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REVIEW

Mexican Clinical Practice Guidelines for Adult Overweight and Obesity Management

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Abstract

Purpose To develop Mexico's first methodologically rigorous clinical practice guideline for the management of adult overweight and obesity. The target audiences are interdisciplinary healthcare professionals across healthcare systems who are the first point of contact for patients with obesity in Mexico, patients, and health system decision makers.

Recent Findings A review of recent international obesity clinical practice guidelines and an expert consensus process identified: i) common recommendations appropriate for implementation in Mexico and ii) knowledge gaps requiring the formulation of new recommendations. In all, 20 new recommendations and 20 good practice statements were developed using the GRADE Evidence-to-Decision Framework and expert consensus.

Summary Overweight and obesity negatively impact the health and well-being of individuals and populations in Mexico. This guideline aims to establish a new evidence-based, patient-centered, non-stigmatizing, and practical treatment and management framework, based on the fundamental principles of chronic disease prevention and management.

Keywords Overweight · Obesity · Chronic disease care · Management · Clinical guidelines

Introduction

Health complications related to overweight and obesity represent significant public health problems in Mexico [1, 2]. As a heterogeneous, progressive, and relapsing chronic disease characterized by excess and/or dysfunctional adipose tissue that impairs health and well-being, obesity requires long-term, integrated, individualized, and evidence-based prevention, treatment, and management [3–13].

The impact of obesity on quality of life and health outcomes has been extensively documented, indicating that it is the primary contributor to years of life lost due to disability [14]. Specifically, obesity is highly implicated in both the development and exacerbation of cardiometabolic diseases (e.g., hypertension, diabetes, gout, dyslipidemia), mechanical diseases (e.g., sleep apnea, acid reflux disease, gallbladder disease, urinary incontinence, osteoarthritis), at least 12 types of cancer (e.g., esophageal, endometrium, colon, breast) [15], and mental health conditions (e.g., anxiety, depression, binge eating disorder) [16, 17]. Obesity is also a highly stigmatized disease; experiencing weight bias, stigma, and weight-based discrimination negatively impacts health and social outcomes independent of body mass index (BMI) or weight status [18].

At the population level, the prevalence of overweight and obesity is estimated using proxy measures for body fat, such as BMI, calculated as weight in kilograms divided by height in meters squared (kg/m^2). Although anthropometric

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measures are not accurate measures of obesity, existing prevalence studies rely solely on BMI, making it the most widely used tool to assess the impact of obesity. Globally, BMI levels have been increasing, and as many as 650 million individuals could be living with obesity [19]. Based on BMI, it is estimated that approximately 36.9% of the adult population in Mexico live with this disease, impacting more women than men (41% vs 32.3%) [2]. In addition, 38.3% of the Mexican adult population is classified in the overweight category (BMI 25–29.9 kg/m^2) and may be at risk for obesity and other obesity-related non-communicable diseases, such as cardiovascular disease. In Mexico, adults classified in the overweight category are 5.25 times more likely to have mixed dyslipidemias and hypertriglyceridemia, two major cardiovascular disease risk factors [1].

Between 2016 and 2022, the prevalence of obesity (BMI ≥ 30 kg/m^2) increased from 33.3% [30.9, 35.9] to 36.9% [35.0, 38.7], an annualized rate of increase of 1.4% compared with previous years [2]. For example, between 2000 and 2006, the prevalence of obesity increased from 23.5% [22.6, 24.4] to 30.4% [29.5, 31.3], representing an annualized rate of 2.3%. However, severe obesity (BMI ≥ 35 kg/m^2) has continued to increase at significant rates from 2016 to 2022, with Class II obesity (BMI 35–39.9 kg/m^2) increasing by 6.1% (from 8.2% to 8.7% of the population) and Class III obesity (BMI ≥ 40 kg/m^2) increasing by 37.9% (from 2.9% to 4.0% of the population) [2, 20, 21]. The rise in the prevalence of severe obesity poses a significant public health concern, given that it is linked to a greater risk for poor health and premature death compared with Class I obesity [22].

Obesity rates in Mexico exhibit significant variation across different populations, influenced by factors such as age, sex, socioeconomic status, and geographic location. Additionally, indigenous populations in Mexico experience distinct challenges, including economic marginalization and limited healthcare access, which have been shown to exacerbate obesity and related complications [2]. Obesity and excessive weight gain during pregnancy is linked to an increased risk of complications, including gestational diabetes mellitus, preeclampsia, caesarean delivery, perineal lacerations, postpartum hemorrhage, venous thromboembolism, and postpartum depression [23, 24]. For neonates, risks include perinatal fractures, perinatal asphyxia, cerebral hemorrhage, shoulder dystocia and neonatal death. Obesity in pregnancy can also present a higher risk for childhood obesity, cardiometabolic syndrome, early puberty, behavioral changes, and attention deficit disorder [25–29]. Obesity in pregnancy has also been associated with long-term consequences on metabolic functions and in anthropometry by transgenerational inheritance of obesity [25–30].

Obesity drivers vary across individuals and populations and involve a complex interaction of genetic, psychological, behavioral, environmental, medical, and socioeconomic factors. Researchers have investigated the drivers of obesity for many years, and various initiatives have been implemented to prevent this disease, yielding inconsistent outcomes and lacking the magnitude many believe is required to make necessary impact [31]. In recent years, there have been significant advances in Mexico toward primary obesity prevention, acknowledged as international best practices by the World Health Organization (WHO). These include implementing taxes on soft drinks, sugary beverages, and energy-dense ultra-processed foods; introducing warning labels on packaged food and drinks; regulating the presence and advertising of unhealthy products in schools; and formulating new sustainable and nutritious dietary guidelines for the Mexican population. However, there's a pressing need to incorporate additional cost-effective policies, such as enhancing access to nutritious foods and clean water and regulating the marketing of unhealthy foods targeting children [32].

Effective treatment and management of obesity requires providing long-term, evidence-based, and high-quality healthcare services (e.g., behavioral and psychological interventions, pharmacotherapy, and bariatric surgery adjunctive to medical nutrition therapy and physical activity) [5, 8, 33]. Enhancing existing healthcare services entails identifying key opportunities, such as training healthcare professionals in various disciplines involved in treating individuals with obesity across healthcare systems, refining healthcare quality monitoring processes along with implementing necessary evidence-based obesity treatment interventions and long-term management approaches. Historically, the benchmark for obesity care was set by official Mexican government standards (official norms), which proved insufficient due to challenges in development and updating processes [32, 34]. Mexico also lacks access to specialized multidisciplinary health teams to support patients living with obesity, and, as in most other countries, the majority of healthcare professionals do not receive obesity training and feel ill-equipped to treat obesity [35, 36].

In 2019, it was estimated that the total cost of overweight and obesity in Mexico (including direct healthcare costs, as well as indirect costs, such as premature death, absenteeism, and presenteeism) amounted to US$23.17 billion; [19] the Organization for Economic Co-operation and Development estimates that obesity will reduce Mexico's gross domestic product by 5.3% by 2050, with direct healthcare expenditures reaching 8.9% of Mexico's total health expenditure [21, 37]. Considering the impact of obesity on health and well-being as well as the economy in Mexico, obesity prevention, treatment, and management efforts must be intensified across all fronts to stave off predicted increases in disease prevalence by 2030. Achieving this goal demands a shared vision of required interventions, political commitment,

adequate infrastructure, funding, efficient implementation, and societal support [38].

Crafting new clinical practice guidelines, founded on the most current evidence and tailored to the national landscape, will support secondary prevention, treatment, and management measures for obesity in Mexico. Given Mexico's role as one of the front-runner countries in the Acceleration Plan for Obesity, initiated by the WHO, UNICEF, and the World Obesity Federation, these guidelines represent a valuable contribution and an essential instrument for enhancing a national response.

