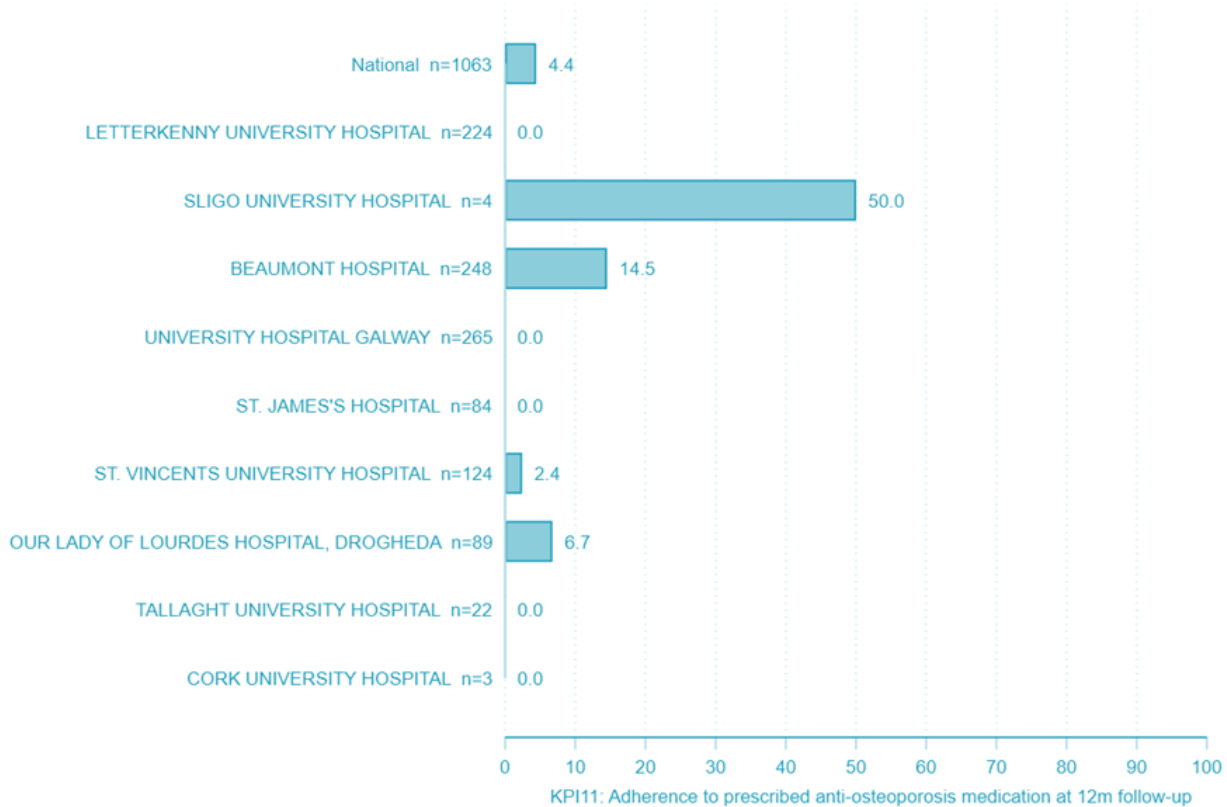
KPI 10: Commenced Bone Therapy by First Follow Up: *The percentage of patients who had commenced (or were continuing) anti-osteoporosis medication within 16 weeks of their fracture.*

If osteoporosis treatment is indicated, it should commence as soon as possible after a fragility fracture given the high imminent re-fracture risk. Submitted data for KPI 10 shows that 31% of those patients who were advised to start osteoporosis treatment (and therefore received a monitoring call by 16 weeks) were confirmed as having commenced same.

However as per KPI 9, this monitoring call took place in only 40% of those patients eligible and of this cohort 78% of them had confirmed starting or continuing treatment which is a very encouraging figure.

CHAPTER 2 DATA ANALYSIS

KPI 11 – Adherence to Prescribed Anti-osteoporosis Medication at 12 Months Post Fracture



KPI 11: Adherence to Prescribed Anti-osteoporosis Medication at 12 Months Post Fracture: The percentage of patients who had confirmed adherence to a prescribed anti-osteoporosis medication at 12 months post fracture.

As this is the second year of the Irish FLS-DB producing data, this is the first time this KPI is being reported on.

This outcome is very poorly performed or recorded in all sites, with the highest performing site achieving this for just n=36 patients or 15% of their cohort. Most sites have no strategy in place to record outcomes one year following a fracture.

CONCLUSION

This is the second report of the Irish Fracture Liaison Service Database, reporting on patients who sustained a fragility fracture in the year January – December 2022. This year's report includes data from nine Irish hospitals. The Mater Misericordiae University Hospital and Connolly Hospital established an FLS in 2022 and are participating in the FLS-DB. As their numbers for 2022 were less than 50 they were not included in this report.

Ten of the eleven International Osteoporosis Foundation's, "Capture the Fracture" KPIs are reported here. KPI 1, which measures completeness of all KPI's at greater than 80%, is not reported as no centres achieved this target.

