Bartolome Burguera, MD, PhD

Chief, Medical Specialty Institute, Cleveland Clinic, Cleveland, OH; Chair, Department of Endocrinology and Metabolism, Cleveland Clinic, Cleveland, OH; Professor, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, OH

Marcio L. Griebeler, MD

Department of Endocrinology and Metabolism, Cleveland Clinic, Cleveland, OH; Assistant Professor, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, OH

W. Timothy Garvey, MD

Associate Director, Department of Nutrition Sciences and the University of Alabama at Birmingham Diabetes Research Center, University of Alabama at Birmingham, Birmingham AL; Professor, University of Alabama at Birmingham, Birmingham AL

Effective but inaccessible antiobesity medications: A call for sharing responsibility for improving access to evidence-based care

THE TREATMENT OF OBESITY is problematic for several reasons. Obesity, obesity complications, and obesity-related diseases are highly prevalent and exact huge social costs. At the same time, we have medications of unprecedented efficacy with lifesaving potential, but these medications remain inaccessible to many patients because of high costs and other factors. This situation is untenable and should be unacceptable to patients, healthcare professionals, and society at large.

■ THE CONUNDRUM OF OBESITY TREATMENT

Obesity exacts a huge burden of patient suffering and social cost. Obesity affects 42% of US adults, and worldwide its prevalence is rising. Because obesity is a chronic condition, complications and related diseases are also common and are responsible for extensive morbidity and mortality. These include type 2 diabetes, hypertension, dyslipidemia, obstructive sleep apnea, osteoarthritis, cardiovascular disease, and cancer. In 2016, the total cost of chronic diseases attributable to obesity and overweight was \$1.72 trillion. As a risk factor, obesity accounts for 47.1% of the total direct and indirect costs of chronic diseases nationwide.

New medications to treat obesity are transformational in terms of efficacy and safety.⁵ First-generation obesity medications approved in 2014 or earlier include phentermine, orlistat, phentermine-topiramate extended release, naltrexone-bupropion, and liraglutide. Despite the proven clinical benefit of these drugs, average weight loss is generally less than 6% to 10% in clinical trials.⁶

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Over the past 3 years, regulatory approval has been given to new second-generation medications with mechanisms of action based on agonism of glucagon-like peptide-1 (GLP-1) and other nutrient-regulated hormones. Two such medications, semaglutide and tirzepatide, have achieved weight reductions of up to 20% in phase 3 clinical trials.^{5,7} Second-generation medications are more effective in preventing type 2 diabetes and improving lipids, blood pressure, and quality of life. Semaglutide also ameliorates nonalcoholic steatohepatitis and heart failure with preserved ejection fraction, prevents cardiovascular disease events,⁸ and slows the rate of the decline in renal function in patients with cardiometabolic disease.⁹

Despite advances, second-generation medications remain unavailable to large numbers of patients. These medications have expensive price tags (approximately \$1,000 per month) in the United States. 10 Many healthcare systems, regulatory agencies, and the federal government regard obesity as a lifestyle choice and not a disease, and therefore do not recognize the impact of excess adiposity on health.¹¹ On the other hand, many insurers and employers who sponsor insurance for their employees regard obesity as a chronic condition that causes comorbidity and increases cost. The consequences of obesity are remote, and it can take years for significant medical issues and costs to materialize. Given the current bankrupting costs of GLP-1 analogs, most insurers are waiting for the price of these medications to drop before treating everyone who meets the broad US Food and Drug Administration (FDA) criteria.

Payers and healthcare systems are unwilling to cover the cost of medications required for long-term

therapy of obesity. This bias runs counter to the scientific basis of obesity as a chronic disease with genetic determinants and pathophysiologic interactions that involve satiety factors and central nervous system feeding centers that generate and sustain excess adiposity.

SHARED RESPONSIBILITIES: A CALL TO ACTION

Since publication of the American Association of Clinical Endocrinology obesity treatment guidelines in 2016,³ all evidence-based professional guidelines have advocated a complications-centric approach to obesity management and have recommended that obesity medications be available in individualized care plans.