Although obesity consensus statements exist [16], this document represents Mexico's first methodologically rigorous clinical practice guideline generated through a systematic assessment of published evidence, under the guidance of an independent methods team, using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Evidence-to-Decision (EtD) framework [39], and with input from and participation of patients living with obesity. The latter provided information related to the values and preferences of patients, reviewed and formulated recommendations, and participated in shared decision-making throughout the process in collaboration with interdisciplinary subject matter experts [40].

Without the development and implementation of evidence-based clinical practice guidelines, patients and healthcare professionals have had to navigate a complex system of non-evidence-based and internationally unregulated obesity treatment products and programs that can contribute to more harm at the individual level and a progression of the disease at the population level.

Methods

Panel Composition

The Mexican Society of Nutrition and Endocrinology (Spanish acronym: SMNE) assembled a Steering Committee (SC) comprising interdisciplinary experts working in obesity research and clinical practice (n = 14). The SC included one chair [E.A.C.M.], 13 endocrinologists [E.A.C.M., J.E.G.G., L.M.A., L.M.Z., F.J.L.G., H.A.L.M., R.C.L., J.M.V.Z., R.V.O., J.C.G.C, R.H.G, J.C.L.A., E.A.V.C.], and a dietitian [M.K.H.] to oversee the guideline development process and to agree on general principles, scope, and target audiences (Appendix I). The SC met weekly via online platforms (Zoom) and discussed issues electronically as needed (WhatsApp) between December 2023 and July 2024.

An Advisory Committee (AC), consisting of lead interdisciplinary authors (e.g., psychology, psychiatry, nutrition, sports medicine and physical activity, bariatric surgery, and epidemiology) and one person living with obesity (n = 16) (Appendix I), worked with the SC to propose, prioritize, and finalize research questions using a Delphi-based consensus process via an online survey and group discussions. The AC met at least once monthly via Zoom.

SC and AC members completed a 20-h online training course on GRADE EtD methodology, provided by Epistemonikos Foundation, an independent, not-for-profit organization that aims to provide reliable information to healthcare decision makers.

A Patient Committee (PC) engaged people living with obesity recruited through two organizations: i) Obesidades, a Mexican nonprofit civil society that raises awareness about obesity and provides training to healthcare professionals and students, and ii) the Obesity Clinic at National Institute of Medical Sciences and Nutrition Salvador Zubirán (Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán) in Mexico City (Appendix I). The PC (n = 4) met monthly via Zoom and held online discussions via WhatsApp. Input on good practice statements and clinical recommendations was received from the PC through online and in-person meetings.

The members of all committees met in person in June 2024 to develop the final recommendations with support and guidance from the Epistemonikos Foundation. SMNE staff and consultants provided administrative support and project coordination for the guideline development process. Table 1 outlines the guideline development process and the responsibilities of each group of participants.

Management of Competing Interests

Funding for the development of the guidelines was provided in the form of unrestricted industry grants (Novo Nordisk, Merck, Boehringer Ingelheim) to SMNE, as well as in-kind support from the scientific, professional, and patient volunteers engaged in the process. Representatives from industry sponsors had no presence or input and played no role in any stage of the guideline development process, including the preparation of PICO (population [P], intervention [I], comparator [C], and outcome [O]) questions, evidence synthesis and grading, the development of recommendations and the preparation of this manuscript, and therefore have not influenced the guideline's content in any manner. None of the committee members were remunerated for their work on the guidelines.

The SC developed and managed a competing interest policy and procedures for mitigating bias. Detailed competing interest declarations (using the International Committee of Medical Journal Editors' disclosure form) were collected for all members of the SC, AC, and PC, as well as participating methodologists from Epistemonikos Foundation, staff, and consultants. Individuals with relevant disclosures were not excluded from voting on recommendations. However,

Table 1 Guideline Development Process and Roles

Action	Responsibility	Approach
Oversight, identify the scope, selection of key topics, target audiences and fundamental guideline principles based on existing international guidelines and consensus	SC	Weekly meetings and discussions
Develop and prioritize research PICO questions using Delphi-based consensus process	SC and AC	Five Delphi-based consensus survey
Conduct literature search and screening, synthesize data, assess the certainty of evidence, and prepare summary of findings and EtD tables	Epistemonikos Foundation	Evidence synthesis and GRADE
Develop and approve recommendations based on EtD Framework	SC, AC, PC, and Epistemonikos Foundation	Three day in-person workshop
Develop and approve good practice statements	SC, AC, PC, and Epistemonikos Foundation	Online survey and two online meetings

SC =steering committee, AC = advisory committee, PC = patient committee

the SC asked individuals with direct competing interests to abstain from voting in the areas in which they had a conflict. Methodologists from the Epistemonikos Foundation, who had no competing interests, independently conducted the entire evidence synthesis processes using standard GRADE EtD framework procedures and moderated consensus panels. They drafted and reviewed all new recommendations and good practice statements to ensure fidelity with the evidence.

Target Audiences and Selection of Priority Topics

The principal target audience for this guideline is healthcare professionals who are the first point of contact for patients in Mexico who seek/require evidence-based care to manage their obesity. This includes any interdisciplinary healthcare professional working across various healthcare levels and clinical settings, including primary care and specialist services. Secondary audiences include patients living with obesity and health system decision makers.

The SC identified specific clinical challenges facing patients in Mexico, and those faced by the healthcare professionals who treat them. They defined the guideline scope and priority topics based on a review of recommendations put forward by recent U.S. [5], European [33], and Canadian [8] clinical practice guidelines for adult obesity. Although overweight and obesity prevention (primary and secondary), treatment, and management initiatives are needed in Mexico, primary prevention and public health approaches are beyond the scope of this guideline. Thus, only research questions focused on clinical challenges related to secondary prevention, treatment, and management of overweight and obesity in the Mexican adult population were prioritized.

In a five-round Delphi survey process, the SC and AC reviewed primary recommendations from the U.S., European, and Canadian obesity guidelines and identified recommendations perceived as the most relevant, appropriate, and useful for the Mexican population and healthcare services landscape. In the first round, the SC reviewed 80 statements from the three international guidelines, and statements with an agreement of 50% or higher were selected. In the second round, the SC and AC added 35 new clinical challenges or statements, and those with an agreement of 50% or higher were selected. In the third to fifth rounds, statements with 75% agreement were selected. The Delphi survey was conducted from September 2023 to February 2024.

Following this process, 20 clinical challenges were considered high priority and relevant for Mexico and used to create new PICO questions that were addressed using the standardized GRADE EtD framework to develop recommendations (Table 2). Methodologists from the Epistemonikos Foundation supported the translation from clinical questions into PICO questions.

Evidence Synthesis

The Epistemonikos Foundation methods team conducted an evidence synthesis process on the effects of interventions, the importance of outcomes, resource use, and considerations of equity, acceptability, and feasibility of treatment alternatives. Eligibility criteria were defined for the components of each prioritized question. Systematic reviews and randomized trials that met the inclusion criteria for each question were included to inform the intervention effects criteria. Only systematic reviews were considered for the other EtD criteria.

