



SOLUTIONS FOR FRACTURE PREVENTION

 IN BRAZIL



October 2024

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Report compiled by the International Osteoporosis Foundation (IOF) under the umbrella of Capture the Fracture® initiative (CTF), in collaboration with Brazilian bone health experts.



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SUMMARY

This document provides an assessment of the current policy and post-fracture care landscape in Brazil, and provides recommendations which are aligned to the needs and opportunities identified by the Capture the Fracture® Partnership policy group in collaboration with a panel of Brazilian experts.

This document aims to:

SECTION 1 - A Problem on the Rise

Summarize the increasing burden of fragility fractures in Brazil

SECTION 2 - Successes and Missed Opportunities Observed

Map out successful post-fracture care initiatives in Brazil, and identify current areas for improvement

SECTION 3 - Solutions Exist: Policy Recommendations

Provide health policy recommendations to address the burden of osteoporosis and fragility fractures and drive their implementation

SECTION 4 - Build your Response

Support local stakeholders in prioritising osteoporosis and fragility fractures

Key Messages

The increasing burden of osteoporosis, treatment gap and importance of secondary fracture prevention

- a. Fragility fractures are a major concern for public health in Brazil** and are associated with a substantial (and escalating) health and financial burden. About 400,000 fragility fractures occur in Brazil every year and the burden of osteoporosis and related fractures was estimated at \$310 USD million in 2018. With an ageing population and no change in policy, the number of fragility fractures is further expected to increase by 60% between 2015 and 2030.
- b. Osteoporosis remains largely underdiagnosed and undertreated.** In Brazil, around 60% of patients at risk of fragility fractures do not receive treatment at all. Poor treatment initiation is especially marked in high-risk patients with only 20% receiving a pharmacological treatment immediately after a fragility fracture, despite this population being most likely to sustain a further fracture.
- c. Fracture Liaison Services (FLS) are needed.** Despite an increasing number of FLS in Brazil and the recognized benefits of FLS (a model of Post Fracture Care-PFC) in reducing the risk of fractures, FLS implementation is still not optimised. This represents a substantial missed opportunity, as it is established that those who have sustained a fracture are vastly more likely to sustain another, and that targeting treatment to this group (via FLS) is a viable, and high-yield place to start.

Key Recommendations

Although several initiatives are already in place and need to be reinforced, specific recommendations include:

- 1. Push fragility fractures up the national healthcare policies agenda**
- 2. Develop solutions and strategies for osteoporosis management which are tailored to the needs of individual regions**
- 3. Ensure robust data collection and improved coordination**

4. Raise awareness in both healthcare and lay public spheres
5. Increase deployment of FLS for patients with a recent fracture to facilitate increased post-fracture screening, diagnosis and treatment rates



A PROBLEM ON THE RISE

Osteoporosis is a disease that makes bones weak and fragile. This greatly increases the risk of breaking a bone even after a minor fall. The disease has no obvious symptoms, so many people do not know they have osteoporosis until they suffer a fracture.

These osteoporotic 'fragility fractures' are common, particularly in older adults and are increasing in prevalence. Fragility fractures can be life-altering, causing pain, disability and loss of independence, and are associated with a substantial direct and indirect financial burden.

Demographics and population ageing

Brazil is a country of continental size and is the most populous country in Latin America with arguably the most diverse population in terms of social, economic and ethnic background in the region. Brazil's population was 214 million in 2021 (the 6th most populated country in the world), an increase of 13% from 2010, of which 25% (54 million) are aged 50 years or more.

The proportion of older adults is rising. It is predicted that while the population of Brazil will increase to 228 million people by 2050, the proportion aged 50 years or older will increase to 54% and increase to 32% for those aged 70 or more. Life expectancy was 76 years in 2020 and is estimated to reach 82 years by 2050. In 2020, the ratio of seniors per 100 people of working age was 43.5.

BY 2050, IT IS PREDICTED THAT



Increasing age leads to increased fractures. The above shift in population demographics will dramatically increase the incidence and societal burden of fragility fractures for the Brazilian population.