It would be expected that from the nine participating hospitals, that 9,870 fragility fracture episodes of care would be captured. Only 33% of 3,195 fragility fractures were reported through the database to represent an increase of 27% from 2021.

Vertebral (spine) fractures are a major cause of pain, disability and morbidity for patients. They occur with the same incidence as hip fractures, and they are commonly acknowledged as being a pre-cursor, hence the importance of capturing their incidence. Agreement as to how best to 'find' these patients in a timely manner given the multiple possible entry points into the healthcare system needs further discussion at both local and national level.

With the implementation of FLS services nationally, it would be hoped that identification of fractures can occur earlier in the fragility 'fracture cascade'. For example, capturing forearm fractures in younger patients should lead to earlier identification and treatment of patients at risk, thereby lowering the incidence of major osteoporotic fractures such as hip fracture over time.

Time to FLS assessment remains a key priority for reducing fragility fracture risk, as 50% of patients sustaining a recurrent fracture will do so within a two-year time frame. KPI 4, is therefore important not just for reporting on assessment and treatment of patients, but in also showing that interventions occur within a timeframe that can have the greatest impact.

Access to DXA scanning nationally remains a challenge. While many older patients do not require this investigation, it can be very important for making therapeutic decisions in younger patients. Many hospitals perform this investigation but all too often this occurs outside of the recommended time frame. One hospital included in the report, did not get the recognition for timely referral to DXA due to an IT error. This highlights the need for robust IT systems nationally and continuing investment in same.

Falls assessment is an essential component to reducing fracture risk. There were an inadequate number of falls risk assessments conducted (KPI 6: 29%), and a severe failure to mitigate falls risk by adequate and timely referrals for strength and balance training programmes (KPI 8: 5%); a missed opportunity to help reduce imminent fracture risk.

Bone therapy was recommended in only 35% of patients, a decrease from 53% in 2021. Though fracture types and patient age influences this decision, the agreed target from the IOF standards is that a treatment recommendation should occur in approximately 50% of FLS patients in a service capturing expected numbers of all fracture types.

Of the patients who presented to the nine hospital sites in 2022, approximately 600 had sustained a previous fracture, yet only 26% of these were on treatment for osteoporosis. A large treatment gap exists, showing a lack of awareness and unmet therapeutic need in patients at high risk of fracture.

It is encouraging to see that in 2022, 31% of patients had commenced anti-osteoporosis medication by first follow up versus only 17% in 2021. Monitoring contact with patients at 12-16 weeks post fracture is critical in ensuring that appropriate medication has been commenced and this (KPI 9) improved from 30% in 2021 to 40% in 2022. This demonstrates that when an adequately resourced FLS is in place therapy is started within an acceptable timeframe, bringing real benefits to patients.

Poor tolerability of oral anti-osteoporosis medication is commonly reported and there is a need for good communication, education and understanding of how to administer this medication in order to gain the maximum benefit with minimal side effects. Memory difficulties can be prevalent in this patient population which also impacts biannual injectable therapies due to the need for advanced scheduling of appointments. This emphasises the need for ongoing monitoring of treatment at 12 months post fracture. The low figure of 4% reported (KPI 11) may represent under-resourcing of services preventing staff from achieving this target.










Despite the advances in the FLS at the nine sites who submitted data in 2022, there is room for improvement. The HSE has recognised the need to continue to invest in this service and their ongoing commitment is very welcome. We hope FLS can continue to develop so that all sixteen sites have a fully resourced service in the very near future.

This will deliver untold patient benefits over time particularly with the changing population demographic, in preventing painful, debilitating repeat fractures for many.

