

BROKEN BONES, BROKEN LIVES:

A roadmap to solve the fragility
fracture crisis in Spain



FOREWORD

With fragility fractures affecting one in three women and one in five men aged 50 or above, nearly everyone has a family member or friend who has been affected by a fragility fracture. Yet how many of us stop to question the true cause of fragility fractures and simply assume them to be a 'normal' sign of aging rather than the result of weakened bone? How many of us understand that an initial fracture may be a gateway to further fractures and should be treated as a warning sign and prompt us to seek out preventative treatment?

As Spain's population ages as a result of increasing life expectancy, the incidence and contribution of fragility fractures to the overall healthcare spend continue to increase. In 2017, 330,000 fractures occurred in Spain with an associated healthcare cost of €4.2 billion. This annual expenditure is predicted to increase by more than 30%, to €5.5 billion, by 2030.

Beyond the immediate distress, healing time, and recovery associated with a fracture, an initial fracture significantly increases the risk of subsequent fractures and can trigger a negative spiral of healthcare dependence, escalating expense, and impaired quality of life, despite the existence of treatments and programs for secondary prevention of fragility fractures.

This report, **Broken bones, broken lives: A roadmap to solve the fragility fracture crisis in Spain**, explores the clinical, societal, and cost burdens associated with fragility fractures in Spain. The findings provide evidence that, despite the availability of effective preventative therapies and management approaches for fragility fractures, 68% of eligible women and 60% of eligible men in Spain do not receive appropriate care.

Secondary prevention of fragility fractures has been neglected for too long. There is an urgent need to recognize fragility fractures as a public health priority and to establish secondary fracture prevention and management as an integral component of healthy aging.

In addition to providing the latest state of play of fragility fracture care, the report serves as a roadmap, which includes policy recommendations that can assist policymakers in offering the best possible care for Spanish citizens in order to reduce the number of fractures and their impact on patients and the Spanish healthcare system.



Cyrus Cooper, IOF President

The International Osteoporosis Foundation (IOF) is a registered not-for-profit, non-governmental foundation based in Switzerland that has been granted Roster Consultative Status with the Economic and Social Council of the United Nations. IOF functions as a global alliance of patient societies, research organizations, healthcare professionals, and international companies working to prevent osteoporosis and fragility fractures worldwide. Striving for a world without fragility fractures, in which healthy mobility is a reality for all, IOF is dedicated to advancing research and education, promoting policy change, increasing awareness of bone health, and improving patient care.



The Spanish Osteoporosis and Arthritis Association (AECOSAR) was founded in 1994 and has since become a benchmark in the fight against Osteoporosis in Spain. The association has three objectives with regard to osteoporosis: 1) promote prevention measures; 2) raise awareness of the risks of osteoporosis; and 3) help patients and relatives affected by the disease. AECOSAR has a broad scope, from the development of a comprehensive health program, to recreational activities and services that can be implemented by the individual patient. To succeed in this, it partners with multidisciplinary professionals and the public administration.

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Full publication of the data included in this report is currently in development.

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The Spanish Foundation for Osteoporosis and Metabolic Bone Diseases (FHOEMO) originated as a working group on osteoporosis and metabolic bone diseases in 1988, and developed into the current foundation in 1993. FHOEMO prioritizes the promotion of knowledge on diagnosis, prevention, and treatment of bone diseases. The foundation grants scholarships and prizes to promote epidemiological studies, research, and dissemination for a better knowledge of the disease. To support knowledge exchange, FHOEMO organizes information campaigns for doctors, conferences for medical professionals, and delivers support directly to patients and their relatives. It engages with the public at community and hospital level, and at schools to promote healthy lifestyle habits to improve bone health.



Spanish Society of Bone Research and Mineral Metabolism (SEIOMM) is a multidisciplinary scientific society founded in 1987 by clinical and basic researchers with an interest in bone and metabolic mineral diseases. Nowadays, SEIOMM has more than 539 full members from a large variety of medical and basic specializations. It is dedicated to expanding knowledge on bone health and is the leading authority in Spain in this clinical practice. SEIOMM further supports the funding of numerous research and development projects, including one on new methods to assess bone quality. SEIOMM is closely involved in the country-wide implementation of coordinated care models for patients through Fracture Liaison Services (FLSs), showing in the highest number of FLSs per country in the world.

GLOSSARY

AECOSAR	Spanish Osteoporosis and Arthritis Association
BMD	Bone Mineral Density
CI	Confidence interval
COPD	Chronic obstructive pulmonary disease
CTF®	Capture The Fracture®
DALY	Disability-adjusted life year
EU6	France, Germany, Italy, Spain, Sweden, and the UK
FHOEMO	Spanish Foundation for Osteoporosis and Metabolic Bone Diseases
FLS	Fracture Liaison Service
GDP	Gross domestic product
GP	General practitioner
ICER	Incremental cost-effectiveness ratio
ICUROS	International Costs and Utilities Related to Osteoporotic Fractures Study
IOF	International Osteoporosis Foundation
LTC	Long-term care
MOF	Major osteoporotic fracture (hip, spine, hip, humerus, or forearm fractures)
NICE	National Institute for Health and Care Excellence
QALY	Quality-adjusted life year
SEIOMM	Spanish Society of Bone Research and Mineral Metabolism



EXECUTIVE SUMMARY

This report provides an overview of the burden and management of fragility fractures in Italy and compares the national reality to that of the EU6 nations (France, Germany, Italy, Spain, Sweden, and the UK). The report not only aims to highlight the burden and challenges posed by fragility fractures, but also to signpost opportunities for increased efficiencies in fragility fracture management and to realize improvements in patient care.

As Spain's population ages, the challenge of preserving the independence and active lifestyles of the aging population has become a multifaceted challenge that technology, social initiatives, and healthcare policy can help tackle.

With **approximately 330,000 new broken bones** occurring in Spain in 2017, fragility fractures are a major obstacle to healthy aging, impacting the independence and quality of life of **2.8 million women and men** living with osteoporosis in Spain.

Fragility fractures can be prevented, but their prevention and management have long been neglected despite the massive associated costs for the Spanish healthcare system (**€4.2 billion in 2017**), and these are set to increase to €5.5 billion by 2030.

The burden of fragility fractures in Spain is similar to those for chronic obstructive pulmonary disease (COPD) and exceed those for ischemic stroke.

After a fragility fracture, patients are **five times** more likely to experience a second fracture within the next 2 years. Despite this, an estimated **72%** of Spanish women aged 50 years and above do not receive preventative treatment after an initial fragility fracture. Not unique to Spain, this massive treatment gap is observed consistently across Europe, reflecting the low importance that has been given to fragility fractures to date and the current urgency to prioritize post-fracture care in our aging societies before costs get out of control.

With life expectancy continuing to increase, fragility fracture incidence in Spain is predicted to increase by almost 30% by 2030; **now** is the time to **break** the cost spiral, and take action to put an end to the dire consequences of fractures on patients.

Policies have a significant role to play in promoting, funding, and implementing care solutions, such as coordinated care models for patients following a fracture, with the most common coordinated care model for post-fracture patients being a 'Fracture Liaison Service' or FLS. Such models have proven to be both clinically effective and cost-effective: reducing further fractures, and lessening the burden on both healthcare and individuals at a reasonable level of investment.

While coordinated care models appear as a universal solution to improve patients' diagnosis, treatment, and follow-up, local policy solutions adapted to the specificities of healthcare systems and policies – within and across countries – should also be considered.

In recognition of the growing fragility fracture burden, the Spanish national roadmap calls for policy care efforts to be focused across seven key areas:

1. Greater prioritization of secondary fracture prevention in national and regional health plans
2. Development of national consensus care protocols (Código de Fractura) to facilitate the identification of patients and optimize the delivery of available treatments
3. Development of post-fracture care models with standardized guidance
4. Improved monitoring of fragility fractures and their management through national registries that capture robust real-life data to help understand the true fragility fracture challenge
5. Reduction of waiting times for hip fracture surgery
6. Quality standards and indicators to measure progress and improve post-fracture care
7. Campaigns to increase patient awareness, engagement, and empowerment to improve patients' self-management and health-related quality of life



DID YOU KNOW THAT...

- Osteoporosis (which means 'porous bone') is a disease that weakens the density and quality of the bone, thus increasing the risk of fracture. The loss of bone is symptomatically silent and progressive, until the first fragility fracture occurs due to a low-trauma event, such as a fall from standing height or even a minor bump¹
- One in five men and one in three women aged ≥50 years will experience a fragility fracture in their remaining lifetime²
- A fragility fracture is a warning sign that has to be taken seriously: a fracture increases the risk of a subsequent fracture, which can occur at a different site³
- It is not only important to treat the existing fragility fracture but also to prevent subsequent breaks, i.e. secondary fracture prevention⁴
- *"By missing the opportunity to respond to the first fracture, healthcare systems around the world are failing to prevent the second and subsequent fractures"*
(Professor Kristina Åkesson)⁵

“ Now I walk with a cane, my back is very curved, and I can't bend over. I cannot have a life as active as I would like... ”



Carmen, Spain

THE SILENT BURDEN OF FRAGILITY FRACTURES FOR INDIVIDUALS AND HEALTHCARE SYSTEMS

“

Something else that affects my everyday life is fatigue. Pain results in incredible fatigue, which I think is difficult for others to be able to understand.



