ECONOMIST IMPACT



Integrated Care Pathways for Bone Health: Mexico

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The burden of poor bone health

As Mexico's life expectancy rises, the burden of poor bone health will grow. More than 10 million people were 60 years old or older in 2020, a number that is predicted to reach over 35 million by 2050.1

Poor bone health encompasses a broad spectrum of diseases, but it is most often quantified as the cumulative burden of osteoporosis and osteoporosis-related fractures. Osteoporosis is characterized by low bone mineral density or the deterioration of bone tissue, and it is the most widespread bone disease worldwide.² Osteopenia, or reduced bone mass, is considered an early stage of osteoporosis, and many osteopenic individuals are at great risk for developing osteoporosis.2 Osteoporotic fractures (or osteoporosis-related fractures) result from an injury that would not typically break a normal, healthy bone.³ This paper uses the terms osteoporosis-related fractures and osteoporotic fractures as opposed to fragility fractures to avoid the stigma that often accompanies the term fragility.

An increasing incidence of osteoporosis has already been observed in Mexico,⁴ as shown in

Figure 1. Projections for fracture cases are not optimistic: while more than 220,000 fractures were reported in 2018, that figure is expected to grow by 16.4% by the end of 2022.⁵ This outlook raises concerns not only about the health burden for individuals and communities but also the financial impact on the already overburdened healthcare system.

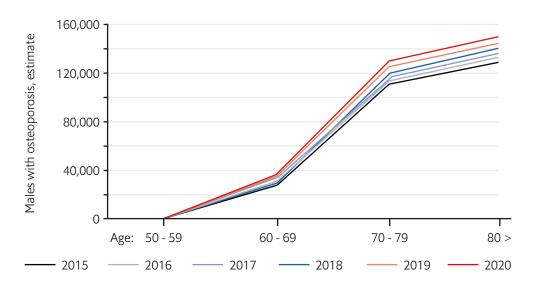
Projections indicate that poor bone health cost Mexico US\$583 million in 2020 alone.⁴ On average, each hip fracture costs an estimated US\$4,365, and nearly US\$100 million is spent by the health system on acute care for fractures.¹ Since fractures often force patients to abandon work and require caretakers, ignoring this problem may further burden the economy.

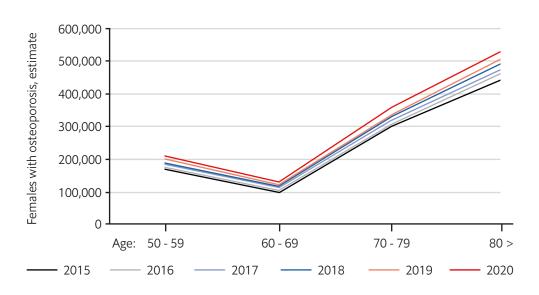
In addition, the costs of fractures are expected to increase, though Mexico's current healthcare budged is limited. In 2019, Mexico spent only 5.4% of its GDP on health, the second-lowest rate in Latin America.⁶ While estimates suggest this figure increased to 5.8% in response to the covid-19 pandemic, experts anticipate spending will decrease again after 2022.⁶ Thus, fracture

prevention and cost-effective technologies for clinical bone management are of primary concern.

To prepare for this evolving landscape, Mexico must consider prevention strategies, pharmacological and nonpharmacological interventions, and coordinated care programs. These efforts can be included in a sustainable and integrated care pathway for bone health.

FIGURE 1. Estimated male (above) and female (below) population with osteoporosis in Mexico, $2015-2020^4$





Progress and challenges associated with bone health

The National Institutes of Health in Mexico have recognized osteoporosis and osteoporotic fractures as public health problems since 2009.⁷ One of the immediate results of this was the implementation of the Fracture Risk Assessment Tool (FRAX) calibrated to the Mexican population. FRAX is a risk assessment tool designed by the World Health Organization for use in primary care to predict the likelihood of a fracture based on clinical risk factors.⁴ This cost-effective tool has been widely and successfully implemented at the primary level, improving detection rates.

However, other aspects of Mexico's health sector hinder progress in bone health. The country has an overloaded and fragmented health system with scattered care and funding across overlapping provider systems.⁸ Costs vary across institutions due to different types of laboratory exams, prescribing patterns and outpatient visit rates.⁹ As a result, the annual cost of osteoporosis treatment per person can differ by up to 50%, depending on the healthcare institution.⁴

Osteoporosis frequently poses a financial burden on patients in both the public and private sectors. Although osteoporosis drugs are theoretically covered by the National Compendium of Medicines (Compendio Nacional de Insumos para la Salud), each institution has its own list of eligible medicines.⁵ Private health insurance tends not to encourage prevention and stops covering treatment once the initial fracture is treated, even if bone health remains poor and requires further treatment. As a result, Mexican patients incur significant out-of-pocket costs to treat bone health issues.⁵

The economic and health cost of poor bone health is compounded by low awareness. Physicians in Mexico, whether in primary, secondary or tertiary

care, are generally unaware that osteoporosis is a chronic condition that requires treatment and follow-up.¹⁰ Among those who are aware of the risk of osteoporosis, there is no clear agreement on who should prescribe treatment first, which makes it difficult to navigate the system. Communication about osteoporosis is hampered by the fragmentation of the health system, and policies become ineffective in the population. As a result, patients are often discharged to primary care without osteoporosis diagnosis or treatment, and thus are at risk of a subsequent fracture. Further, patients without a fracture or with an asymptomatic spine fracture are not diagnosed with osteoporosis and therefore are not referred to secondary or tertiary care until a major fracture occurs. A more integrated system could provide better treatment and monitoring.

