

Mexican registry of hip fracture (ReMexFC): objectives and methodology

Summary

Introduction: Hip fracture (HR) is a public health problem with high morbidity and mortality. In other countries, national FC records have been made. England launched the National Hip Fracture Database (NHFD) which has registered 30,000 cases. They were followed by Norway, Australia, New Zealand and Spain. These records have helped to measure quality indicators, care outcomes and decrease mortality.

Justification: In Mexico there is no national registry on the characteristics of hip fracture.

General Objective: To know the demographic characteristics, assistance, adherence to quality indicators and postoperative results in Mexican patients with fracture of hip due to fragility in Mexico.

Methodology: Observational, epidemiological, descriptive, multi-center study in different hospital centers of the Mexican Republic. The data suggested by the Fragility Fracture Network (FFN) will be measured, including sociodemographic characteristics, cognitive and functional status prior to fracture, quality indicators and a 30-day follow-up. Re-entry and reoperation will be documented, as well as mortality in the acute phase and at 30 days. The information will be analyzed with SPSS of IBPM version 20.0.

Keywords: hip fracture, registration

Volume 11 Issue 4 - 2019

Viveros-García JC, Robles-Almaguer E, Albrecht-Junghanns RE, López-Cervantes RE, López-Paz C, Olascoaga-Gómez de León A, Ramírez-Izquierdo G, Sánchez-Trocino B, Torres-Naranjo F, Zúñiga-Gil CH

Scientific Committee of the Mexican Registry of Hip Fracture, Mexico

Correspondence: Juan Carlos Viveros G, Geriatria, Medicina Interna, Scientific Committee of the Mexican Registry of Hip Fracture, Mexico, Email drviveros.geriatria@gmail.com

Received: April 29, 2019 | **Published:** August 09, 2019

Introduction

In Mexico 1 out of every 4 adults is suffering from osteopenia or osteoporosis,¹ the most serious consequence of which is hip fracture (HR). It is estimated that between 8.5% and 18% of women will have a hip fracture throughout their lives.^{2,3} In Mexico City, an incidence of 1 725 cases in women and 1 297 men per 100 000 inhabitants has been reported, and it is believed that it will increase by at least 7 times by 2050.⁴

Hip fracture has been considered a public health problem due to its high impact on morbidity, mortality, dependence and costs.⁵⁻⁷ Mortality at one year is usually 25%, and of these only 10% die in the acute phase.⁸⁻¹² On the other hand, only 73% of patients recovered the mobility they had prior to the fracture,⁹ which increases the risk of dependence.¹²

In addition to the welfare consequences, the costs of FC also make it a catastrophic entity.^{7,13-15} In 2002, the Mexican Institute of Social Security (IMSS) spent close to 1 927 072 United States Dollars (USD) on care in the acute phase of FC,⁶ with an average cost per event, up to 12 thousand US dollars. Despite this complex scenario, in Mexico there is currently no multicenter study or registry on the sociodemographic and assistance characteristics of hip fracture. Most of the work has been done in Mexico City, in a single center, so it is not possible to have a global vision of this problem. In other countries in recent years, many efforts have been made to study FC and try to improve its prognosis, increase the quality of care and reduce hospital costs. This through clinical practice guidelines, implementation of multidisciplinary teams, inclusion of the geriatrician in the care from the acute phase and the formation of Orthogeriatric units,¹⁵⁻¹⁷ in addition to the publication of recommendations and quality indicators in the care.^{18,19}

Another tool that has been used to try to improve FC care is the regional and national registers. In 2007, the National Hip Fracture

Database²⁰ was launched in England, which has so far recorded nearly 30,000 hip fractures. Other countries have followed Norway,²¹ Australia and New Zealand,²² Scotland²³ and recently Spain.²⁴

These records have proven to be useful for situational diagnosis, as well as to improve adherence to quality indicators. After the implementation of the NHFD it was possible to reduce the surgical delay, reaching the goal of surgery in 48 hours or less in 71% of the cases. This impacted on a decrease in mortality in the acute phase. It was also possible to reduce the hospital stay and increase the participation of geriatricians in phase²⁵ care.

