Gabelli Funds
One Corporate Center
Rye, NY 10580-1422
(914) 921-5100
www.gabelli.com

April 5, 2024

Overview of GLP-1s

Source: 4allfamily.com

Daniel Barasa
914-921-8384
dbarasa@gabelli.com

Sarah Donnelly
914-921-5197
sdonnelly@gabelli.com

Kevin Dreyer
914-921-7791
kdreyer@gabelli.com

Joseph Gabelli
914-921-8331
josephg@gabelli.com

Jeff Jonas, CFA
914-921-5072
jjonas@gabelli.com

Jennie Tsai
914-921-8436
jtsai@gabelli.com

Sara Wojda
44 (0)20 3206 2116
swojda@gabelli.com

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Executive Summary

- A new class of drugs known as GLP-1's has shown remarkable results in both Type 2 diabetes and weight loss. These drugs from Eli Lilly and Novo Nordisk are currently annualizing at $30 billion in annual sales and could reach $80 billion or more in peak sales once supply constraints ease with at least several years until new competition arrives.
- Obesity (BMI 30+) affects 111 million adult Americans, with another 80 million being overweight (BMI 25+), so the potential addressable market for GLP-1s for obesity is enormous.

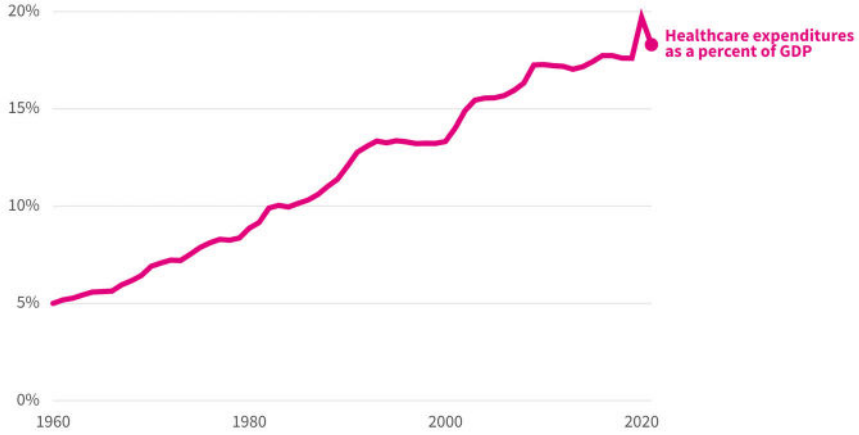
Table 1:

US Adult Population	
Obese Adults (BMI 30+)	111 million
Overweight Adults (BMI 25+)	80
Healthy Adults	71
Total Adults (Age 18+)	262 million

Source: NIH, Census Bureau

- These drugs should be positive for demand for orthopedic surgery and continuous glucose monitors. They will likely be neutral to demand for cardiovascular and dental procedures, and a slight headwind for bariatric surgery and kidney dialysis.
- Insurance companies and their clients will cover these drugs for diabetes and other non-weight loss uses. Most will ultimately cover the drugs for weight loss as well, with strict conditions. This new high volume category will be a clear positive for drug wholesalers, pharmacies, and pharmacy benefit managers.
- Health care costs are currently 17.3% of U.S. GDP, up from 5% in 1960 and 12.5% in 2000. While the high upfront cost of these drugs is a significant barrier, they could represent a significant source of savings in the later years from lower rates of obesity, cardiovascular, and kidney disease.

Exhibit 1: Chart of health care costs as % of GDP



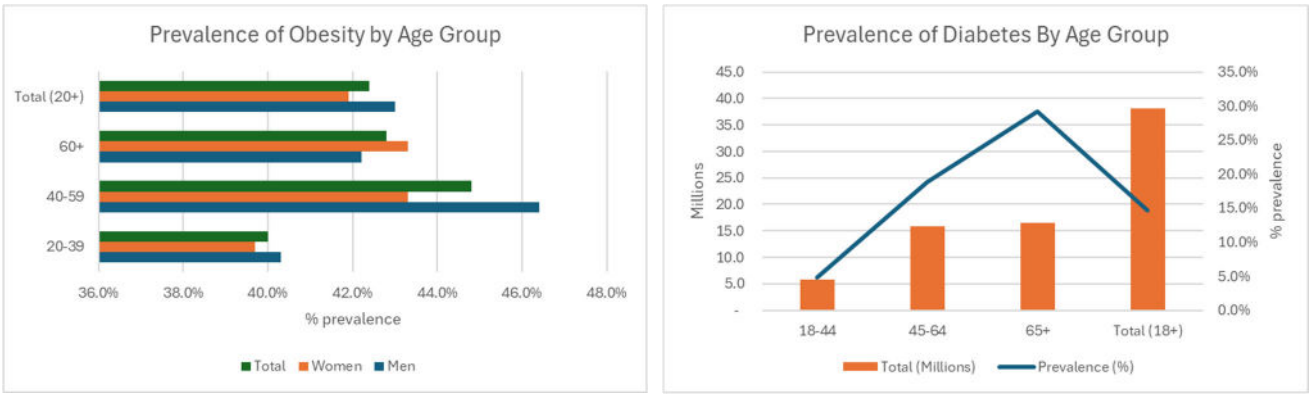
Source: Centers for Medicare & Medicaid

- Patients taking GLP-1 drugs do consume less food and alcohol, creating a headwind for those industries. Companies are responding by changing portion sizes, reformulating nutrition, and launching complementary products such as protein shakes to support these patients.