A search for systematic reviews was conducted through the Epistemonikos Foundation database until May 29, 2024. The Epistemonikos Foundation database is a comprehensive database of systematic reviews relevant to health decision-making that is maintained by screening multiple sources of information to identify systematic reviews and their included primary studies, including the Cochrane database

Table 2 Prioritized Topics, Sub-Topics, and Research Questions

Key Topic	Clinical Challenge	Research Question (Spanish)	Research Question (English Translation)*
Clinical Evaluation			
	Obesity and cardiovascular disease	En adultos de 18 años o más con sobrepeso u obesidad, ¿se deben usar escalas para evaluar el riesgo cardiovascular en atención primaria en comparación con no utilizarlas?	In adults aged 18 years or older who live with overweight or obesity, should risk scoring tools be used to assess cardiovascular risk in primary care**, compared to not using them?
	Obesity and reproductive health	En mujeres en etapa reproductiva que desean embarazarse y tienen obesidad pregestacional, ¿se debe referir a un programa multidisciplinario en comparación con tratamiento convencional?	In women of reproductive age who wish to become pregnant and have pregestational obesity, should they be referred to a multidisciplinary program compared to conventional treatment?
	Interdisciplinary obesity care	En adultos de 18 años o más con obesidad grado 2 con o sin comorbilidades, ¿se debe referir a un programa multidisciplinario en comparación con tratamiento convencional?	In adults 18 years of age or older with Class 2 obesity with or without comorbidities, should they be referred to a multidisciplinary program versus conventional treatment?
Treatment and Follow-up			
	Medical nutrition therapy	En adultos de 18 años o más con sobrepeso u obesidad, ¿el plan de alimentación debe ser prescrito por un nutriólogo en comparación con un médico de primer contacto?	In adults 18 years of age or older with overweight or obesity, should a dietary plan be prescribed by a nutritionist compared to a physician at the first point of contact?
		En adultos mexicanos de 18 años o más con sobrepeso u obesidad, ¿se debe usar la Dieta de la Milpa (tipo de dieta tradicional Mexicana) en comparación con una dieta hipoenergética equilibrada?	In Mexican adults 18 years of age or older with overweight or obesity, should the Milpa Diet (type of traditional Mexican diet) be used compared to a balanced hypoenergetic diet?
	Physical activity	En adultos de 18 años o más con sobrepeso u obesidad, ¿se deben usar intervenciones destinadas a controlar conductas sedentarias en comparación con no usarlas?	In adults 18 years of age or older with overweight or obesity, should interventions aimed at controlling sedentary behaviors be used versus not using them?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se deben realizar snacks de ejercicio en comparación con no realizarlos?	In adults 18 years of age or older with overweight or obesity, should exercise snacks be used compared to not using them?
	Behavioral interventions and mental health	En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe realizar tamizaje de salud mental en atención primaria en comparación con no realizarlo?	In adults 18 years of age or older with overweight or obesity, should mental health screening be performed in primary care compared to not screening?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se deben usar herramientas conductuales en comparación con no utilizarlas?	In adults 18 years of age or older with overweight or obesity, should behavioral change tools be used versus not using them?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se deben usar intervenciones psicológicas grupales en comparación con intervenciones psicológicas individualizadas?	In adults 18 years of age or older with overweight or obesity, should group psychological interventions be used compared to individualized psychological interventions?
	Pharmaco-therapy	En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar fentermina por 6 meses o más en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity, should phentermine be used for six months or longer compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar fenproporex por 6 meses o más en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity, should fenproporex be used for six months or longer compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar mazindol por 6 meses o más en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity, should mazindol be used for six months or longer compared to lifestyle/placebo interventions?

Table 2 (continued)

Key Topic	Clinical Challenge	Research Question (Spanish)	Research Question (English Translation)*
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar anfepramona por 6 meses o más en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity, should amfepramone be used for six months or longer compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar clobenzorex por 6 meses o más en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity, should clobenzorex be used for six months or longer compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con sobrepeso u obesidad sin diabetes, ¿se deben usar agonistas del péptido similar al glucagon tipo 1 (GLP-1) (liraglutida, semaglutida) en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity without diabetes, should glucagon-like peptide 1 (GLP-1) agonists (liraglutide, semaglutide) be used compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con sobrepeso u obesidad sin diabetes, ¿se debe usar naltrexona/bupropion en comparación con intervenciones en el estilo de vida/placebo?	In adults 18 years of age or older with overweight or obesity without diabetes, should naltrexone/bupropion be used compared to lifestyle/placebo interventions?
		En adultos de 18 años o más con obesidad Índice de masa corporal (IMC > 30), ¿se debe fenotipificar la farmacoterapia para obesidad en comparación con la prescripción convencional?	In adults aged 18 years or older with obesity (BMI > 30), should pharmacotherapy for obesity be phenotyped compared to conventional prescribing?
		En adultos de 18 años o más con sobrepeso u obesidad, ¿se debe usar terapia combinada de fármacos para obesidad (liraglutida, semaglutida, naltrexona/bupropion, orlistat) en comparación con monoterapia de fármacos para obesidad?	In adults 18 years of age or older with overweight or obesity, should combination obesity drug therapy (liraglutide, semaglutide, naltrexone/bupropion) be used compared to obesity drug monotherapy?
		En adultos de 18 años o más con sobrepeso u obesidad sin alteraciones del metabolismo de la glucosa, ¿se deben usar antidiabéticos orales (inhibidores del cotransportador sodio-glucosa [iSGLT2] o metformina) en comparación con intervenciones en el estilo de vida?	In adults 18 years of age or older with overweight or obesity without impaired glucose metabolism, should oral hypoglycemic agents (Na + -glucose cotransporter 2 [iSGLT2] inhibitors or metformin) be used compared to lifestyle interventions?

*PICO questions were developed and processed in Spanish; English translations provided here are edited slightly for clarity for English readers

**The use of the term "primary care" in the literature often refers specifically to the primary healthcare setting, and so the authors have adopted that language when crafting the PICO questions, recommendations, and good practice statements

of systematic reviews, PubMed/MEDLINE, EMBASE, CINAHL, PsycINFO, LILACS, DARE, HTA database, Campbell database, JBI database of systematic reviews and implementation reports, and EPPI-Center Evidence Library) [41].

No date or language restrictions were applied. To identify primary studies not included in the reviews, additional searches restricted to the previous three years were performed in PubMed and LILACS. The search strategies used for each clinical question are available in Supplementary File 1, Appendix 2. Duplicate records from the searches were identified by an automated process through the Epistemonikos Foundation database. Additionally, unpublished or ongoing studies mentioned in the systematic reviews were reviewed to see if there were updated publications for trials mentioned as ongoing in the systematic reviews.

Evidence was screened by independent peer reviewers in two stages (title and abstract, and full text) using the Collaboratron screening software developed by the Epistemonikos Foundation [41]. Discrepancies were resolved by consensus or by a third investigator.

After the selection process, evidence matrices were constructed with the aim of comparing the studies included in the systematic reviews and identifying the most exhaustive, updated, and best quality ones. When a review was identified meeting these characteristics, it was used directly to inform the corresponding clinical question; otherwise, a rapid review was performed including randomized trials [42]. When neither systematic reviews nor randomized trials were identified, observational studies were considered.

Data extraction and risk of bias assessment were performed by two reviewers using standardized forms. The RoB (risk of bias)-2 tool [43] was used to assess the risk of bias of randomized trials, and ROBINS-I (Risk Of Bias In Non-Randomised Studies—of Interventions) tool was used for observational studies [44].

The effects findings were synthesized quantitatively (i.e., through a meta-analysis) or narratively according to the available data. The GRADE approach was used to evaluate the certainty of the evidence. The certainty of the evidence was classified as high, moderate, low, and very low, considering the criteria of risk of bias, inconsistency, imprecision, indirect evidence, and publication bias. The results of the synthesis of the effects were integrated in the EtD tables through a summary of findings tables following the GRADE EtD framework [39]. For each question, EtD tables were created through the interactive EtD (iEtD) platform [45]. EtD tables are available in Supplementary File 1, Appendix 3.

