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A Cost-Benefit Framework for Providing GLP-1 Medications to U.S. Military Personnel

March 2026

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Naval Postgraduate School

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ABSTRACT

The increasing prevalence of obesity among active-duty service members poses significant readiness and personnel management challenges for the Department of Defense (DoD). Under current policies, weight-related separations generate substantial recruitment, training, and replacement costs while reducing operational readiness. Recent advancements in weight-management medications, such as glucagon-like peptide-1 (GLP-1) receptor agonists, present a potential alternative to separation-based approaches by assisting service members in managing obesity and improving health outcomes. However, the fiscal and readiness implications of expanding access to these medications within the Military Health System (MHS) have not been systematically evaluated. This study develops a structured cost-benefit analysis (CBA) framework using federal regulatory guidance from the Office of Management and Budget (OMB) Circulars A-4 and A-94. The framework evaluates expanded access to GLP-1 therapy among clinically eligible active-duty personnel by defining baseline conditions, identifying marginal program costs, and estimating potential benefits. A net present value (NPV) decision rule is applied to assess whether medication-based intervention represents a cost-effective alternative to the current separation-based policy.

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LIST OF ACRONYMS AND ABBREVIATIONS

BCA	Body Composition Assessment
BMI	body mass index
CBA	cost-benefit analysis
DoD	Department of Defense
DXA	dual-energy X-ray absorptiometry
FDA	Food and Drug Administration
FSS	Federal Supply Schedule
GAO	Government Accountability Office
GIP	glucose-dependent insulinotropic polypeptide
GLP-1	glucagon-like peptide-1
MHS	Military Health System
MTF	Military Treatment Facility
NPV	net present value
OMB	Office of Management and Budget
OR	odds ratio
RMC	Regular Military Compensation
SARMs	selective androgen receptor modulators
VA	Veterans Affairs
VSI	value of a statistical injury
VSL	value of a statistical life

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AI DISCLOSURE

Professor Sullivan and I agreed that I could use generative AI in a limited capacity to assist with improving grammar, sentence clarity, and overall readability of the thesis text. I used OpenAI's ChatGPT to review portions of my writing for spelling, punctuation, grammar, and concision, and to suggest revisions that improved the clarity and flow of individual sentences and paragraphs. The tool was used only for editorial assistance and did not generate any substantive content for the thesis.

I used ChatGPT by inputting paragraphs that I had written and requesting suggestions to improve sentence structure, reduce redundancy, and strengthen transitions between ideas while maintaining the original meaning. To mitigate potential risks, all suggested edits were reviewed individually before being incorporated, and all citations, sources, and references were verified.

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I. INTRODUCTION

Obesity is a crisis that has become increasingly prevalent within the U.S. military, affecting individual readiness, force lethality, and fiscal sustainability (Chapman et al., 2025). Currently, nearly 70% of active-duty service members fall within the overweight or obese body mass index (BMI) categories, a prevalence similar to that of the general population (McCarthy et al., 2024).[1] However, for the armed forces, this issue extends beyond a clinical concern and poses a direct threat to national security (Webber et al., 2023). Obesity has also become one of the leading barriers to recruitment. An estimated 71% of youth aged 17–24 are deemed ineligible for military service overall, with weight-related disqualification serving as the leading medical barrier, resulting in approximately 52,000 individuals disqualified in 2023 alone (Manning, 2023). Among those already serving, obesity is associated with a 33% higher likelihood of musculoskeletal injury, further burdening individual, medical, and operational readiness (Stahlman & Taubman, 2018).

The Department of Defense (DoD) has historically viewed body composition standards as indicators of combat readiness and appropriate military appearance. Mandated in 1981 through DoD Directive 1308.1, these standards were based on the belief that excessive body fat reflected poor discipline and diminished health or stamina (Knapik et al., 2023). However, the military's reliance on BMI-based assessments has faced increasing scrutiny (Kapsis et al., 2022). Although BMI is a convenient screening tool, it fails to distinguish lean mass from fat mass, leading to the misclassification of muscular service members as obese while underestimating true body fat levels in others (Lallemand, 2024). Additionally, more than half of active-duty women and approximately two-thirds of active-duty men who meet obesity criteria fail to receive a formal diagnosis within the Military Health System (MHS), creating gaps in treatment and possible inefficient allocation of resources (Yang et al., 2022).

[1] Overweight and obesity are typically defined using body mass index (BMI), which is calculated as body weight in kilograms divided by height in meters squared. A BMI of 25.0–29.9 is classified as overweight, while a BMI of 30.0 or greater is classified as obesity.

The DoD's historical approach to obesity management has been predominantly punitive. Service members who fail the Body Composition Assessment (BCA) face adverse career consequences, including promotion restrictions, denial of specialized training, and potential involuntary separation (Foulis et al., 2023). Enforcement of these standards has driven maladaptive weight-management behaviors. Lallemand (2024) finds that pressure to meet weight standards encourages practices such as starvation, excessive exercise, use of diuretics or laxatives, and self-induced vomiting. Qualitative data from active-duty Marines in the same study also indicate that the BCA contributes to chronic stress, career anxiety, and persistent fear of administrative separation.

Attrition associated with weight-related discharges imposes a significant financial burden on the DoD. Approximately 1,200 first-term enlistees are discharged annually for failing weight standards, generating replacement costs exceeding $60 million (Dall et al., 2007). The DoD spends an estimated $1.5 billion annually on obesity-related healthcare and personnel replacement costs, in addition to approximately $103 million in productivity losses from more than 650,000 obesity-related missed workdays (Chapman et al., 2025). Replacing an enlisted service member costs more than $55,000 in recruitment and training expenses (Bo, 2013). These estimates underscore the magnitude of financial losses attributable to weight-related attrition and highlight the potential savings achievable through modest reductions in separation rates.

Recent pharmaceutical innovations, including glucagon-like peptide-1 (GLP-1) receptor agonists and dual GLP-1/glucose-dependent insulinotropic polypeptide (GIP) agonists, offer a potential alternative to existing military weight-management strategies (Wang et al., 2023). Medications such as semaglutide (Wegovy) and tirzepatide (Zepbound) have demonstrated substantial efficacy in treating obesity as a chronic disease (Wang et al., 2023). Large-scale clinical trials show sustained weight loss ranging from 14.9% to 20.9% of body weight, along with significant improvements in cardiometabolic risk factors such as blood pressure and insulin sensitivity (Jastreboff et al., 2022; Wilding et al., 2021).

Despite demonstrated effectiveness, utilization within the military remains low. Although TRICARE authorized coverage for weight-management medications in 2018,

less than 1% of the active-duty force are prescribed these medications (Bohm et al., 2023). This limited utilization suggests access barriers, including strict prior-authorization requirements and step-therapy protocols that favor older, less effective medications (Chapman et al., 2025). Cultural stigma within the DoD that frames obesity as a failure of willpower rather than a medical condition further discourages treatment-seeking behavior (Manning, 2023).