Overview of GLP-1s and Market Size:

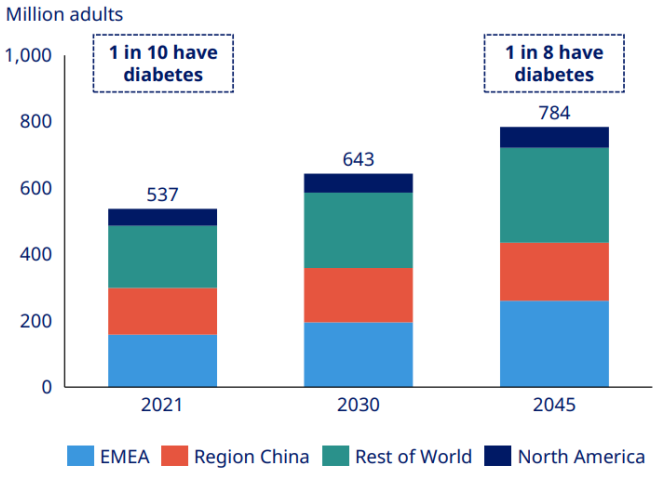
In 2022, the United States spent over $4.5 trillion dollars on healthcare, representing 17.3% of GDP. On a per capita basis health care costs $13,493 per person, and people suffering from obesity cost approximately $1,900 more than non-obese people. The total addressable market for diabetes and weight loss in just the United States is quite large: Approximately 9% of the US population (~29M) has diabetes, including ~28M diagnosed with Type 2 Diabetes (T2D). 42% of the US adult population (~110M) and almost 1 in 5 children aged 2-19 (~14M) are obese. Currently, IQVIA estimates 5.1M patients are taking GLP-1 drugs, including 4.3M for T2D and 800K patients for weight loss. We estimate about 12-15 million patients will be using GLP-1 drugs by 2030 across both indications, which translates to the market growing from ~$30B today to ~$80B by 2030.

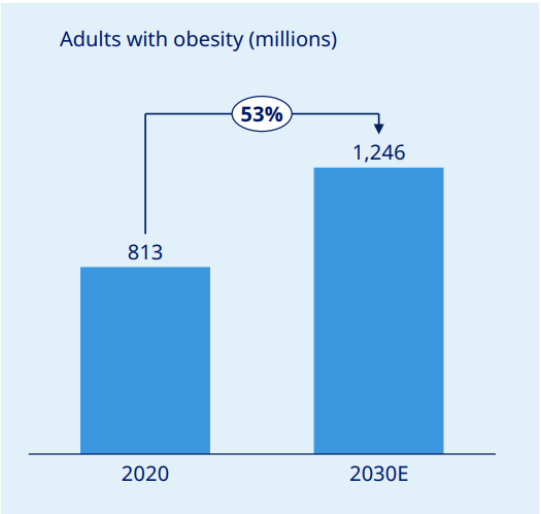
Exhibit 2: Prevalence of diabetes and obesity



Source: CDC, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

Exhibit 3: Projected growth of diabetes and obesity





Source: Company Documents

There should be an inflection point in the size of the market once oral versions are available and the government Medicare / Medicaid programs start to cover the drugs for weight loss (this requires legislation to be passed, the timing of which is uncertain). Adoption will also be boosted by employers expanding access to these drugs for their employees. Cigna Group's health services unit Evernorth announced a new one-year program, EncircleRx, at its Investor Day on March 7th, 2024, that is aimed at helping employers manage the costs of these drugs. The opt-in program, on average, provides a guaranteed cap of 15% to the annual price increases of these drugs. Patients in the program would be enrolled in a lifestyle modification program that would help drive dietary and behavioral change. Other insurers are bound to launch similar programs to facilitate controlled adoption of the drugs.

The GLP-1 market is currently a duopoly dominated by Eli Lilly and Novo Nordisk. For the diabetes indication, Eli Lilly launched *tirzepatide* under brand name *Mounjaro* (27% market share), a once-weekly injection that activates receptors for two hormones in the body that are critical for appetite regulation and glycemic control, gastric inhibitory polypeptide (GIP), and glucagon-like peptide-1 (GLP-1). The GIP / GLP-1 dual-agonist is increasingly winning share as Eli Lilly's previous generation GLP-1 agonist *Trulicity* (20% share) declines.

Novo Nordisk's *semaglutide* launched under brand name *Ozempic* currently has the highest market share at ~46%, but that could change in the near term given *tirzepatide's* superior efficacy. Other products in the market include NVO's oral version of *semaglutide*, *Rybelsus,* which has seen limited uptake after the launch of the new generation drugs.

For the weight loss indication, Eli Lilly launched *tirzepatide* under brand name *Zepbound* (45% market share). LLY reported strong early formulary access following the launch in Dec. 2023, with ~33% of commercial lives covered as of the end of Jan. 2024. Novo Nordisk's *semaglutide* launched under brand name *Wegovy*, currently makes up ~55% of total scripts for weight loss.

Studies have shown that ~32% of patients were still filling prescriptions of *Wegovy* after a year. Discontinuation of the drugs can be attributed to a variety of factors including common adverse side effects such as nausea, vomiting and diarrhea, complicated schedules for patients taking multiple medications, or complicated dosing requirements. Studies have shown that patients regained about half the weight after stopping taking the drugs. However, it's still very early to say how consumers will ultimately use these drugs and they vary by product and by individual.