To inform the criteria of importance of the outcomes, resource use, and considerations of equity, acceptability, and feasibility, we searched for systematic reviews of utility studies, economic evaluations, and qualitative studies, respectively. When systematic reviews of qualitative studies were included, summary tables of qualitative findings were constructed based on data reported by the review authors, using the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) approach [46, 47] and the iSoQ (Interactive Summary of Qualitative Findings) software [45]. Short messages were drafted to populate the corresponding EtD criteria.

Development of Recommendations

To develop the clinical recommendations based on the prioritized PICO questions, an in-person workshop was held in June 2024. Each session was led by a member of the methodological team and a thematic expert. The panel was composed of clinical (healthcare professionals) and lived experience (patients) thematic experts. A presentation of the evidence for each question was made by a representative of the methodological team, while the moderation of the discussion and the recording of additional considerations was done jointly with the thematic expert assigned to the question. For each of the EtD framework criteria, thematic experts discussed and voted until consensus was reached. Consensus was defined a priori as an agreement of $\geq 75\%$. Up to three rounds of voting were conducted and, if no agreement was reached, the majority vote was chosen. After making judgments for each criterion, the panelists voted on the direction and strength of each recommendation. This entire process was conducted using the iEtD platform. Supplementary File 1 contains the checklist and panel discussion for developing each recommendation.

Formulating Good Practice Statements

Through the question prioritization process, 20 questions were identified by the expert panel and from other clinical practice guidelines [5, 8, 33] that met the criteria to be formulated as good practice statements. These questions were structured as actionable statements and evaluated through a checklist that considered whether: i) the message is truly needed in relation to current clinical practice; ii) implementing the statement results in a large net benefit (i.e., satisfies several EtD criteria) after considering all relevant outcomes and possible consequences; iii) in a context where time and resources are limited, conducting a formal process of summarizing and discussing the evidence would not constitute a good use of time and/or resources; iv) there is a clear, explicit, and well-documented rationale connecting the indirect evidence; and v) the statement is clear and actionable [48]. A structured online survey was conducted to determine agreement on the wording and supporting information of the good practice statements. Two online meetings were held to discuss and finalize the wording of those where consensus

was not reached (proportion of agreement < 75%) or which had comments suggesting major changes. Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for developing each good practice statement.

Recommendations and Good Practice Statements

Clinical Evaluation

Early diagnosis and treatment of overweight and obesity can improve overall health and quality of life as well as prevent and manage obesity-related complications [1]. However, healthcare professionals should be aware that people living with obesity may have experienced bias, stigma, and discrimination because of their weight or obesity in many settings, including healthcare settings [49]. These experiences may affect patients' willingness to interact with healthcare professionals. Patients who have experienced weight bias and stigma may delay or avoid healthcare services for fear of being blamed and shamed for their weight. Therefore, obesity screening, assessment, diagnosis, treatment, and management need to be conducted using objective medical measures and non-judgmental, collaborative, and person-centered approaches. Collaborative conversations, based on motivational interviewing, can include strategies such as: i) asking for permission to initiate a conversation about weight and obesity ("Is it okay for us to talk about your weight?", "What worries you about your weight?", "How can we work together to manage your obesity?"); ii) avoiding making assumptions about patients' lifestyles, health behaviours, interests, motivations, or stage of change; iii) listening to patients' concerns and trying to understand patients' points of view; iv) validating and respecting patients' situations and experiences; v) supporting patients to make choices, adapt, and sustain evidence-based behaviors associated with obesity management; vi) exchanging ideas about alternative options to address obesity management barriers; vii) establishing an action plan together; and viii) acknowledging that behavior change is difficult while recognizing small changes [50].

Obesity is an adiposity-based chronic disease and the goal of a medical obesity assessment is to determine how excess or dysfunctional adiposity impacts a person's health and well-being. Anthropometric measures, such as BMI or waist circumference, can be used as screening tools, but relying solely on anthropometric measures for the screening and diagnosis of obesity can lead to both underdiagnosis and overdiagnosis of obesity [13, 51]. To diagnose obesity, existing international guidelines recommend a full medical assessment to determine if and how excess adiposity or pathogenic changes in adipose tissue are impacting a person's health and well-being [5, 8, 13, 33, 51, 52]. A medical obesity assessment can consider the impact of obesity on cardiometabolic health, physical functioning, and psychosocial outcomes [5, 8, 13]. With a more accurate diagnosis and staging of obesity and its complications, healthcare professionals can work collaboratively with patients living with obesity to develop personalized, targeted, and effective obesity treatment and management approaches [52]. Accurate diagnosis of obesity can also facilitate the allocation of healthcare resources so that patients who need treatment have access to effective and evidence-based treatments.

Cardiovascular diseases are among the most significant obesity-related impacts and the leading cause of mortality worldwide [53]. A staggering 17.7 million deaths in 2015 were due to cardiovascular diseases, accounting for 31% of global mortality. Research indicates that dysfunctional adipose tissue and abnormal fat deposits in the myocardium and epicardium lead to the release of a series of metabolic signals, reactive oxygen species, prothrombotic, pro-inflammatory, and neurohormonal factors, resulting in endothelial dysfunction [53, 54]. Conducting a cardiovascular risk assessment in patients living with obesity is critically important and can inform effective clinical decision-making. Patients who have a low cardiovascular risk assessment score can receive secondary prevention recommendations, while patients with a high cardiovascular risk score should receive evidence-based obesity and cardiovascular treatments. Several scales and predictive models are available to assess cardiovascular risk in primary healthcare. However, there is some uncertainty regarding the potential impact on health outcomes and therapeutic approaches when using cardiovascular risk scales in adults with overweight or obesity within primary care settings.

In women of reproductive age who wish to get pregnant, multidisciplinary obesity treatment before and during pregnancy have been demonstrated to have some benefit for both the mother and the offspring. There is some evidence that multidisciplinary lifestyle-based programs can also enhance certain fertility, maternal, and child health outcomes, compared to conventional treatment [55].

This guideline includes evidence-based recommendations (Table 3) and consensus-based good practice statements (Table 4) for clinical evaluation.

Obesity Treatments

Effective and evidence-based obesity treatment interventions include behavioral interventions and psychological therapy, pharmacotherapy, and bariatric surgery and endoscopic procedures in conjunction with medical nutrition therapy and physical activity interventions [8]. Unfortunately, as in many countries, Mexican adults living with obesity often

Table 3 Recommendations: Clinical Evaluation*

Recommendation	Recommendation Strength and Direction	Certainty of Evidence
1. SMNE suggests using cardiovascular risk scoring tools to assess the cardiovascular risk at the primary care level in adults aged 18 years or older with overweight or obesity. Remarks: Using the Globorisk scale [56], validated in the Mexican population, would be more appropriate for individuals over 40 years and/or those with comorbidities.	Conditional recommendation for the intervention	⊕◯◯◯ Very low
2. SMNE suggests referring women of reproductive age who wish to become pregnant and have pregestational obesity to a multidisciplinary program.	Conditional recommendation for the intervention	⊕◯◯◯ Very low
3. SMNE suggests referring adults aged 18 years or older with Class 2 obesity, with or without comorbidities to a multidisciplinary program. Remarks: In the context of limited resources, prioritization could be made according to the presence or absence of comorbidities for referral to centers of greater complexity (referral centers or national institutes of health).	Conditional recommendation for the intervention	⊕◯◯◯ Very low

*Supplementary File 1 contains the checklist and panel discussion for developing each recommendation

Table 4 Good Practice Statements (Ungraded): Clinical Evaluation*

I) Healthcare professionals should examine, assess, and diagnose obesity using standardized measures that consider additional elements beyond weight, BMI, and waist circumference

II) Healthcare professionals should conduct a medical history aimed at identifying the causes of overweight or obesity in order to make appropriate therapeutic decisions and implement effective treatments