Anita, Sweden

”

Fragility fractures affect men and women across Spain

Prevalence of osteoporosis across Spain

Approximately...

2.2 million

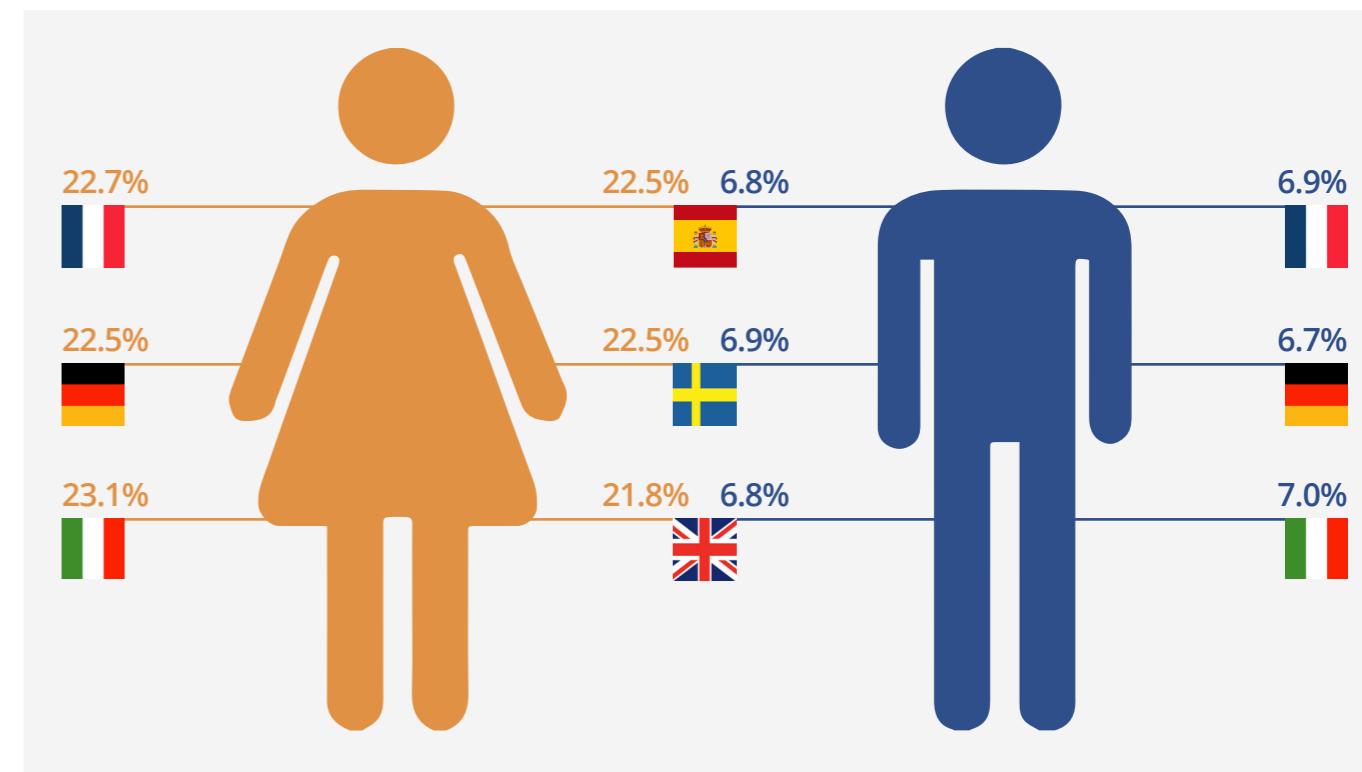


0.6 million



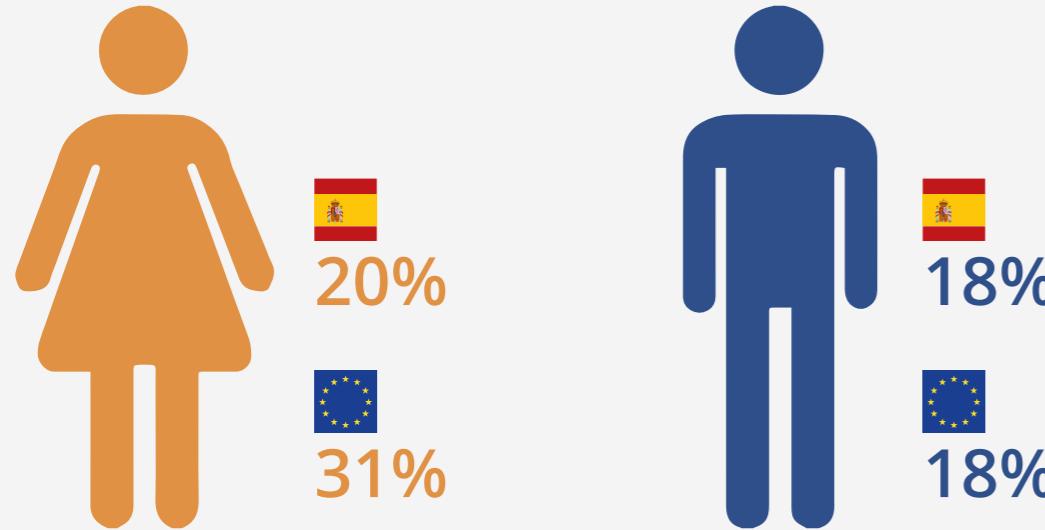
2.8 million people in Spain have osteoporosis (assessed in 2015).⁶

Prevalence of osteoporosis in Spain (22.5% for women; 6.8% for men) over the age of 50 years is comparable to that of France, Germany, Italy, Sweden, and the UK, which together with Spain are hereafter referred to as the EU6 nations.⁷⁻¹¹



Lifetime risk of fragility fractures

At the age of 50 years, the remaining lifetime risk for a major osteoporotic fracture (MOF) among Spanish men is similar to that for the collective EU6 male population, but lower for Spanish women than their EU6 counterparts.⁷



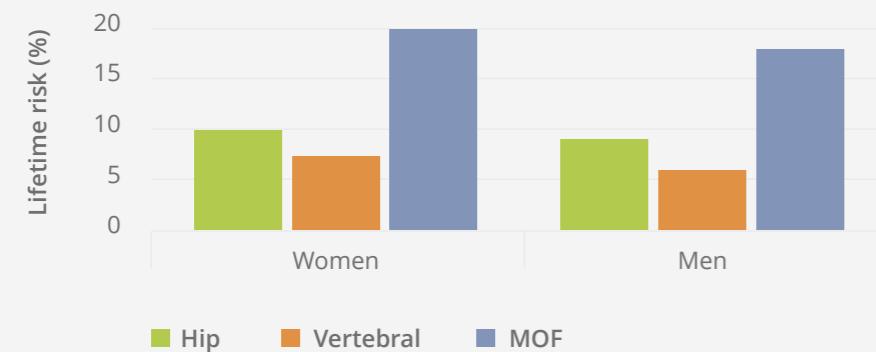
The lifetime risk of sustaining a fragility fracture varies for women and men, and by fracture site.

There is a marked difference in the risk of fracture between the EU6 countries, with Northern European countries having the highest fracture rates observed worldwide.

The reasons for the difference in fracture risk between countries are unknown and cannot be explained by differences in bone density. However, plausible factors include differences in body mass index, low calcium intake, reduced sunlight exposure and, perhaps the most crucial factor, socio-economic prosperity, which in turn may be related to low levels of physical activity.^{12,13}

Regardless of differences in fracture risk, the number of fractures in all countries is expected to increase due to an increasingly elderly population.