R&D Pipeline:

Novo Nordisk (NVO):

- NVO recently completed a phase 3 study of a higher-dose oral version of *semaglutide,* the active ingredient in both *Ozempic* and *Wegovy,* for the treatment of Type 2 diabetes / weight loss. The company reported that the drug achieved a statistically significant weight loss of 17.4% after 68 weeks with 50mg oral semaglutide versus a 1.8% reduction with placebo. The company has, however, postponed US regulatory filing for the drug due to manufacturing constraints. The 50-mg dose contains about 20x the amount of semaglutide used in the strongest dose of the once-weekly *Wegovy* injection.

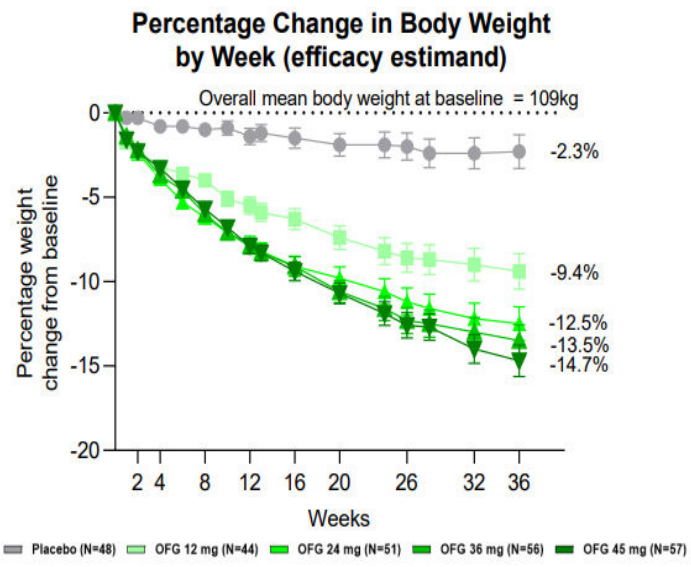
- NVO's next generation incretin asset, *cagrisema*, is a fixed-dose combination therapy of 2.4mg *semaglutide* with 2.4mg *cagrilintide*, which is a long-acting amylin analogue that boosts *semaglutide's* weight loss effects. The drug is currently in phase 3 trials for obesity and Type 2 diabetes.

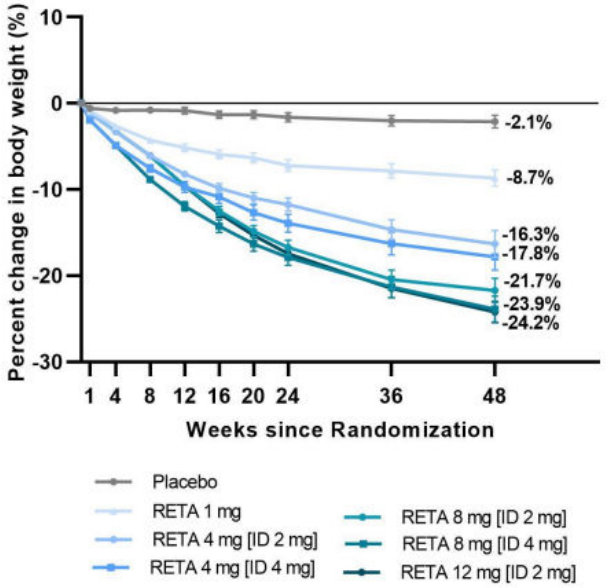
- NVO's next-generation once-daily oral pill *Amycretin,* a GLP-1 and amylin receptor agonist, helped patients lose an average of 13% of their body weight after 12 weeks in an early-stage trial. That's compared to 15% after 68 weeks for *Wegovy*. More than 80% of the participants in the trial were still on the drug after 12 weeks. The company will likely look to develop a once-weekly formulation of the drug given ongoing manufacturing constraints.

Eli Lilly (LLY):

- LLY is expected to be first to market with a true oral GLP-1 option in 2026. Its oral drug o*rforglipron*, currently in phase 3 trials for obesity and T2D, is a daily oral GLP-1 that could appeal to patients that prefer not to inject themselves, as well as for patients that are located in geographies that lack the necessary cold chain infrastructure to adequately transport and store the injectables.
- In phase 2 trials, *orforglipron* achieved up to 14.7% mean weight reduction at 36 weeks in adults with obesity or overweight, in line with the mid-teens weight reduction from NVO's higher dose oral *semaglutide*, as well as the injectables currently in the market.

Exhibit 4: Percent Change in Weight From O*rforglipron* Exhibit 3 Percent Change in Weight From R*etatrutide*





Source: Company Documents

- Patients taking the oral GLP-1s tend to have more side effects compared to injections, with 80% reporting gastrointestinal problems. The oral GLP-1 market is expected to be approximately one-third of the roughly $80B GLP-1 market in 2030.
- LLY's next generation incretin asset, *retatrutide*, is a once-weekly injection that adds a glucagon agonist to the existing GLP-1/GIP combination in *tirzepatide*. LLY reported in June 2023 that *retatrutide* demonstrated a mean weight reduction of up to 24.2% (29.0% in women) at the end of a 48-week treatment duration. The effect had not plateaued, implying weight reduction could be higher over longer durations. This result is better than any drug currently on the market and is close to the low end of the range achieved by bariatric surgery.

Competition:

Amgen (AMGN - NASDAQ) is developing a once-monthly GLP-1 drug that could provide more convenience for patients and lead to higher adherence. The GLP-1 agonist / GIP antagonist drug could also potentially be more effective in reducing body weight compared to the current drugs in the market due to its differentiated mechanism of action - unlike LLY's *Tirzepatide*, Amgen's drug blocks the hormone receptor GIP. AMGN has highlighted genetics data that suggest blocking GIP could deliver greater body weight reductions.