III) Healthcare professionals should assess and treat mechanical complications related to overweight or obesity, such as obstructive sleep apnea syndrome, osteoarthritis, gastroesophageal reflux disease, urinary incontinence, and plantar fasciitis, which may coexist with other complications

IV) Healthcare professionals should assess and treat cardiometabolic complications related to overweight or obesity, such as insulin resistance, prediabetes, T2D, dyslipidemia, metabolic syndrome, metabolic dysfunction-associated steatotic liver disease (MASLD), hypertension, and cardiovascular and cerebrovascular diseases

V) Healthcare professionals should assess and treat mental health complications related to overweight or obesity, such as depressive symptoms, anxiety symptoms, and binge eating disorder

VI) Healthcare professionals should maintain a mutually collaborative relationship with patients with overweight or obesity to help them adopt evidence-based treatments and sustainable self-care behaviors associated with their treatment

VII) Healthcare professionals can consider using the "5As" framework (Ask, Assess, Advise, Agree, Assist) as part of the assessment, follow-up, and treatment of individuals with overweight or obesity

VIII) Healthcare professionals can consider implementing the Edmonton Obesity Staging System to integrate physical, metabolic, and mental health aspects in the diagnosis and treatment of obesity

*Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for each good practice statement

lack access to effective, evidence-based treatments and long-term management support [36].

Global obesity clinical guidelines widely accept that creating individualized care plans (based on key principles of chronic disease management) that target the root causes and complications of obesity, delivered where possible by a multidisciplinary care team with expertise in each treatment approach, and working towards improvements in health and well-being (not solely weight loss) and treatment goals identified in collaboration with patients, may represent the highest standard of obesity care [13, 57].

Multidisciplinary management approaches may improve obesity outcomes (e.g., weight loss, weight loss maintenance, quality of life, etc.) and management of obesity-related complications [58].

Medical Nutrition Therapy

Medical nutrition therapy is a central component of obesity treatment, along with other critical elements, such as physical activity, exercise, sleep, and stress management. The consequences of a diet high in energy (calories) can negatively affect health in various ways, including problems related to gastrointestinal function (e.g., constipation, diarrhea, reflux, acid peptic disorders, etc.) and metabolic imbalance (e.g., hypertension, metabolic dysfunction-associated steatotic liver disease, overweight, obesity, prediabetes, diabetes, dyslipidemia).

To ensure a safe, effective, culturally acceptable and sustainable approach it is critical to provide personalized nutritional recommendations for adults with overweight or obesity based on their personal characteristics, history, values, preferences, and treatment goals [59]. Medical nutrition therapy should ideally be provided by a certified nutritionist experienced in managing obesity who can provide evidence-based advice to maximize outcomes [59].

A dietary plan should be low in energy to effectively treat obesity and achieve improved weight or BMI outcomes. Numerous studies have assessed various nutritional approaches for treating obesity, examining the wide variability in the composition of fat, protein, and carbohydrates, as well as varying levels of energy restriction and time restriction, among dietary approaches. These studies demonstrate that the effectiveness of different types of diet is variable in terms of achieved weight loss and metabolic benefit [60–62]. However, it is difficult to compare diets due to methodological and/or analytical differences, degrees of caloric restriction, degrees of adherence, measurement errors, confounding variables, and other factors [63].

Systematic reviews and meta-analyses of clinical trials related to dietary interventions for overweight and obesity, usually show diverse results, although these differences are minor [64–67]. This leads to the conclusion that the effects of these interventions in the medium and long term do not justify the prescription of one diet over another. Currently, no single diet has been proven to be superior in treating people with obesity.

Thus, adults living with overweight or obesity can consider any of the multiple medical nutrition therapies with scientific evidence to improve health-related outcomes, choosing food-based dietary patterns that allow for best long-term adherence [59]. It is important to clarify that, once this dietary plan is identified, it will not necessarily remain optimal throughout the patient's treatment since results may vary and personal circumstances may change. Therefore, health professionals and patients must be flexible and adapt the treatment according to the results of the periodic evaluations carried out during follow-up.

Physical Activity

Accumulated time spent engaging in sedentary behaviors – defined as any activity of an awake individual, lying or reclining, that has an energy expenditure of less than 1.5 metabolic units [68]– increases the risk of morbidity and mortality due to cardiovascular and metabolic causes. It also has a negative impact on musculoskeletal and psychological health, independent of other lifestyle factors [69–71].

Active breaks are a simple strategy to improve cardiovascular and metabolic health and help offset the physiological effects of sedentary behaviors. Given the ease of accessibility and performance of these simple activities, they can serve as an introduction to physical activity as a treatment tool for patients with chronic diseases [69–72]. These breaks do not require specialized sports equipment or specific intensity targets, and can involve simple activities such as walking at any speed, tiptoe rising, doing squats, etc. There is no consensus on the number of active breaks needed throughout the day.

Most people do not reach the minimum exercise recommendations suggested by the WHO to maintain health [73–77], with a lack of time commonly reported as a primary barrier. The concept of “exercise snacks” has therefore emerged as an option for individuals with limited time and for those whose work activity is predominantly sedentary [78, 79]. This approach centers on short bursts of exercise multiple times throughout the day involving moderate to vigorous intensity with a duration of less than one minute, spaced at intervals between one to four hours [80, 81]. Exercise snacks can be done with rhythmic, repetitive exercises that involve long muscles, such as climbing stairs, jumping jacks, and cycling, among others, or with strength exercises, such as squats, rowing, planks, etc., depending on specific objectives, health status, and level of physical fitness [82–85]. Performing exercise snacks with a minimum frequency of three or more episodes during the day improves various aspects of health: cardiorespiratory capacity [86, 87], muscle strength [84, 88–91], and cardiometabolic health [82, 92–94]

This guideline includes evidence-based recommendations (Table 5) and consensus-based good practice statements (Table 6) for medical nutrition therapy and physical activity interventions.

Table 5 Recommendations: Medical Nutrition Therapy and Physical Activity*

Recommendation	Recommendation Strength and Direction	Certainty of Evidence
4. SMNE suggests that dietary plans be prescribed by a dietitian compared to a primary care physician in adults aged 18 years or older with obesity.	Conditional recommendation for the intervention	⊕◯◯◯ Very low
5. SMNE suggests using Milpa Diet (type of traditional Mexican diet) or a balanced hypoenergetic diet in Mexican adults aged 18 years or older with overweight or obesity.	Conditional recommendation for either the intervention or the comparison	⊕◯◯◯ Very low
6. SMNE suggests using interventions aimed at controlling sedentary behaviors in adults aged 18 years or older with overweight or obesity.	Conditional recommendation for the intervention	⊕⊕◯◯ Low
7. SMNE suggests using "exercise snacks" in adults aged 18 years or older with overweight or obesity.	Conditional recommendation for the intervention	⊕◯◯◯ Very low

*Supplementary File 1 contains the checklist and panel discussion for developing each recommendation

Table 6 Good Practice Statements (Ungraded): Medical Nutrition Therapy and Physical Activity*

IX) Healthcare professionals should inform their patients about all evidence-based treatments for obesity, emphasizing that behavioral interventions focusing on nutrition and physical activity form the foundation of any treatment plan for individuals living with chronic diseases

X) Healthcare professionals should consider that nutritional and physical activity interventions are essential for health and well-being, but they may also require complementary therapies for the treatment of obesity

XI) Healthcare professionals should personalize dietary plans, prescribe physical activity and exercise, and tailor behavioral interventions for individuals with overweight or obesity

Remarks: The customization of treatments should be based on individual characteristics such as age, gender, genetics, metabolism, culture, family background, socioeconomic status, health status, sleep quality, stress, among other factors. This is due to the high heterogeneity of the disease (in terms of its causes, barriers to accessing care, phenotypes, and treatment responses)