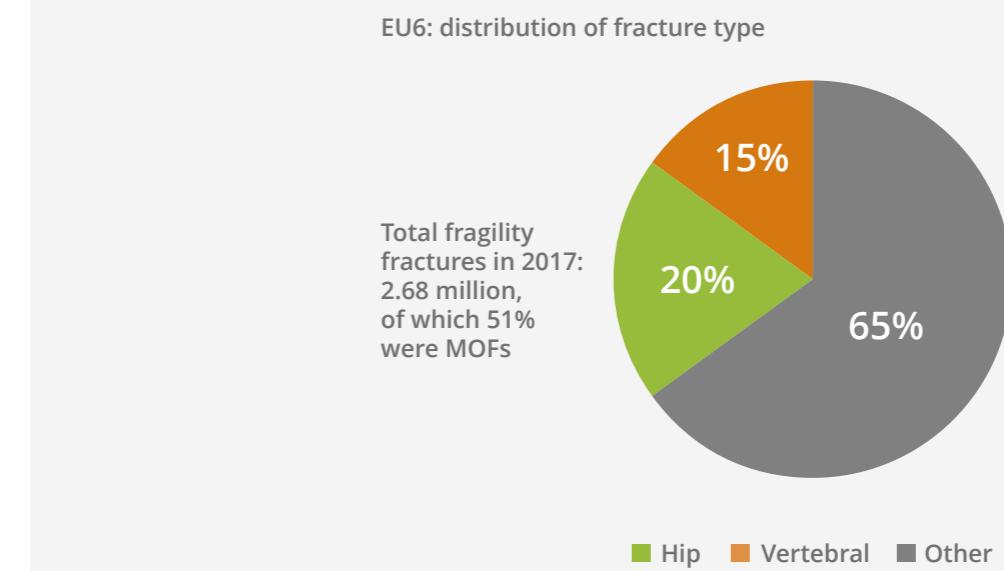
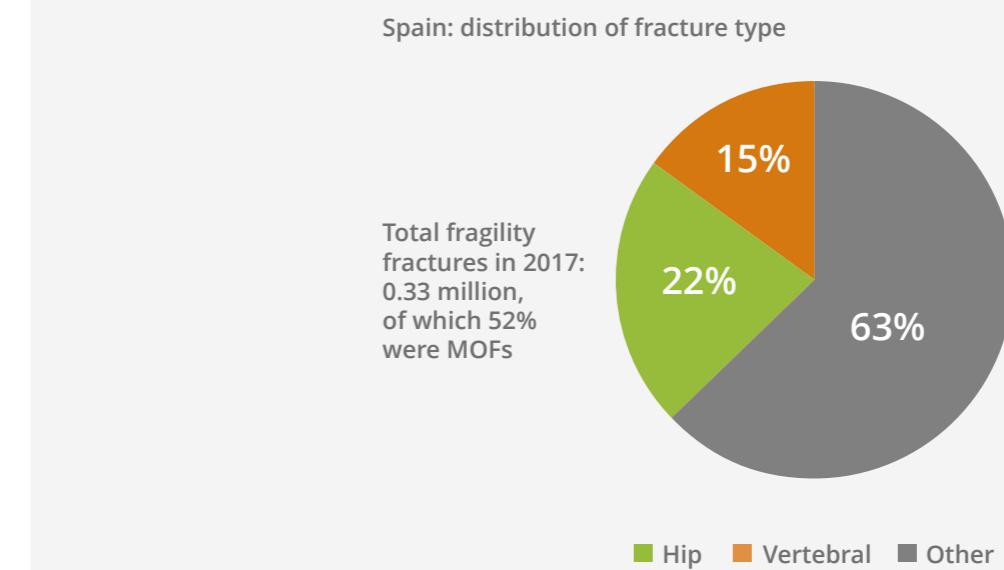
Lifetime risk of fragility fracture from the age of 50 years in Spain^{2,7,12,14-20}



Fragility fracture incidence

An estimated 330,000 fragility fractures occurred in Spain in 2017.⁶

Estimated number of fragility fractures in Spain and the EU6 in 2017, by fracture category

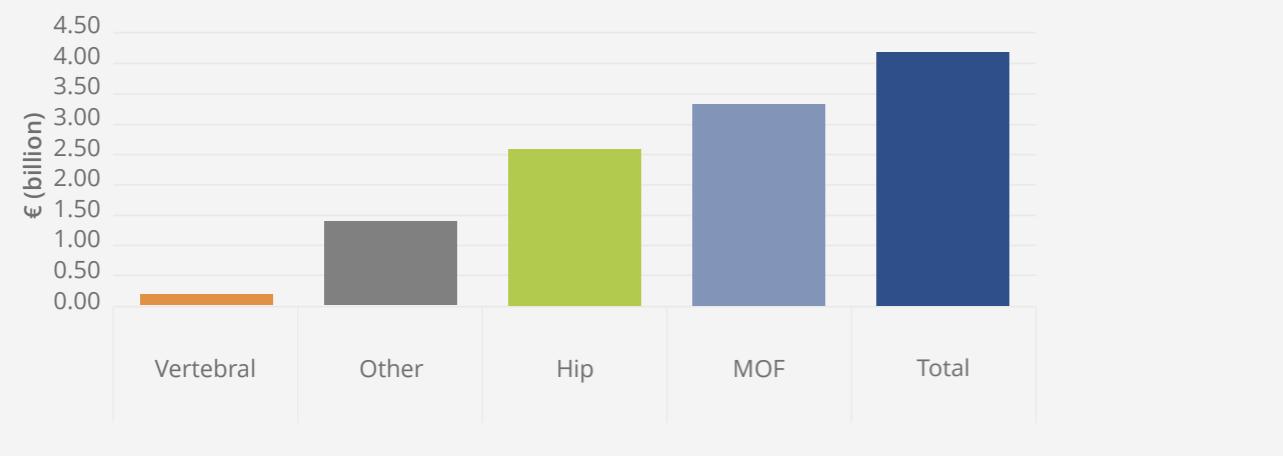


Fragility fractures incur substantial healthcare costs

Fragility fractures are associated with significant healthcare costs

In 2017, fracture-related costs totaled approximately €4.2 billion in Spain.⁶ Of these costs, which included short- and long-term fracture costs as well as costs associated with nursing home stays, hospital admission and length of stay in secondary care following a fracture were important drivers.

Estimated annual fracture-related costs in Spain in 2017



Fracture-related costs:^{21,22}



mostly occur in the first year following a fracture



differ between fracture sites, and to some extent, reflect the severity of fracture



tend to be highest with hip fractures, as this is the most severe fracture site

Fragility fractures place a high burden on patients and healthcare systems

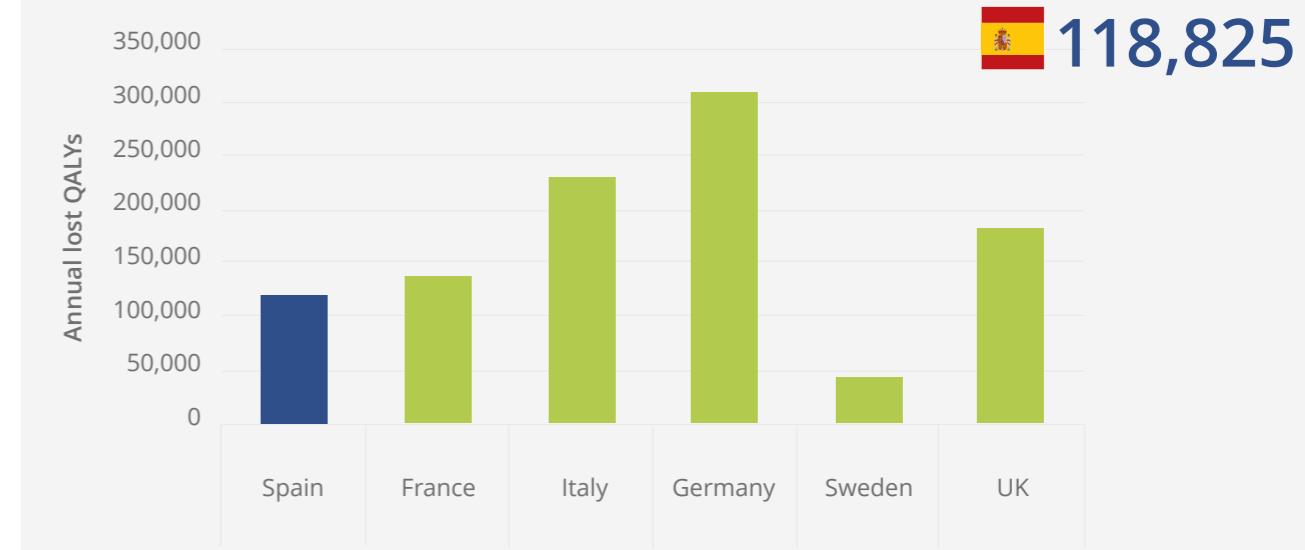
The burden of fragility fractures on individuals is demonstrated here with the annual loss of quality-adjusted life years (QALYs).