Multiple headwinds prevent patients' full access to recommended evidence-based care, including secondgeneration medications. Foremost is the problem of bias and stigmatization at all levels, including patients, healthcare professionals, healthcare systems, and society. 12 Internalized bias precludes the patient from acting as a care partner. Bias among medical professionals against obesity as a treatable disease leads to indifferent engagement of patients, and as a result, healthcare systems are disinclined to provide infrastructure and access for coordinated multidisciplinary obesity management programs. At the level of society, bias limits effective health messaging and inhibits the development of an effective built environment and a regulatory environment that can ensure the viability of prepared healthcare systems, the training of enough healthcare professionals, and broad access to care.

It is time to move on from the environment of criticism among patients, physicians, insurance companies, food companies, pharmaceutical companies, and federal agencies to ensure access to comprehensive care and the antiobesity medication armamentarium for patients living with obesity. All stakeholders need to share responsibility and engage in concerted action.

Patients

Every patient deserves to be treated with respect while their disease is appropriately evaluated and the full spectrum of therapeutic options is considered. Patients should be informed and empowered to participate with their healthcare team in the therapeutic plan and should be provided the knowledge and tools they need for long-term success. Given the necessary support and information, patients are responsible for lifestyle modifications that improve nutrition, such as reduced consumption of processed food and increased physical activity. Support should be delivered by an interdisciplinary team that can include physicians and

advanced care professionals, as well as dietitians, exercise physiologists, psychologists, and social workers, with availability of referral to sleep specialists, bariatric surgeons, and other specialists as needed. Patients should be encouraged to ask their physicians and other caregivers what evidence-based therapeutic options are available to treat their obesity.

Primary care physicians

Obesity is a chronic condition that requires long-term treatment and follow-up. The patient's primary care physician should seek information regarding current approaches to obesity management and treatment options. Consultation with colleagues who can help address obesity in the context of multidisciplinary care is also advised. Clinicians who are uncomfortable addressing obesity and its complications should refer patients to colleagues who actively treat obesity. For primary care physicians who treat patients with obesity, effective medications should be a readily available therapeutic option, and the clinician should be familiar with the pharmacology, indications, cautions, and potential side effects. Consultation with the patient should include discussion of realistic expectations and potential weight-loss outcomes associated with each medication. Importantly, all healthcare professionals should interact with patients with empathy and respect.

Specialty care

Obesity specialists, endocrinologists, and bariatric surgeons should address the more complicated cases of obesity. Their roles might include coordinating multidisciplinary teams as well as training and consultation for their primary care colleagues. Patients should be referred for bariatric surgical procedures when appropriate, and bariatric surgeons should engage in programs for proper evaluation of patients and have sufficient training and experience to ensure optimal outcomes and follow-up. Given the current price of antiobesity medications, bariatric surgery is more cost-effective. All healthcare professionals should advocate for patients and the need for access to the full spectrum of management options in their healthcare systems, in interacting with payers, and in society at large.

Healthcare systems

Healthcare systems and their leaders should provide the infrastructure for coordinated multidisciplinary care programs over the lifetime of patients who live with obesity, including the full spectrum of evidence-based care and treatment options.¹⁵ They should ensure that patients have access to affordable care and receive it. It is their responsibility to maintain adequately trained

TABLE 1 US list prices (monthly cost) of second-generation antiobesity medications compared with selected other countries

	United States	Spain	Denmark	Netherlands	United Kingdom	Japan	Canada	Dubai
Semaglutide 2.4 mg	\$1,349	\$314	\$343	\$296	\$233	\$69	\$388	\$326
Tirzepatide 10–15 mg	\$1,069	\$400	\$632	\$444	\$162	\$319	\$104	\$472

Information based on web searches, direct pharmacy pricing information, and reference 22.

healthcare professionals and support continuing medical education, informatics, and process improvement based on outcomes, together with community-based prevention efforts. Leadership should advocate for affordable medication prices with insurance companies, pharmacy benefit managers, regulators, policymakers, and government agencies.