REFERENCES

- Javaid, M.K., Pinedo-Villanueva, R., Shah, A., Mohsin, Z., Hiligsmann, M., Motek-Soulié, A., Fuggle, N.R., Halbout, P. and Cooper, C., 2023. The Capture the Fracture® Partnership: an overview of a global initiative to increase the secondary fracture prevention care for patient benefit. *Osteoporosis International*, pp.1-9.
- Javaid, M.K., Sami, A., Lems, W., Mitchell, P., Thomas, T., Singer, A., Speerin, R., Fujita, M., Pierroz, D.D., Akesson, K. and Halbout, P., 2020. A patient-level key performance indicator set to measure the effectiveness of fracture liaison services and guide quality improvement: a position paper of the IOF Capture the Fracture Working Group, National Osteoporosis Foundation and Fragility Fracture Network. *Osteoporosis International*, 31, pp.1193-1204.
- Adachi, J.D., Brown, J.P., Schemitsch, E., Tarride, J.E., Brown, V., Bell, A.D., Reiner, M., Packalen, M., Motsepe-Ditshego, P., Burke, N. and Slatkovska, L., 2021. Fragility fracture identifies patients at imminent risk for subsequent fracture: real-world retrospective database study in Ontario, Canada. *BMC Musculoskeletal Disorders*, 22(1), pp.1-10.
- Åkesson, K., Marsh, D., Mitchell, P.J., McLellan, A.R., Stenmark, J., Pierroz, D.D., Kyer, C., Cooper, C. and IOF Fracture Working Group, 2013. Capture the fracture: a best practice framework and global campaign to break the fragility fracture cycle. *Osteoporosis International*, 24, pp.2135-2152.
- Dockery, F., Glynn, A., Franks, K., Carey, J.J., O'Gradaigh, D., Kenny, P., Askin, D., Butler, E., Sweeney, B., Conlon, B. and McGregor, B., 2022. Fracture liaison services in Ireland—how do we compare to international standards?. *Osteoporosis International*, 33(5), pp.1089-1096.
- Erjiang, E., Wang, T., Yang, L., Dempsey, M., Brennan, A., Yu, M., Chan, W.P., Whelan, B., Silke, C., O'Sullivan, M. and Rooney, B., 2020. The Irish dual-energy X-ray absorptiometry (DXA) health informatics prediction (HIP) for Osteoporosis Project. *BMJ open*, 10(12), p.e040488.
- Kim, K.M., Lui, L.Y. and Cummings, S.R., 2022. Recent fall and high imminent risk of fracture in older men and women. *Age and ageing*, 51(6), p.afac141.
- Montero-Odasso, M., van der Velde, N., Martin, F.C., Petrovic, M., Tan, M.P., Ryg, J., Aguilar-Navarro, S., Alexander, N.B., Becker, C., Blain, H. and Bourke, R., 2022. World guidelines for falls prevention and management for older adults: a global initiative. *Age and ageing*, 51(9), p.afac205.
- O'Sullivan, D., Silke, C., Whelan, B., McGowan, B., O'Sullivan, M., McCabe, J.P., Heaney, F., Armstrong, C., Gsel, A.M., Connaughton, B. and Carey, J.J., 2023. Osteoporotic fracture admissions compared to other major medical admissions in Irish public hospitals. *Archives of Osteoporosis*, 18(1), pp.1-8.
- Willers, C., Norton, N., Harvey, N.C., Jacobson, T., Johansson, H., Lorentzon, M., McCloskey, E.V., Borgström, F., Kanis, J.A. and SCOPE review panel of the IOF, 2022. Osteoporosis in Europe: a compendium of country-specific reports. *Archives of osteoporosis*, 17(1), p.23.

RESOURCES

	Build Better Bones	www.buildbetterbones.org
	Capture the Fracture	https://www.capturethefracture.org/
	International Osteoporosis Society	https://www.osteoporosis.foundation/
	Irish DXA Society	https://www.dxasoc.ie/
Irish Hip Fracture Database IHFD 	Irish Hip Fracture Database	https://www.noca.ie/public-patients-involved
	Irish Osteoporosis Society	https://www.irishosteoporosis.ie/
	Know Your Bones	https://www.knowyourbones.org.au/
	National Integrated Care for Older Persons (NICPOP)	https://www.icpop.org/integrated-care-programme#gref
	Nutrition for Bone Health and Falls Prevention	https://www.hse.ie/eng/about/who/nqpsd/patient-safety-programme/diet-and-bone-health-j-boyle.pdf
	Age Friendly Ireland	https://agefriendlyireland.ie/

The following documents can be found on the FLS webpage: www.rcsi.com/fls

- Data Quality Statement
- FLS Database Proforma
- Fracture Liaison Service Inaugural Newsletter
- Fracture Liaison Services in Ireland - How Do We Compare to International Standards?
- Fracture Liaison Services Audit Summary
- Fracture Liaison Service Pathway
- Irish Fracture Liaison Service Database 1st Report
- Methodology (Inclusion / Exclusion Criteria)

APPENDIX



HOSPITAL PROFILES

Participating Hospitals.....	32
Beaumont Hospital.....	34
Connolly Hospital.....	34
Cork University Hospital.....	35
Galway University Hospital.....	35
Letterkenny University Hospital.....	36
Our Lady of Lourdes Hospital Drogheda.....	36
Mater Misericordiae University Hospital.....	37
Sligo University Hospital.....	37
St James’s Hospital.....	38
St Vincent’s University Hospital.....	38
Tallaght University Hospital.....	39
Hospital FLS Team Photos.....	40