QALYs are a measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality of life. One QALY is equal to 1 year of life in perfect health. QALYs are calculated by estimating the years of life remaining for a patient following a particular treatment or intervention and weighting each year with a quality-of-life score (on a 0 to 1 scale). It is often measured in terms of the patient's ability to carry out the activities of daily life, and freedom from pain and mental disturbance.²³

The loss of QALYs as a result of fragility fractures varies across the EU6 countries. These differences are largely driven by variations in the risk of fractures and age distribution between countries.⁶

The total health burden in 2017 due to fragility fractures in Spain is estimated to be 118,825 QALYs; 57% of which is attributable to fractures occurring among women.⁶

Total annual loss of QALYs across the EU6 nations in 2017



Fragility fractures have a multifaceted impact on the individual and society

Reduced independence and lifestyle impairment

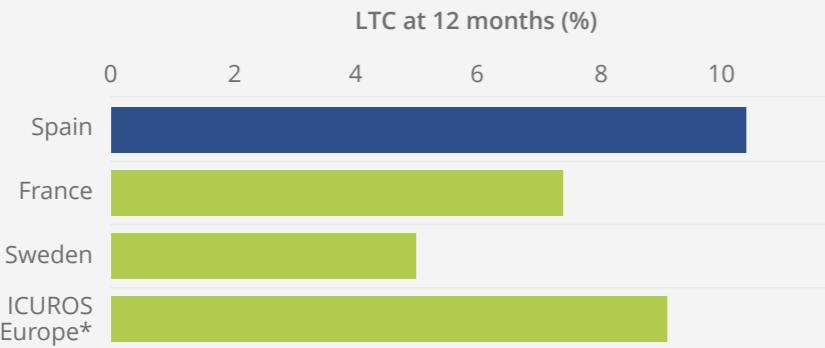
Reduced independence can be one of the most distressing outcomes for fracture patients. The disability associated with hip fractures can be severe. One year after hip fracture, 40% of patients are still unable to walk independently, and 80% are restricted in other activities, such as driving and grocery shopping.²⁴

A fracture not only affects people physically, but also emotionally. Knowledge of their increased fracture risk can negatively affect patients' outlook, causing them to change their levels of social interaction and to avoid certain activities: impairing their overall quality of life.²⁵

The long-term loss of independence and mobility can put physical, emotional, and financial strain on patients, as well as their relatives and friends, potentially leading to the need for institutional care, particularly in older age groups.²⁶

Across Europe, the proportion of patients that move into long-term care (LTC) within a year of sustaining a hip fracture increases with age, from 2.1% at age 50–60 years to **35.3%** above 90 years.⁶ An estimated 10.4% of Spanish patients aged 50 or above who suffer a hip fracture are admitted to LTC within 12 months of the fracture, one of the highest proportions of any of the EU6 countries.

Proportion of patients (%) in LTC at 12 months after a hip fracture, by country⁶



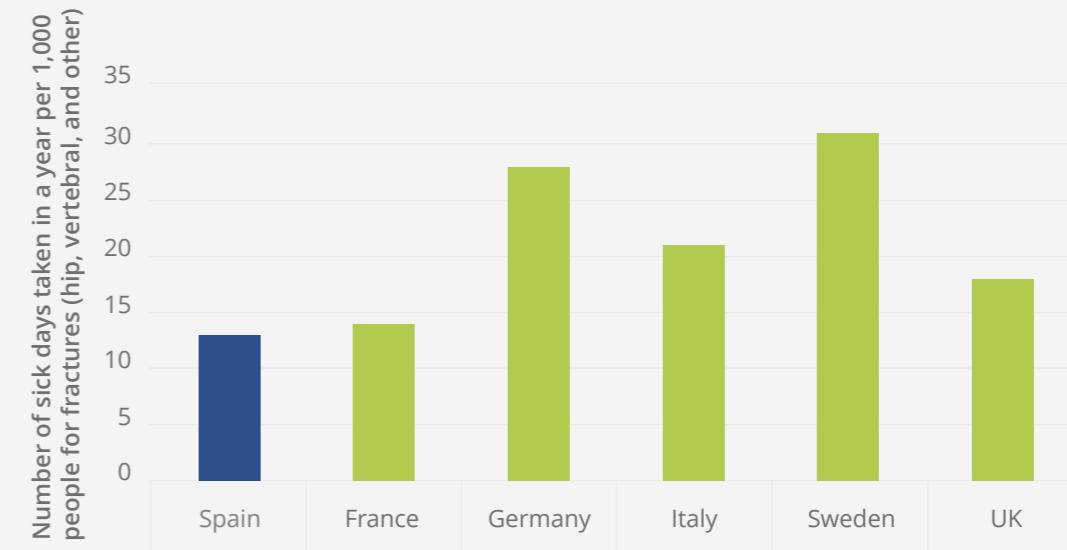
*International Costs and Utilities Related to Osteoporotic Fractures Study (ICUROS) Europe: Austria, Estonia, Spain, France, Italy, and Sweden

Fragility fractures can significantly impact the working population

Although fragility fractures mostly affect people in later life, an estimated 20% of fractures occur at pre-retirement age.² In 2017, a total of 355,306 sick days were taken in Spain among individuals of pre-retirement age affected by fragility fractures.²⁷

An average number of 13 sick days are taken per 1,000 people following a fragility fracture in Spain; the lowest estimate of any EU6 nation.⁶

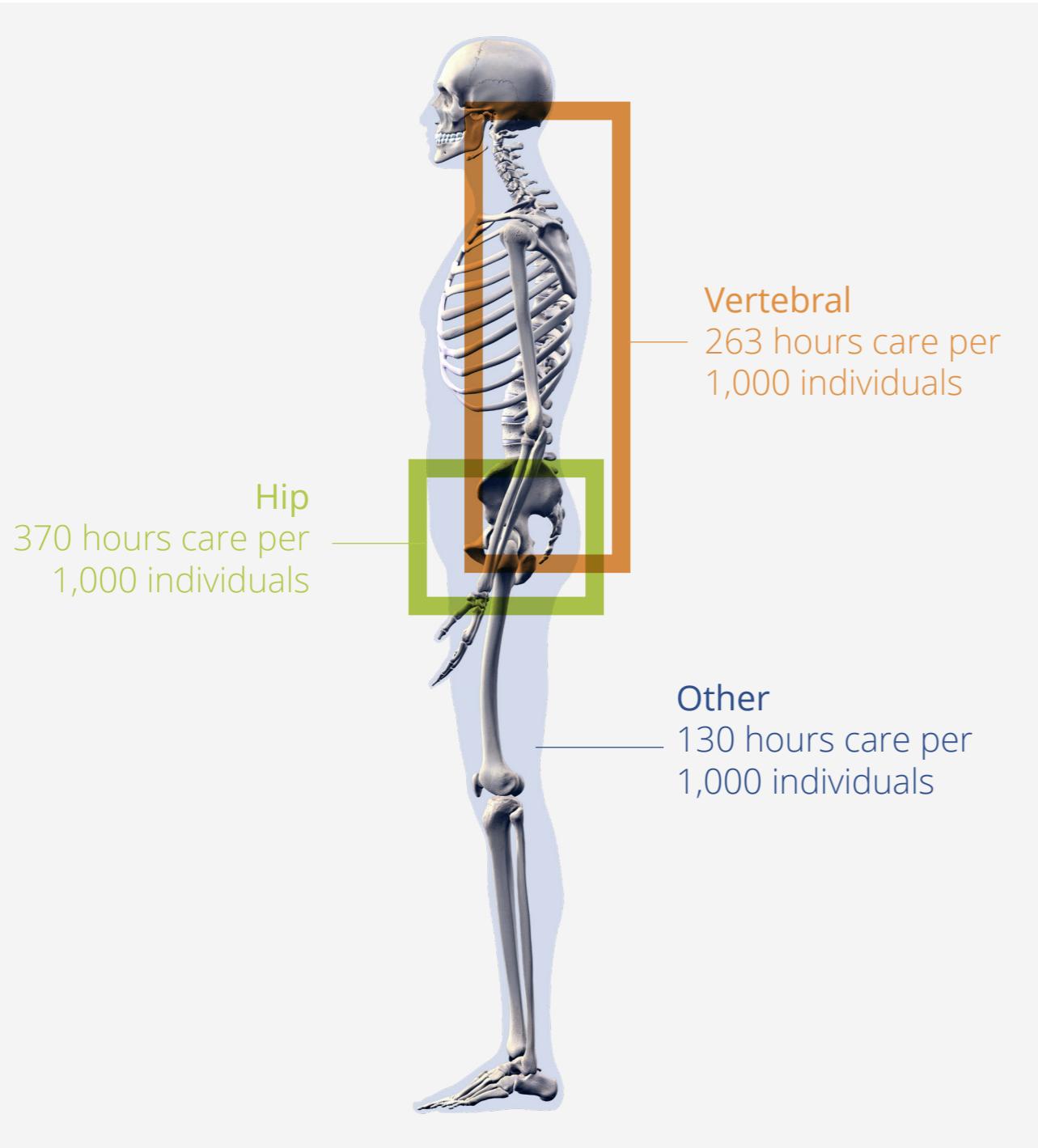
Average sick days taken after fragility fracture per 1,000 people, by EU6 country



Patients suffering fragility fractures depend on care from family and friends

As a result of reduced mobility and ability to complete activities of daily living, individuals who have suffered a fragility fracture may rely on informal caregivers, such as family members or friends.