The adoption of GLP-1 therapies introduces trade-offs unique to the military, particularly regarding lean muscle preservation (Chapman et al., 2025). Clinical evidence indicates that up to 40% of GLP-1–induced weight loss may result from reductions in lean muscle mass (Neeland et al., 2024; Jamialahmadi et al., 2025). While some loss of lean mass may be a natural adaptation to reduced body weight, it may not align with the strength and performance demands required in military populations. For service members whose duties require exceptional strength, endurance, and physical resilience, such losses may pose a risk to readiness if not properly mitigated. This is particularly relevant as skeletal muscle mass is a critical determinant of military performance, especially in high-intensity combat and load-bearing environments (Chapman et al., 2025).

A rigorous evaluation of the strategic value of GLP-1 therapies is therefore necessary, given the risks related to muscle loss, medication cost, and post-treatment weight regain. The DoD must determine whether reductions in fat mass and avoided attrition offset potential declines in physical power. This will require further study of these medications when used in combination with resistance training and nutritional protocols designed to preserve lean mass.

This study develops a structured analytical framework to compare the current BCA-driven approach to weight management, which emphasizes administrative enforcement and separation, with an alternative strategy incorporating GLP-1-based pharmacologic intervention. The framework evaluates the potential costs and benefits of GLP-1–based obesity interventions within the MHS, consistent with the principles outlined in Office of Management and Budget (OMB) Circulars A-4 and A-94. It identifies key cost and benefit categories, including avoided separations, reductions in obesity-related medical injuries, and improvements in force readiness, and outlines how these outcomes could be monetized

and compared against associated costs including medication procurement, clinical oversight, and monitoring costs. Collectively, this framework provides military leadership with a rigorous, policy-consistent foundation for future economic evaluations to support informed decision-making regarding force health, readiness, and long-term fiscal sustainability.

II. BACKGROUND

A clear understanding of the current obesity crisis and the limitations in the implementation and enforcement of the BCA policy, particularly its reliance on administrative consequences for non-compliance, is necessary to evaluate a shift from a punitive administrative separation model toward a more proactive medical weight-management approach. Additionally, understanding the risks and economic implications of pharmacologic intervention is essential to this analysis. This chapter outlines the obesity crisis as a national security threat to force readiness and introduces GLP-1-based intervention as an alternative strategy. It also examines the strategic shift required to transition from a punitive administrative model toward a more proactive medically oriented approach.

A. OBESITY AS A NATIONAL SECURITY THREAT

Obesity rates in the United States have increased substantially over the past several decades. Among U.S. adults, obesity nearly doubled from 22% between 1988 and 1994 to 42% between 2017 and 2020 (Knapik et al., 2023). Similarly, the prevalence of overweight and obese service members in the U.S. military has increased to levels that threaten individual readiness, force lethality, and fiscal sustainability (Chapman et al., 2025). Within the DoD, military health records show a sustained upward trend in BMI among basic trainees and infantry personnel since the 1970s (Knapik et al., 2023). Additionally, the proportion of recruits classified as overweight increased from 26% in 1989 to 38% in 2012 (Knapik et al., 2023). More recent studies estimate that nearly 70% of active-duty service members fall within the overweight or obese BMI categories, highlighting the scope of the issue across all ranks and occupational specialties (McCarthy et al., 2024).

The obesity issue extends beyond appearance and represents a substantial source of medical morbidity. Overweight and obese service members exhibit a higher number of clinically diagnosed medical conditions compared to their normal-weight peers (Knapik et al., 2023). A stratified analysis of over 26,000 service members revealed significantly higher odds of endocrine and metabolic disease (odds ratio [OR] = 2.67), nervous system

disease (OR = 2.59), and circulatory system disease (OR = 2.56) among obese individuals (Knapik et al., 2023). Obesity is also strongly associated with musculoskeletal injuries, including plantar fasciitis, tendinopathy, and osteoarthritis (OR = 1.92), which are the leading causes of lost duty days and directly impair physical performance (Knapik et al., 2023).

The obesity crisis has significantly affected military manpower. In addition to degrading the health of the current force, it restricts the pool of eligible recruits. Between 2015 and 2020, only 47.3% of the military-aged civilian population (ages 17–42) met BMI standards for military accession, making obesity the leading medical disqualifier (Webber et al., 2023). As a result, the DoD expends additional resources on recruiting candidates who require waivers, only to experience higher attrition rates once those individuals enter service (Manning, 2023; Dall et al., 2007).

Beyond recruitment challenges, obesity imposes a significant financial burden on the DoD. The department spends an estimated $1.5 billion annually on obesity-related healthcare costs and personnel replacement (Chapman et al., 2025). The DoD also experiences significant productivity losses from more than 650,000 missed workdays per year (Chapman et al., 2025). As obesity prevalence increases, the costs of treating obesity-related comorbidities such as type 2 diabetes mellitus and hypertension continue to rise, diverting resources from training and operational readiness to healthcare maintenance (Knapik et al., 2023). In response to rising healthcare costs and readiness concerns, the DoD has historically relied on administrative weight-management policies rather than treating obesity as a chronic medical condition.

B. THE PUNITIVE ADMINISTRATIVE MODEL

Beginning in the early 1980s, the DoD implemented a compliance-based approach to weight management through the adoption of body-fat standards across all military branches (Marriott & Grumstrup-Scott, 1990). This framework was formalized with DoD Directive 1308.1 in 1981, which mandated standardized body-composition thresholds to support combat readiness, military appearance, and general health (Department of Defense [DoD], 1981; Marriott & Grumstrup-Scott, 1990). These standards were derived primarily

from normative values observed in young, healthy adults rather than longitudinal health outcomes (Marriott & Grumstrup-Scott, 1990). Implementation relied on circumference-based assessments (commonly referred to as the "tape test"), which estimate body fat percentage using neck and waist measurements for males and neck, waist, and hip measurements for females. Developed in the mid-1980s, these methods rely on body measurements rather than more precise clinical methods of assessing body composition (Marriott & Grumstrup-Scott, 1990). Subsequent policy revisions during the late 1980s and early 1990s attempted to address demographic diversity, age, and accession requirements, resulting in incremental adjustments rather than structural reform. During the 2010s, the DoD revised service-level fitness policies and issued DoD Instruction 1308.03, establishing a centralized oversight framework and minimum physical fitness requirements (Department of Defense [DoD], 2022). Despite these updates, the underlying model remained fundamentally administrative, emphasizing compliance and enforcement rather than medical management of obesity as a chronic disease (Webber et al., 2023).

The "Old Solution," which relies on BMI screening followed by circumference-based measurements, is inadequate for the modern military population. While BMI is widely used as a population-level screening tool, it fails to distinguish between lean muscle mass and fat mass, a critical limitation in physically demanding occupations (Knapik et al., 2023). Research indicates that BMI frequently overestimates obesity in muscular service members while underestimating obesity in individuals with low muscle mass (Sergi et al., 2023). Comparisons between traditional BMI calculations and dual-energy X-ray absorptiometry (DXA), which is considered the gold standard for measuring body composition, have shown that BMI can underestimate obesity prevalence by nearly 50% in some cohorts (Yang et al., 2022).