Employers

A workplace environment that promotes employee health is essential, particularly for managing obesity as a chronic disease. A setting that encourages physical activity, balanced nutrition, and mental wellness can help employees maintain a healthy lifestyle, improve productivity, and decrease absenteeism.

Third-party payers

A limited number of insurance companies and selfinsured employers provide coverage for obesity care or antiobesity medications, particularly secondgeneration medications like GLP-1 receptor agonists. Pharmacy benefit managers are intermediaries between pharmaceutical companies and the healthcare venues. Negotiations between these 2 parties generally increase costs without adding value. 16 About 50 million Americans with obesity could be eligible for insurance coverage for semaglutide, 17 and about 67% have coverage for tirzepatide. 18 Many of these are required to have diabetes for prescriptions to be covered. Each week, US clinicians write more than 500,000 prescriptions for semaglutide and 300,000 for tirzepatide.¹⁸

In the United States, Medicare Part D does not cover antiobesity medications by statute, and, despite having more flexibility, a minority of state Medicaid programs cover antiobesity drugs, but not secondgeneration medications. 19 A few weeks after publication of the results of the SELECT (Semaglutide Effects on Cardiovascular Outcomes in People with Overweight or Obesity) trial,8 the Centers for Medicare & Medicaid

Services (CMS) announced²⁰ that health plans in the Medicare Part D program will start providing limited antiobesity medication access to patients with obesity and preexisting cardiovascular disease (the good news), but not for obesity per se, which of course is the underlying problem (the bad news). About 3.6 million Medicare beneficiaries (7% overall) had established cardiovascular disease and obesity or overweight in 2020.21

The CMS recently began to implement its first round of Medicare drug price negotiations under the Inflation Reduction Act (IRA). The IRA allows for negotiations between CMS and pharmaceutical companies for the cost of medications covered by Medicare Part D to establish the maximum fair price for each drug. It is expected that the IRA will contribute to reduced drug costs for CMS and other payers. However, the negotiations do not consider the disproportionate costs paid by the United States compared with other countries (Table 1).²² Further, the first 10 drugs selected for negotiation do not include any antiobesity medications.²³

Third-party payers need to find ways to include coverage for all antiobesity medications on behalf of patients. The current system of nontransparent negotiations involving pharmacy benefit managers does not appear to be working for patients living with obesity.

Policymakers

There is a clear need for obesity to be considered as a chronic disease and its treatment covered by all insurance companies and governmental programs. Policies must ensure access and affordable care for obesity. To tackle drug prices, the government recently announced legislative actions in addition to the IRA to lower prescription drug costs. The Treat and Reduce Obesity Act,²⁴ introduced in the US House of Representatives in 2023, would expand Medicare coverage of intensive behavioral therapy for obesity. The bill also would allow coverage of drugs used to treat obesity under Medicare's prescription drug benefit.

Other measures include overriding the patent for high-priced drugs that have been developed with the help of taxpayer money and letting competitors develop these drugs (known as march-in rights pursuant to the Bayh-Dole Act). Significantly, no federal agency has exercised its right to march in. This development reflects institutional bias against obesity as a chronic disease that fundamentally is recognized only in relation to its complications and related diseases.

Media and health messaging

Obesity has been a trending topic in social media in recent years, particularly since the launch of the more effective second-generation antiobesity medications. Nearly half of the US adult population wants to lose weight, 25 and there is growing awareness of effective recently approved antiobesity medications. Conventional and corporate mass media now more than ever should provide solid, scientifically based information and consult with experts without industry bias. Messaging to promote a culture of wellness, disease prevention, and information regarding obesity as a disease is urgently needed. Importantly, messaging should emphasize the use of antiobesity medications in combination with lifestyle changes to improve health in the context of multidisciplinary medical treatment programs for obesity as a chronic disease.¹³

Pharmaceutical industry

Pharmaceutical and biotechnology companies should be thanked and lauded for developing and earning FDA approval of antiobesity medications. The industry is also responsible for establishing a price structure that allows these medications to be affordable to patients. A fair balance between profits and a pricing scheme that allows patients in need access to antiobesity medications has not been achieved. Given the high costs, the people most in need of antiobesity medications are usually the ones with reduced chances of getting them.