Justification

There is not a multicentric, regional or national registry of Fractures of the Hip due to frailty. This registry will allow a situational diagnosis on this important public health problem, as well as measuring the quality indicators and comparing them among the participating hospitals, and later, in a second time, comparing ourselves with other countries in the world. This will facilitate the detection of opportunity points and generate policies that help us improve the prognosis of patients with hip fracture in Mexico.

Goals

- i. General Objective: To know the demographic characteristics, care and results in terms of quality indicators, in Mexican patients with fracture of hip due to fragility in different states of the Mexican Republic.
- ii. Specific objectives:
 - a) To know the regional variability in demographic, assistance and quality indicators.
 - b) Know the care characteristics of each center that treats Hip Fractures.

- c) Compare HR care with quality indicators and clinical practice guidelines, and generate policies to reduce this gap.
- d) Compare the results with other member countries of the Fragility Fracture Network and.
- e) Disseminate the results to each participating hospital, as well as to local, regional and national authorities.
- f) Compare the results of each year of the record with the previous one.

An observational, cross-sectional, epidemiological, descriptive, multicenter study will be carried out in different hospital centers of

the Mexican Republic. An invitation will be made to participate to subinvestigators interested in the hip fracture care of the specialty areas: Traumatology, Internal Medicine, Geriatrics, Rheumatology and related specialties.

An informed consent will be obtained from each patient to be included in the registry, which will be stored in said center and will be subsequently collected digitally. The suggested variables in the Common Database (Minimum Common Dataset) will be documented by the Fragility Fracture Network “FFN” (Fragility Fracture Network), which is a non-profit Academic Institution are headquartered in Switzerland and global representation, dedicated to the global optimization of the multidisciplinary management of fragility fractures (Figure 1) (Table 1).

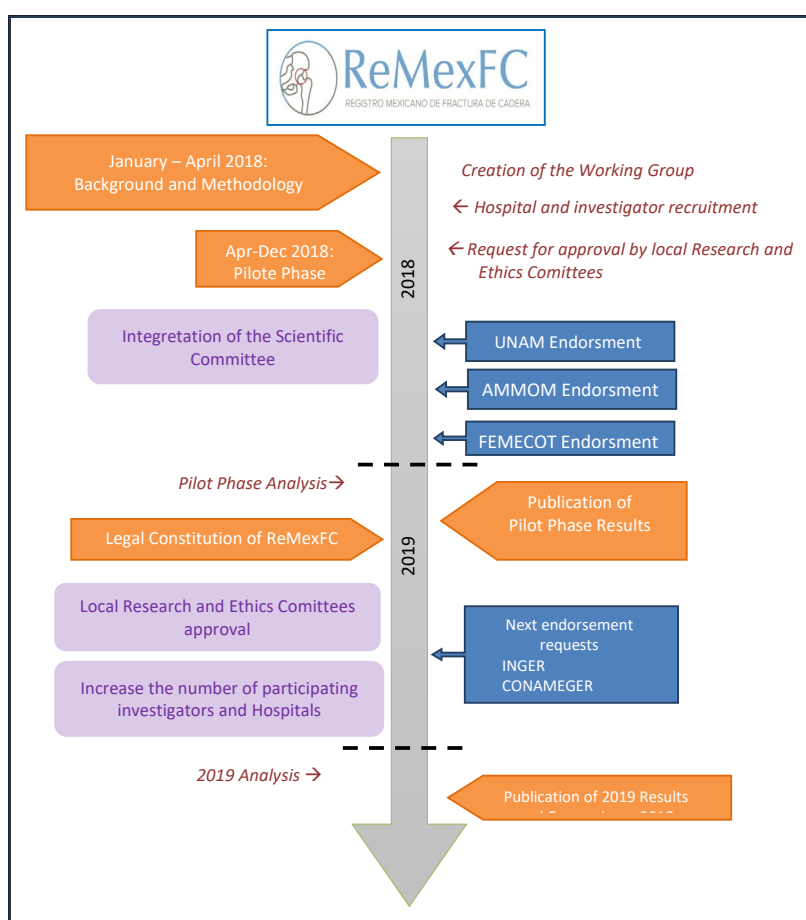


Figure 1 ReMexFC Timeline.