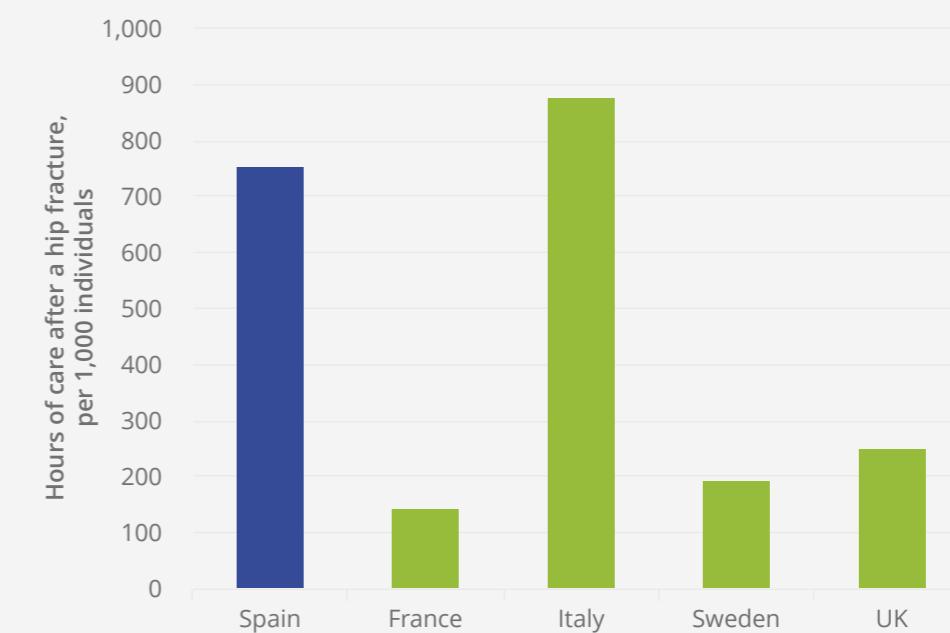
During the first year after a fracture, the hours of care provided by relatives vary greatly by fracture type and country.^{*6} **The more serious the fracture, the more support is needed.**



*To measure the average burden placed on informal caregivers per year, survey responses from ICUROS²⁸⁻³⁰ were also used to determine the caregiver burden due to osteoporotic fracture. It was measured in terms of hours of care per year provided by relatives in ICUROS Europe (a substitute measure for the EU6), as well as selected countries.

In countries where cross-generational support is more established, the impact of fragility fractures on caregivers is generally higher.³¹

Relative care hours related to hip fractures per 1,000 people, by country



FRAGILITY FRACTURES IN THE CONTEXT OF PUBLIC HEALTH PRIORITIES

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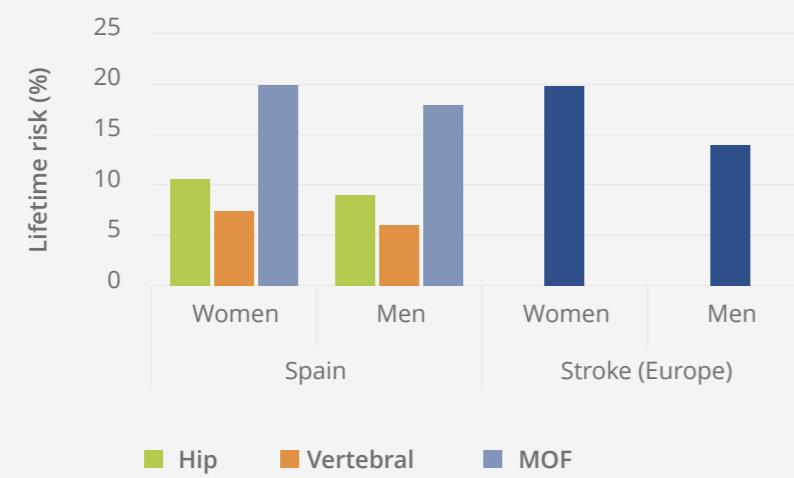


I can no longer run to catch a bus. I no longer feel young.
Maryvonne, France

”

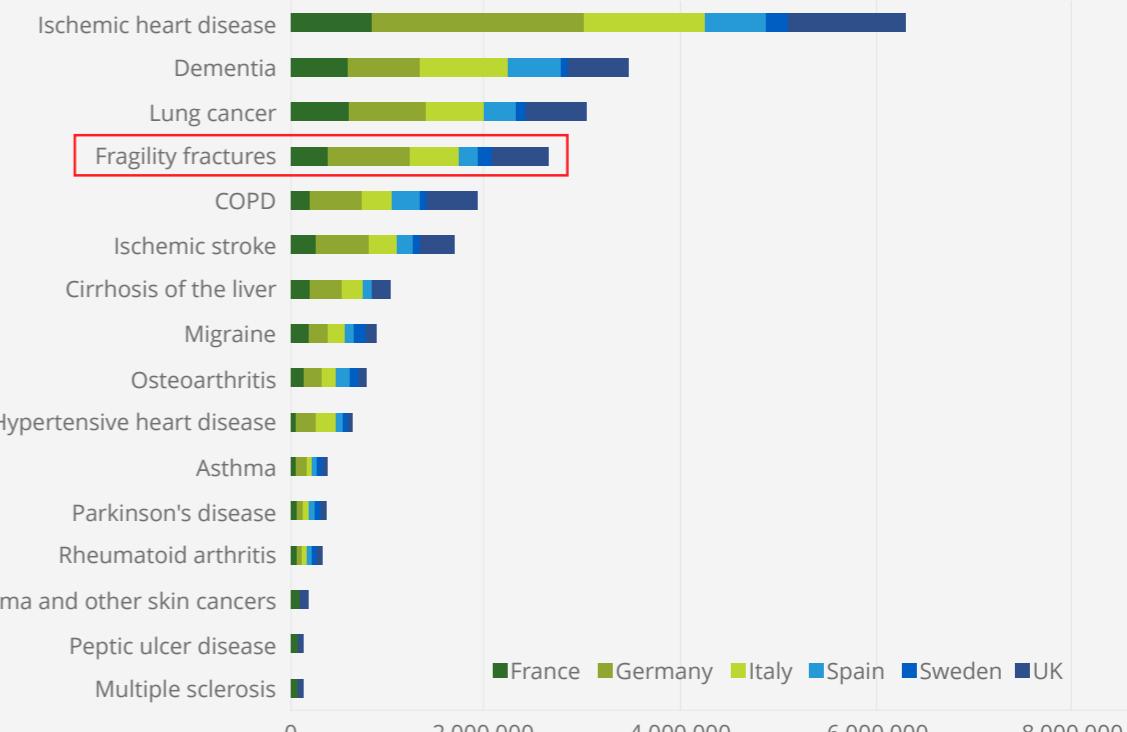
Fragility fractures represent a health risk for individuals aged 50 or above. In Spain, the lifetime risk of suffering a hip fracture in this older population is 9.8% for women and 8.5% for men; higher than for vertebral fractures (7.0% for women; 6.1% for men). Furthermore, **the lifetime risk of suffering a MOF at age 50** in Spain (20% for women; 18% for men) is comparable to that of stroke in Europe (20% for women; 14% for men).^{32,33}

Lifetime risk of fragility fracture from the age of 50 years in Spain and the equivalent risk of stroke in Europe^{2,7,12,14-20}



The fragility fracture burden in the EU6 is greater than that of many other chronic diseases (including COPD). It is surpassed only by ischemic heart disease, dementia, and lung cancer.³⁴

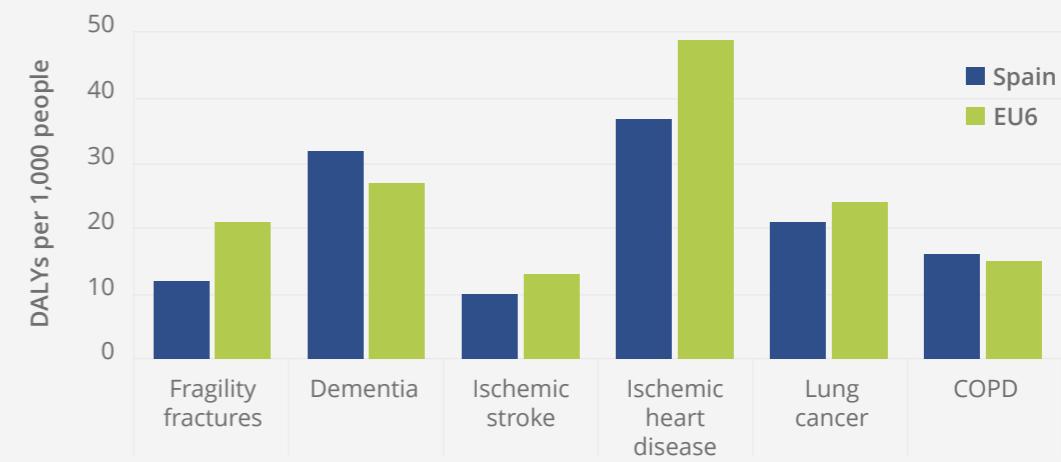
Country contribution to total disability-adjusted life years (DALYs) by disease in the EU6 in 17 selected diseases



Fragility fractures are the fourth leading cause of chronic disease morbidity, rising from a ranking of sixth in 2009. Across the EU6, fragility fractures now account for more than 2.6 million DALYs (a measure of the impact of a disease or injury in terms of healthy years lost²³) annually, more than for hypertensive heart disease or rheumatoid arthritis.⁷

In Spain, an estimated 12 DALYs are lost per 1,000 individuals aged over 50 due to fragility fractures. The Spanish burden is higher than the national burden associated with other major chronic diseases of aging, such as stroke.³⁴

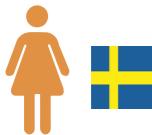
DALYs per 1,000 people (aged over 50 years) by disease in Spain and the EU6³⁴



FRAGILITY FRACTURES ARE A GROWING CHALLENGE IN THE PUBLIC HEALTH LANDSCAPE

“

My daily life has changed completely. I now walk with two canes. I can't bend down and I'm constantly in pain. I cannot carry things and, therefore, cannot go shopping. I miss my active life, very, very much.