Pharmaceutical companies that produce secondgeneration antiobesity medications have developed digital health initiatives for patients that include lists of professionals treating obesity and access to online pharmacy services that provide a home-delivery option for antiobesity medications prescribed by their physicians. This measure may reduce some of the burdens that patients and healthcare professionals endure to gain access to antiobesity medications, but it does not solve the cost problem or access for patients without coverage or financial means.

Important disparities in the price of antiobesity medications occur worldwide (Table 1).²² Prices in

the United States are significantly higher compared to other high-income countries. The high costs are borne not only directly by individual patients, but also by the societies in which those patients live. It is unacceptable that patients in the United States should pay 10 to 15 times more than patients in other westernized societies.

Disproportionate costs to societies and regions enable drug trafficking. US patients seek antiobesity medications at lower prices in Canada or Mexico for themselves and others. Interestingly, the FDA authorized Florida's drug importation program on January 5, 2024. ²⁶ The FDA may authorize proposals from states or Native American tribes to develop drug importation programs under Section 804 of the Federal Food, Drug, and Cosmetic Act (ie, Section 804 Importation Programs) that allow them to import certain drugs from Canada as long as doing so will provide savings to American consumers and will not present a risk to public health and safety. This seems to be the first step on a path to facilitating importation of certain prescription drugs from Canada.

SUBSTANDARD PRACTICES WITH POTENTIAL HARM

Lack of access to care and the high price of antiobesity medications have given rise to practices that are not in the best interest of patients. Counterfeit or compounded semaglutide or tirzepatide, largely produced by unregulated facilities, has been found in up to 16 countries and has been linked to severe hypoglycemia, seizures, and thrombosis. ²⁷ Neither the ingredients contained in these compounded preparations nor the quality or concentration of the approved medication being emulated can be known for certain. Our patients deserve better.

Another substandard practice is the online availability of obesity medicine prescriptions without adequate assessment of the patient's health status and evaluation for the presence and severity of obesity complications and related diseases.²⁸ At best, prescriptions are provided to patients by licensed healthcare professionals who never see or examine the patient, but rather rely on self-report information collected remotely from the patient. Patients are not evaluated regarding the impact of adiposity on health. They are given prescriptions without the physical and historical data and standard clinical laboratory results required for optimal treatment decisions and long-term follow up—standard recommendations in all evidence-based treatment guidelines produced by professional organizations. This is inconsistent with treatment of obesity as a chronic disease. Again, patients deserve better. Both the American Association of Clinical Endocrinology²⁹ and the European Association for the Study of Obesity³⁰ have endorsed the diagnostic term adiposity-based chronic disease to formalize a complications-centric approach to care directed at improving the health of patients by preventing or treating complications responsible for morbidity and mortality.

As substantiated in treatment guidelines, obesity medications need to be provided by a knowledgeable interdisciplinary team trained in obesity care. Secondgeneration antiobesity medications are powerful and can lead to excessive weight loss beyond the level that achieves goals for improved health. A significant percentage of this weight loss is muscle mass. Patients need to be actively followed over time by professionals engaged in continuity of care to optimize outcomes, treat or prevent adverse events, preserve and minimize loss of muscle and bone mass, and manage nutrition, psychological disorders, and subspecialty referrals.

CLOSING THOUGHTS

We have medications of unprecedented efficacy and safety for treatment of obesity- and adiposity-based chronic disease that can be lifesaving and can improve