Additionally, Zealand pharma (ZEAL - DK) and Altimmune (ALT - NASDAQ) are both developing dual agonists targeting GLP-1 and Glucagon receptors. Viking Therapeutics (VKTX - NASDAQ) is developing a GLP-1/GIP dual-agonist that is similar to LLY's drug but has shown faster weight loss after 13 weeks in mid-stage trials. All these companies are at least two years away from regulatory approval and launch.

Outcomes Trials:

Both Lilly and Novo are running several outcome-based trials to demonstrate the efficacy of their drugs in the treatment of a variety of additional common conditions beyond weight loss and diabetes. Favorable data readouts could help build the case for wider coverage by government programs (Medicare/Medicaid), health plans and employers given the potential cost savings to the healthcare system.

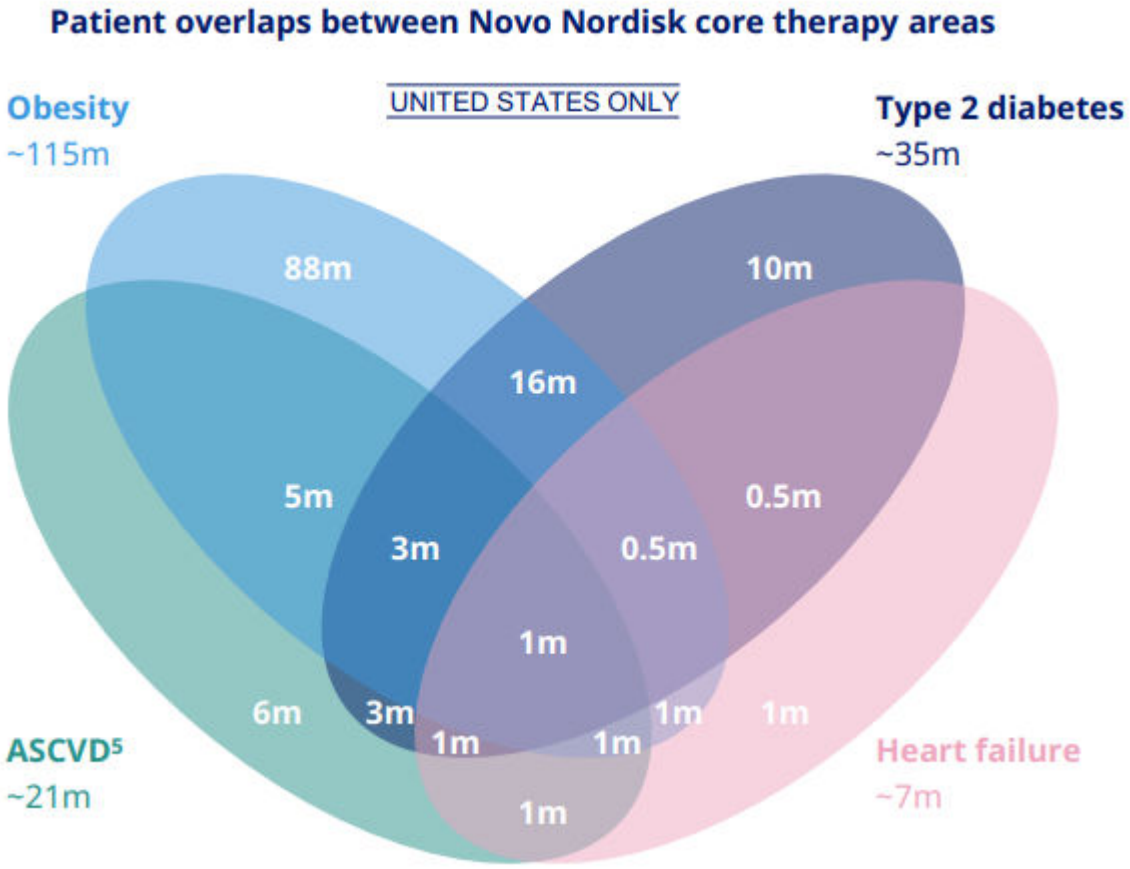
The Medicare Modernization Act of 2003 barred Medicare from covering weight loss drugs as part of its standard benefits. In March 2024, CMS issued new guidance stating that "anti-obesity medications (AOMs) that receive FDA approval for an additional medically accepted indication can be considered a Part D drug for that specific use". The new guidance immediately opens the door for Novo Nordisk's *Wegovy* to gain coverage based on its cardiovascular benefits, following formal FDA approval earlier this month for this indication. The decision by CMS also opens the door for coverage for additional indications including chronic kidney disease, obstructive sleep apnea and Alzheimer's.

The Treat and Reduce Obesity Act (TROA) that was recently introduced in Congress would allow Medicare to cover GLP-1s and similar drugs for weight loss. However, the Congressional Budget Office (CBO) expects that "at their current prices, AOMs would cost the federal government more than it would save from reducing other health care spending, which would lead to an overall increase in the deficit over the next 10 years." The agency also noted that the budgetary effect could change in later decades depending on future prices and longer-term effects on utilization of related healthcare services and products.

Novo Nordisk (NVO):

- In 2023, Novo Nordisk announced the results from its SELECT trial that showed that *semaglutide* was associated with a 20% decreased risk of major adverse cardiac events comprised of cardiovascular death, nonfatal myocardial infarction (MI), and stroke compared with placebo in patients with overweight or obesity and established CVD but without diabetes.
- NVO also announced results from it FLOW trial that showed that *semaglutide* demonstrated a 24% reduction in kidney disease progression and mortality.
- *Semaglutide,* the active ingredient in both *Ozempic* and *Wegovy* is currently being evaluated in phase 3 trials for cardiovascular outcomes in diabetes patients, heart failure with preserved ejection fraction, morbidity and mortality in obesity, Alzheimer's, and obstructive sleep apnea (OSA).