APPENDIX

PARTICIPATING HOSPITAL PROFILES

	Team Members
 BEAUMONT HOSPITAL	Clinical Lead: Professor Frances Dockery Nurses: Elaine Butler, RANP and Eleanor Hogan, cANP; DXA unit nurses: Maria Byrne and Josy Jose. Administrative support: Jackie Fitzpatrick, Emer Byrne, Suzie Mellon
	Clinical Leads: Dr. Marie O'Connor, Mr Paddy Kenny, Dr. Eithne Murphy Nurses: Devi Mohan, cANP Administrative support: Holly Day Ward and the Rheumatology OPD.
 Ospidéal Ollscoile Chorcaí Cork University Hospitals	Clinical Lead: Dr Emer Ahern Nurse: Shirley Rothwell, Staff Nurse
 Galway University Hospitals Ospidéal na h-Ollscoile Gaillimh UNIVERSITY HOSPITAL GALWAY MERLIN PARK UNIVERSITY HOSPITAL	Clinical Lead: Professor John Carey Nurses: Catherine Armstrong, CNS, Fiona Heaney cANP: Aoife Dempsey DXA Unit Nurses: Rebecca Egan, Kelly Gorham. Administrative support: Helga Buechler
 LETTERKENNY GENERAL HOSPITAL	Clinical Lead: Mr. Syed Nadeem Nurses: Carole McFadden, CNM 2
 LOUTH HOSPITALS O'LOU LICH COTTAGE RCSI HOSPITAL GROUP	Clinical Leads: Dr. Tomás Ahern, Mr. Aaron Glynn and Dr. Helen O'Brien Nurses: Ms Bernadette Conlon, RANP Administrative support: Ms Aliya Hadiqa
 Mater Misericordiae University Hospital	Clinical Lead: Mr Michael Mara Nurse: Nicola Shorten, cANP
 SLIGO UNIVERSITY HOSPITAL The Mall, Sligo, F91 H684 Tel:071 917 1111 Fax:071 917 4648	Clinical Lead: Dr. Grainne O'Malley Nurses: Aoife McPartland, cANP: Bridie Rooney, CNM 2
  ST JAMES'S HOSPITAL	Clinical Leads: Dr Rosaleen Lannon and Dr Kevin McCarroll Nurses: Ms Georgina Steen, cANP, Dr Niamh Maher, CNS, Ms Nessa Fallon, CNS, Ms Claire O Carroll, CNS, Ms Jennifer Carragher, CNS. Niamh Mulhall and Avril Quirke, Senior Radiographers Administrative support: Majella Kelly & Chloe O'Brien
 ST. VINCENT'S UNIVERSITY HOSPITAL Elm Park	Clinical Leads: Dr Rachael Doyle, Dr Claire Murphy Clinical Mentor: Professor Rachel Crowley Nursing: Ann Flynn, Joan Killeen, Mary Clarke, Leena Rodrigues, cANP, Breeda Sweeney Administrative support: Louise Byrne
 Tallaght University Hospital Ospidéal Ollscoile Thamhlachta An Academic Partner of Trinity College Dublin	Clinical Lead: Professor David Kane Nurses: David Askin, cANP, Louise Brennan Administrative support: Suzanne O'Donnell, Brona Coates

APPENDIX - PARTICIPATING HOSPITAL PROFILES

BEAUMONT HOSPITAL

Eleanor Hogan, candidate ANP has been appointed and will commence her MSc in RCSI in September. Funding has been received for a clerical grade IV administrative support with recruitment due to commence shortly.

A new system of case finding fractures via the Orthopaedic Trauma Assessment Clinic (TAC) and our internal IT system has been developed. This includes an online consultation service and dedicated email for teams to refer cases to the FLS directly for both inpatients and outpatients. These new referral pathways have significantly increased our workflow over the last number of months. The team are particularly involved in the management of acute vertebral fractures, advising not just on bone health but on pain management and mobilisation strategies in conjunction with our physiotherapy colleagues.

The team have established a culture of collaborative practice, drawing on the expertise of all disciplines that input into an FLS for the benefit of all patients. The DXA service at St Joseph's hospital has enabled access to timely, high-quality scans for patients and enabled new one-stop clinics. There are two new ANP-led 'One Stop FLS clinics' alongside the DXA service, while a consultant-led bone health clinic as well as a falls clinic continue to operate. We have increased our visibility within the hospital, ensuring FLS is recognised as a critical service. Our aim is to increase engagement with community colleagues to standardise and achieve high-quality care for every fracture patient within the region through education and training.

Since the HSE cyber-attack (May 2021), the ability to case-find all vertebral fractures via radiology has been halted. We are working with our Radiology and IT colleagues to try to re-establish this process. IT issues generally hold back case finding substantially; we are looking into sourcing funding for a more user-friendly system for the service and Beaumont IT systems are due for a major upgrade shortly which should improve many aspects of our service.

CONNOLLY HOSPITAL

The inaugural Fracture Liaison Service in Connolly Hospital commenced in November 2022 with the appointment of a cANP, Devi Mohan. The FLS at Connolly Hospital is in its early developmental stages under the governance of Dr. Marie O'Connor, Dr. Eithne Murphy and Mr Paddy Kenny.

As a new service with limited resources, the FLS team decided to focus on upper limb fractures, specifically wrist and neck of humerus fractures initially. The cANP case finds via virtual Fracture Assessment Clinic (vFAC), ED fracture clinic list, orthopaedic in-patients, orthopaedic OPD, plaster room nurses and through referrals from the Frailty Intervention Team in the Emergency Department. Patients are contacted via telephone and invited to attend a clinic for a bone health assessment and DXA scan referral.

Under clinical supervision, the cANP provides face-to-face and virtual consultations, develops personalised treatment plans and provides follow up to all patients who consent. She also liaises with the GPs if the service user declines assessment as well as inputting into the FLS Database. At this point over 50 patients with upper limb fractures have been identified and the plan is to move into our next stage of case finding for vertebral fractures.

We have identified the need to work closely with our colleagues in the Emergency Department and Departments of Medicine to establish a pathway for identifying patients with vertebral fractures. Our cANP Devi Mohan will graduate in the Autumn of 2023, becoming a licensed ANP.

The FLS Local Implementation Group meets every 2-3 months to evaluate the progress, discuss the challenges and decide on measures required to improve the service. We are scheduled to host and present at the Annual GP Study Day in October 2023; we will use this opportunity to give an audio-visual presentation to our GP colleagues about the role of FLS, our work to date and how to refer patients.