Fractures are common with dramatic consequences for patients

Fragility fractures are a substantial public health issue. In women aged ≥ 50 years, the yearly number of fragility fractures is estimated at about 400,000, including around 100,000 hip fractures, the most severe osteoporotic fracture type. In the recent BRAVOS study conducted in three representative geographic areas of Brazil, the crude incidence rate for hip fracture was 77 per 100,000 inhabitants in men and 125 per 100,000 inhabitants in women over 50 years of age.

Fragility fractures affect numerous women and men. The prevalence of osteoporosis was estimated to be 33% of Brazilian women aged over 40 years, while the prevalence of fragility fractures was estimated at 15% for women and 13% for men, aged over 40 years. In another study, the Latin American Vertebral Osteoporosis Study (LAVOS, conducted in 2009), the overall prevalence rate for vertebral fractures alone in women of 50 years and older was estimated at 14%, and as high as 25% in women aged 80 years and older.

PREVALENCE OF VERTEBRAL FRACTURES



14%

FOR WOMEN
+50 YEARS



25%

FOR WOMEN
+80 YEARS



Fragility fractures are on the rise. With life expectancy continuing to increase, fragility fracture incidence in Brazil was predicted to increase by 62% between 2015 and 2030. An audit published in 2012 by the International Osteoporosis Foundation (IOF) reported that in Brazil, the number of hip fractures will double by the year 2040, reaching to almost 200,000 fractures per year.

Re-fractures are also on the rise. It is well recognised that the risk of further fractures rises significantly after an initial fracture. A Brazilian study, in line with international literature, suggests that further fractures occur in about 12% of individuals in the 2 years following the initial (or sentinel) fracture.

Fragility fractures cause pain, disability, loss of independence, and significantly impact the quality of life. A Brazilian study reported that hip fractures were shown to dramatically reduce the mental and physical quality of life one month after fracture, with only partial recovery by the end of the fourth month.

Fragility fractures, especially at the hip, are associated with death and increased hospitalization. A high percentage (varying from 5% to 25%) of elderly patients with hip fractures will die within one year. It is further estimated that 97% of hip fractures are treated surgically with an average annual growth of 5.6% in hip fracture-related hospitalizations between 2008 and 2017. In addition, 40% of patients with hip fracture receive rehabilitation treatment.

BETWEEN
5-25%
OF ELDERLY
PATIENTS



WITH
HIP
FRACTURES



WILL DIE
WITHIN
1 YEAR



Financial impact

Fragility fractures are costly to the healthcare system, but also indirectly through fractures in the workforce and the additional care required from family and relatives of working age. In 2018, the annual health care costs of osteoporosis and related fragility fractures were estimated at \$309 million USD, of which 61% was attributable to productivity losses and 19% to hospitalization costs.

Direct cost for hip fracture per patient varies substantially in the public (SUS) and private (SSS) healthcare systems. The average direct cost of hip fracture is estimated between \$2,618 (USD) and \$11,911 (USD). Vertebral fracture surgical treatment costs were estimated at \$2,474 (USD) in SUS and rise to \$13,820.57 (USD) in SSS. The cost of surgical treatment for other non-hip non-vertebral fractures averages \$888 (USD) in SUS and reaches an average of \$9,275 (USD) in SSS.

The financial burden is on the rise. Due to the ageing population, the costs of osteoporosis and fragility fractures are predicted to substantially increase in the future.



