

PERSPECTIVE



Bariatric Surgery

Where does surgery fit in the era of effective obesity pharmacotherapy? Positioning metabolic bariatric surgery within multimodal obesity care

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Obesity is increasingly recognized as a heterogeneous chronic disease requiring multimodal, stage-adapted treatment strategies integrating behavioral, pharmacological, endoscopic, and surgical interventions. Advances in obesity pharmacotherapy, endoscopic therapies, and digitally enabled care pathways are rapidly reshaping the therapeutic landscape. Within this evolving ecosystem, an important clinical question emerges: how should metabolic bariatric surgery (MBS) be positioned within integrated obesity care? This question is not merely organizational. The Lancet Commission on the Definition of Clinical Obesity distinguishes preclinical obesity, a risk state, from clinical obesity, an established disease with organ dysfunction or functional limitation [1]. Aligning treatment with this distinction carries direct clinical stakes: mispositioning MBS risks delaying escalation for patients with clinical disease who benefit most, over-medicalization of those at preclinical risk, dilution of measured treatment effects in undifferentiated populations, and inefficient use of limited health-system resources.

MBS remains among the most durable interventions for clinical obesity, reducing adiposity, improving organ function, and achieving remission of several obesity-related diseases [2]. Over the past 3 decades, surgical practice has evolved substantially through technical refinement, perioperative optimization, and improved safety supported by randomized clinical trials and long-term observational evidence [2]. These developments have established MBS as a very safe and important therapeutic option for patients with advanced obesity and complex metabolic disease.

At the same time, obesity management medications (OMMs), particularly incretin-based therapies, now offer clinically meaningful weight reduction with additional cardiometabolic benefits [3]. Endoscopic procedures provide intermediate efficacy with lower procedural risk and shorter recovery, while digital health tools and telemedicine expand opportunities for decentralized long-term care [2, 4]. Rather than competing modalities, these therapies increasingly form part of a broader therapeutic ecosystem in which treatment selection and sequencing are guided by disease severity, comorbidity profile, risk of progression, and patient preference.

MBS has been optimized for patients with severe obesity and established obesity-related diseases such as type 2 diabetes, hypertension, obstructive sleep apnea, and obesity-related mechanical complications [5]. Surgical pathways require specialized infrastructure and multidisciplinary teams including nutritional and psychological support, consistent with contemporary standards from the International Federation for the Surgery and Other Therapies for Obesity and the American Society for Metabolic and Bariatric Surgery [5]. These established services are well positioned to evolve into comprehensive metabolic centers capable of coordinating pharmacologic, endoscopic, behavioral, and surgical therapies.

Scalable pharmacotherapy is increasingly serving as a gateway into active care for individuals who previously remained untreated or undertreated. As more patients enter structured treatment pathways through OMMs, some will require escalation to MBS. This shift underscores the importance of coordinated multidisciplinary care in which therapeutic modalities are deployed according to disease stage and individual response.

Obesity is not solely a disorder of excess weight; in its clinical form it is an established multidimensional disease involving metabolic, inflammatory, neurohormonal, mechanical, and psychosocial components, whereas preclinical obesity denotes elevated risk rather than disease. Therapeutic decisions therefore extend beyond weight-loss magnitude alone and should consider the specific disease manifestations present in each patient. For example, pharmacotherapies may offer cardiometabolic or renal benefits in individuals with predominant metabolic disease, whereas procedural therapies may provide more durable control of adiposity-driven complications such as severe insulin resistance, obstructive sleep apnea, or disabling mechanical limitations. Treatment strategies should therefore be individualized, with lifestyle therapy, pharmacotherapy, endoscopic procedures, and MBS representing complementary modalities whose optimal sequence varies across patients.

Within this stage-adapted framework, MBS represents a particularly valuable option for individuals with established clinical

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obesity and significant metabolic, mechanical, or organ-level complications. At the same time, surgery is not universally required nor appropriate for all patients with obesity. Treatment selection should remain grounded in multidisciplinary assessment and shared decision-making, considering phenotype, risk profile, expected durability of response, and patient preference. Positioning MBS within integrated obesity care pathways rather strengthens than diminishes its role. As therapeutic options expand, the central challenge becomes strategic integration across the continuum of care.

In some situations, MBS may also be considered after pharmacotherapy-induced weight loss when continued medical therapy becomes difficult because of adverse events, cost, or patient preference regarding long-term medication use [6]. In such cases, disease severity and surgical indication should be evaluated based on baseline clinical status rather than transient pharmacologic response. Effective pharmacological weight loss does not, in itself, alter a surgical indication anchored to baseline disease severity; partial or transient responders warrant escalation rather than reclassification.

Economic sustainability is a crucial consideration. OMMs provide meaningful benefit but typically require long-term or lifelong administration, with adherence-dependent real-world effectiveness [3], resulting in substantial cumulative costs for both patients and health care systems. In contrast, MBS involves higher upfront expenditure but has consistently been shown to be among the most cost-effective interventions for severe obesity [7], particularly when cardiometabolic disease is present, with downstream reductions in medication use and health care utilization. As surgery is largely a one-time expense, whereas GLP-1s are a recurring lifelong treatment for most patients, the break-even point where MBS becomes cheaper is reached within 1 to 1.5 years [8]. Real-world evidence also demonstrates substantial rates of pharmacotherapy discontinuation and recurrent weight gain after treatment cessation [9], which may reduce the long-term effectiveness of medication-centered strategies in some settings.

Workforce development must evolve accordingly. Future metabolic bariatric surgeons will require competencies extending beyond operative technique, including familiarity with OMMs, participation in multidisciplinary care models, and leadership in coordinated treatment pathways supported by digital tools.

Research infrastructure should also expand to reflect the complexity of contemporary obesity care. Large prospective registries, already established for MBS and some endoscopic therapies, could be extended to include pharmacological treatments and integrated care pathways. Importantly, research priorities and policy decisions should incorporate the perspectives of people living with obesity to ensure that care models remain patient-centered and equitable.

Metabolic bariatric surgery remains an essential component of modern obesity care, particularly for patients with advanced clinical disease. Its future impact will depend not on maintaining a procedure-centered paradigm but on successful integration within coordinated multimodal care systems. As obesity treatment becomes increasingly individualized and stage-adapted, aligning high-impact interventions with patient phenotype, health-system capacity, and long-term sustainability will define leadership in the next era of obesity medicine.

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AUTHOR CONTRIBUTIONS

RVC conceived the concept for the manuscript and drafted the initial version. PS, JP, and GP critically reviewed and revised the manuscript for important intellectual content. All authors approved the final version of the manuscript for submission.

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ADDITIONAL INFORMATION

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