Circumference-based tape testing also lacks the precision necessary for high-stakes personnel decisions. Foulis et al. (2023) demonstrated that circumference methods failed to detect significant changes in body-fat percentage among female recruits during basic training despite DXA-confirmed fat loss. This limitation prevents accurate differentiation between fat loss and the loss of lean muscle.

Failure to meet body-composition standards results in flagged records, promotion denials, and potential separation, incentivizing maladaptive behaviors rather than sustainable health outcomes. Exceeding standards has been associated with increased weight cycling and negative body image (Stukenborg et al., 2021). Service members report engaging in extreme weight-control behaviors, including fasting, purging, and the use of laxatives or diuretics (Stukenborg et al., 2021). This culture of "making weight" contributes to elevated rates of eating disorders and psychological distress (Manning, 2023).

The enforcement-based system also generates substantial sunk costs. Replacing a single enlisted service member costs the DoD over $55,000 in recruitment and training expenses (Bo, 2013). The annual discharge of approximately 1,200 first-term enlistees for weight-related failures results in replacement costs exceeding $60 million (Dall et al., 2007). Nearly half of those separated early qualify for Veterans Affairs (VA) benefits, creating long-term financial obligations totaling billions of dollars (Government Accountability Office [GAO], 1979). Consequently, the "Old Solution" represents a fiscally inefficient mechanism that attrits trained personnel from the ranks without addressing the underlying chronic disease of obesity.

C. PHARMACOLOGICAL INTERVENTION

Recent pharmacological interventions offer a viable alternative approach to weight management across the DoD. GLP-1 medications, originally developed for the treatment of type 2 diabetes mellitus, have demonstrated substantial weight-loss efficacy by regulating appetite and glycemic control (Popoviciu et al., 2023).

Glucagon-like peptide-1 is a naturally occurring hormone secreted by the intestines while eating. Once activated, it binds to the receptors located in the central nervous system, gastrointestinal tract, and pancreas and promotes satiety, delays gastric emptying, suppresses glucagon release, and stimulates insulin secretion (Wang et al., 2023). Recognizing these effects, the Food and Drug Administration (FDA) initially approved Exenatide for management of type 2 diabetes in 2005. During their clinical applications, individuals taking this medication also showed consistent and clinically meaningful weight

loss. These findings contributed to the approval of liraglutide in 2014 and semaglutide in 2021 by the FDA for use in chronic weight management (Wang et al., 2023).

Clinical trials show that GLP-1 therapies such as semaglutide and tirzepatide can produce 15–20% reductions in body weight among adults with obesity (Velji-Ibrahim et al., 2025). These agents also improve comorbidities such as hypertension, dyslipidemia, and insulin resistance, which are factors directly associated with reduced readiness in the DoD (Popoviciu et al., 2023; Knapik et al., 2023).

With the expanding evidence supporting GLP-1 utilization for weight management, the MHS has implemented a highly structured approval process for active-duty service members seeking pharmacologic treatment for obesity. Although the Defense Health Agency authorized coverage of prescription weight-loss medications beginning in 2018, access to newer agents such as semaglutide has been governed by TRICARE formulary management policies that emphasize step-therapy escalation rather than first-line use. Lorei et al. (2024) describe how, within the TRICARE system, GLP-1 medications approved for weight management are classified as non-formulary and therefore require prior authorization before prescription.

Under current MHS policy, active-duty service members must demonstrate failure of, or contraindication to, multiple first-line anti-obesity pharmacotherapies before approval of a GLP-1 is granted. Step-therapy requires documented trials of phentermine, phentermine/topiramate extended-release (Qsymia), and naltrexone/bupropion (Contrave) prior to authorization of liraglutide (Saxenda) or semaglutide (Wegovy) (Lorei et al., 2024). Clinical guidance further specifies that escalation beyond phentermine typically requires failure to achieve at least a five percent reduction in baseline body weight following approximately twelve weeks of therapy unless medical contraindications are present.

In addition to step-therapy sequencing, MHS policy requires engagement in lifestyle modification prior to and concurrent with medication use. Joint VA and DoD clinical practice guidelines emphasize structured physical activity and caloric restriction as foundational components of obesity treatment, with pharmacologic agents designated as

an adjunct rather than a primary intervention (Department of Veterans Affairs & Department of Defense [VA/DoD], 2020). Prescribers are also required to consider the compatibility of weight-loss medications with a service member's professional duties and operational demands, reflecting the unique readiness considerations of the active-duty population.

The administrative complexity of this approval process has important implications for utilization. Because GLP-1 medications require prior authorization and are subject to non-formulary restrictions, access may vary across military treatment facilities (MTF) and may depend on provider familiarity and local implementation practices. Despite a nearly 100-fold increase in prescription prevalence between 2018 and 2023, overall utilization remains low relative to the prevalence of overweight and obese personnel within the force, suggesting that procedural and administrative barriers continue to limit access among eligible service members (Lorei et al., 2024; Bohm et al., 2023).

Approval pathways also differ markedly based on clinical indication. Service members with a documented history of type 2 diabetes demonstrate substantially higher rates of GLP-1 prescription compared with those without diabetes, indicating a less restrictive approval pathway when these agents are prescribed for glycemic control rather than weight management alone. This divergence highlights how formulary policy and administrative categorization, rather than clinical effectiveness alone, shape access to GLP-1 therapies within the MHS (Lorei et al., 2024).

The integration of GLP-1 therapies also introduces challenges related to lean muscle mass preservation. Systematic reviews indicate that up to 40% of GLP-1–induced weight loss may consist of lean body mass (Neeland et al., 2024; Jamialahmadi et al., 2025). Evidence suggests that GLP-1 therapy should be paired with resistance training and high-protein diets to mitigate muscle loss (Gomes Filha et al., 2025; Watkins et al., 2021). Emerging research also explores adjunctive therapies such as myostatin inhibitors and selective androgen receptor modulators (SARMs), though these remain investigational (Wen et al., 2025).

D. ECONOMIC VIABILITY AND POLICY REFORM

Critics argue that GLP-1 therapies are prohibitively expensive, citing civilian claims data showing increased first-year healthcare spending of approximately $6,400 to $6,500 per patient (Wing et al., 2026). However, these estimates are influenced by low medication adherence, as only 56% of civilian patients maintain an active prescription after one year (Wing et al., 2026). Consequently, average annual cost estimates may actually understate the expense of sustained treatment for patients who remain on therapy. The DoD, however, leverages Federal Supply Schedule (FSS) Big 4 pricing, which provides discounted drug pricing to federal agencies, to secure highly competitive monthly acquisition costs of approximately $1,006 for semaglutide and $810 for tirzepatide[2] (Department of Veterans Affairs [VA], 2026). While these costs remain substantial, they reflect the reality of consistent treatment and should be evaluated relative to potential benefits such as improved retention, reduced healthcare utilization, and enhanced readiness.

Cost-effectiveness may be further improved through step-down therapy models in which patients transition from GLP-1 medications to lower-cost maintenance therapies, such as metformin or phentermine, once a healthy weight has been achieved (Paddu et al., 2024). By shifting from an administrative framework that penalizes noncompliance to a medical model emphasizing rehabilitation, pharmacologic treatment, and lean-mass preservation, the DoD may better align health outcomes with readiness and fiscal sustainability.