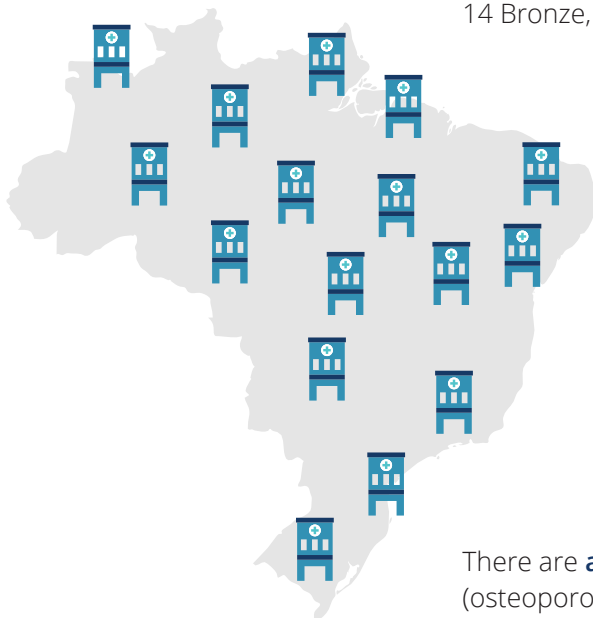
SUCCESSES AND MISSED OPPORTUNITIES OBSERVED

We have identified positive initiatives that need to be reinforced and missed opportunities which need to be grasped.

Positive initiatives that must be reinforced/improved

There are **several societies that advocate for osteoporosis in Brazil** including Osteometabolic Brazilian Orthopaedic Association (ABOOM), Associação Brasileira para Avaliação de Saúde Óssea e Osteometabolismo (ABRASSO), Brazilian Federation of Gynecology and Obstetrics Associations (FEBRASGO), Brazilian Society of Rheumatology (SBR) and Associação Brasileira de Qualidade de Vida (ABQV).

Brazil has a good foundation of FLS. As of October 2024, there were 57 FLS mapped on the CTF Map of Best Practice, including 7 Gold, 11 Silver, 14 Bronze, and 25 Blue. This is a good foundation on which to build.



There are **active, ongoing partnerships** among many key stakeholders (osteoporosis societies, the pharmaceutical industry and universities) to create an environment of expansion in post-fracture care programs at national and regional levels based fundamentally on the principles of the Capture the Fracture® Initiative.

The quantity of DXA machines available is increasing. The number of DXA machines has increased by about 20% between 2012 and 2019, when there was a total of 2,296 representing 1.13 DXA scanners per 100,000 inhabitants, one of the highest rates in Latin America. In addition, Brazilian health systems reimburse all diagnosis methods. The cost for a DXA ranges between \$10 (USD) in SUS and \$25-35 (USD) in SSS.

NUMBER OF
DXA MACHINES
INCREASED



BY ABOUT
20%
2012-2019

1.13 SCANNERS
100,000 INHABITANTS

Brazil has a country-validated FRAX model, which includes assessment thresholds.

In Brazil, **the first service** installed according to the Capture the Fracture® program was PrevRefrat, at the Hospital of Ipanema, Rio de Janeiro, RJ. In 2016, considering the data from a single health operator, there was a reduction in vertebral fractures of 50% compared with fractures occurring in 2014, 33% in fractures requiring surgery in comparison to those which occurred in 2015, and 66% in hip fractures (requiring surgery) which occurred in 2014. In 2019, the FLS PrevRefrat yielded a positive balance at US\$100,000.

The **BRAVOS study** is the first study designed to estimate the incidence of hip fracture in Brazil with the aim of representing a better national sample with a robust protocol (geographic coverage, fracture identification and adjudication criteria, coverage of the public and private system). Such national data are important to provide a detailed picture of the burden of osteoporosis in Brazil.

A new Clinical Protocol and Therapeutic Guideline from the Health Ministry is to be launched in 2023 and access to osteoanabolic drugs (teriparatide and romosozumab) and intravenous zoledronate have been included, ensuring public and free access to these medications for patients at very high risk of osteoporotic fractures.

Creation of Patient Advocacy Groups / Patient Support Groups, and support of those already in existence, has been actively promoted via medical societies.

A new **position statement** from the Brazilian Society of Endocrinology and Metabolism (SBEM) and the Brazilian Association of Bone Assessment and Metabolism (ABRASSO) on the definition and management of very high fracture risk in women with postmenopausal osteoporosis has just been published.