Exhibit 5: NVO is expanding into cardiovascular disease and other therapy areas associated with obesity



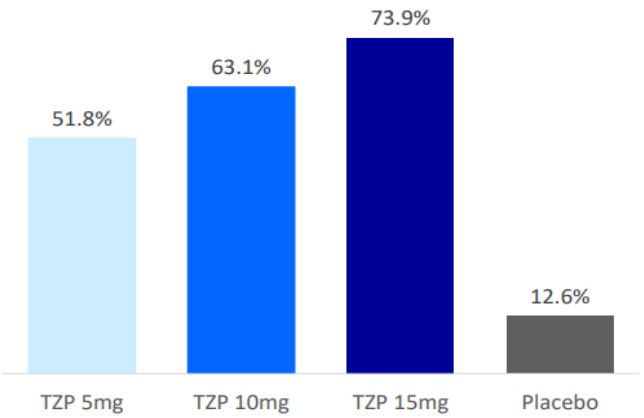
Source: Company Documents

Eli Lilly (LLY):

- Eli Lilly meanwhile has several ongoing studies for both its active products as well as next-generation assets in its pipeline.
- *Tirzepatide*, the active ingredient in both *Mounjaro* and *Zepbound* is currently being evaluated in phase 3 trials for cardiovascular outcomes in diabetes patients, heart failure with preserved ejection fraction, morbidity and mortality in obesity, and obstructive sleep apnea (OSA).

- LLY also announced in mid-February 2024 that a phase 2 trial evaluating *tirzepatide* for liver disease metabolic dysfunction-associated steatohepatitis (MASH), formerly known as non-alcoholic steatohepatitis (NASH), met its primary endpoint where up to 74% of participants achieved resolution of MASH with no worsening of fibrosis, compared to 13% on placebo; however, its effect on improving fibrosis (liver scarring) was not statistically significant. MASH is the second leading cause of liver transplants in the US. An estimated 5-7% of individuals with Type 2 diabetes develop liver fibrosis and MASH.

Exhibit 6: Eli Lilly's Phase 2 Study Results Evaluating Impact of *Tirzepatide* on MASH



Source: Company Documents

- LLY is also running phase 3 trials for its next-generation asset *retatrutide* for the treatment of obesity, osteoarthritis, and obstructive sleep apnea, in addition to a phase 2 trial for T2D. At last year's American Diabetes Association's (ADA) 83rd Scientific Sessions in San Diego, LLY reported that retatrutide had been shown, in a phase 2 trial, to reduce liver fat by over 80%. The result could position the drug as a treatment for MASH, which currently only has one FDA approved treatment in the market, Madrigal's *resmetirom (rezdiffra)*, which achieves resolution of MASH and improves fibrosis, but does not have the added benefits of weight loss and glycemic control.
- The most common side effects for *retatrutide* were gastrointestinal related, mostly mild to moderate in severity, and were partially mitigated with a lower starting dose. With that said, there were reports of some patients with abnormal heart rhythms, which LLY will continue to monitor as they advance the drug into Phase-3 trials, expected to run until 2H 2025, with FDA approval likely in 2027.

Manufacturing Constraints:

Both LLY and NVO are currently capacity-constrained, which has limited the volume of sellable GLP-1 doses. Both companies recently announced plans to expand capacity, including fill and finish pen device capacity, which represents the most significant bottleneck in the supply chain. Fill–Finish refers to the final step of the manufacturing process that entails sterilization and standardization of medical containers and addition of drugs to the containers before sealing them.

In November 2023, LLY announced the investment of up to $2.5B to build a production plant in western Germany, expected to begin operations in 2027. Prior to that, the company had committed $500M into an active pharmaceutical ingredient (API) plant in Ireland, $1.6B to expand its new manufacturing sites in Indiana, and $1.7B over three years for the expansion of their fill-finish sites at Research Triangle Park, NC and Concord, NC. Initial production at the RTP site began at the end of 2023. In aggregate, LLY has committed more than $11B over the last three years to expand capacity. In addition to doubling its capacity by the end of 2023, LLY expects production of sellable doses in the second half of 2024 with be at least 1.5x the production in the second half of 2023.

NVO, on the other hand, announced the acquisition of three fill-finish sites from contract manufacturer Catalent for $11B, as part of its parent company Novo Holdings' acquisition of Catalent for $16.5B. The three sites are located in Indiana, Brussels and Anagni, Italy. NVO also committed $6B to expand its manufacturing capacity for APIs in Kalundborg, Denmark, and an additional $2.3B to expand its facility in Chartres, France.

Despite the heavy investments, both companies expect demand to continue to outstrip supply in 2024. Positive data readouts from outcome trials and long lead times to ramp up manufacturing contribute to a very significant competitive moat for both Eli Lilly and Novo Nordisk as the GLP-1 market rapidly grows over the next decade.