[2] The prices of these medications are current as of March 2026 and are subject to change.

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III. LITERATURE REVIEW

This chapter reviews the relevant literature by first examining behavioral responses to military weight standards and their effects on service member health, then analyzing the economic costs of attrition associated with body composition failures and finally evaluating GLP-1 outcomes in civilian populations to inform potential future policy options for the DoD.

A. BEHAVIORAL RESPONSES TO MILITARY WEIGHT STANDARDS

Research has consistently shown that military weight standards are associated with negative psychological outcomes and unhealthy weight-management behaviors. Stukenborg et al. (2021) examined this issue using a cross-sectional secondary analysis of self-reported survey data linked with medical records from 969 active-duty U.S. Army soldiers. The survey was administered online between May 2017 and February 2018, and participants were recruited voluntarily, which introduces the possibility of selection bias. Using multivariate regression models, the study found that soldiers who reported failing the BCA were more likely to feel misaligned with the idealized military image. Soldiers with higher BMI also reported more negative body image perceptions and were strongly associated with weight cycling, defined as three or more weight fluctuations of at least 5% of body weight during their military career. Because the study was cross-sectional, causal relationships cannot be determined, and the sample was predominantly male and enlisted, limiting generalizability.

Complementing these findings, Cialdella-Kam et al. (2023) conducted a systematic review of studies published between 2003 and 2023 that included military personnel with directly measured body fat percentage. They reported that one in three service members (33%) experienced weight cycling. Those who engaged in weight cycling were significantly more likely to adopt unhealthy behaviors in preparation for BCAs, including dieting, excessive exercise, dehydration, and supplement use. Despite two decades of evidence, the authors emphasized that research linking body composition to operational

readiness remains limited and recommended increased representation of female service members and subgroup analyses by age, race, ethnicity, and postpartum status.

Building on these quantitative findings, Lallemand (2024) provided qualitative evidence of the psychological and behavioral impacts of military body-composition standards through semi-structured interviews with nine active-duty U.S. Marines. The study found that outdated height and weight metrics contributed to chronic stress, fear of administrative separation, and pressure to engage in extreme weight-loss behaviors to remain compliant. Although limited by sample size and demographic representation, the findings reinforce prior survey-based research by illustrating how body-composition policies influence behavior, mental health, and retention decisions at the individual service-member level.

Across survey-based studies, systematic reviews, and qualitative interviews, the literature consistently demonstrates that BCA standards are associated with psychological distress and maladaptive weight-management behaviors. The convergence of findings across methodologies strengthens the credibility of these conclusions.

B. COST OF ATTRITION

Overall trends suggest that administratively separating individuals for BCA failures results in higher net costs than proactive weight-management strategies. Service members who are out-processed for failing weight standards impose substantial financial burdens on the DoD through replacement, training, and long-term personnel costs.

Research indicates that approximately 1,200 first-term enlistees are discharged annually for failing weight standards, resulting in replacement costs exceeding $60 million. This estimate is supported by Dall et al. (2007), who used administrative healthcare utilization and cost data from the MHS's TRICARE Prime population to quantify the economic impact of overweight status and obesity-related attrition.

More recent analyses reinforce these findings. Chapman et al. (2025) integrated personnel, healthcare, and productivity data across multiple disciplines and estimated approximately $1.5 billion annually in obesity-related personnel replacement and medical

expenditures, along with roughly $103 million in productivity losses from more than 650,000 missed workdays.

While population-level studies quantify aggregate costs, Bo (2013) provides a complementary behavioral-costing framework that itemizes fixed per-member separation costs using administrative personnel data, standardized DoD pay rates, and OMB discounting. This analysis estimates that replacing a single enlisted service member costs more than $55,000 in sunk recruiting and training expenses, aligning with population-level attrition estimates.

Medical surveillance data further support these findings. Stahlman and Taubman (2018) analyzed longitudinal injury records from the Defense Medical Surveillance System and found that obesity was associated with a 33% higher likelihood of musculoskeletal injury. These findings indicate that obesity-related attrition also drives downstream medical and readiness costs.

Although cost estimates vary by methodology, administrative models, and surveillance data calculations, analyses consistently conclude that weight-based attrition imposes substantial recurring costs on the DoD.

C. GLP-1 OUTCOMES

Evaluating the policy implications of GLP-1 pharmacotherapy requires examining treatment outcomes beyond short-term weight loss. The literature focuses on three critical areas: efficacy, durability of weight loss over time, and real-world adherence to therapy. Together, these factors determine whether medication-based weight-management interventions can generate sustained health improvements and readiness benefits within military populations.

1. Efficacy

Recent pharmaceutical innovations have reshaped obesity care, though their application in military contexts requires careful scrutiny. GLP-1 and dual GLP-1/GIP agonists represent potential pharmacologic tools for weight management; however, clinical data raise concerns regarding lean mass preservation.

GLP-1 therapies were originally developed for the treatment of type 2 diabetes mellitus, but their use expanded due to their ability to suppress appetite and improve glucose control. Evidence supporting their efficacy is derived from large-scale randomized controlled trials. In the STEP-1 trial, Wilding et al. (2021) conducted a double-blind, placebo-controlled study involving 1,961 adults without diabetes and found that semaglutide 2.4 mg produced a mean weight loss of 14.9% over 68 weeks compared with 2.4% in the placebo group.

Similarly, Jastreboff et al. (2022) evaluated tirzepatide in a Phase 3 randomized controlled trial involving 2,539 adults with obesity. Participants receiving the 15-mg dose experienced a 20.9% reduction in body weight compared with 3.1% in the placebo group, demonstrating the potency of dual-agonist therapies.

Despite these outcomes, emerging evidence indicates that a substantial proportion of GLP-1–induced weight loss derives from lean body mass. Neeland et al. (2024) reported that up to 40% of weight loss associated with anti-obesity medications may be attributable to lean mass reduction. Jamialahmadi et al. (2025) corroborated these findings in a systematic review of randomized controlled trials. While not all reductions in lean mass translate directly to losses in strength, skeletal muscle mass remains essential for military strength and endurance; therefore, these effects raise concerns regarding physical readiness if not properly mitigated. These civilian randomized controlled trials provide strong internal validity but do not measure outcomes central to military readiness, including strength, endurance, injury incidence, and deployability.

2. Durability of Weight Loss, Adherence, and Rebound Effect

While GLP-1 therapies demonstrate substantial short-term efficacy in reducing body weight, emerging evidence suggests that weight regain following treatment discontinuation is common. This phenomenon, often referred to as the "rebound effect," reflects the pharmacological nature of GLP-1 therapy, which suppresses appetite and alters satiety signaling without permanently resetting the body's biological weight-regulation mechanisms. Once treatment is withdrawn, compensatory physiological responses frequently reemerge, driving increased hunger and reduced energy expenditure.