Gaps and missed opportunities

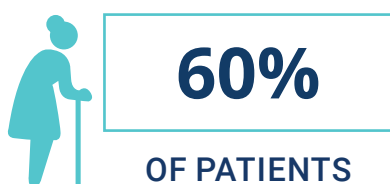
Osteoporosis is not a health priority for Brazil. Despite the increase in the incidence of fragility fractures with related implications for healthcare usage and cost, osteoporosis and fracture prevention are not regarded by the government as a health priority in Brazil.

Inadequate assessment of the extent of the problem. Presently, there is no national data collection system to provide reliable information on fracture incidence. The current evidence base for fragility fractures is broadly regional rather than specific to Brazil.

Brazil is a vast country with diverse regional and health variation. This results in substantial challenges for service provision and the efficiency of health system policies, in spite of the Brazilian constitution in 1988 stating a commitment to the provision of a national system for universal health coverage with decentralization and community participation as a principle of equality. Problems in its effective implementation and financial sustainability are evident. This has an impact on the management of osteoporosis and the ability to deliver high-quality services throughout the country.

Brazil has varied methods of health data recording. This has led to a variation in fragility fracture and osteoporosis data collection, and would benefit from local tailoring.

About 60% of patients at risk of fragility fractures do not receive treatment at all, despite effective and safe medications. This highlights a wide gap between those receiving treatment and those in need of treatment.



High frequency of failure to diagnose and treat osteoporosis especially in patients with fragility fractures (those being at high risk). In a Brazilian study, only 20% of patients with a fracture received a pharmacological treatment.

Detection of those at risk is further hindered by geographical barriers and DXA machines being distributed unevenly across regions. Despite an increasing number of DXA, there is a huge gap in access depending on geographical location and type of insurance coverage: an average 1-day wait for an individual with private insurance versus a 6-month wait for an individual in public healthcare. Additionally, public access to DXA machines is hampered by the fact that DXA machines are largely concentrated within private clinics and urban centres.

Inadequate availability of therapy regimen. The public health system and private health insurance companies provide coverage for estrogenic therapy, raloxifene, alendronate, risedronate and calcitonin for patients with osteoporosis diagnosed by DXA or fragility fracture. Other anti-osteoporosis medications (e.g., denosumab, teriparatide) are often only available through the private insurance system. Thus, low-income patients cannot attain access to medications that may be medically indicated and beneficial. This was reported to be highly restrictive for patients and was not considered an adequate access strategy.

Poor adherence to medications is very common in osteoporosis, as is seen in other chronic diseases, and reduces potential treatment benefits.

Hip surgery is delayed for fracture patients. With regard to fracture treatment, it is reported that 97% of hip fractures are treated surgically, with an average waiting time of 6-7 days. In comparison, European countries reported a waiting time of 2-3 days for hip surgery in 77% of cases in 2015, with most cases in the operating theatre within 24 hours.

Lack of osteoporosis education for the public. There is currently little dissemination of information for the public and **no patient advocacy groups for osteoporosis** in Brazil and greater investment in studies of bone health and treatment should be considered. Within the following organisations, there have been some discussions on fracture prevention: ADJ – Associação de Diabetes Juvenil, CDD - Associação Crônicos do Dia a Dia, GRUPARJ – Grupo de Pacientes Artríticos de Petrópolis, GRUPAR-RP - Grupo de Apoio ao Paciente Reumático de Ribeirão Preto e Região (most active group) and GARCE - Grupo de Apoio Aos Pacientes Reumáticos do Ceará.

Lack of awareness of osteoporosis risk. Data from a Latin American study showed that post-menopausal women significantly underestimate their risk of osteoporotic fractures. Almost 80% of women identified as having a high risk of fractures by FRAX, perceived themselves as having little risk.