REFERENCES

- 1. Centers for Disease Control and Prevention. Prevalence of overweight, obesity, and severe obesity among adults aged 20 and over: United States, 1960-1962 through 2017-2018. Updated January 29, 2021. www.cdc.gov/nchs/data/hestat/obesity-adult-17-18/obesityadult.htm. Accessed October 17, 2024.
- 2. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in underweight and obesity from 1990 to 2022: a pooled analysis of 3663 population-representative studies with 222 million children, adolescents, and adults. Lancet 2024; 403(10431):1027-1050. doi:10.1016/S0140-6736(23)02750-2
- 3. Garvey WT, Mechanick JI, Brett EM, et al. American Association of Clinical Endocrinologists and American College of Endocrinology comprehensive clinical practice guidelines for medical care of patients with obesity. Endocr Pract 2016; 22(suppl 3):1–203. doi:10.4158/EP161365.GL
- 4. Waters H, Graf M. America's obesity crisis: the health and economic costs of excess weight. Milken Institute; 2018. https://milkeninstitute.org/sites/default/files/reports-pdf/Mi-Americas-Obesity-Crisis-WEB_2.pdf. Accessed October 17, 2024.
- 5. Garvey WT. New horizons. A new paradigm for treating to target with second-generation obesity medications. J Clin Endocrinol Metab 2022; 107(4):e1339-e1347. doi:10.1210/clinem/dgab848
- 6. Yanovski SZ, Yanovski JA. Long-term drug treatment for obesity: a systematic and clinical review. JAMA 2014: 311(1):74-86. doi:10.1001/jama.2013.281361
- Jastreboff AM, Aronne LJ, Ahmad NN, et al. Tirzepatide once weekly for the treatment of obesity. N Engl J Med 2022; 387(3):205-216. doi:10.1056/NEJMoa2206038
- 8. Lincoff AM, Brown-Frandsen K, Colhoun HM, et al. Semaglutide and cardiovascular outcomes in obesity without diabetes. N Engl I Med 2023; 389(24):2221-2232. doi:10.1056/NEJMoa2307563

health and quality of life. These antiobesity medications need to be used long term, with very frequent weight regain if discontinued. Yet, many patients lack access to these medications and to venues for comprehensive care. Further, healthcare systems in some countries cannot sustain the high cost of secondgeneration antiobesity drugs for patients who need them. An informed, concerted effort and assumption of shared responsibilities among all stakeholders are needed to realize the far-ranging and transformative benefits of second-generation obesity medications.

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- 9. Perkovic V, Tuttle KR, Rossing P, et al. Effects of semaglutide on chronic kidney disease in patients with type 2 diabetes. N Engl J Med 2024; 391(2):109-121. doi:10.1056/NEJMoa2403347
- 10. GoodRx, Inc. www.goodrx.com, Accessed October 17, 2024.
- 11. Garvey WT, Garber AJ, Mechanick JI, et al. American Association of Clinical Endocrinologists and American College of Endocrinology position statement on the 2014 advanced framework for a new diagnosis of obesity as a chronic disease. Endocr Pract 2014; 20(9):977-989. doi:10.4158/EP14280.PS
- 12. Nadolsky K, Addison B, Agarwal M, et al. American Association of Clinical Endocrinology consensus statement: addressing stigma and bias in the diagnosis and management of patients with obesity/adiposity-based chronic disease and assessing bias and stigmatization as determinants of disease severity. Endocr Pract 2023; 29(6): 417-427. doi:10.1016/j.eprac.2023.03.272
- 13. Burguera B, Pantalone KM, Griebeler ML. Obesity medical therapy: it is time to take the bull by the horns. Mayo Clin Proc 2021; 96(12):2939-2941. doi:10.1016/j.mayocp.2021.10.013
- 14. Haseeb M, Chhatwal J, Xiao J, Jirapinyo P, Thompson CC. Semaglutide vs endoscopic sleeve gastroplasty for weight loss. JAMA Netw Open 2024; 7(4):e246221. doi:10.1001/jamanetworkopen.2024.6221
- 15. Pantalone KM, Smolarz BG, Ramasamy A, et al. Effectiveness of combining antiobesity medication with an employer-based weight management program for treatment of obesity: a randomized clinical trial. JAMA Netw Open 2021; 4(7):e2116595. doi:10.1001/jamanetworkopen.2021.16595
- 16. Committee On Oversight and Accountability. Comer releases report on PBMs' tactics leading to soaring prescription drug prices. Press Release: December 10, 2021. https://oversight.house.gov/release/ comer-releases-report-on-pbms-tactics-leading-to-soaringprescription-drug-prices/. Accessed October 17, 2024.