XII) Healthcare professionals should individualize the prescription of physical activity according to the characteristics and preferences of people with overweight or obesity (cardiovascular risk, musculoskeletal conditions, and risk of falls), gradually increasing it to achieve WHO recommendations for aerobic physical activity

Remarks: WHO recommendations include performing at least 150–300 min of moderate-intensity aerobic physical activity per week, or 75–150 min of vigorous-intensity aerobic physical activity per week (or an equivalent combination)

XIII) In addition to prescribing aerobic physical activity, healthcare professionals should prescribe strength training at least two times per week to achieve additional physical and mental health benefits for individuals with overweight or obesity

Remarks: Strength training can be performed up to six times per week (as long as different muscle groups are used each time, allowing at least 48 h of rest between sessions of each muscle group) and should consider daily life activities that involve strength and are suitable for treatment goals (e.g., maintaining muscle mass)

*Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for each good practice statement

Behavioral and Mental Health Interventions

There is a complex and bidirectional relationship between obesity and mental health [95, 96]. It has been documented that people living with obesity have a higher prevalence of depression, anxiety, and stress. Depressive symptoms, anxiety, and stress can also drive to alterations in eating behaviors [96], which, combined with other factors (e.g., genetic, environmental, and biological), can lead to the development of obesity. Other factors that affect both mental illness and obesity include inflammation, maladaptive coping mechanisms, and sociodemographic factors [97].

There is thus a need to consistently assess psychological and behavioral factors both at the onset and throughout the implementation of any obesity treatment. This is because psychological distress may also stem from deteriorating health, social stigma, and discrimination experienced by individuals living with obesity [98, 99].

Understanding patients' personal history and trajectory of obesity development is crucial. This involves knowing when the weight gain began, what caused it, previous treatments, situations that led to weight changes, the impact on quality of life, and how the weight gaining pattern has evolved over time. A deeper understanding of each patient allows clinicians to create a personalized treatment plan [100].

In traditional obesity treatment paradigms, there has been an implicit assumption that obesity results from a lack of self-control (overeating), and that people can lose weight and keep it off simply by changing their eating "habits"[101]. However, we now recognize the strong genetic influences on body weight and the complex neuroendocrine regulation of energy intake and expenditure, which often hinder long-term weight management efforts.

Psychological and behavioral interventions are integrated as key pillars of obesity management [5, 8, 33]. These interventions will not only support health behavior interventions (e.g., medical nutrition therapy and physical activity) and health behavior changes (e.g., medication adherence, self-care strategies), but they will also generate a deeper understanding of the underlying reasons and conditions behind these behaviors. This includes considering thoughts, emotions, attitudes, stages of change, motivation, expectations, barriers, and potential solutions.

Behavioral and psychological interventions can be used to educate patients that weight control is neither easy nor always comfortable, and to help them develop skills to achieve behavioral change that will allow them to have a healthier life, reduce stress, have better tools to face their environment, increase psychological flexibility, promote acceptance of internal experiences, tolerate frustration, improve their quality of life, and promote sustainable self-care in the short and long term [102, 103]. Effective and collaborative conversations with patients using motivational interviewing strategies support changes toward a health behavior change, which is essential for living with and managing chronic diseases, including obesity [50].

These psychological interventions, when used in conjunction with the rest of the obesity management strategies, move from simply inducing weight loss (through caloric restriction) to facilitating patients to adopt patterns of eating and physical activity and medical adherence that promote optimal changes in body composition and overall health [102, 103].

Table 7 Recommendations: Behavioral and Mental Health Interventions*

Recommendation	Recommendation Strength and Direction	Certainty of Evidence
8. SMNE suggests conducting mental health screening at the primary care level in adults aged 18 years or older with overweight or obesity.	Conditional recommendation for the intervention 	⊕◯◯◯ Very low
9. SMNE suggests using behavioral change tools in adults aged 18 years or older with overweight or obesity.	Conditional recommendation for the intervention 	⊕◯◯◯ Very low
10. SMNE suggests using group psychological interventions compared to individualized psychological interventions in adults aged 18 years or older with overweight or obesity.	Conditional recommendation for the intervention 	⊕◯◯◯ Very low

*Supplementary File 1 contains the checklist and panel discussion for developing each recommendation

Table 8 Good Practice Statements (Ungraded): Behavioral and Mental Health Interventions*

XIV) Healthcare professionals should consider elements of motivational interviewing to build a collaborative relationship with their patients with overweight or obesity. This approach helps patients explore readiness and reasons for change, increase self-esteem, and enhance self-efficacy

XV) Healthcare professionals should discuss with patients the therapeutic goals related to weight loss, management of comorbidities, well-being, and quality of life, without conveying the notion of an "ideal" weight, and instead talking about a "best weight."

*Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for each good practice statement

This guideline includes evidence-based recommendations (Table 7) and consensus-based good practice statements (Table 8) for behavioral and mental health interventions.

Pharmacotherapy

There is a widespread belief among both patients, health professionals, and healthcare policymakers that a lack of adherence to lifestyle changes is the main barrier to managing overweight and obesity [36]. However, in many cases, medical nutrition therapy and physical activity interventions on their own do not achieve long-term sustainable improvements in overweight and obesity (which, it is important to stress, may or may not involve weight loss) given the multifactorial etiology and heterogeneity of the disease. Multiple interventions, including medical nutrition therapy, physical activity, psychotherapy, pharmacotherapy, and bariatric surgery, may be necessary to address the complex physiological mechanisms of weight gain and improve health outcomes [104]. Thus, pharmacological treatments are recommended for patients undergoing behavioral interventions who have a BMI ≥ 30 kg/m^2 or for patients with a BMI ≥ 27 kg/m^2 with at least one comorbidity associated with excess adiposity [105]. Despite eligibility and safety of current obesity medications, there are many access barriers to these treatments, and less than 2.0% of patients living with obesity receive pharmacological treatment [106].

Multiple pharmacological agents have emerged with potential utility for the treatment of overweight and obesity. Safe and effective long-term medications are available in Mexico that can achieve a reduction of 5%–14% of total body weight (semaglutide, liraglutide, combination of naltrexone with bupropion, and orlistat). In addition, these treatments may offer benefits in terms of improvement in obesity-related complications and comorbidities independent of weight loss [105].

Pharmacotherapy should be individualized based on patients' specific conditions, obesity complications, and comorbidities, as well as safety considerations specified in Fig. 1. All approved medications for treating obesity are contraindicated during pregnancy. Following obesity treatment, there is an increased likelihood of pregnancy, necessitating