At present, the biggest challenges that the service faces include having no dedicated office space for the cANP to complete her tasks and at present there is no dedicated administrative support so all correspondence to GPs is typed and sent by the cANP

APPENDIX - PARTICIPATING HOSPITAL PROFILES

CORK UNIVERSITY HOSPITAL

Since the last report, CUH have commenced an FLS, including participation in the FLS–DB. A half year's data is included in this report which is a great achievement for such a fledgling service, thus demonstrating the interest and awareness of FLS at this major trauma site. Case finding has been predominantly done through the virtual Fracture Assessment Clinic (vFAC) by Staff Nurse Shirley Rothwell.

Dr Emer Ahern Consultant Trauma and Orthogeriatrician is the Clinical Lead Consultant for the service at present.

Funding for two dedicated FLS ANP posts has been secured by the National Clinical Programme for Trauma and Orthopaedic Surgery to develop this much needed service in the south/southwest region of Ireland.

GALWAY UNIVERSITY HOSPITAL

The service has been developed to provide a streamlined 'one stop shop' where patients attend for bloods, DXA, clinical assessment and treatment recommendations on the same day. The FLS continues to accept referrals for patients with fragility fractures from the acute services. We have increased our capacity with the appointment of a new cANP Aoife Dempsey and thus reduced our waiting times for DXA and assessment. We are now in a position to accept more referrals from primary care services.

We have also collaborated with our physiotherapy colleagues to reinstate a 'Fit for Life' programme; this provides multi-disciplinary education on disease management, strength & balance exercise classes for falls prevention.

On World Osteoporosis Day we organised a patient information stand in the main hospital foyer. We had local media coverage and patients were invited to attend and discuss their bone health concerns, receive a brief osteoporosis risk assessment along with education on how to optimise bone health from local experts. Education sessions for both acute and integrated care programme staff have been completed to raise awareness of our FLS service and thus increase the potential for referrals.

We are delighted to have received funding approval for a full time administrative post which should assist in decreasing our non-clinical workload. This has been an ongoing, significant challenge.

With a one hospital, two site facility, it has been an enormous challenge to identify patients that need FLS assessment as inpatient care is based in UHG and outpatient care in Merlin Park.

We are hopeful that we will be able to address the current challenges that we have in identifying and case finding those who need FLS assessment with the additional staff appointment.

APPENDIX - PARTICIPATING HOSPITAL PROFILES

OUR LADY OF LOURDES HOSPITAL DROGHEDA

The FLS Service has continued to adapt, evolve and develop in the past year. Significant challenges include the absence of the orthogeriatrician service since February 2022 and the unplanned leave of the FLS RANP. Since July 2022, Dr. Tomás Ahern has provided clinical governance for FLS RANP, enabling the service to resume. The RANP FLS provides both inpatient assessments and outpatient clinics. Presently, the RANP assesses patients with non-hip fragility fractures as well as all admitted patients with a hip fracture.

The RANP FLS successfully secured funding through OLOL eHealth committee to move the FLS service to a comprehensive digital platform through collaboration with Open Medical / Pathpoint and a custom built platform is in the process of being completed. This went 'live' in September 2023.

In November 2022, part time clerical support was secured for the FLS. In the same month, a third RANP-led FLS Outpatient clinic was established in the Cottage Community Hub. This clinic exclusively treats new patients both face-to-face and virtually and it is a 'one stop shop' that enables bone health assessment, falls risk assessment and treatment plans; a CNM & CNS support this clinic. The FLS RANP manages a Zoledronic Acid Pathway where patients attend for between 3 and 6 years on average. Since Jan 2022, 422 infusions have been administered. In May 2023, a Finapres was purchased and training secured as an adjunct to falls risk assessment.

The FLS service has 1 full time RANP with part time clerical support to provide a service to approximately 1,500 patients annually with likely fragility fractures who attend orthopaedic services in Louth Hospitals including non-hip and hip fractures. Moving forwards, at least a second if not a third RANP is required if the service is going to achieve its targets to significantly impact the number of projected fragility fractures. Full time clerical support is also required to provide efficiency and continuity in such a busy service.

Presently the service has no designated physiotherapy pathway and securing physiotherapy involvement is on a case-by-case basis at present.

LETTERKENNY UNIVERSITY HOSPITAL

The FLS was established in Letterkenny in 2008 and had been served by Bruce MacGregor until his retirement this year; Carole McFadden was then appointed into the post. The hospital has 4 orthopaedic consultants and the Fracture Liaison Service Nurse attends each consultant's post call fracture clinic as well as attending the orthopaedic ward daily identifying patients over 50 years with fragility fractures.

Until his retirement Bruce was performing DXA scans on the patients identified by the service and the waiting list was approximately 12 weeks from index fracture. However at present the radiography department has kindly taken over the service until the new FLS achieves certification; this had an impact on the waiting list due to the delay in service provision. The FLS nurse advises the GP of the DXA report and requests them to prescribe treatment. The nurse also counsels patients with regards to their diagnosis and gives lifestyle advice on how to reduce future fracture risk.