Inger, Sweden

”

An ever-growing public health challenge is emerging: an estimated 330,000 fragility fractures occurred in Spain in 2017, and the annual incidence is estimated to increase to 420,000 by 2030.⁶

The projected increase in fracture incidence in Spain (28.8%) is higher than predictions for the EU6 average of 23.3% over the same period.⁶



Estimated number of fragility fractures by fracture category for Spain in 2017 and 2030

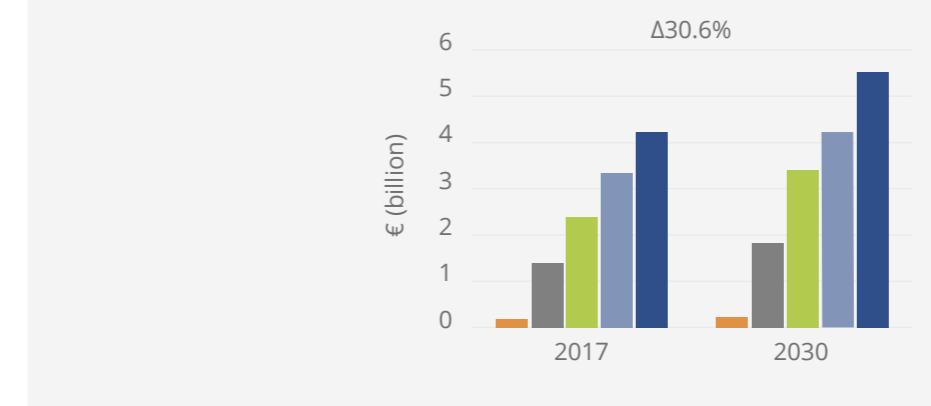


Fracture-related costs are set to rise

With life expectancy in Spain increasing, so too is the fragility fracture incidence and related use of healthcare services. With fragility fracture incidence predicted to increase by a further 28.8% between 2017 and 2030, the associated care costs are projected to increase by 30.6% over the same period, slightly comparable to the overall rate for the EU6 of 27.7%.⁶



Estimated annual fracture-related costs in 2017 and 2030, and percentage change for Spain



Δ percentage change for all fragility fractures

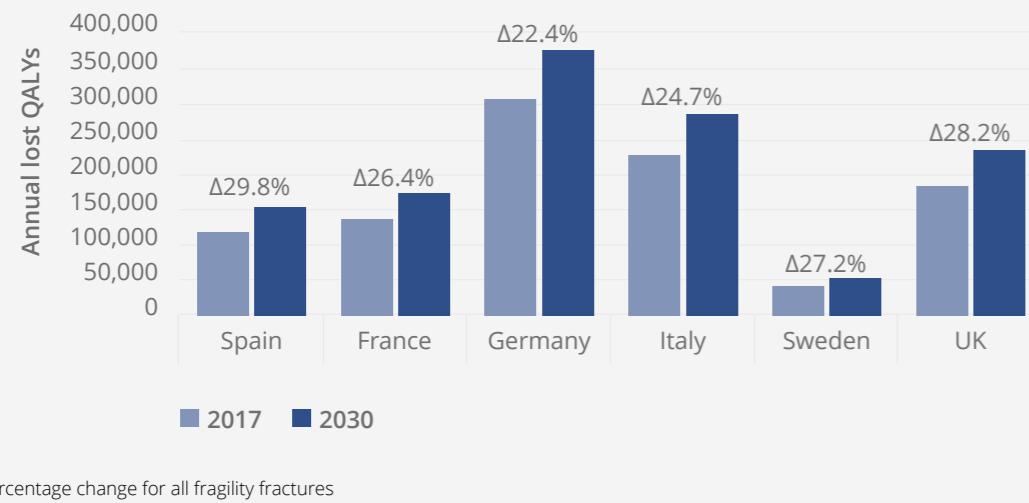


Although hip fractures make up **1/5** of total fractures, they are estimated to incur an estimated **62%** of total fracture-related costs

Fracture-related patient burden is set to increase

Based on population projections, the QALY losses associated with fragility fractures will increase between 2017 and 2030, with Spain facing an increase of 29.8% over the period; slightly higher than the EU6 average of 25.6%.⁶

Total annual loss of QALYs by country in 2017 and 2030, and percentage change



Δ percentage change for all fragility fractures



EFFECTIVE MANAGEMENT CAN IMPROVE OUTCOMES AND REDUCE COSTS

“

If the fracture I suffered in my spine had been spotted earlier than it was,
I would have been spared a great deal of pain and suffering.



Christine, UK

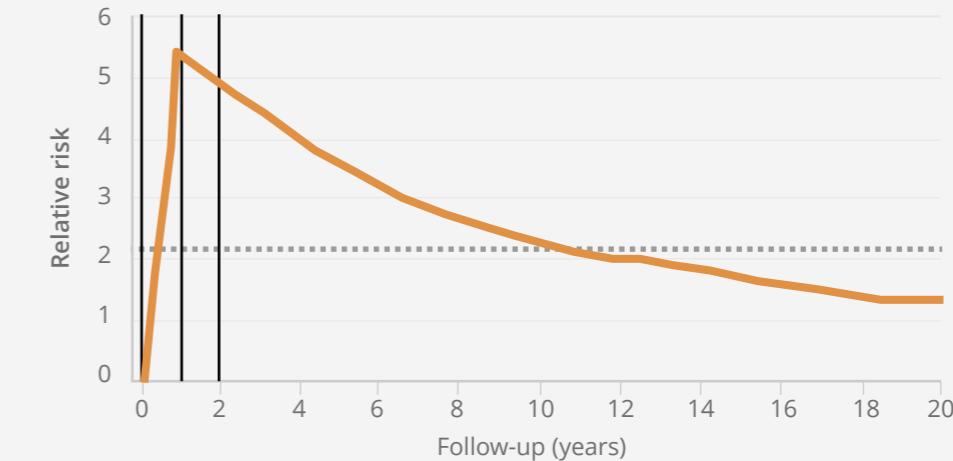
One fragility fracture leads to another

For women aged 50 to 80, after their first fragility fracture, their risk of a subsequent fracture within the first year after a fracture is **five times greater** than women who have not had a prior fracture.³⁵

Subsequent fracture risk is highest in the first 2 years following an initial fracture, when there is an **imminent risk** of another fracture at the same, or other, sites.³⁶ This is why it is critically important to identify patients as soon as possible after fracture to optimize fracture prevention treatments and keep the patient from having another fracture.

Similar patterns of imminent fracture risk have been observed in most countries evaluated,^{21,22} but between-country comparisons are limited by data availability.

Relative risk of all subsequent fractures calculated as a mean from the first fracture (grey line) and per separate year of follow-up (orange line)



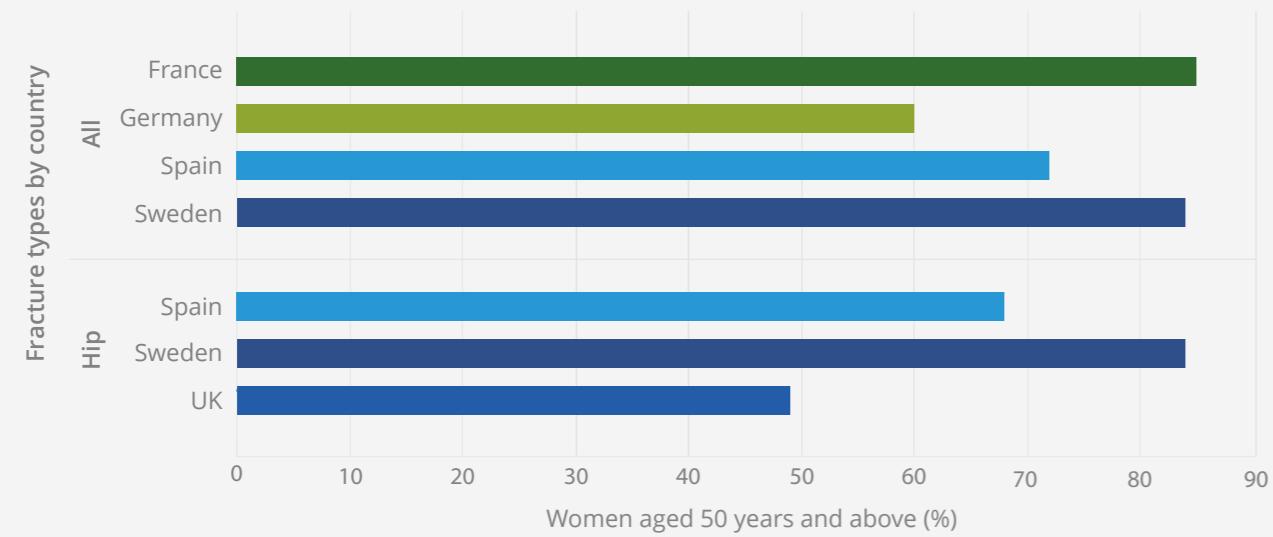
Adapted from van Geel *et al.* 2009³⁵

Most eligible patients do not receive treatment to prevent fragility fractures following their first fracture

With appropriate medical treatment, many fragility fractures can be avoided.