Lack of a coordinated approach to bone fragility. There is minimal implementation of FLS in Latin America where fractures continue to be undertreated and there is no central database for recording cases. In Brazil, there are a few PFC/FLS programs in place, but implementation is still in the early stages. It's estimated that less than 10% of the hospitals in Brazil have an associated PFC program. This represents a substantial missed opportunity as a recent paper reports that universal FLS implementation could prevent more than 15,000 fractures in Brazil annually, leading to annual savings of US\$7.64 million.

**FRACTURE
LIAISON
SERVICES**



**ARE STILL
LIMITED
IN BRAZIL**

Lack of resources. Most hospitals do not have sufficient financial resources to increase their DXA capacity or to develop a local tool for bone density detection. There is also no central computer registry for recording cases.

Socially vulnerable population. Access to health services is still precarious for a considerable part of the Brazilian population (prevalence of poor access to healthcare in Brazil is estimated at 18%), especially the most vulnerable groups. Furthermore, the number of dependent adults will increase due to poor economic growth and high unemployment.

Poor calcium intake. Average calcium intake in Brazil is 505 mg/day, in the medium-low range level. Brazilian elderly people have high inadequacy of calcium supplement intake in both sexes. In all Brazilian regions, calcium was among the minerals with the highest prevalence of inadequacy (> 80%). **Vitamin D levels vary** and exposure to natural sources of vitamin D vary greatly according to geographical and topographical region, sunshine hours and tropical rainfall conditions across the country. Studies have revealed that 60% of healthy adolescents and 42% of postmenopausal women have vitamin D insufficiency.



SOLUTIONS EXIST: POLICY RECOMMENDATIONS

Specific recommendations for policy include:

1 Push fragility fracture up the national healthcare policies agenda

- It is recommended that osteoporosis, fragility fractures and secondary fracture prevention are included in the health system's national policies. This would mean enlisting government agencies to back the initiative.
- Due to large demographic and epidemiology disparities in Brazil, unifying education, treatment regimens and registries may have a positive effect. Policy formation has previously been hampered by the varying incidence of fracture and costs across Brazil, and so, an overarching policy tailored to each region could be considered.

2 Individualized solutions and strategies for osteoporosis management in the various regions of the country

- Due to diverse population (in terms of social, economic and ethnic background) across Brazil, individualized solutions and strategies are required for each on a regional basis.

3 Collect robust data and better coordination

- More studies, national figures and resources should be collated to create a true picture of the burden of fractures and osteoporosis. A good example is the recent BRAVOS study which collected hip fracture incidence.
- Leverage digital solutions to coordinate FLS programs. A scalable technological solution should be put in place to assist with FLS coordination. A central database of cases and study data should be available to all institutions involved with FLS.

4 Raise awareness in both healthcare and lay public spheres

- Awareness of osteoporosis and fragility fractures, and effective treatment regimens can only be delivered if physicians are educated and aware. To achieve this, further training for clinicians and healthcare professionals, especially residents, in the detection of low bone density and its subsequent treatment are imperative.
- Greater deployment of the existing associations which are members of the IOF Committee of National Societies: the Brazilian Orthopaedic Association(ABOOM), Associação Brasileira para Avaliação de Saude Ossea e Osteometabolismo (ABRASSO), the Brazilian Federation of Gynecology and Obstetrics Associations (FEBRASGO), the Brazilian Society of Rheumatology (SBR); as well as other physician-led bodies including the National Association of Rheumatology (NASBR), the National Association of Endocrinology (NASBEM), the National Association of Orthopedics (NASBOT /ABOOM), the National Association of Geriatrics (NASBG) and Associação Brasileira de Qualidade de Vida (ABQV), as well as expansion of the current network of IOF CTF Certified Mentors.
- Strategically target key stakeholders. Identify which national learned bodies, hospital boards, patient societies and other relevant stakeholders need to be involved in policymaking, promotion and development of the 'best-fit' regimen for Brazil.
- Patient associations are useful in raising awareness within the lay public. Patient information on the risk of further fractures could be improved and it is suggested that an osteoporosis support group formed by patients could help enforce the awareness of the 'at risk' community.
- Another important challenge is to increase primary care physician awareness and involvement in post-fracture care management.