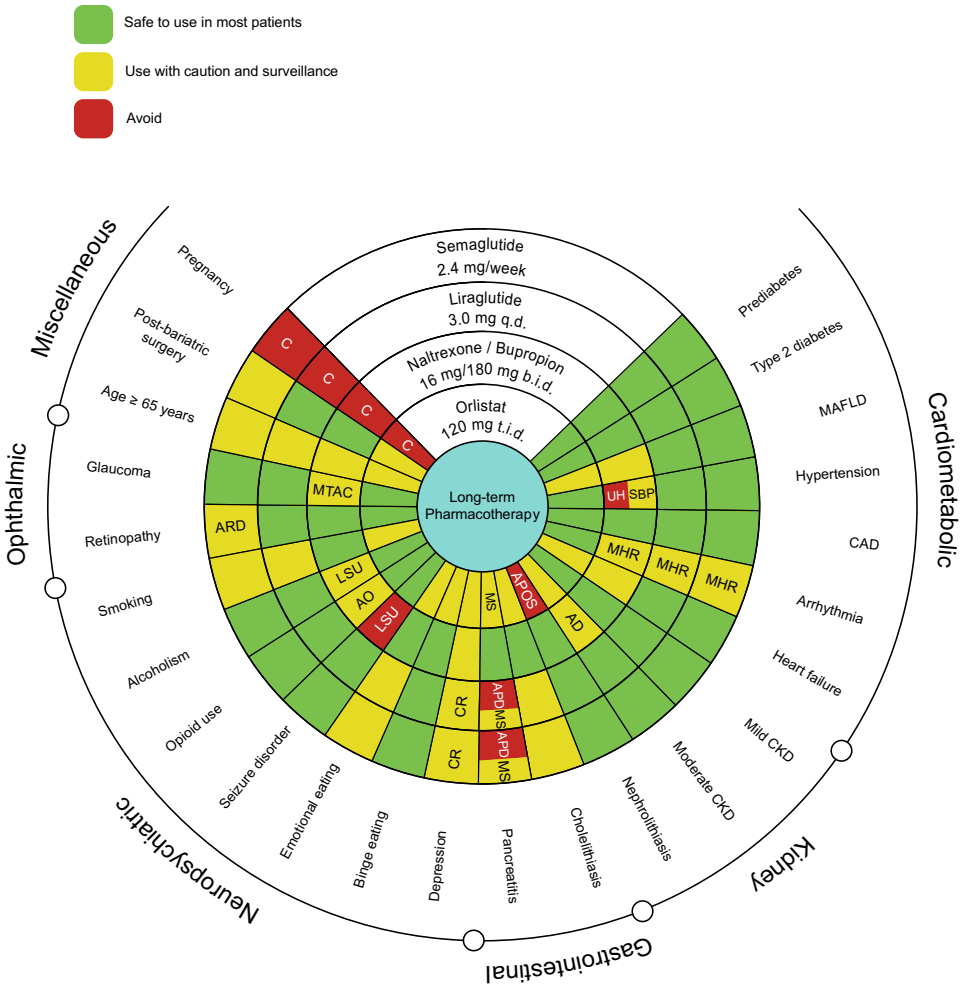

Fig. 1 Individualization of Long-Term Pharmacotherapy Using Agents Approved in Mexico. Abbreviations: T.i.d. = three times a day, B.i.d. = two times a day, Q.d. = once a day, MAFLD = metabolic dysfunction-associated steatotic liver disease, CAD = cardiovascular arterial disease, CKD = chronic kidney disease, mild (50–79 mL/min), moderate (30–49 mL/min), RD = retinopathy-diabetic, SBP = surveillance blood pressure, UH = uncontrolled hypertension, MHR = monitor heart rate, AD = adjusted doses, APOS = avoid previous oxalate stones, MS = monitor symptoms, APD = avoid if prior disease, A = avoid, CR = controversial results, LSU = lower seizure umbral, AO = antagonize opioids, ARD = avoid if prior RD, MTAC = may trigger angle closure

Table 9 Recommendations: Pharmacotherapy*

Recommendation	Recommendation Strength and Direction	Certainty of Evidence
11. SMNE suggests using phentermine for six months or more compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity. Remarks: The panel emphasized the importance of clinical judgment to define which individuals would benefit and have a lower risk of adverse events. Also, periodic monitoring (every three months) would be required for those on long-term phentermine treatment. **	Conditional recommendation for the intervention	⊕◯◯◯ Very low
12. SMNE suggests not using fenproporex for six months or more compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity.	Conditional recommendation against the intervention	⊕◯◯◯ Very low
13. SMNE suggests not using mazindol for six months or more compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity.	Conditional recommendation against the intervention	⊕◯◯◯ Very low
14. SMNE suggests not using amfepramone for six months or more compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity.	Conditional recommendation against the intervention	⊕◯◯◯ Very low
15. SMNE recommends not using clobenzorex for six months or more compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity.	Strong recommendation against the intervention	⊕◯◯◯ Very low
16. SMNE suggests using long-term GLP-1 agonists (liraglutide, semaglutide) compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity without diabetes.	Conditional recommendation for the intervention	⊕⊕⊕◯ Moderate
17. SMNE suggests using naltrexone/bupropion long-term compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity without diabetes.	Conditional recommendation for the intervention	⊕⊕◯◯ Low
18. SMNE suggests phenotyping pharmacotherapy for obesity compared to conventional prescription in adults aged 18 years or older with obesity (BMI ≥ 30 kg/m²) Remarks: The panel emphasized that phenotyping refers to the presentation of the disease and not to a classification of the person with obesity.	Conditional recommendation for the intervention	⊕◯◯◯ Very low
19. SMNE suggests not using combined drug therapy for obesity (including liraglutide, semaglutide, naltrexone/bupropion, orlistat) compared to monotherapy in adults aged 18 years or older with overweight or obesity. Remarks: The panel emphasized that combination therapy means prescribing more than one drug together, while fixed combinations of two active compounds (e.g., naltrexone/bupropion or phentermine/topiramate) are considered monotherapy.	Conditional recommendation against the intervention	⊕◯◯◯ Very low
20. SMNE suggests not using oral antidiabetic medications (Sodium-glucose Cotransporter-2 [SGLT2] inhibitors or metformin) compared to lifestyle interventions/placebo in adults aged 18 years or older with overweight or obesity without impaired glucose metabolism.	Conditional recommendation against the intervention	⊕⊕◯◯ Low

*Supplementary File 1 contains the checklist and panel discussion for developing each recommendation

**Additional panel considerations: The expert panel considered that the balance of effects, as well as equity and acceptability considerations,

Table 9 (continued)

favor the use of phentermine for 6 months or more in most patients. Given the low cost and wide availability of the agent, it may be especially useful for patients with lower income and those who lack access to the newer, costlier medications. The panel also considered that it is possible that adverse events have not occurred in phentermine clinical trials due to the low number of participants, reduced follow-up time and a lack of cardiovascular safety studies. The panel submitted two additional studies for discussion in the Mexican context. An observational study of 166 participants found that, among patients receiving phentermine for 6 months, 92.9% of adverse events were mainly mild [107]. Another study evaluating the effectiveness and safety of phentermine in nearly 14,000 individuals suggested that prolonged use of the medication (> 12 months) does not significantly increase the likelihood of major cardiovascular events at 24 months [108]. Based on the panel's collective clinical experience, phentermine can produce non-serious adverse events frequently observed in clinical practice; however, in some subgroups of patients more caution should be exercised. These include individuals with anxiety disorders and depression, those taking antidepressants due to drug interactions, and others at higher risk for adverse events (older adults, those at risk of cardiovascular disease and those at risk for glaucoma)

Table 10 Good Practice Statements (Ungraded): Pharmacotherapy*

XVI) Healthcare professionals prescribing pharmacotherapy for overweight and obesity should consider it as an adjunct treatment to behavioral interventions involving medical nutrition therapy and physical activity, stress management, etc. and it should never be prescribed as a stand-alone treatment
XVII) Healthcare professionals prescribing pharmacotherapy should consider it for patients who have overweight (BMI ≥ 27 kg/m^2) with related adiposity-related comorbidities, or for patients with obesity (BMI ≥ 30 kg/m^2), in conjunction with nutritional counseling, psychological support, and physical activity prescription
XVIII) Healthcare professionals prescribing pharmacotherapy as an adjunct for the treatment of obesity should consider medications approved by the Mexican national regulatory agency (COFEPRIS) and for long-term follow-up

*Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for each good practice statement

careful monitoring and guidance for women of childbearing age.

It is important to note that in Mexico, some obesity medications are still prescribed despite lacking robust scientific evidence for their long-term efficacy and safety. Therefore, it is crucial for healthcare professionals who are the first point of contact for patients living with obesity and who wish to prescribe pharmacological interventions to carefully consider an agent's effectiveness and safety.

This guideline includes evidence-based recommendations (Table 9) and consensus-based good practice statements (Table 10) for pharmacotherapy interventions.