The treatment gap in Spain has increased by 40% for men and 43% for women since 2010, and it is estimated that as little as 28% of Spanish women receive a treatment for fracture prevention in the year following an initial fracture.⁶

Proportion (%) of female patients (50 years and above) untreated within a year of osteoporotic fracture^{6,37,38}



Multidisciplinary models for secondary fracture prevention can contribute to closing the treatment gap

Post-fracture coordinated care models, such as a Fracture Liaison Service (FLS), are multidisciplinary healthcare delivery models for secondary fracture prevention. Systematically, they identify, diagnose, and treat (by referral) all eligible patients within a local population who have suffered a fragility fracture, with the aim of reducing risk of subsequent fractures. In the FLS model, care is usually coordinated by a dedicated, specialist nurse who helps patients navigate the way through the various departments of relevance (e.g. orthopedic surgery, radiology, and primary care) and improve their overall care experience.

Post-fracture coordinated care models, like FLSs, offer the potential for a **cost-effective care delivery model** that reduces the risk of re-fracture and mortality by increasing the number of patients being treated and improving adherence to treatment.^{5,39–44} Data published from the FLS in Glasgow, Scotland, showed that FLSs are cost-effective for the prevention of further fractures in fragility fracture patients, resulting in fewer fractures and cost savings for healthcare systems.^{5,41}

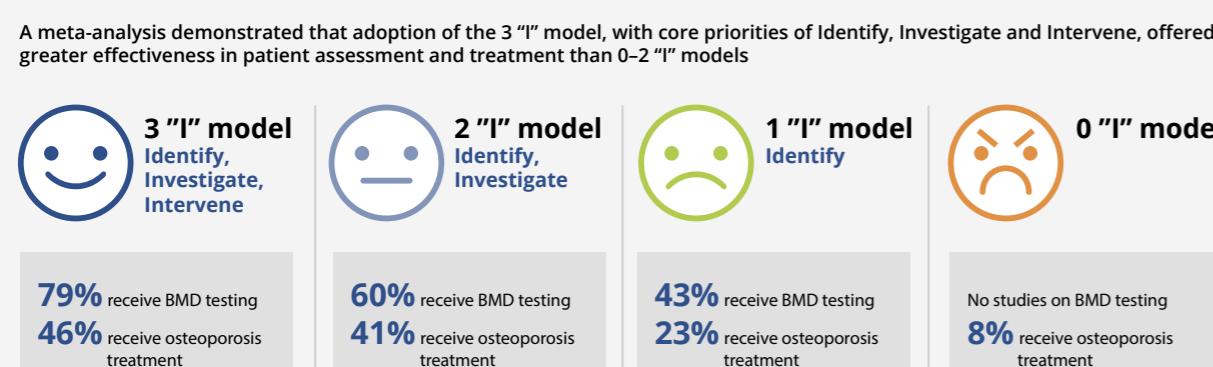
A recently published systematic literature review and meta-analysis based on 159 scientific publications highlighted the benefits of FLSs.⁴⁵

Outcome measure ⁴⁵	Effect of FLS (absolute change)	95% CI	Duration of follow-up (months)	Number of studies included
BMD testing	+24%	0.18 to 0.29	3–26	37
Treatment initiation	+20%	0.16 to 0.25	3–72	46
Treatment adherence	+22%	0.13 to 0.31	3–48	9
Re-fracture rate	-5%	-0.08 to -0.03	6–72	11
Mortality	-3%	-0.05 to -0.01	6–72	15

BMD, Bone Mineral Density

However, not all FLSs are the same between and within countries. FLSs vary in the services they offer, from identifying and informing patients without taking further action, to more comprehensive models that include investigating, treating, and monitoring patients. This variation in structure affects the level of impact on health outcomes.⁴⁴

The effect of different models of care on osteoporosis treatment and frequency of BMD testing were evaluated in a meta-analysis by Ganda *et al.*⁴⁵



Adapted from Ganda *et al.*⁴⁵

The analyses by both Ganda *et al.* and Wu *et al.* showed **dramatic increases in BMD testing and osteoporosis treatment initiation**, which further supports the value of post-fracture care coordination to prevent fragility fractures and reduce the overall cost of care for these patients.^{45,46}

Capture The Fracture® (CTF®): A global initiative of IOF

CTF® aims to 'facilitate the implementation of coordinated, multidisciplinary models of care for secondary fracture prevention'. CTF® has created a set of internationally endorsed standards and guides for best practice to bridge the gap between FLS providers and to help in the development and implementation of new FLSs. CTF® includes the largest network of individual FLS providers in the world. Providers undergo a CTF® audit to determine service quality, with a gold, silver, or bronze star awarded.

There are huge variations between and within countries in terms of the availability of coordinated care models. A CTF® survey reported that such models only existed for 2.8% of responders in Italy and up to 37.5% of responders in Sweden for hospital referrals, reducing to 1–10% for general practitioner referrals. In contrast, in the UK, the National Osteoporosis Society estimated that 55% of the UK population has access to an FLS.

FLSs are a cost-effective option for patient management

Several studies have showed FLSs to be a cost-effective healthcare delivery form in European countries. Although not specifically evaluated for Spain, in Sweden and the UK the cost of improving patient outcomes through an FLS has been estimated to be:^{47,48}

	€14,029 per QALY saved; ICER
	€22,700–26,000 per QALY saved; ICER post-hip fracture

ICER, incremental cost-effectiveness ratio (a statistic used to summarize the cost-effectiveness of a healthcare intervention)

Based on a survey sent to a number of FLSs in the EU6 enrolled in IOF's CTF® network, it is estimated that only 11–25% of hospitals in Spain and 1–10% of GPs report having a referral system for fracture patients. A recent health economic analysis suggested that the introduction of an FLS for all individuals aged over 50 could prevent an estimated 1,249 subsequent fragility fractures in Spain every year and a net saving of €18.4 million annually.⁶

Cost implications of extending an FLS to all individuals over 50 years in Spain



The World Health Organization (WHO)⁴⁹ provides guidance on how an intervention with a benefit expressed in QALY value equivalent to 1 year's gross domestic product (GDP) per capita or less is considered to be reasonable expenditure, representing the likelihood of achieving at least 1 additional year of healthy life per capita.

Although an FLS extension would result in a net increase in healthcare costs, with the Spanish GDP estimated to be €32,405,⁵⁰ FLSs still offer **clear cost-effectiveness**, as well as the possibility of improved care for the Spanish population.



SPAIN FRAGILITY FRACTURE POLICY ROADMAP

“

There is indeed one thing I have learned: that an accurate diagnosis, which is relatively simple, can save women from a lot of suffering, fractures, and emotional damage.



Carmen, Spain

”

Even if Spain fares slightly better than other countries in terms of fragility fracture management, a lot of work is still required to achieve excellence in managing this growing public health problem. As the Spanish population continues to age, so too will the magnitude and impact of fragility fractures unless measures are put in place to address the variation in care practice, and improve the quality of care. Policy has a strong role to play in recognizing that fragility fractures are a hidden public health threat that requires immediate action.

1. Prioritize secondary fracture prevention

As part of their prioritization exercise, national and regional health authorities should include fragility fracture prevention and management in their health plans to ensure sufficient priority is given to the challenges faced, but also the solutions available. In particular, the national strategy for health promotion and prevention could help frame the problem, as well as recommending solutions to improve patient care in terms of diagnosis, intervention, and follow-up.

2. Create national consensus care protocols (*Código de Fractura*)

As for other public health challenges, it is essential to establish national and regional care pathways – *Código de Fractura* – to facilitate the identification of patients and optimize the delivery of available treatments. Such protocols should be implemented in both primary care and hospital settings.

3. Support the development and implementation of post-fracture care models

Since their creation in Scotland at the end of the 1990s, post-fracture coordinated care models have proven to be effective care interventions by being able to reduce the risk of subsequent fractures and improve patient outcomes. Such care models are commonly known as FLSs. There are currently 54 FLSs and 87 post-fracture coordinated care units in Spain. The IOF CTF®'s Map of Best Practice reveals a certain level of variation in terms of performance of Spanish FLSs. Such variability may be due to a current absence of standardized guidance for healthcare professionals seeking to establish a post-fracture coordinated care pathway.