Evidence from randomized withdrawal trials supports this conclusion. In the STEP-4 trial, designed specifically to evaluate treatment discontinuation, individuals who transitioned from semaglutide to placebo after 20 weeks regained approximately 6.9% of their body weight over the subsequent 48 weeks, whereas those who continued therapy experienced further weight loss (Paddu et al., 2024; Popoviciu et al., 2023). Similar patterns were observed in the SURMOUNT-4 trial evaluating tirzepatide, where participants who discontinued therapy after 36 weeks regained approximately 14% of body weight within one year, compared to continued weight loss among those remaining on treatment (Paddu et al., 2024). These findings indicate that sustained weight reduction is contingent on continued pharmacologic support.

The biological basis for this rebound effect is well established. Neeland et al. (2024) describe weight regain as a consequence of homeostatic control mechanisms, whereby weight loss triggers adaptive thermogenesis and hormonal responses designed to restore prior body mass. These adaptations include reductions in resting metabolic rate and increases in appetite-stimulating hormones such as ghrelin. In the absence of continued pharmacologic intervention, these mechanisms undermine long-term weight maintenance, particularly in populations with chronic obesity.

Beyond biological considerations, real-world adherence further complicates the durability of GLP-1 therapy. Using insurance claims data, Wing et al. (2026) found that only approximately 56% of individuals initiating GLP-1 therapy maintained an active prescription one year after initiation. This pattern suggests that many patients cycle on and off treatment, incurring high upfront costs without sustained therapeutic benefit. For the DoD, such discontinuation patterns represent a systemic financial risk, as intermittent use may yield transient weight loss without reducing long-term healthcare utilization or attrition.

However, emerging evidence suggests that rebound weight gain is not inevitable if structured maintenance strategies are implemented. Paddu et al. (2024) examined a “step-down” therapeutic approach in which patients received GLP-1 therapy for 12 months before transitioning to lower-cost anti-obesity medications such as metformin, topiramate, or phentermine/topiramate. Patients following this protocol maintained approximately

25% total weight loss for up to 24 months, despite discontinuing GLP-1 injections. These findings indicate that GLP-1 therapy may function effectively as an induction phase rather than a permanent intervention.

Taken together, this literature suggests that while GLP-1 therapy alone may be insufficient to ensure sustained long-term weight maintenance, its integration into a staged treatment model could mitigate rebound risk while preserving cost-effectiveness. For military policy, these findings suggest that initial GLP-1 treatments must be paired with structured maintenance programs to prevent cyclical weight regain and control long-term costs.

D. SUMMARY

The literature demonstrates that military obesity policy produces psychological, economic, and readiness-related consequences while failing to address obesity as a chronic condition. Civilian evidence supports the efficacy of GLP-1 therapies for sustained weight loss; however, military-specific readiness outcomes remain unexamined. This thesis addresses this gap by developing a cost-benefit framework to evaluate the net present value of GLP-1 coverage across the active-duty force, providing policymakers with an evidence-based assessment of whether pharmacologic intervention offers a cost-effective alternative to the punitive administrative model.

IV. COST-BENEFIT ANALYSIS FRAMEWORK

This study develops a structured cost–benefit analysis framework based on federal regulatory guidance issued by the OMB. The framework is adapted from OMB Circular A-4, which requires agencies to define a baseline, evaluate incremental costs and benefits, monetize effects, assess uncertainty, and clearly state the analytical perspective (Office of Management and Budget [OMB], 2023). Because the analysis involves multi-year expenditures, discounting procedures follow OMB Circular A-94,[3] which provides federal guidance on present-value analysis (OMB, 2023). Collectively, these circulars serve as the principal methodological authority for economic evaluation within the federal regulatory environment.

In addition to OMB guidance, the structure of this framework aligns with Boardman et al.'s nine-step cost-benefit methodology (Boardman et al., 2018). By integrating federal regulatory standards with established cost-benefit analysis (CBA) principles, the methodology establishes a structured foundation for the DoD to evaluate baseline conditions, incremental effects, discounting procedures, sensitivity analysis, and break-even thresholds related to pharmacologic interventions for weight management among the active-duty force. This study contributes a structured economic evaluation framework tailored to DoD personnel readiness decisions, providing a standardized approach for assessing the fiscal implications of pharmacologic weight-management interventions where a formal cost-benefit framework has not previously been established.

A. STATUS QUO AND POLICY ALTERNATIVES

This analysis defines a status quo baseline for evaluating the policy alternative, consistent with OMB Circular A-4 guidance (OMB, 2023). The purpose of this comparison is to isolate the incremental effects of medication intervention.

[3] At the time of this writing Circulars A-4 and A-94 are currently going through revision and may be adjusted in the near future.

1. Baseline

The status quo represents current MHS policy governing medication-based interventions for weight management among the active-duty population. Under current policy, GLP-1 medications prescribed for weight management must satisfy step-therapy requirements that prioritize lower-cost medications and require documented trials and failures of alternative agents (Bohm et al., 2023). Access to GLP-1 therapy is further constrained by prior authorization requirements. Prescription prevalence remains approximately 104 per 100,000 service members (Lorei et al., 2024). Within this policy environment, obesity-related separations continue to generate accession and recruitment replacement costs. Additionally, obesity prevalence among service members and associated readiness impacts are expected to follow existing trends in the absence of structural policy change.

2. Policy Alternative

The policy alternative proposes expanded access to GLP-1 medications for clinically eligible active-duty personnel. "Clinically eligible" refers to service members who meet established obesity treatment criteria defined by the MHS and VA/DoD Clinical Practice Guidelines. Eligibility generally includes individuals with a BMI ≥30, or BMI ≥27 with at least one obesity-related comorbidity. Clinically eligible service members must also have a documented lifestyle intervention (VA/DoD, 2020). These criteria ensure that only service members meeting established medical eligibility standards are included.

Under this alternative model, prescription of GLP-1 therapy would occur earlier, administrative barriers would be reduced, and approval criteria would be standardized across MTFs. The policy alternative is designed to expand access to GLP-1 therapy for qualified members within a controlled and medically supervised framework.

3. Economic Structure and Net Present Value

The cost-benefit framework evaluates the present-value difference between program implementation costs and avoided personnel replacement losses.

Net present value (NPV) represents the discounted difference between program benefits and costs and is defined as

$$NPV = \sum_{t=0}^{T} \frac{B_t - C_t}{(1+r)^t},$$

where B_t represents total monetized benefits in period t, C_t represents total program costs in period t, r denotes the real discount rate, and T reflects the analytic time horizon. Discounting is conducted in accordance with OMB Circular A-94 guidance (OMB, 2023). The program is fiscally justified from a DoD perspective if the discounted value of benefits exceeds the discounted value of costs.

While this decision rule evaluates fiscal justification from the immediate active-duty budgetary perspective, it is important to note that many impacts of obesity occur over the long term and are difficult to precisely quantify. For example, the long-term health consequences of obesity are ultimately borne by taxpayers through lifetime TRICARE coverage and VA-provided care following military retirement (GAO, 1979; Marriott & Grumstrup-Scott, 1990). Also, nearly half of service members separated early qualify for VA benefits, creating long-term financial obligations totaling billions of dollars (GAO, 1979). Because predicting lifetime healthcare utilization and modeling a whole-of-government taxpayer burden extends beyond the immediate active-duty operational horizon, these long-term savings are excluded from the calculation. Consequently, the resulting NPV represents a conservative estimate of the true financial benefit to the federal government.