Metabolic and Bariatric Surgery

Metabolic and bariatric surgery (MBS) is one of the key pillars of obesity treatments and should be considered for individuals living with obesity, severe obesity, and obesity-related complications. MBS, encompassing procedures such as gastric bypass and sleeve gastrectomy, plays a crucial role in the treatment of severe obesity [5, 8, 33, 109]. Indications for MBS include a BMI ≥ 35 kg/m^2, or BMI 30–34.9 kg/m^2 with type 2 diabetes (T2D), or patients with suboptimal treatment response, recurrent weight gain, or without comorbidity improvement using non-surgical methods [109].

The benefits of MBS extend beyond significant and sustained medically necessary weight loss. MBS can also lead to improvements in or resolution of obesity complications, such as T2D, hypertension, hyperlipidemia, sleep apnea, and MAFLD, and reduces the risk of some malignant tumors, acute cerebrovascular events, and all-cause mortality [110]. MBS-induced weight loss also enhances quality of life and increases longevity.

Long-term benefits and outcomes of MBS, like all other obesity treatments, are strongly related adherence to adjunctive interventions (such as medical nutrition therapy and physical activity, psychological and behavioral interventions), genetics, and other environmental and social factors. Although MBS has been shown to produce significant long-term weight loss and manage or resolve obesity-related complications, 20%–30% of patients may still experience suboptimal clinical response (i.e., total weight loss of less than 20% or inadequate improvements in significant obesity complications) or recurrent weight gain (i.e., more than 20% of the initial surgical weight loss or worsening of an obesity complication that was a significant indication for surgery) after MBS, due to the biological, chronic, progressive, and relapsing nature of obesity [111–113].

Potential MBS risks and complications include surgical complications and nutritional deficiencies, among others. Therefore, bariatric surgery needs to be performed by specialized surgeons in hospitals with dedicated multidisciplinary teams that can provide lifelong medical follow-up and support [109].

If MBS is indicated for T2D remission, an accurate diagnosis of diabetes type and related complications, as well as information about the level of pancreatic insulin secretory reserve, is particularly important. This information is beneficial in assessing the likelihood of diabetes remission after

Table 11 Good Practice Statements (Ungraded): Metabolic and Bariatric Surgery*

XIX) Healthcare professionals should refer potentially eligible individuals for bariatric surgery to a specialized center that can provide multidisciplinary treatment and long-term follow-up
Remarks: People with a BMI ≥ 40 kg/m^2 or BMI ≥ 35 kg/m^2 with at least one adiposopathy-related disease are considered eligible for bariatric surgery
XX) Healthcare professionals should refer potentially eligible individuals for metabolic surgery to a specialized center that can provide multidisciplinary treatment and long-term follow-up
Remarks: People with a BMI ≥ 30 kg/m^2 and T2D that could potentially go into remission are considered eligible for metabolic surgery

*Supplementary File 1, Appendix 3.1 contains the checklist and panel discussion for each good practice statement

MBS. Preoperative evaluation in some patients may include tests to distinguish type 1 diabetes from T2D, such as fasting C-peptide and anti-GAD (glutamic acid decarboxylase) or other autoantibodies [114]. A preoperative evaluation may also include prediction scales to identify patients who may benefit from MBS. Among the existing prediction scales are the DiaRem, Ad-DiaRem, ABCD, DRS, and 5y-Ad-DiaRem scales, which assess several parameters such as age, glycated hemoglobin, duration of diabetes, pancreatic reserves, insulin use, among other factors [115–117].

This guideline includes consensus-based good practice statements (Table 11) for metabolic and bariatric surgery interventions.

Conclusion

Implementing clinical practice guidelines for overweight and obesity is crucial for enhancing the quality and consistency of patient care. This guideline, developed through rigorous research and expert consensus, provides healthcare professionals with evidence-based recommendations to enhance collaborative clinical decisions. By informing the standardization of obesity care practices, this guideline can help reduce variability in treatment approaches across populations and regions, ensuring patients living with obesity receive the most effective, safe, and personalized interventions. This can lead to improved patient outcomes, reduced health inequalities, and more efficient use of healthcare resources. Additionally, adherence to clinical practice guidelines supports continuous quality improvement and facilitates better communication and coordination among healthcare teams, ultimately contributing to a more reliable and patient-centered healthcare system [118].

SMNE is committed to working with interdisciplinary healthcare professional societies, patient advocacy groups, and healthcare decision makers to disseminate and implement this guideline. This guideline was conceived as a foundational first step to righting historical wrongs for patients in Mexico, and as an objective and evidence-informed guide for healthcare practitioners to provide meaningful obesity care, in line with the latest thinking found in recent international clinical guidelines. Facilitating access to obesity care in Mexico is a critical tool for prevention of the harm that obesity can do to the health of the population. However, the publication of clinical practice guidelines alone is insufficient to bring about fundamental change. Without a comprehensive national obesity care strategy encompassing i) meaningful healthcare professional training in obesity management, ii) supportive policies and funding at all relevant levels of government and within health systems that remove barriers to care and facilitate equitable, timely, and affordable access to evidence-based treatments, iii) widespread efforts to reduce weight bias and discrimination, and iv) programs to promote more wide-spread awareness among the public about the drivers of and treatments for the disease, adults living with obesity in Mexico will continue to be underserved.

Key references

5. **Garvey WT, Mechanick JI, Brett EM, Garber AJ, Hurley DL, Jastreboff AM, Nadolsky K, Pessah-Pollack R, Plodkowski R (2016) AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS AND AMERICAN COLLEGE OF ENDOCRINOLOGY COMPREHENSIVE CLINICAL PRACTICE GUIDELINES FOR MEDICAL CARE OF PATIENTS WITH OBESITY. Endocr Pract 22 Suppl 3:1–203

This clinical practice guideline provides medical recommendations for healthcare professionals in the management of obesity. This guideline informed many of the ungraded consensus-based good practice statements in the Mexican clinical practice guideline.

7. *Bray GA, Kim KK, Wilding JPH, on behalf of the World Obesity Federation (2017) Obesity: a chronic relapsing progressive disease process. A position statement of the World Obesity Federation: Position Paper. Obesity Reviews 18:715–723.

This paper summarizes global obesity expert consensus that obesity should be treated as a chronic relapsing chronic disease that requires evidence-based and long-term management. This informed the overall chronic disease management approach of the Mexican clinical practice guideline.

8. **Wharton S, Lau DCW, Vallis M, et al (2020) Obesity in adults: a clinical practice guideline. CMAJ 192: E875–E891.

This clinical practice guideline provides clinical recommendations for the management of obesity using non-stigmatizing, patient-centred, and evidence-based approaches. This guideline informed many of the ungraded consensus-based good practice statements in the Mexican clinical practice guideline.

32. *Barquera S, Véjar-Rentería LS, Aguilar-Salinas C, et al (2022) Volviéndonos mejores: necesidad de acción inmediata ante el reto de la obesidad. Una postura de profesionales de la salud. Salud Publica Mex 64:225–229. **This paper outlines consensus-based recommendations for intersectoral actions for the prevention and management of obesity in Mexico. This paper includes a specific call for patient-centered actions to treat and manage obesity in Mexico.**

33. **Durrer Schutz D, Busetto L, Dicker D, Farpour-Lambert N, Pryke R, Toplak H, Widmer D, Yumuk V, Schutz Y (2019) European Practical and Patient-Centred Guidelines for Adult Obesity Management in Primary Care. Obes Facts 12:40–66. **This clinical practice guideline provides practical clinical recommendations for healthcare professionals in the context of primary care. This guideline informed many of the ungraded consensus- based good practice statements in the Mexican clinical practice guideline.**

Appendix 1 Guideline Committee Members

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