GLP-1 Impacts on Medical Devices and Services

Last year there was significant concern that GLP-1 drugs could negatively impact demand for a wide range of medical devices and services. Most companies have pushed back strongly on this theory and demand has remained strong over the last several quarters. Below we walk through our thinking on a range of healthcare sectors:

Orthopedics/Reconstructive Surgery

Most orthopedic companies providing implants and services for joint reconstructive surgery believe that GLP-1 drugs will have a modest positive impact on their businesses in the short term and long term. In the short term, patients who were not currently surgical candidates due to high BMI are becoming eligible candidates due to their weight loss. Some doctors are not comfortable performing surgeries on candidates with BMI higher than 30 in some countries. In the long run, weight loss leads to more active physical activity and increased longevity, which could result in more surgeries.

The primary reason for reconstructive surgeries is osteoarthritis, which is caused by age, genetics, joint injuries, and other factors. Osteoarthritis occurs when the cartilage between joints breaks down and impacts the structure and function of the joint. Even though weight loss can alleviate some osteoarthritis pain and slow its progression, it cannot reverse osteoarthritis.

Diabetes – CGMs and Insulin Pumps

The leading manufacturers/distributors of continuous glucose monitors (CGMs) are benefitting from GLP-1 drugs as their CGM products are used as a complement with GLP-1s to monitor patients' blood glucose levels. On average, patients using both CGMs and GLP-1 drugs are exhibiting higher usage of both products. As patients can see the activity levels of their glucose levels on a real-time basis with CGMs, they are being proactive with their decision making with regards to medication compliance, food intake, and other variables. CGMs are being used a tool to monitor medication compliance for diabetes drugs.

The leading manufacturers/distributors of insulin pumps do not believe GLP-1s will impact the Type 1 diabetes total addressable market (TAM) and growth rates and will have minimal impact on the Type 2 diabetes TAM and growth rates. For Type 1 diabetics, GLP-1 is not indicated for Type 1 diabetes as it is an autoimmune disease whereby the pancreatic beta cells produce little or no insulin. Currently, approximately 40% of the US Type 1 population of 1.9 million are on insulin pumps. For Type 2 diabetics on intensive insulin therapy, there is no apparent mechanism for GLP-1 drugs to alter the underlying progression of beta cell decline of these patients. Currently, approximately 5% of the US Type 2 intensive population of 2 million are on insulin pumps. There may be a slowdown in the Type 2 non-intensive patients of 35-40 million and prediabetic population of approximately 100 million in the US towards insulin dependency with GLP-1 usage.

Cardiovascular Conditions
Some manufacturers believe there will be a minor impact on cardiovascular disease associated with obesity with GLP-1 drugs in the short and long term. Obesity is a risk factor for cardiovascular conditions such as high blood pressure and coronary artery disease. Other cardiovascular procedures associated with genetic factors, aging, and abnormalities may not be impacted by GLP-1 drugs. We would note that the widespread adoption of cholesterol lowering statins has not had a negative impact on demand.

Bariatric Surgery
Some manufacturers are experiencing a short-term impact on bariatric procedures from GLP-1 as many patients delay these procedures. Morbidly obese patients still appear to be utilizing both options for treatment, using a GLP-1 for initial weight loss but then still requiring surgery for more complete weight loss. Most of these companies believe that since the long-term benefits and risks of GLP-1s are unknown, many patients will eventually seek out bariatric surgery for a permanent solution.

Sleep Apnea
Despite obesity being a key risk factor for obstructive sleep apnea (OSA), sleep apnea devices companies are seeing positive trends in increased new patient starts from patients on GLP-1s and higher re-supply order rates from existing patients on GLP-1s. The higher new patient starts may be attributed to patients' motivation to treat sleep apnea as recent weight loss may spur more engagement and focus on other health conditions. Some experts note that the best treatment for sleep apnea is CPAP along with weight loss.

Dental/ Oral Health
We believe there will be no impact on oral health and dental needs in both the short-term and long-term. Oral decay is a multifactorial, chronic disease with various genetic, environmental and behavioral risk factors. The main oral problems are tooth decay/cavities and gum disease. Tooth decay or dental cavities are caused by the destruction and demineralization of hard tissues of the teeth due to acid production from bacterial fermentation of food. Specifically, higher intake of sugar or processed foods is associated with increased risk of dental cavity formation. Gum disease is caused by plaque that hardens under the gumline and becomes tartar. Gum disease occurs when plaque and tartar stay around the base of the teeth and cause irritation and swelling of the gum tissue.

Over time, there may be a slight positive impact on oral health from GLP-1 drugs. One key factor is dietary changes and restrictions, specifically with the lower intake of sugar and/or processed foods, done in conjunction with GLP-1s. This might improve oral health and prevent some dental cavities and/or gum disease. Conversely, if GLP-1s are increasing longevity in patients due to reducing the risk factors associated with certain diseases, the increased lifespan may result in increased dental treatments. Since oral health conditions have multifactorial causes, we currently believe the long-term impact of GLP-1 drugs is net-neutral on dental companies.

Kidney Dialysis
Kidney Dialysis firms DaVita and Fresenius expect a modest headwind over time from the increasing adoption of these new GLP-1 drugs, but less than a 1% revenue impact per year. The majority of kidney disease and failure are tied to the aging of the population rather than diabetes or obesity. Currently about 8% of kidney disease patients are taking these medications and the companies believe it could eventually rise to 30% over the next several years. For those patents, these drugs can delay the need for kidney dialysis by about 2.5 years but don't prevent or cure the disease.

Drug Wholesalers

Drug wholesalers Cencora, McKesson, and Cardinal Health are crucial parts of the GLP-1 supply chain. Given their relatively high prices, these drugs have helped accelerate industry revenue growth to approximately 15%. They do carry below average profit margins, in part due to their cold storage requirements. There is an opportunity over time to renegotiate contracts with the manufacturers to increase operating margins to more industry average levels, but that is a multi-year process. Margins should also improve as the industry develops pill formulations.