Challenges to the service include: securing additional staff in the radiology department to tackle the DXA waiting list and follow up patients who have commenced osteoporosis treatments. However this is an area the new nurse working in the service would like to develop.

APPENDIX - PARTICIPATING HOSPITAL PROFILES

MATER MISERICORDIAE UNIVERSITY HOSPITAL

The Fracture Liaison services (FLS) within the Mater Misericordiae University Hospital (MMUH) commenced last September 2022 under the clinical governance of the Orthopaedic Department. This new service is led by Mr. Michael Mara and cANP Nicola Shorten.

The FLS cANP works closely with orthopaedic, rehab, 'silver trauma' and trauma teams as well as working with the orthogeriatric service led by RANP Mary Mullen and Professor Joseph Duggan. The future for FLS within the MMUH is to develop pathways and foster relationships with multiple specialities such as rheumatology, endocrinology, silver trauma clinics and the trauma service team in order to provide the best evidenced base care for this patient cohort.

The FLS cANP attends weekly MDT meetings and ward rounds to discuss all patients – at present the service is only available to inpatients. The goal is to assess outpatient fractures also. There are currently ongoing plans currently to commence an FLS OPD clinic where DXA scans can be organised and data captured for the FLS database.

As MMUH is the designated Major Trauma Centre for the central network, our catchment area will expand to include inside the M50 and north of the River Liffey leading to an increase in the number of trauma cases we receive which will result in an increase in fracture attendance and demand for a well-resourced FLS.

SLIGO UNIVERSITY HOSPITAL

The Fracture Liaison Service in Sligo University Hospital (SUH) remains in the development stage although strides have been made since the hospital appointed a cANP who took up her post in January 2023. Having just completed the first year of the Masters in Advanced Practice in Nursing, Aoife is due to commence the second and final year in September 2023.

Patient identification is done through the fracture clinics. The Fracture Liaison Service Database continues to be updated on a daily basis with assistance from the CNM 2 osteoporosis service. Regular meetings with the Clinical Lead assist with setting goals and resolving any issues that arise.

Protocols are currently being put in place to streamline the capture of fracture patients.

A new FLS vetting priority has been added to the DXA vetting Protocol which aims to ensure FLS patients get offered a DXA scan within 12 weeks from date of fracture.

Combined FLS / DXA clinics have been established in SUH and the satellite Community Hospital in Our Lady's Hospital, Manorhamilton, Co. Leitrim where the cANP reviews the patient on the same day that they have their DXA scan and offers advice and education on osteoporosis and falls prevention. Onward referrals to the community falls prevention team are carried out if necessary.

The cANP FLS has secured approval to commence medication prescribing and is awaiting approval for the authority to refer for radiological procedures. This will allow for the comprehensive evaluation and assessment of the FLS patient in SUH where DXA scans can be requested, secondary causes of osteoporosis can be investigated and medication can be reviewed and initiated if appropriate. cANP clinics to follow up on long-term management will then be initiated, and these will include a review of medication adherence and optimisation of non-pharmacological interventions.

As outlined above, progress has been made in implementing effective FLS in SUH which will assist us in achieving our goal of reducing the health burden caused by fragility osteoporotic fractures in our local population.

APPENDIX 1 - PARTICIPATING HOSPITAL PROFILES

ST JAMES'S HOSPITAL

The Bone Health and Osteoporosis Unit was established in 2003 and is led by Dr Rosaleen Lannon and Dr Kevin McCarroll. This unit provides a wide range of patient services, from DXA scans to giving specialist opinion on complex cases from all over Ireland. Since 2003, a key part of the service has been identifying fragility fractures through a dedicated FLS which the bone health clinical nurses are actively involved in and which has greatly expanded year on year to deliver integrated patient-centred care.

Dedicated flow for hip fractures is well-established, however the advent of the FLS-DB brought challenges in providing DXA and reviewing patients in line with the FLS-DB Key Performance Indicators. With the recent appointment of a dedicated FLS cANP, the service has been allowed to expand to identify and address rising fracture numbers and deliver significant benefits to patients who would otherwise be at risk of sustaining additional fragility fractures.

A case finding approach is used by the cANP to identify all new distal radius, humerus and acute vertebral (spine) fractures presenting to the radiology department. Remaining fragility fractures are seen by the C.N.S.'s in the nurse led clinics.

Ongoing challenges for this service include: identifying all fragility fractures and achieving the KPI's as outlined in the FLS-DB. Lack of dedicated administrative staff and clinical space is also an ongoing challenge.

ST VINCENT'S UNIVERSITY HOSPITAL

The need for advancement of FLS was recognised by hospital management and an FLS working group was established which holds six weekly meetings to discuss the service needs and to provide guidance to the candidate ANP.

The clinical leads Dr Doyle and Dr Murphy agreed that the cANP will concentrate on the upper limb fragility fractures. This patient cohort is contacted virtually by the cANP with bone health assessment and advice on diet, exercise and lifestyle being provided. The cANP aims to contact these patients within 12 weeks of their fracture and decides if they require a DXA scan before commencing treatment. More fragility fractures are identified by accessing the trauma assessment clinic patients and the Emergency Department clinical notes (MAXIMS).