4. Analytical Perspective and Scope

This study evaluates costs from the fiscal perspective of the DoD. Limiting the analysis to the immediate active-duty budgetary perspective excludes long-term, post-service healthcare expenditures. These expenditures include lifetime TRICARE obligations funded by the DoD, as well as care provided through the VA, which operates under a separate federal budget. Extending the analysis to a whole-of-government or

lifetime horizon perspective would likely result in substantially higher estimated costs associated with injuries, illnesses, and mortality.

In addition, the value of a statistical life (VSL) and value of a statistical injury (VSI) literature demonstrates that focusing only on direct medical costs and death benefits tends to underestimate the full economic costs of mortality and injury (Kniesner et al., 2015; Kniesner et al., 2025). Current VSL estimates suggest that Americans, on average, are willing to pay approximately $140 for every one-per-100,000 reduction in fatality risk, implying a VSL of roughly $14 million in 2026 dollars when applying guidance from OMB Circulars A-4 and A-94. Costs such as family grief, pain and suffering, lost leisure, and other non-market welfare losses are therefore excluded when analysis is limited to the DoD fiscal perspective. Similar omissions occur when evaluating costs associated with injuries or chronic illness.

B. STRUCTURE OF THE COST–BENEFIT FRAMEWORK

Building on the analytical perspective described above, the framework evaluates the fiscal implications of expanded access to GLP-1 medications by comparing program implementation costs with potential benefits to the DoD. The framework identifies key cost categories associated with treatment implementation and potential benefits including avoided separation costs, reduced MHS expenditures, and improvements in operational readiness. These components are evaluated using a net present value decision rule to determine whether expanded access to pharmacologic treatment represents an efficient allocation of defense resources.

1. Cost Identification

The framework identifies incremental costs relative to the status quo baseline, consistent with OMB Circular A-4 guidance. Program costs include medication acquisition, clinical monitoring through laboratory testing and follow-up visits, and administrative costs such as provider time and medication processing. Per-member cost is calculated as:

$$C_i = C_{drug} + C_{monitor} + C_{admin}$$

where C_i represents the total per-member program cost, C_{drug} denotes medication acquisition costs, $C_{monitor}$ represents clinical monitoring costs, and C_{admin} reflects administrative and provider processing costs which are monetized using the Regular Military Compensation (RMC) rates for the respective personnel. Aggregate program cost in period t is calculated as:

$$C_t = N_t \times \bar{C},$$

where N_t represents the treated population in period t, and $\bar{C}$ denotes average per-member cost.

Secondary costs, such as clinical management of medication-related side effects, are acknowledged but not formally modeled, as they are expected to be modest relative to primary program expenditures. These cost components capture the primary fiscal resources required to implement expanded pharmacologic treatment within the existing MHS structure.

Table 1 summarizes the primary cost categories included in the GLP-1 pharmacotherapy cost–benefit framework and the mechanisms through which the DoD incurs these costs.

Table 1. Program Cost Components for GLP-1 Pharmacotherapy

Cost Category	Mechanism	Conceptual Measurement	Primary DoD Impact
Medication Acquisition	Procurement of GLP-1 pharmacotherapy	C_{drug}	Direct pharmaceutical expenditure
Clinical Monitoring	Laboratory testing and follow-up visits	$C_{monitor}$	Medical oversight costs
Administrative & Provider Time	Prescription processing, evaluation, and management (valued via RMC)	C_{admin}	Personnel and administrative burden
Total Program Cost	Aggregate cost across treated population	$C_t = N_t \times \bar{C}$	Total implementation expenditure

2. Benefits Identification

Benefits are defined as avoided DoD expenditures and readiness-related costs relative to the status quo. For consistency with cost identification, only benefits accruing directly to the DoD are included.

The primary benefit is avoided weight-related separation and replacement costs. Avoided separation benefits are modeled as:

$$B_{sep,t} = N_t \times \Delta p \times K,$$

where $B_{sep,t}$ represents avoided separation benefits in period t, N_t denotes the number of treated service members in period t, Δp represents the reduction in the probability of weight-related separation attributable to treatment (defined as the difference between baseline and post-treatment separation probabilities), and K denotes the average accession and training replacement cost per service member.

Replacement costs may include recruitment expenditures, accession processing, occupational specialty training, and the loss of human capital. If specialty-specific costs are incorporated in future analysis, the framework allows expansion across occupations with varying replacement costs and separation risks.

In addition to avoided separation costs, potential benefits may include reductions in MHS medical expenditures associated with obesity-related conditions. If pharmacologic treatment reduces the likelihood or severity of these conditions, corresponding decreases in treatment costs, musculoskeletal injury care, and chronic disease management may occur. Medical cost savings can be represented as

$$B_{med,t} = N_t \times \Delta Risk \times Cost_{cond} ,$$

where $B_{med,t}$ represents avoided medical expenditures in period t, N_t denotes the number of treated service members in period t, $\Delta Risk$ represents the reduction in the probability of obesity-related conditions, and $Cost_{cond}$ denotes the average treatment cost associated with those conditions.

Finally, readiness gains represent a third category of potential benefits. Improvements in weight-related health may reduce limited-duty time, non-deployable status, and lost workdays among active-duty personnel. From a DoD fiscal perspective, these improvements may be translated into economic value by considering reductions in lost labor and productivity (OMB, 2023). To quantify the impact of improved readiness, this study applies a labor cost equivalence approach centered on human capital theory, using a service member's RMC as a representation of marginal productivity gains associated with reduced limited-duty days and improved deployability. In this study, readiness effects are incorporated conceptually as part of the framework rather than estimated directly. Together, these benefit categories reflect the principal mechanisms through which improved weight-related health may translate into measurable fiscal effects for the DoD.

Potential benefits of GLP-1 pharmacotherapy include avoided separation costs, reductions in Military Health System medical expenditures, and improvements in

operational readiness. Table 2 summarizes the primary benefit components incorporated into the cost–benefit analysis framework.

Table 2. Program Benefit Components for GLP-1 Pharmacotherapy

Benefit Category	Mechanism	Conceptual Measurement	Primary DoD Impact
Improved Retention / Avoided Separation	Increased retention due to improved weight-related health and standards compliance	$B_{sep,t} = N_t \times \Delta p \times K$	Avoided accession, recruitment, and training replacement costs
Reduced MHS Expenditures	Lower incidence or severity of obesity-related conditions	$B_{med,t} = N_t \times \Delta Risk \times Cost_{cond}$	Reduced direct medical treatment expenditures
Readiness Improvements	Fewer limited duty days, improved deployability, reduced lost workdays	Conceptual valuation using labor cost equivalence (OMB A-4)	Increased effective labor availability and operational readiness

3. Decision Rule

The analytical framework evaluates whether expanded access to GLP-1 pharmacotherapy generates net fiscal benefits to the DoD relative to the current policy of separating members for BCA failures. Within this perspective, fiscal impact is measured as the net present value of avoided personnel replacement costs and reduced Military Health System expenditures compared with program implementation costs.