5 Increased deployment of FLS for patients with a recent fracture to facilitate increased post-fracture screening, diagnosis and treatment rates

- Emphasise the need for thorough assessment of patients who experience fractures. Included within this is a requirement for increased awareness of the importance of bone mineral density assessment via DXA scanning after fracture.
- The uneven geographical location of DXA equipment should be taken into consideration.
- For FLS to become imbedded within the health culture of Brazil, hospitals need to be aligned with an FLS champion (success stories) and have hospital authority support. FLS success in other countries could also be looked to as a model for implementation in Brazil.
- The diversity of situations in health services throughout Brazil means that the installation of an FLS might need to be adapted locally.
- Utilise the multi-disciplinary team to improve adherence to anti-osteoporosis medication. Collaboration between all healthcare professionals in monitoring adherence to therapy is essential.

BUILD YOUR RESPONSE

Find and treat your fractures by expanding Fracture Liaison Services

- **Fracture pathway** - Ensure there is a clear and open pathway for referral of fracture patients from the Emergency Department.
- **Facilitate DXA assessment** – Increase the wide availability of DXA, reduce the uneven geographical location of DXA and encourage the use of DXA assessment for all individuals who have sustained a fracture.

Educate health providers

- **Education of health providers** is of the utmost importance to target those providers that deliver primary and secondary prevention so that they are fully aware of how to screen those at high risk and the actions necessary for secondary prevention. In the case of primary prevention, primary care physicians, family physicians, and gynecologists are the most important target groups, and in the case of secondary prevention, the orthopedic surgeon is the key professional. These physicians must become aware of the seriousness of osteoporosis and be trained in how to detect and treat the disease to reduce the risk of further fractures.

Reinforce your evidence base

- **Create a robust database for fragility fractures**
- **More clinical research is needed** which addresses the issues highlighted by the BRAZOS study (Brazilian Osteoporosis Study). This was the first population-based epidemiological study designed to identify the main clinical risk factors associated with low-impact fractures in a representative sample of the adult Brazilian population.
- **Utilise the Benefit Calculator** to assess the expected financial impact of interventions to ensure you stay on track and utilise the extensive resources available.

Make use of available resources

The International Osteoporosis Foundation has developed several tools to facilitate and improve the development of Post Fracture Care/FLS including:

1. **The Policy Toolkit** which is a CTF-P Guidance for Policy Shaping generic narrative and associated resources (slide kit in several languages, Executive Summary, Infographic, webinar, outline video and policy toolkit. <https://www.capturethefracture.org/resource-center/advocating-for-pfc/policy-toolkits>
2. **The Capture the Fracture® Resource Centre** (<https://www.capturethefracture.org/resource-center>) which provides tools and resources to achieve the following:
 - Implementing an FLS
 - Improving an FLS
 - Advocating for the development of FLS



The Capture the Fracture® programme provides tools and resources to optimise post-fracture care:

1. **The Best Practice Framework**
 - Provides guidance for institutions that are implementing FLS
 - Sets benchmarking criteria to stimulate quality improvement of post-fracture care services at the organisational level
2. **The Mentorship Program** which partners experienced partners of FLS with newly formed services
3. **The Benefit Calculator:** a microsimulation tool to estimate the financial consequences of improving post-fracture care.

Form a team

- **Key decision makers should be recruited** to address the increasing problem of bone health that will arise with the swell in the ageing population. Tackling bone fragility and secondary fracture prevention should be seen as key health priorities.
- Given the current changes in health policy at a national level, it is important to engage **top level key Brazilian health institutions** which provide care to the majority of the population.
- Operate at a **regional level** due to disparities in health between regions of Brazil.
- There should be **benchmarking of current available services** and auditing of pilot schemes and studies.
- Reinforce **disease awareness** and understanding of the urgency to treat.
- **Mobilise a multi-disciplinary approach to anti-osteoporosis drug adherence.** Use specialist (FLS) nurses, pharmacists and primary care physicians to encourage medication adherence.