Day surgery patients are assessed and provided with information on bone health before theatre. Patients who have had their DXA scan in the last 24 months are referred to the GP for their bone health medication. cANP sends the DXA scan report to the GP and a letter is sent to the patient informing them to contact the GP for the prescription.

Virtual follow-up of patients with treatment recommendations is carried out with advice given on lifestyle factors including diet and exercise for falls prevention.

An audit is being done to tackle the DXA waiting list by analysing how many patients could have commenced treatment based on guidelines without waiting for a DXA.

Current challenges for this service include: establishing a pathway to assess patients on their trauma clinic appointment day along with a referral pathway for falls risk assessments.

The management by the cANP of long DXA waiting lists rather than waiting for the orthopaedic team to sign the request form. The cANP is awaiting authorisation by the ionising radiation committee. Lack of clear local guidelines for prescribing treatment for certain patients without the need for a DXA scan.

Lack of availability of clinic space for the cANP and data management remains a challenge as administrative support is not yet available however a dedicated administrator has recently been funded. The need for a dedicated case finding pathway for spine fracture patients has been identified.

APPENDIX - PARTICIPATING HOSPITAL PROFILES

TALLAGHT UNIVERSITY HOSPITAL

Tallaght University Hospital and the rheumatology department are delighted to welcome Louise Brennan, CNS. Louise is now identifying and assessing inpatients with fragility fractures.

David Askin has been appointed cANP in 2022 and has commenced a Masters in Nursing Advanced Practice and is completing year 1 of the 2 year course.

A protracted time to FLS assessment remains a challenge for the service; an opt-in invitation remains in place in an effort to reduce the waiting time. However, time to assessment is steadily declining given the increase in staffing. This will greatly improve patient identification numbers and other performance indicators in the Irish FLS-DB.

The FLS team secured the services of 'Leading Edge' facilitated by Amgen's Healthcare Solutions to improve operational efficiencies of the service.

Although not fully completed, early interventions include:

Redesign of the case finding strategy. Developing new identification pathways with the Trauma Assessment Clinic to shorten time-to-assessment following fracture.

Case-finding vertebral fractures who have attended the Emergency Department and are discharged directly back to GP.

Rationalisation of the use of DXA, seeking dedicated slots for FLS.

The FLS envisages greater administrative demands on the service and will require dedicated clerical support to coordinate patient follow up.

Better communication with Orthopaedic and Orthogeriatric teams ensuring patients obtain the correct blood tests panel during hospitalization in order to facilitate fracture risk assessment.

A new challenge emerging is additional clinic space for screening.



3,195 non-hip fragility fractures have been identified in the 2022 FLS-DB Report

Though deficiencies exist across a number of key performance indicators, the Clinical Leads and the FLS Steering Group congratulate all hospitals that have either recently established or continue to develop their FLS and have participated in the data collection for this report.

APPENDIX - PARTICIPATING HOSPITAL PROFILES



Beaumont Hospital - Suzie Mellon, Maria Byrne, Josy Josey, Professor Frances Dockery, Elaine Butler and Eleanor Hogan.



OLOL Drogheda, Bernadette Conlon and Dr. Tomas Ahern.



Sligo University Hospital, Aoife McPartland, Bridie Rooney, Dr. Grainne O'Malley.



Letterkenny University Hospital, Carole McFadden, Nicole McColgan, and Claire Kelly.

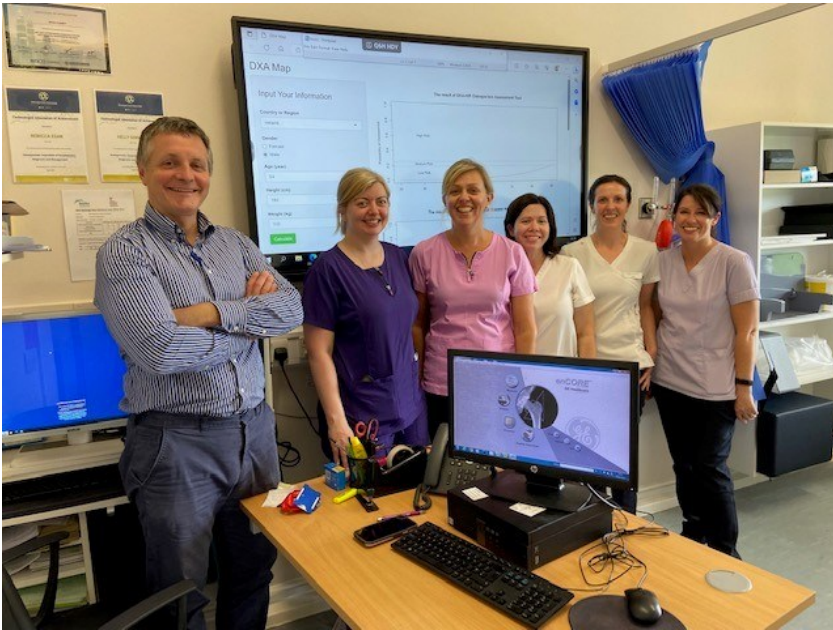


St James's Hospital. Avril Quirke Niamh Mulhall.