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- 17. Novo Nordisk: 80% of U.S. Wegovy patients with insurance paying less than \$25/month, Reuters, www.reuters.com/business/ healthcare-pharmaceuticals/novo-nordisk-80-us-wegovy-patientswith-insurance-paying-less-than-25month-2023-11-02/. Accessed October 17, 2024.
- 18. Tirrell M. At least 25,000 people in the US are starting weight-loss drug Wegovy each week, drugmaker says. CNN. https://www.cnn. com/2024/05/02/health/wegovy-weight-loss-drug-new-prescriptions/ index.html. Accessed October 17, 2024.
- 19. Liu BY, Rome BN. State coverage and reimbursement of antiobesity medications in Medicaid. JAMA 2024; 331(14):1230-1232. doi:10.1001/jama.2024.3073
- 20. US Centers for Medicare & Medicaid Services. CMS.gov. Back to HPMS memos archive—weekly. HPMS memos for wk 4 March 18–22. https://www.cms.gov/about-cms/information-systems/hpms/hpmsmemos-archive-weekly/hpms-memos-wk-4-march-18-22. Accessed October 17, 2024.
- 21. Cubanski J, Neuman T, Sroczynski N, Damico A. A new use for Wegovy opens the door to Medicare coverage for millions of people with obesity. www.kff.org/medicare/issue-brief/a-new-use-forwegovy-opens-the-door-to-medicare-coverage-for-millions-ofpeople-with-obesity/. Accessed October 17, 2024.
- 22. Peterson-KFF Health System Tracker; Amin K, Telesford I, Singh R, Cox C. How do prices of drugs for weight loss in the U.S. compare to peer nations' prices? August 17, 2023. https://www.healthsystemtracker.org/brief/prices-of-drugs-forweight-loss-in-the-us-and-peer-nations/. Accessed October 17, 2024.
- 23. Health Affairs Forefront: Arad N. Hoover G. Evans R. McClellen MB. Medicare drug price negotiations: policy implications of the first 10 drugs' features. April 9, 2024. www.healthaffairs.org/content/ forefront/medicare-drug-price-negotiations-policy-implicationsfirst-10-drugs-features. Accessed October 17, 2024.

- 24. US Congress. Congress.gov, H.R.4818—118th Congress (2023–2024): Treat and reduce obesity act of 2023. June 27, 2024. https://www.congress.gov/bill/118th-congress/house-bill/4818. Accessed October 17, 2024.
- 25. Martin CB, Herrick KA, Sarafrazi N, Ogden CL. Attempts to lose weight among adults in the United States, 2013-2016. NCHS Data Brief 2018; (313):1-8. pmid:30044214
- 26. US Food & Drug Administration. FDA authorizes Florida's drug importation program. January 5, 2024. https://www.fda.gov/newsevents/press-announcements/fda-authorizes-floridas-drugimportation-program. Accessed October 17, 2024.
- 27. Wingrove P, Fick M. Novo Nordisk tackles harm from Ozempic fakes with global authorities. Reuters. www.reuters.com/business/ healthcare-pharmaceuticals/compounded-semaglutide-posesserious-us-health-issue-novo-nordisk-ceo-says-2024-03-08/. Accessed October 17, 2024.
- 28. WebMD; McNamara D. How WW, Noom say they're filling obesity medicine gaps. March 29, 2024. www.webmd.com/obesity/ news/20240329/ww-noom-say-theyre-filling-obesity-medicine-gaps. Accessed October 17, 2024.
- 29. Mechanick JI, Hurley DL, Garvey WT. Adiposity-based chronic disease as a new diagnostic term: the American Association of Clinical Endocrinologists and American College of Endocrinology position statement. Endocr Pract 2017; 23(3):372-378. doi:10.4158/EP161688.PS
- 30. Frühbeck G, Busetto L, Dicker D, et al. The ABCD of obesity: an EASO position statement on a diagnostic term with clinical and scientific implications. Obes Facts 2019; 12(2):131-136. doi:10.1159/000497124

Address: Bartolome Burguera, MD, PhD, Medical Specialty Insti-tute, F20, Cleveland Clinic, 9500 Euclid Avenue, Cleveland, OH 44195; burgueb@ccf.org