Health Insurance

Most major health insurers are willing to work with their clients and cover these medicines for diabetes, obesity, and future indications but with fairly strict prior authorizations and other requirements. They are also increasing their medication adherence programs to ensure that eligible patients are properly utilizing this new class of drugs. While there may be some initial underwriting issues based on the speed of uptake, ultimately the insurers will earn a profit margin on the higher revenue base. The big three pharmacy benefits managers—UnitedHealth's Optum, CVS/Caremark, and Cigna's Express Scripts more directly benefit from the additional prescription volume and related management fees.

GLP-1 Impacts on Diet

Given their effectiveness at suppressing appetite, GLP-1 medications are expected to promote weight loss and help address the high rate of obesity in the US. It is estimated that there are 262 million people in the US over the age of 18, of which approximately 191 million are either overweight (BMI over 25) or obese (BMI over 30). The vast majority of the 28 million Americans diagnosed with Type 2 diabetes, are believed to fall within these two cohorts.

Table 2: **US Population**

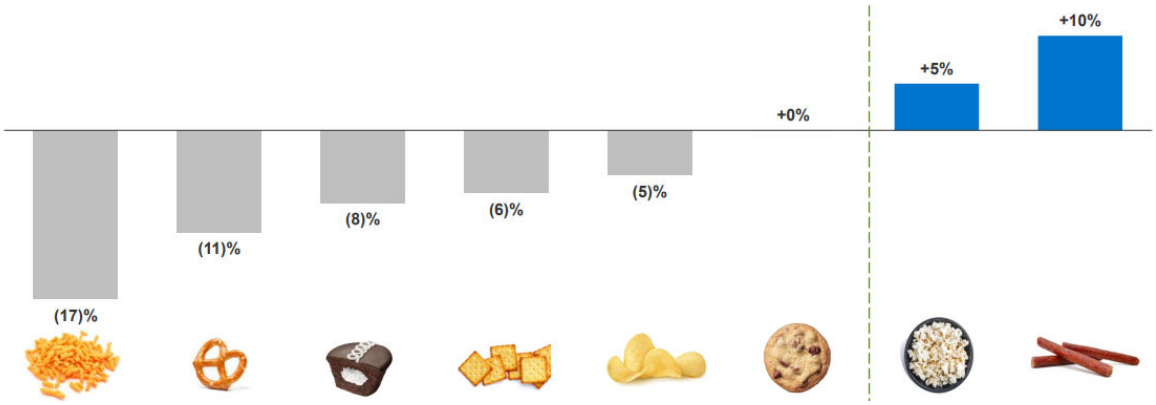
Obese Adults (BMI 30+)	111 million
Overweight Adults (BMI 25+)	80
Healthy Adults	71
Total Adults (Age 18+)	262 million
Total Children (Age <18)	74
Total US Population	336 million

Source: NIH, Census Bureau

In October 2023, Walmart US CEO noted in a Bloomberg interview that GLP-1 prescription fillers were buying "less units, slightly less calories." On average, Americans eat an estimated 3,500 calories per day, well above recommended levels. If GLP-1 medications are effective enough to reduce calorie consumption to recommended levels (2-2,500 calories per day) for the 5.1 million patients with weekly GLP-1 prescriptions, that would result in the cumulative reduction of approximately 2.3 trillion calories (about 0.6%) per year in the US. If 12-15 million patients are using GLP-1 drugs by 2030 it would equate to a 1.8% headwind to caloric intake. While this reduction would present a volume headwind for packaged food and beverage companies and restaurants, companies may also have opportunities to evolve product offerings to adapt to the changing diets of GLP-1 patients, both while they are on the drug and following treatment.

Although early, several surveys by industry participants and analysts suggest that impulse items such as snacks and fast-food are most at risk of lower consumption, given the high sugar and fat content of most products. According to a Numerator survey presented by ConAgra Brands (CAG – NYSE), GLP-1 users reduced buy-rates of certain salty and sweet snacks by up to 17% (Exhibit 7), while other snacks such as popcorn and meat snacks experienced an increase in buy-rate.

Exhibit 7: **Buy Rate Differential of GLP-1 Users and Non-Users**



Source: Numerator Insights (ConAgra presentation).

According to a Numerator 2023 survey of over 100,000 US consumers (of which 12% had one GLP-1 user in their household, and 6% had a lapsed user) both GLP-1 households and non GLP-1 households had reduced purchases of food and beverages in the past year but with varying differences across food, soft drinks and beer, wine and spirits (Table 3).

Table 3: Consumer Spending Survey Data

	Food		Soft Drinks		Alcoholic Beverages	
	Spend	Units	Spend	Units	Spend	Units
Non-Users	-0.5%	-6.5%	6.2%	-2.5%	-9.3%	-11.0%
GLP-1 Users	-1.6	-7.1	7.7	-1.3	-11.2	-11.0
GLP-1 Diabetes Users	-1.8	-6.4	9.7	0.2	-5.0	-6.9
GLP-1 Weight Loss Users	-3.0	-8.6	7.0	-1.3	-14.5	-14.5

Source: Numerator Insights (http://www.numerator.com)

In aggregate the survey found that GLP-1 households reduced their unit purchases of food at rates higher than non-GLP-1 households, principally due to those patients on the drug for weight loss, which is intuitive (if you want to lose weight, you cut calories). Yet, beverage consumption was less impacted. In fact, purchase volume of non-alcoholic beverages was reduced at a lower rate, while purchases of alcoholic beverages were at a similar rate. Paradoxically, GLP-1 users that were prescribed the drugs for diabetes appear to have reduced food and beverages purchases at a lower rate than non GLP-1 users.

