

# Bariatric surgery in Mexico. Characteristics of the practice in 2019

## Cirugía bariátrica en México. Características de la práctica en 2019

Diana Gabriela Maldonado-Pintado,<sup>\*</sup> Stephany Michelle Márquez-González,<sup>‡</sup> Mayte Wimber-Arellano,<sup>§</sup> Miguel F Herrera<sup>¶</sup>

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<sup>\*</sup> Bariatric surgeon at Hospital Angeles Pedregal. Coordinator of the Diffusion and Social Networks Committee of CMCOEM.

<sup>‡</sup> Bariatric surgeon of the Regional Hospital "Lic. Adolfo López Mateos", ISSSTE. Coordinator of the Scientific Committee of CMCOEM.

<sup>§</sup> Bariatric surgeon of the Hospital Mexico-Americano de la Universidad de Guadalajara, Guadalajara, Jalisco. Coordinator of the CMCOEM Credentialing Committee.

<sup>¶</sup> Endocrine surgeon of the Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán. President of CMCOEM.



### ABSTRACT

**Introduction:** Mexico has a long history in bariatric surgery and is one of the pioneer countries in Latin America. The characteristics of the bariatric surgery practice in Mexico have yet to be analyzed. **Material and methods:** an online survey was sent to all active members of the Mexican College of Obesity Surgery and Metabolic Diseases (CMCOEM) to analyze the surgical practice for one year. **Results:** most bariatric surgeons were male, with a mean age of 48.7 years. Regarding surgical volume, between 100 to 500 procedures in private practice were more frequently reported. Most procedures were performed in the northern part of Mexico. The surgical procedures more frequently performed were gastric sleeve, followed by gastric bypass and one anastomosis gastric bypass. There was also an important number of bariatric endoscopic procedures. The total number of procedures performed in one year was 8,887, and 1,033 endoscopic procedures. **Conclusions:** this study helps us to know that bariatric procedures are commonly performed in private institutions in the northern zone of Mexico. Considering the high prevalence of obesity in our country, we can see that increasing the surgical offer in public and private institutions is necessary.

### RESUMEN

**Introducción:** México cuenta con una larga historia en la práctica de la cirugía bariátrica, siendo uno de los países pioneros dentro de América Latina; sin embargo, las características de la práctica de cirugía bariátrica no han sido analizadas. **Material y métodos:** se realiza una encuesta entre socios del Colegio Mexicano de Cirugía para la Obesidad y Enfermedades Metabólicas con el fin de analizar la práctica quirúrgica en el transcurso de un año. **Resultados:** la mayoría de los cirujanos bariátricos son del género masculino, con un promedio de edad de 48.7 años. En cuanto al número de intervenciones, el grupo más frecuente fue el de los cirujanos que realizaron entre 100 y 500 procedimientos en el sector privado. El mayor porcentaje de cirugías se efectuaron en la frontera norte del país. Los procedimientos que se realizaron con mayor frecuencia fueron manga gástrica, bypass gástrico y bypass gástrico de una anastomosis, así como un considerable número de procedimientos endoscópicos bariátricos. El número total de procedimientos quirúrgicos en un año fue de 8,887 y de procedimientos endoscópicos de 1,033. **Conclusiones:** considerando la alta frecuencia de obesidad, es necesario incrementar la oferta quirúrgica tanto a nivel público como privado.

## INTRODUCTION

Obesity is a worldwide pandemic, and Mexico is found among the first places.

Mexico has a long history in bariatric surgery, one of Latin America's pioneer countries.<sup>1</sup>

Since 2014 there has been official certification in bariatric surgery in the country. Since 2010 there have been university training programs in various hospitals, which translates

into a more significant number of surgeons with training to perform bariatric surgical procedures safely and with a greater number of bariatric surgical centers.

In Mexico, bariatric surgery is performed in public and private hospitals, and considering its geographic location, there are centers dedicated to medical tourism.

Due to the lack of a national registry, the number of bariatric surgical/endoscopic

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procedures performed in the country and their distribution is still being determined.

The present study aims to investigate the number and distribution of interventions using a survey analyzing the practice during 2019.

## MATERIAL AND METHODS

A structured digital survey was sent through the SurveyMonkey® platform to all active members of the Mexican College of Surgery for Obesity and Metabolic Diseases (CMCOEM). The survey included questions on the volume, type of procedure, and its primary or revision nature for surgical and endoscopic procedures. Once the data were obtained, they were grouped and sorted for analysis (complications were not asked since this was not the study's objective).

The territorial classification was used to define the corresponding region within the interior of the Mexican Republic (*Figure 1*).

## RESULTS

Of a total of 257 requests, 64 responded (24.9%). A total of 60 (93.8%) were male, two (3.1%) were female, and two (3.1%) did not specify gender. The average age was 48.7 years, ranging between 35 and 71 years.

Regarding total experience, eight surgeons (12.5%) reported having performed less than 100 procedures, 42 (65.6%) between 100 and 500 procedures, nine (14.1%) between 501 and 1,000, and five (7.8%) more than 1,000 procedures.