It may also be beneficial to develop formal guidance documents outlining issues that can aid or impede the success of FLSs, as developed in Sweden's Vastra Gotaland county.⁵¹ Such guidance could be developed in specific provinces, or professional organizations, such as the Sociedad Española de Directivos de la Salud – Spanish Society of Healthcare Executives.

In addition, it would be beneficial to put in place clear quality metrics to drive post-fracture coordinated care units' quality of care, and potentially identify support measures if significant variability in performance is identified.

4. Strengthen registries tracking fragility fractures and FLS' impact

Two recent initiatives have been launched in Spain to track fragility fractures and their impact:

- The first was launched in 2016, when 190 healthcare professionals from various specialties (geriatrics, orthopedics, internal medicines, rehabilitation) created a national hip fracture database (Registro Nacional de Fracturas de Cadera) that collects data from 54 hospitals. As it is based on the Fragility Fracture Network's Minimum Common Dataset, data can be compared across, or aggregated at, a European level. The annual reports capture key epidemiological data and outline the trends in terms of care pathway. They also show a certain degree of variability in the care that patients may receive, highlighting a need for further harmonization of standards in hip fracture care. The database was developed through the joint efforts of dedicated and motivated healthcare professionals who manually entered their patients' records into the database. Moving forward, it would be appropriate to consider national and/or provincial funding for such initiatives, as well as funding from the European Union to create an IT interface that can support data collection, analysis, and sharing, and thus facilitate the study of analysis of patients' health outcomes over the longer term
- The second initiative, by SEIOMM, is a dedicated database – Registro Español de FRActuras⁵² – designed to track the epidemiology of all types of fragility fractures and the impact of FLSs on patients' health outcomes. This initiative also requires support from the national and provincial health authorities to expand the scope of the database and ensure it delivers meaningful results over time

5. Develop a guidance to reduce waiting time for hip fracture surgery

While early hip fracture surgery may improve patients' outcomes (especially in terms of morbidity), the median time between the admission and surgical intervention for patients with hip fracture is around 3 days in Spain.⁵³ Up to 25% of patients, however, have to wait more than 6 days from their fracture before they receive surgical intervention, which is significantly longer than the "on the day or, or the day after, admission" that is recommended by the UK's National Institute for Health and Care Excellence (NICE).⁵⁴

These databases will also be able to help identify hospitals that provide timely care, as well as those centers where more targeted efforts may be required to help improve standards of care.

Similar to NICE, a standardized protocol for hip fracture management in Spain and quality standards for the optimum timing of hip fracture surgery could help reduce variations and improve patient outcomes.

6. Improve and harmonize post-fracture care through quality standards and indicators

Post-fracture care is subject to significant variation in Spain, and the quality of care that patients may receive can depend on the existence of FLSs in their locality and on their healthcare professional's familiarity with post-fracture care interventions.

In order to improve and standardize post-fracture care across the territory, the Spanish Ministry of Health should implement fragility fracture monitoring using clear indicators and quality metrics. Quality targets can focus on a number of aspects of care, such as standards for: time-to-surgery (with a view to reducing waiting times, as discussed above), or treatment targets that encourage use of secondary fracture prevention interventions. In Sweden, for example, a treatment-related quality indicator was set in 2015 that called for a 30% increase in the proportion of women aged 55 and above prescribed osteoporosis drugs in the 6–12-month period post-fracture.⁵⁵ Such targets, however, can only be effective if properly monitored, re-emphasizing the need to strengthen the current fragility fractures database initiatives described above.

7. Patient awareness and engagement campaigns

Information campaigns about bone health and healthy lifestyles, as well as patient education programs, can support patients' adherence to treatment and also increase their engagement in activities that can improve their overall health and reduce the risk of subsequent fragility fractures.

It is essential that patients play an active role in managing their own health, to understand when to seek medical support from appropriate specialists, and to have informed discussions about fragility fracture prevention and management. Patient engagement and improved health literacy can help to optimize the use of available resources and reduce unnecessary visits to primary care centers, emergency units, and hospitals.

ACKNOWLEDGMENTS

IOF Steering Committee

Professor John Kanis, Emeritus Professor in Human Metabolism and the Director of the WHO Collaborating Centre for Metabolic Bone Diseases, University of Sheffield, UK

Professor Eugene McCloskey, Professor in Adult Bone Diseases, Department of Oncology and Metabolism, University of Sheffield, UK

Professor Nicholas Harvey, Professor of Rheumatology and Clinical Epidemiology, MRC Lifecourse Epidemiology Unit, University of Southampton, UK

Dr. Kassim Javaid, Associate Professor in Metabolic Bone Disease, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, UK

Fredrik Borgström (PhD), Associate Researcher, Medical Management Centre, Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Sweden and Partner at Quantify Research, Sweden

IOF Consultation Panel

France

Professor Bernard Cortet (GRIO), Professor in Rheumatology, University Hospital Lille, France

Professor Thierry Thomas (SFR), Professor of Medicine and Head of the Rheumatology Department, University Hospital St. Etienne, France

Professor Laurent Grange (AFLAR), Professor in Rheumatology, University Hospital Grenoble, France

Germany

Professor Claus Glüer (DGO), Professor of Medical Physics, Department of Radiology and Neuroradiology, University Medical Center Schleswig-Holstein, Kiel University, Germany

Professor Andreas Kurth (DVO), Chief Orthopedic Specialist, Department of Traumatology, Orthopedics and Hand Surgery, Community Hospital Mittelrhein gGmbH, Germany

Professor Peyman Hadji (DVO), Head of the Department of Bone Oncology, Endocrinology and Reproductive Medicine, Krankenhaus Nordwest, Germany

Thorsten Freikamp (BfO), Managing Director, Federal Self-help Association for Osteoporosis (BfO), Germany

Italy

Professor Maria Luisa Brandi (FIRMO), Professor of Endocrinology and Metabolic Diseases and Director of the Operative Unit of Diseases of Mineral and Bone Metabolism, Medical School, University of Florence, Italy

Professor Stefano Gonnelli (SIOMMMS), Associate Professor of Internal Medicine and Director of the School of Specialization in Emergency Medicine and Urgency, University of Siena, Italy

Professor Giuseppe Sessa (SIOT), Professor of Orthopedics and Traumatology and Director of the Orthopedic Clinic of the Vittorio Emanuele Polyclinic, University of Catania, Italy

Spain

Dr. Josep Blanch Rubio (SEIOMM), Clinical Director of the Institut Blanck de Reumatologia, Spain

Professor Adolfo Diez-Perez (SEIOMM), Head Emeritus of Internal Medicine at the Hospital del Mar, Autonomous University of Barcelona, Barcelona, Spain

Maria Antonia Robles Palacios, President of AECOSAR, Spain

Dr. Santiago Palacios (FHOEMO), Director of Instituto Palacios, Salud y Medicina de la Mujer, Spain

Sweden

Professor Mattias Lorentzon (SVOS), Professor in Geriatric Medicine, Institute of Medicine, University of Gothenburg, and Chief Physician, Osteoporosis Clinic at the Sahlgrenska University Hospital, Sweden

Lisa Keisu Lennerlöf (Osteoporosförbundet), Chair of Osteoporosförbundet, Swedish Osteoporosis Association, Sweden

UK

Professor Cyrus Cooper, Professor of Rheumatology and Director of the MRC Lifecourse Epidemiology Unit, University of Southampton, UK and Professor of Musculoskeletal Science at the NIHR Musculoskeletal Biomedical Research Unit, University of Oxford, UK

Fizz Thompson (NOS), Clinical and Operations Director at National Osteoporosis Society, UK

Dr. Celia L Gregson, Consultant Senior Lecturer and Arthritis Research UK Clinician Scientist, Musculoskeletal Research Unit, Bristol Medical School, University of Bristol, UK

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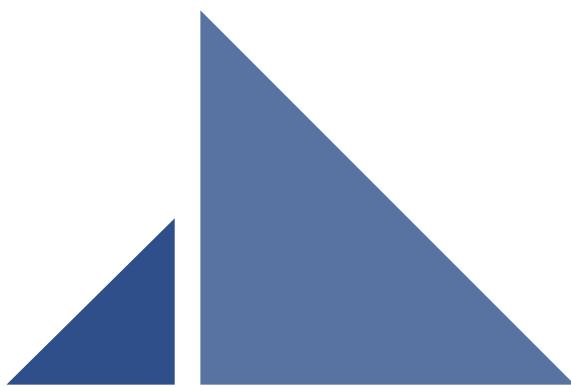
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Our vision is a world without fragility fractures,
in which healthy mobility is a reality for all

9 rue Juste-Olivier • CH-1260 Nyon
T +41 22 994 01 00 • F +41 22 994 01 01

info@iofbonehealth.org • www.iofbonehealth.org

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