Foster healthy ageing

- **Use the present to save the bones of the future.** Empowerment of clinicians and persuasion of health care managers and professionals to enforce the idea that bone fragility will be a future health issue, but it can also be managed, treated, and policies can be devised to prevent future fractures.
- **Alignment of current and upcoming relevant policy initiatives.** Building on systems already in place such as the Sistema Único de Saúde (SUS) since 1990, will help the implementation of FLS centres in Brazil. The SUS is a tax-financed, unified national health system which was developed to assist the poor. So far, this initiative has had a vast impact on communicable diseases, but with good direction it may have influence on non-communicable conditions, including osteoporosis and fragility fractures.
- **Public health education should be promoted** with emphasis on lifestyle, diet, exercise, adherence to medication, smoking cessation, avoidance of heavy alcohol consumption and the prevention of falls, which are the hallmarks for osteoporosis prevention. Public awareness campaigns addressing these issues are greatly needed.
- **Start early.** Public campaigns have been started in other countries such as the USA. The “Best Bones Forever” program is a US national

campaign targeting young girls and teens (9 to 14 years old) to promote healthy habits for bone growth and fracture prevention. Brazilian medical societies should evaluate the different campaigns to determine if any can be implemented in their community.

- **Osteoporosis remains a relatively undetected and untreated disease.** Awareness, prevention, and diagnosis of osteoporosis are paramount.
- **Consider the following systematic interventions for those over the age of 50:**
 - a. Screen height loss once a year
 - b. Falls risk screening
 - c. Perform osteoporosis screening for patients suffering from chronic diseases (this could potentially be achieved by educating specialized nurses from other disciplines such as primary care, respiratory, diabetes, neurology etc.)



- **Promote falls prevention services and improve the physical capacity of older individuals,** in order to support physical activity and autonomy. Such programs should be coordinated by physiotherapists.



- **Engage the public via digital media** and ensure that patient information websites are well-curated and maintained up to date.

- **Focus on fractures and capture 'osteoporosis'.** There are common misconceptions regarding osteoporosis including “osteoporosis treatments are not effective” or “losing height is normal”. Targeting public health awareness campaigns at fractures will be more successful, for example “make the first fracture the last!” Osteoporosis is a silent condition and primary prevention is also key.
- **Increase awareness of osteoporosis throughout the life course:**
 1. Leverage World Osteoporosis Day (on October 20 of each year) as a substantial opportunity to educate consumers and health professionals about osteoporosis and fracture prevention, and promote case-finding during this period.
 2. Consider engaging initiatives such as free bone mineral density assessments for women over 65 years.
 3. Start early with prevention campaigns in schools: how to build strong bones, encouraging physical activity, to get sufficient levels of protein.
 4. Improve the communication about fracture risk.

Glossary

FRACTURE – a broken bone

FRAGILITY FRACTURE - A broken bone which occurs due to minor force, such as a fall from standing height. The risk of fragility fractures can be reduced by lifestyle modifications, supplementation of calcium and vitamin D, falls prevention programmes and anti-osteoporosis medication.

FRACTURE LIAISON SERVICE (FLS) - See Post-Fracture Care Coordination Programme. A model of care which seeks to rehabilitate individuals after they have had a fracture and reduce the risk of them fracturing again in the future. The term is interchangeable with *POST-FRACTURE CARE (PFC) COORDINATION PROGRAMME*.

OSTEOPOROSIS - Osteoporosis is a disease in which the mass, density and strength of bone are reduced. As bones become more porous and fragile, the risk of fracture is greatly increased. The loss of bone occurs silently and progressively. It primarily affects the elderly and is more common in women than in men.

PRIMARY PREVENTION OF FRACTURES - Initiatives to prevent a first/sentinel/initial fracture occurring.

SECONDARY PREVENTION OF FRACTURES - Initiatives to prevent second/subsequent/further fractures occurring after the first fracture has occurred.



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