Bone healthcare during the covid-19 pandemic

The covid-19 pandemic has challenged the health system's ability to deliver services. Priorities were shifted to covid-19 and away from diseases like osteoporosis. Both primary and secondary prevention were profoundly affected. In addition, stringency measures and other restrictions impacted physical activity levels, especially for school-age children. Reduced activity will likely have consequences for bone health in the future, as low physical activity in childhood has been shown to lead to fractures.¹¹

Patients have also been less willing to spend time in healthcare facilities, resulting in fewer surgeries and treatments. For those surgeries that took place, postsurgical follow-up was often delayed because patients hesitated to visit health facilities. Health institutions proactively aimed to minimize excessive medical appointments. For example, the refillable prescription (receta resurtible) was

implemented at the Mexican Institute of Social Security (IMSS),¹² which allowed patients to receive antiresorptive medication from primary care providers for up to six months after surgery. However, this policy did not have a budget; health centers were unable to purchase and supply medication.

On the positive side, the covid-19 pandemic has shown the success of health institutions offering fracture liaison services (FLS). FLS programs bring together a multidisciplinary team of experts with a dedicated care manager, ensuring continuity of treatment and clarity for the patient. In addition to providing the most cost-effective method of secondary prevention,13 FLS references for care led to the creation of national fracture registries and the publication of clinical standards for healthcare professionals.14 In Mexico, there are now 22 FLS programs¹⁵ and institutions were able to continue to provide FLS during the covid-19 pandemic. It is critical to gather data to assess the costeffectiveness of such programs in Mexico as they continue to expand.

The future of bone health in Mexico

An integrated care pathway will unify the crucial aspects of bone healthcare. The pathway brings together primary and secondary care, improves coordination and comprehensiveness of care delivery and service offerings, uses pharmacological and nonpharmacological approaches to improve bone health outcomes, and considers social determinants of health when designing strategies to improve bone health. An integrated care pathway for bone health aligns with the World Health Organization Decade of Healthy Aging 2021-2030 strategy, which can be adapted to meet the specific bone health needs of a country.

Integrated high-quality care requires integrated high-quality data. Existing data make clear the significant impact of osteoporosis in the country. The analysis in this paper is possible because Mexico is one of the few countries with population-based studies on osteopenia and osteoporosis. However, experts suggest that Mexico lacks data on health services such as rehabilitation and the use of long-term care for patients with osteoporosis. What data exist are scattered across databases. Researchers currently use registries from institutions with FLS, which are not representative of the entire country. There are discrepancies of information across regions, making it difficult to assess large-scale policies. Mexico will need to strengthen its information systems in order to strengthen its system of bone healthcare.

Existing campaigns for other diseases should be leveraged to tackle bone health. Obesity
and diabetes awareness campaigns share goals
with the primary prevention of osteoporosis,
particularly in relation to nutrition and physical
activity. Bone health could be included in chronic
disease awareness programs, including messages
on the importance of preventive measures such
as vitamin D and calcium intake. This strategy
can provide a lifelong approach to bone health
promotion without large additional expenditures.

Intersectoral collaboration can amplify primary prevention efforts. Because a healthy lifestyle from an early age can delay or prevent fractures in adulthood, stakeholders must come together to support bone health across the lifespan. For example, the orthopaedist must liaise with education professionals to promote more frequent physical activity in primary schools. Informed urban planning efforts can promote physical activity for adults. To be sustainable and scalable, prevention programs must involve policy makers, decision makers, tertiary payers,

pharmacoeconomic experts and other sectors involved in the country's economy.

Osteoporosis detection must be accessible to

all. Mexico should continue promoting the use of PrevenIMSS, a set of preventive and educational actions within the IMSS, for the protection of health divided by age groups. Including FRAX along with training would be sufficient to direct patients to secondary care if necessary. Then only patients at high risk of osteoporosis would undergo densitometry, an expensive and rarely available test in Mexico.⁴ For older adults, FRAX could be included as an item on their vaccination card, effectively screening the population for osteoporosis at little additional cost.

Patient education and awareness strategies must be tailored to the population's needs.

Women are at greater risk of developing osteoporosis, but evidence shows insufficient prevention and unwillingness to change at all in this group. ^{13,17} A preventive program promoting calcium and vitamin D consumption would reduce fractures by an estimated 12% among females over 60 years old, decreasing the financial burden by up to 19%. ¹⁸ Because promoting bone health alone may not be enough to increase positive behaviours, the Mexican Association for Bone

and Mineral Metabolism emphasizes the role of positive doctor-patient relationships, both during appointments and during daily life, to find the best care pathway.¹⁸

Timely secondary prevention needs multidisciplinary coordination to work.

Without adequate communication, tertiary care physicians focused on treating fractures may fail to address the underlying causes and thus fail to prevent more fractures. To provide integrated care to the general population, Mexico can leverage the IMSS's well-connected care levels. Integrated care protocols are already being prepared, and efforts should be made to increase their emphasis on osteoporosis. The National Institute of Rehabilitation stands out as a model of integrated care in bone health.

Recognizing and addressing the incidence of osteoporosis is crucial to mitigate alarming fracture trends. Mexico can go a step further by creating an integrated care pathway to reduce the burden of poor bone health. To unify the dispersed aspects of care and empower the aging population, Mexico must carry out coordinated and evidence-based actions.

About this paper

Economist Impact undertook a global research program, sponsored by Amgen, in 2019 entitled *Integrated Care Pathways for Bone Health: An Overview of Global Policies*. This paper is a synthesis of key insights from a subsequent closed-door roundtable and from additional desk research conducted independently by our team, focused on applying insights from the global study within the Mexican context.

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