According to the geographical distribution within the Mexican Republic, 22 surgeons (34.3%) live in the central zone, 14 (21.9%) in the northern zone, nine (14.1%) in the western zone, four (6.3%) in the southern zone, two (3.1%) in the eastern zone, one in more than one region and two did not specify the region. Regarding the public or private nature of care, 40 surgeons (62.5%) worked exclusively in the private sector, four (6.3%) exclusively in the



**Figure 1:** Geographic distribution by zones.

Available in: <https://images.app.goo.gl/RxLjCiMaxvAiXVEf8>

**Table 1: Distribution of bariatric surgical procedures according to type and their primary nature or revision surgery.**

	Primary surgeries	Revision surgeries*	Total	%
AGB	327	172	499	5.6
RYGB	1,957	429	2,386	26.9
GS	4,428	284	4,712	53.1
OAGB	737	199	936	10.5
BPD	71	57	128	1.4
SADI-S/SIPS	56	34	90	1.0
Other	106	30	136	1.5
Total	7,682	1,205	8,887	100.0

\* Surgeries performed after a previous surgical procedure.

AGB = adjustable gastric banding. RYGB = Roux-en-Y gastric bypass. GS = gastric sleeve. OAGB = One Anastomosis Gastric Bypass (represents all types of one-anastomosis gastric bypass). BPD = biliopancreatic diversion. SADI-S = single anastomosis duodenum-ileal and sleeve. SIPS = stomach intestinal pylorus-sparing surgery.

public sector, ten (15.6%) in both sectors, and ten did not specify.

A total of 8,887 surgical procedures were performed; their distribution is shown in [Table 1](#), and 1,033 endoscopic procedures are shown in [Table 2](#).

A total of 2,810 surgical/endoscopic procedures were performed in the northern zone (28.3%), of which 2,706 were surgical procedures (30.4%) and 104 endoscopic procedures (10.1%).

## DISCUSSION

According to the National Institute of Statistics and Geography (INEGI) and the National Survey of Demographic Dynamics 2018 (SNIEG) database, the population in Mexico is 125,000,000 people, 51.1% women and 48.9% men.<sup>1</sup> For its part, the Organization for Economic Cooperation and Development (OECD) highlights that Mexico has the first place in overweight and obesity in Latin America,<sup>2</sup> stating that 75.2% of adults over 20 years of age have some degree of overweight or obesity, so the number of people with obesity would be approximately 94,000,000 people.

As of March 18, 2019, 42 years after the founding of the Mexican Board of General Surgery (CMCG), a total of 10,232 general surgeons from different parts of the country have been certified, of which 1,164 (11.4%) are women, and 4,356 are in force in total.<sup>3</sup>

In 2013, the certification process for bariatric surgeons began, first before the Mexican College of Surgery for Obesity and Metabolic Diseases (CMCOEM) and currently by the Mexican Board of Surgery. So far, 171 have completed the procedure, and 58 are in the process. Of the total, 23 are women (10%), and 206 are men (90%).<sup>4</sup> With these figures, we can see very few surgeons with the training and credentialing to attend to the population with obesity requiring surgery.

It is essential to highlight that 2,706 (30.4%) of the procedures in this study were performed in the northern part of the country, mainly corresponding to foreign patients seen as part of medical tourism, which highlights that the Mexican population in need of obesity surgery is underserved.

Given the lack of a registry of bariatric surgery in the country, an attempt was made to explore the characteristics of the practice using a survey. We observed that the most significant

number of bariatric surgeons are male, working predominantly in private hospitals in the country's central region, followed by the northern border region.

It was also observed that many surgeons work in both the public and private sectors. According to the number of surgical procedures, most bariatric surgeons have performed between 100 and 500 procedures annually.

Regarding the type of procedures, the most performed bariatric surgery in Mexico, as reported in other countries, is the gastric sleeve, followed by gastric bypass, and third place one-anastomosis gastric bypass (OAGB).<sup>5</sup> Although adjustable gastric banding has decreased over time, a significant volume of this type of intervention is still observed within the surgeries performed in 2019. Likewise, many endoscopic procedures for treating complications in bariatric surgery and a few primary procedures are also observed.

The mission of having a national registry lies in improving the efficiency, effectiveness, and safety of bariatric and metabolic surgery. Establishing high-quality tools and standards is necessary to accomplish this task. Collecting core data from patients undergoing surgery is essential to evaluate the quality of our protocols, carry out improvement actions, and perform multicenter studies. We have an excellent example from the American College of Surgeons and the American Society for Metabolic and Bariatric Surgery (ASMBS), who have created the MBSAQIP (Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program). This program states, "MBSAQIP works to advance safe, high-quality patient care through the accreditation of bariatric surgical centers".<sup>5-8</sup> A bariatric

surgical center achieves accreditation after a rigorous review process demonstrating that it is equipped with physical resources, human resources, and activity standards, and all accredited centers report their results to the MBSAQIP registry.

On the other hand, standardizing a surgical procedure is complex due to the diversity of preferences among surgeons, the choice of different suture materials, stapling, drains, and others. However, it is necessary to homogenize the main characteristics of the procedures that could have the most significant impact on weight loss and metabolic outcomes.<sup>9-12</sup>

CMCOEM is actively working to standardize the various bariatric/metabolic interventions as much as possible and to collect data to compare outcomes, improve training opportunities, facilitate feedback, reduce errors, and increase surgical quality.

## CONCLUSIONS

The present survey revealed that in Mexico, most bariatric procedures are performed privately in the northern region of the Mexican Republic. The most frequently performed procedures were gastric sleeve followed by gastric bypass and in third place single anastomosis gastric bypass (SAGB). Considering the high frequency of obesity, increasing the surgical offer at both public and private levels is necessary.

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**Table 2: Distribution of endoscopic procedures.**

	<b>n</b>
Transoral gastroplasty	50
Gastric bypass revision	182
Intragastric balloon	746
Other	55

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**Correspondence:**

**Dr. Miguel F Herrera**

**E-mail:** miguelherrera@gmail.com