ReMexFC, Registro Mexicano de Fractura de Cadera; UNAM, Universidad Nacional Autónoma de México; FEMECO, Federación Mexicana de Colegios de Ortopedia y Traumatología; INGER, Instituto Nacional de Geriátría; CONAMEGER, Colegio Nacional de Medicina Geriátrica; FFN, Fragility Fracture Network.

These variables include sociodemographic characteristics prior to the fracture, cognitive and functional status prior to the fracture, as well as their admission to the emergency department, surgical phase, rehabilitation, patient's condition at discharge, management of osteoporosis and follow-up by telephone or in person at 30 days. In

addition, re-admission to the hospital and the requirement for surgical re-intervention will be assessed. Mortality will be measured from the acute phase considering whether it was before, after surgery or within 30 days after discharge.

Table 1 Adaptation for México of the Minimmun Common Dataset**In-Hospital Acute Phase and 30 days Followup**

	Baseline Characteristics
Patient	-Residence (Home or Long Term Care)
-Informed Consent	-Gait evaluation
-Gender	-Walking aids
-Age	-Cognition
-City and Province	-Side
-Name of The Hospital	-Type of fracture
-Public or Private Care	-Osteoporosis treatment
	-Functional Status
	-Sore Ulcers
	-Delirium
Acute Care	Discharge
-Date and Time of arrival to ER *	-Discharged to long care or home
-Date and time of arrival to trauma ward	-Date of discharge
-Date and time of surgery	-Length of stay
-Type of Surgery	-Osteoporosis treatment
-Surgical delay	-In-Hospital Mortality
-Cause of surgical delay	30 Days Follow-up
-type of Antesthetic technique	-Mortality
-Femoral blocking	-Readmission
-Sore Ulcer	-Surgical Reoperation
-Delirium	-Gait evaluation
-Multidisciplinary team	-Walking aid
-Sitting after surgery	-Functional status
-In hospital weightbearing	-Osteoporosis treatment

* ER, Emergency Room

Each center will collect individually the informed consents, the capture sheets and will be responsible for uploading the data of each patient on a bi-monthly basis to the platform. Once sent, the data will be concentrated in a global database, where the personnel that analyze the data generates a blind for the analysis of information.

Histograms of each variable will be reported with the name of the hospital blinded, marking the national average and, on the other hand, the quality indicator suggested by international standards. These reports will be generated quarterly, exclusively to the participating centers. Subsequently, an annual report will be made, which will be published.

Due to the great extension of the Mexican Republic, regional coordinators will be created with the purpose of continuing adding centers to the registry, as well as to solve doubts in the process of capturing patients, filling in the platform for sending the information.

A scientific committee will be created for the periodic analysis of the variables to be measured, and the resolution of said commission will be communicated to the rest of the subinvestigators. The activities carried out in 2018 and 2019 are shown, including the scientific societies that have so far endorsed the project, as well as those that will be requested in the future in Figure 1. The information will be analyzed with the SPSS package of IBPM version 20.0.