Costs and benefits are evaluated at the level of an individually treated service member, with total program effects estimated based on projected treatment utilization among eligible personnel.

Consistent with standard cost-benefit decision rules (Boardman et al., 2018), the intervention is preferred if the discounted value of incremental benefits exceeds the discounted value of incremental costs. Formally, the policy is preferred when

$$NPV = \sum_{t=0}^{T} \frac{B_t - C_t}{(1+r)^t} > 0,$$

or when the benefit–cost ratio exceeds one. This decision rule reflects the principle that limited defense resources should be directed toward interventions that produce positive net fiscal returns within the DoD's budget. This decision rule provides a transparent measure for evaluating whether expanded treatment access represents an efficient allocation of defense resources.

The framework developed in this chapter establishes the analytical structure necessary for future empirical estimation and policy evaluation of pharmacologic weight-management interventions within the DoD. Figure 1 illustrates the conceptual framework used to evaluate expanded access to GLP-1 pharmacotherapy among active-duty service members. The model identifies key program cost categories and potential benefit mechanisms. These components are evaluated using an NPV decision rule to determine whether the policy produces positive net fiscal benefits for the DoD.

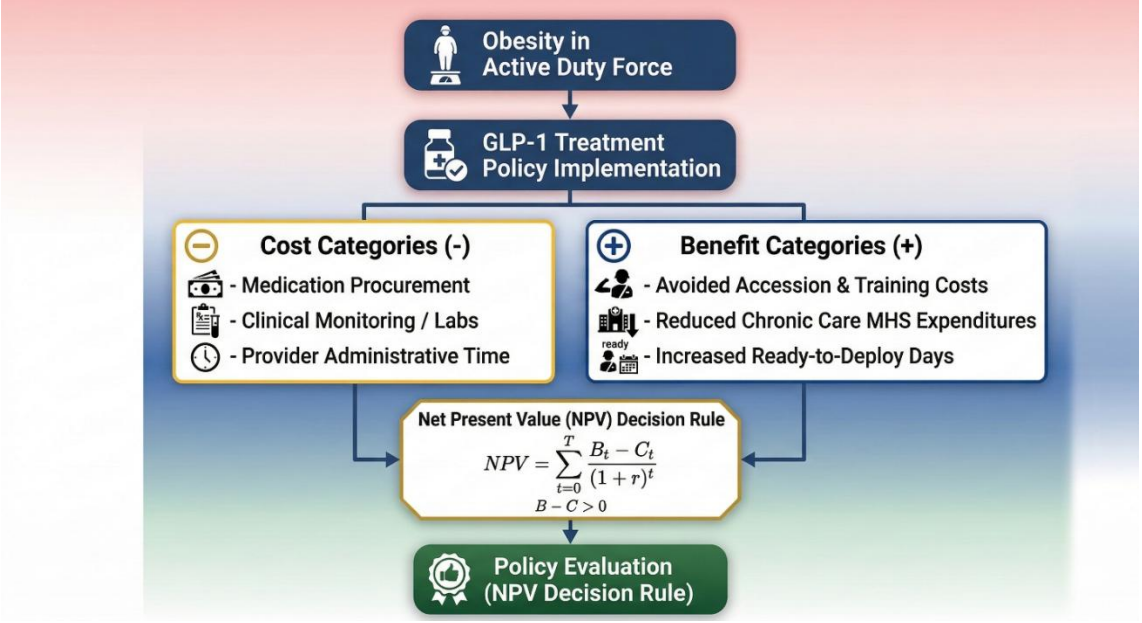

Figure 1. Conceptual Cost–Benefit Analysis Framework for Evaluating GLP-1 Pharmacotherapy Policy

4. Illustrative Example of Application of the Framework

To demonstrate how the proposed framework may be applied in practice, a simplified illustrative scenario is presented using hypothetical values.

Assume that 5,000 active-duty service members meet the clinical eligibility criteria for GLP-1 therapy. If the annual per-member program cost is estimated at $6,000 (including medication, monitoring, and administrative costs), the total annual program cost would equal

$$C_t = N_t \times \bar{C}$$

$$C_t = 5{,}000 \times \$6{,}000 = \$30{,}000{,}000.$$

If pharmacologic intervention reduces the probability of weight-related separation by six percentage points and the average replacement cost per service member is $120,000 (a hypothetical average accounting for both standard enlisted personnel and higher-cost officers and specialists), the avoided separation benefit would equal

$$B_{sep,t} = N_t \times \Delta p \times K$$

$$B_{sep,t} = 5{,}000 \times 0.06 \times \$120{,}000 = \$36{,}000{,}000.$$

In this simplified scenario, the avoided separation costs alone are greater than the annual program cost before considering additional benefits such as reduced medical expenditures or improved readiness. This example illustrates how the proposed framework can be used to evaluate the fiscal tradeoffs between pharmacologic treatment and personnel replacement under alternative policy assumptions.

While there is no direct data quantifying the reduction of military separations due to GLP-1 therapy, the clinical efficacy of these medications combined with historical attrition trends strongly suggests a positive net benefit. Clinical trials demonstrate that GLP-1 and dual GLP-1/GIP receptor agonists consistently produce sustained weight loss ranging from 15% to 21% of total body weight (Jastreboff et al., 2022; Wilding et al., 2021). If service members were to achieve comparable results, a significant portion of the overweight and obese population would shift into compliance with DoD body composition standards, which would directly mitigate their primary risk for administrative separation. Accordingly, even modest improvements in compliance rates would be expected to translate into measurable reductions in administrative separations, showing that the reduction assumed in the example is realistic.

Given the substantial sunk costs associated with administratively separating service members, the financial break-even threshold requires only a modest improvement in retention. For example, under the FSS Big 4 pricing tier, the DoD can procure a medication like tirzepatide for approximately $810 per month, or $9,720 annually (VA, 2026). In contrast, the recruitment and training costs to replace a single enlisted service member exceed $55,000 (Bo, 2013). Therefore, retaining even a fraction of the enlistees currently discharged annually for weight-related failures would offset the cost of pharmacologic intervention across the clinically eligible population.

Furthermore, this cost-benefit projection focuses solely on avoided replacement costs. Overweight and obese service members face a 33% higher likelihood of musculoskeletal injuries and contribute to over 650,000 obesity-related missed workdays annually (Chapman et al., 2025; Stahlman & Taubman, 2018). By reducing excess body mass, GLP-1 medications would likely yield compounding financial benefits through decreased MHS expenditures, fewer limited-duty days, and increased overall deployability. When combining the high probability of avoided separations with the associated reductions in healthcare utilization, the net fiscal and operational benefits of GLP-1 therapy to the DoD are likely to be positive under real-world conditions.

By establishing a structured cost–benefit framework following the standards outlined in federal regulatory guidance, this chapter provides the analytical foundation for evaluating pharmacologic weight-management interventions within the DoD. The concluding chapter summarizes the study's contributions and outlines directions for future empirical evaluation and policy development.