St James's Hospital Majella Kelly, Claire O Carroll, Georgina Steen, Nessa Fallon, Dr Donal Fitzpatrick.

APPENDIX - PARTICIPATING HOSPITAL PROFILES



Galway University Hospital, Professor John Carey, Aoife Dempsey, Fiona Heaney, Rebecca Egan, Kelly Gorham and Catherine Armstrong.



Mater Misericordiae University Hospital
Mr Michael Mara, Nicola Shorten.



Tallaght University Hospital
Louise Brennan, Suzanne O'Donnell and Brona Coates, David Askin.



St Vincent's University Hospital Joan Killeen, Mary Clarke, Leena Rodrigues, Dr Rachael Doyle, Dr Claire Murphy.



Connolly Hospital Dr. Marie O'Connor, Devi Mohan, Dr. Patrick O'Donohue.

A big thanks goes out to all FLS Team Members for their continuing dedication and hard work improving the lives of FLS patients.

Mr Aaron Glynn, Professor Frances Dockery, Mr Paddy Kenny, Mr Finbarr Condon

Fracture Liaison Service Steering Committee 2022 – 2023

Professor Frances Dockery and Mr Aaron Glynn

Joint Clinical Leads FLS-Database

Mr Paddy Kenny and Mr Finbarr Condon

Joint National Clinical Leads, National Clinical Programme for Trauma & Orthopaedic Surgery

Professor John Carey

Consultant Physician University Hospital Galway

Professor Tara Coughlan

Consultant Geriatrician, Tallaght University Hospital

Dr Martin Coyne

General Practitioner, Health Centre Lifford Co. Donegal

Anne Marie Malone

Assistant Professor, School of Nursing & Midwifery, Trinity College Dublin

Mr David Askin

Candidate Advanced Nurse Practitioner FLS, Tallaght University Hospital

Sandra Daly

Public and Patient Interest Representative FLS Steering Group

Marian Mullaney

Service Improvement Manager, National Integrated Care Programme for Older Persons

Professor Rose Galvin

School of Physiotherapy, University of Limerick

Ruth Kiely

Programme Manager, National Clinical Programme for Trauma & Orthopaedic Surgery

Professor Breda Smyth

Consultant in Public Health Medicine, Health Service Executive

(until April 2022)

Edel Callanan

HSCP Lead for the National Clinical Programme for Trauma and Orthopaedic Surgery

(until April 2023)

Gareth Clifford

Acute Operations Division, Health Service Executive

(until April 2022)

Kenny Franks

Project Manager FLS-Database

(until April 2023)

Dr Tomas Ahern

Consultant Endocrinologist, Our Lady of Lourdes Hospital Drogheda

(until April 2023)

The **National Fracture Liaison Service Programme (NFLSP) Steering Group** was established in 2018 to implement the recommendation of the 2018 Report - A Trauma System for Ireland (2018: 11, 64). "The HSE should develop a comprehensive Fracture Liaison Service to provide high quality, evidence based care to those who suffer a fragility fracture with a focus on achieving the best outcomes for recovery, rehabilitation and secondary prevention of further fracture".

The National Fracture Liaison Service Database (FLS-DB) was established in August 2020 under the governance of the National FLS Steering Committee and the NCPTOS.

With special thanks to the **FLS-DB Steering Committee** for their support and feedback, and the FLS-DB patient, Sheila Harkin for sharing her story.

Data analysis was performed by: **Professor Jan Sorenson**, Director of the [Healthcare Outcomes Research Centre](#), Royal College of Surgeons in Ireland.

This report was prepared by the Fracture Liaison Service Database team:

Professor Frances Dockery

Fracture Liaison Service Database Clinical Lead
Consultant Geriatrician, Beaumont Hospital

Mr Aaron Glynn

Fracture Liaison Service Database Clinical Lead
Consultant Orthopaedic Surgeon, Our Lady of Lourdes Hospital Drogheda, Navan General Hospital

Professor Jan Sorensen

Director of the Healthcare Outcomes Research Centre, RCSI

Ms Ruth Kiely

Programme Manager, National Clinical Programme for Trauma and Orthopaedic Surgery

Ms Amanda Wilkinson

Fracture Liaison Service Database Report and Newsletter Design and Delivery

This report was authorised by:

Mr Paddy Kenny

Joint National Clinical Lead, National Clinical Programme for Trauma and Orthopaedics Surgery

Mr Finbarr Condon

Joint National Clinical Lead, National Clinical Programme for Trauma and Orthopaedics Surgery

Contact

For further information please contact us: fls@rcsi.com

Visit our webpage: www.rcsi.com/fls

Copyright

All rights reserved. No part of this report can be reproduced (including photocopying or storing it in any medium) without prior consent by the National Clinical Programme of Trauma and Orthopaedic Surgery, NCPTOS@rcsi.ie Brief extracts from this publication may be reproduced without written permission of the National Clinical Programme of Trauma and Orthopaedic Surgery, www.rcsi.com/ncptos



Irish Fracture Liaison Service Database

Website: www.rcsi.com/fls

Email: fls@rcsi.com

Copyright @ National Clinical Programme for Trauma and Orthopaedic Surgery 2023