References

1. Riera-Espinoza G. Epidemiology of osteoporosis in Latin América 2008. *Salud Pública Mex.* 2009;51 Suppl 1:S52–55.
2. International Osteoporosis Foundation. La Carga Global de la Osteoporosis en Cifras. 2014.
3. Clark P, Lavielle P, Franco-Marina F, et al. Incidence rates and life-time risk of hip fractures in Mexicans over 50 years of age: a population-based study. *Osteoporos Int.* 2005;16(12):2025–2030.
4. Johansson H, Clark P, Carlos F, et al. Increasing age-and sex-specific rates of hip fracture in Mexico: A Survey of the Mexican Institute of Social Security. *Osteoporosis Int.* 2011;22(8):2359–2364.
5. González-Montalvo JI, Alarcón T, Hormigo AI. ¿Por qué mueren los pacientes con fractura de cadera? *Medicina Clínica.* 2011;137(8):355–360.
6. Velasco-Murillo V. Fracturas en mujeres posmenopáusicas en el IMSS: frecuencia y costos de su atención hospitalaria. *Gac Med Mex.* 2003;135(5):453–458.
7. Quevedo-Tejero E, Zavala-González MA, Hernández-Gamas A, et al. Fractura de cadera en adultos mayores: Prevalencia y costos en dos hospitales. Tabasco, México, 2009. *Rev Peru Med Exp Salud Pública.* 2011;28(3):440–445.
8. Castañeda P, Cassis N. Mortalidad posterior a fracturas de cadera tratadas en el Centro Medico ABC entre 1996 y 2001. *An Med Asoc Med Hosp ABC.* 2003;48:33–37.
9. Sáez P. 3a actualización en Ortogeriatría: Ávila 2015. Capítulo 7 González-Montalvo JI, Alarcón T, Gotor P. ¿Es posible mejorar la atención al paciente con Fractura de Cadera? Aportaciones del Programa FONDA.
10. Alarcón T, González-Montalvo JI, P Gotor, et al. A new hierarchical classification for prognosis of hip fracture after 2 years follow-up. *The Journal of Nutrition, health & Aging.* 2011;15(10):919.
11. Albavera R, López R, Romero C, et al. Mortalidad de pacientes con fractura de cadera a cinco años de evolución en el Hospital Regional General Ignacio Zaragoza. *Rev Esp Med Quir.* 2013;18:31–36.
12. Cree M, Carriere KC, Soskolne CL, et al. Functional dependence after hip fracture. *Am J Phys Med Rehabil.* 2001;80(10):736–743.
13. Pareja-Sierra T, Rodríguez J, Alonso P, et al. Intervención geriátrica en el anciano ingresado por fractura de cadera en el Hospital Universitario de Guadalajara: repercusión clínica, asistencial y económica. *Revista Española de Geriatria y Gerontología.* 2017;52(1):27–30.
14. Clark P, Carlos F, Barrera C, et al. Direct costs of osteoporosis and hip fracture: an analysis for the Mexican healthcare system. *Osteoporos Int.* 2008;19(3):269–276.
15. González-Montalvo JI, Alarcón T, Gotor P, et al. La unidad de ortogeriatría de agudos. Evaluación de su efecto en el curso clínico de pacientes con fractura de cadera y estimación de su impacto económico. *Revista Española de Geriatria y Gerontología.* 2011;46(4):193–199.
16. Sabharwal S, Wilson H. Orthogeriatrics in the management of frail older patients with a fragility fracture. *Osteoporosis Int.* 2015;26(10):2399.
17. Neuburger J, Currie C, Wakeman R, et al. Increased orthogeriatric involvement in hip fracture care and its impact on mortality in England. *Age and Ageing.* 2016;46(2):1–7.
18. NICE. National Clinical Guideline Centre. [The Management of Hip Fracture in Adults]. London: National Clinical Guideline Centre. 2011.
19. Audit Commission. Best Practice Tariffs and Their Impact. London: Audit Commission; 2012.

20. Royal College of Physicians. National Hip Fracture Database annual report 2017. London: RCP, 2017.
21. Høbert M, Gram J, Hermann P, et al. The incidence of hip fractures in Norway-accuracy of the national Norwegian patient registry. *BMC Musculoskeletal disorders*. 2014;15:372.
22. ANZHFR Bi-National Annual Report for Hip Fracture Care 2017. Australian and New Zealand Hip Fracture Registry, 2017.
23. National Services Scotland. Scottish Hip Fracture Audit • Hip Fracture Care Pathway Report 2017.
24. Sáez-López P, González-Montalvo JI, Ojeda-Thies C, et al. Spanish National Hip Fracture Registry (SNHPFR): A description of its objectives, methodology and implementation. *Revista Española de Geriatria y Gerontología*. 2018;53(4):188–195.
25. Neuberger J, Currie C, Wakeman R, et al. The Impact of a National Clinician-led Audit Initiative on Care and Mortality after hip fracture in England. *Med Care*. 2015;53(8):686–691.