V. CONCLUSION

Obesity in the military is not only a clinical concern, but also a broader manpower and readiness challenge. The increasing rates of obese and overweight service members are similar to the trends observed in the general population; however, the implications are higher for the armed forces. Excess body weight is associated with higher injury rates, increased healthcare expenses, and reduced deployability. Existing punitive policies incur loss of human capital, often after significant investments in training and recruitment have already been made. This creates a significant financial burden on the DoD.

Recent pharmaceutical innovations, specifically GLP-1 and GLP-1/GIP medications, offer a potential alternative to the traditional administrative model. These medications have demonstrated significant weight loss efficacy in the civilian population and are increasingly being prescribed to treat obesity. However, despite their effectiveness, the economic impact of adopting these therapies within the MHS has not been evaluated. Medication costs, treatment adherence, lean muscle preservation, and long-term sustainability all introduce important tradeoffs that must be considered if this policy is implemented. This thesis develops a structured cost-benefit analysis framework that the DoD can use to evaluate whether expanded access to GLP-1 therapy could generate positive net fiscal outcomes when compared to the status quo.

The cost-benefit framework is based on the standards outlined in OMB Circulars A-4 and A-94, which provide guidance for agencies conducting economic evaluations. In addition, the framework also incorporates Boardman et al.'s nine-step cost-benefit analysis framework, which is used to identify baseline conditions, incremental costs and benefits, discounting procedures, and decision rules.

With this framework, the current policy was identified as the status quo. Under this policy, access to GLP-1 medications is limited by step-therapy and prior authorization protocols that result in low utilization of GLP-1 medications for weight management. Consequently, members who fail to meet BCA standards ultimately face administrative separations.

The policy alternative expands access to GLP-1 medications for clinically eligible service members with medical oversight. Primary costs for implementing this policy (i.e., medication acquisition costs, clinical monitoring expenditures, and time dedicated to administrative tasks) were evaluated relative to potential benefits to the DoD (i.e., weight-related separations, reduction in MHS healthcare expenditures, and potential improvements in operational readiness) using an NPV decision rule consistent with federal cost-benefit analysis standards. The policy alternative with expanded access to GLP-1 medications would be fiscally justified if the value of the program benefits exceeds the cost of implementation. By developing this framework, the study provides the foundation for evaluating the economic impact of using GLP-1 medications to manage obesity specifically for the military.

A. KEY INSIGHTS

Several key insights emerge from the framework developed in this thesis. First, relying on administrative separation may not be an economically efficient way to manage obesity. Administratively separating trained personnel for failing to meet BCA standards incurs significant replacement costs such as recruitment, accession processing, and occupational training. These investments are lost when service members separate from the military. Replacing trained personnel may be more costly than investing in medication intervention to help retain them.

Second, GLP-1 medications have the potential to generate measurable financial benefits even if there is a small reduction in separations. The example illustration demonstrates that even modest improvements in retention could offset the costs associated with medication acquisition and clinical oversight. Additional benefits related to healthcare savings and readiness improvements would further strengthen the case for the policy alternative.

Third, the viability of the programs depends on how the treatment programs are structured. Evidence from the literature suggests that weight gain is common when GLP-1 therapy is discontinued, which raises concern about the sustainability of the program. However, research also indicates that structured maintenance strategies such as step-down

therapy or integrated lifestyle changes may help preserve weight loss and reduce long-term medication costs. This indicates that GLP-1 medications should not be viewed as a standalone intervention, but as a single part of a medical management strategy.

Finally, although the civilian population has seen significant success, important questions remain on the effect of GLP-1 medications on operational readiness. Lean muscle preservation, physical strength, endurance, and injury risks are critical to military performance. Existing studies rarely measure these outcomes, which creates uncertainty regarding the impact on a physically demanding military occupation. This necessitates further research to determine the effect of medication intervention on the readiness of the force.

B. POLICY IMPLICATIONS

The current approach to managing obesity may benefit from incorporating medical treatment. Treating obesity as a medical condition rather than solely as a compliance issue could improve retention and health outcomes throughout the DoD.

In addition, it may be more beneficial for the DoD to conduct a pilot program rather than implement a force-wide policy change. This program could provide valuable empirical data and evaluate effectiveness, medication adherence trends, and long-term economic impact specifically for the military.

Finally, by clearly identifying costs, potential benefits, and decision thresholds, this framework provides policy evaluators with a structured method for assessing the fiscal impact of medication-based obesity treatment. As additional data becomes available, this framework could be expanded to become a full economic model that can support large-scale policy decisions.

C. LIMITATIONS

There are several limitations that should be considered. First, this is a conceptual framework and not a full empirical evaluation. Although this framework identifies how the costs and potential benefits should be evaluated, outcomes are dependent on real-world

data such as medication adherence, treatment utilization, and clinical effectiveness within the military.

Next, much of the evidence is collected from civilian clinical trials. Military members may significantly differ from the civilian population due to occupational demands, physical stressors, and training requirements. As a result, findings within the military population may differ.

Finally, several important outcomes are estimated conceptually. Potential benefits such as deployability, reduction in lost duty days, and long-term healthcare savings were not estimated quantitatively. Further research incorporating empirical data would allow these effects to be estimated more precisely.

D. FUTURE RESEARCH

Further research should focus on evaluating medication-based weight management interventions within the military population using real-world data. Studies that examine changes in body composition, strength, endurance, and injuries among service members receiving GLP-1 therapy would provide insight into the readiness implications of medication intervention.

Additionally, future analyses could incorporate cost projections over many years that account for treatment adherence, step-down strategies, and long-term healthcare savings. These analyses would provide a better understanding of the fiscal impact of pharmacologic obesity treatment.

Finally, controlled pilot programs within the MHS could provide more precision when monitoring costs and benefits. These programs could allow policymakers to make decisions based on empirical evidence to evaluate the efficacy and sustainability of the intervention relative to the current policy.

Based on the available evidence, it is reasonable to expect that expanded access to GLP-1 therapies would generate a positive net benefit for the DoD under most scenarios. The high costs associated with recruitment, training, and replacement of separated personnel create a substantial economic burden that may be mitigated through improved

retention. When combined with potential reductions in obesity-related healthcare utilization, modest improvements in weight management outcomes are likely to offset the costs associated with medication procurement and clinical oversight.

Obesity represents a complex challenge that intersects with force readiness, healthcare expenditures, and long-term manpower sustainability within the U.S. military. Historically, the DoD has addressed this issue primarily through administrative enforcement policies designed to maintain body composition standards. While these policies reinforce discipline and military appearance, they may also result in the loss of trained personnel and incur significant replacement costs. Medications such as GLP-1s offer a potential alternative by treating obesity as a chronic medical condition rather than solely a compliance issue. The cost–benefit analysis framework developed in this thesis demonstrates a structured model for evaluating the fiscal trade-offs between medication-based treatment and personnel replacement costs. Although the effects on readiness and long-term treatment sustainability are still uncertain, economic analysis can help the DoD determine whether these medical interventions are a practical way to improve force health while maintaining manpower stability and controlling costs.

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