This early research suggests that the negative effects on beverage companies may be less than those on food companies and may even be positive in some cases. We would note that many beverage companies have already been actively shifting product portfolios to lower or no-calorie beverages for some time. Coca-Cola (KO-NYSE), for example, already derives a large portion of its volumes from low or no-calorie beverages with 68% of its products having less than 100 calories per serving, and 29% of its volume having low or no-calories. Similarly, PepsiCo (PEP-NYSE), which produces both non-alcoholic beverages and snacks, has been actively renovating its portfolio to reduce sugar, sodium, and calories for years.

In another example, a 2023 report by market research firm Circana[1], which tracks in-store purchases using scanner data purchased from retailers, found that GLP-1 users were scaling back purchases at a "similar level to the average US household, with a marginal unit sales decline of 0.1% higher." The report did note, however, that households with a GLP-1 user were purchasing *different* items than non-GLP-1 households namely: "high-protein, energy-boosting, hydration, and convenient snack products."

GLP-1 medications have several side effects, including nausea and muscle loss. Solving for these side effects may create shifts in diets and growth opportunities for complementary food products that are vitamin-fortified or protein-rich. One category that may benefit is the $20 billion US convenient nutrition category which includes bars, shakes, and powders. These products tend to have higher levels of protein and are lower in sugar. With fewer calories, they may be used as a meal replacement or to add protein to a shake or meal. The top participants in the US convenient nutritional category include BellRing Brands Inc. (BRBR-NYSE), which owns the Premier shakes and Dymatize powder brands, Abbott Laboratories' Ensure (ABT-NYSE), Clif owned by Mondelez International (MDLZ-NASDAQ) and Simply Good Foods Co. (SMPL-NASDAQ), which owns the Quest and Atkins brands. Dairy products, such as high-protein yogurts may also benefit, particularly given the gut benefit of probiotics that are naturally found in yogurts and cultured dairy products. The largest US yogurt participants are Danone (BN-Paris) with several dairy (Dannon, Oikos) and plant-based brands (Silk) and Yoplait, owned by General Mills, Inc. (GIS-NYSE), whereas Lifeway (LWAY-NASDAQ) produces kefir, a culture milk smoothie.

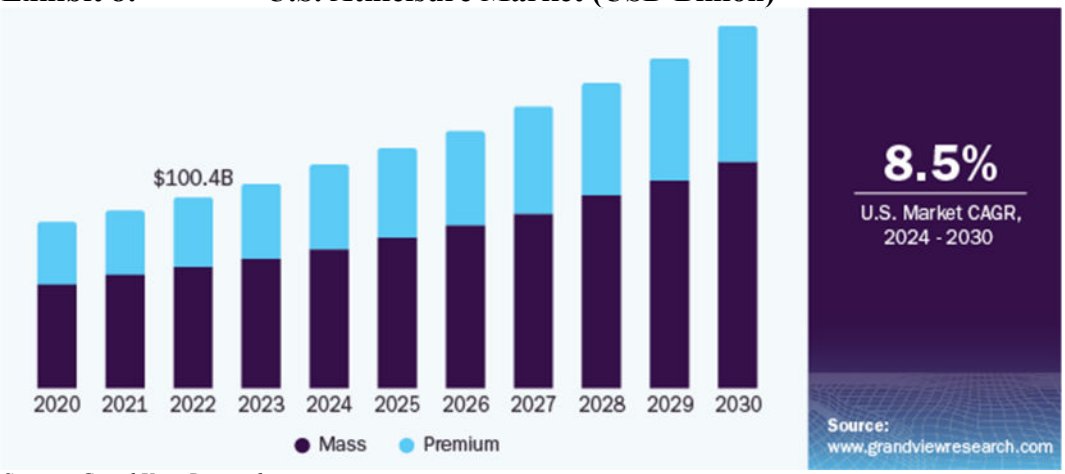
[1] Source: https://www.circana.com/intelligence/press-releases/2023/the-rise-of-glp-1-medications-induces-evolving-baskets-not-shrinking-appetites-in-food-and-beverage-circana-reports/

Fashion & Beauty

Adjustment of body sizes may lead to adjustment of wardrobes. Weight loss can trigger individuals' desires to exercise and use the gym, which creates the need for more activewear and overall casual clothing. They may focus more on transitional clothing during their weight loss journey and tend to refresh the wardrobe for every couple of size changes. Brands may target more towards women, who tend to refresh wardrobes more often and see better weight loss from these drugs. Plus-size retailers could be at risk, with some customers moving out of the category. In recent years, marketing has promoted "size inclusivity," embracing and encouraging all sizes. This message may become more muted, and replaced by a more slenderized image, to further identify with those on their weight loss journey.

Specific companies that cater to activewear include Lululemon (LULU - NASDAQ) and Nike (NKE - NYSE). The fashion industry, especially in the US, has been under pressure recently due to tough comparisons and a more cautious consumer. Typical shoppers have expressed less interest in discretionary items, and more interest in intangible items like experiences. Perhaps the impact from GLP-1 will help to offset the slowed interest in discretionary within the current inflationary environment.

Exhibit 8: U.S. Athleisure Market (USD Billion)



Source: Grand View Research

Despite the expectation that consumers will move towards smaller sizes, fashion brands are reluctant to significantly modify their size curves. Size curves generally dictate production and inventory levels and measure the ideal quantity of sizes that should be produced. As it relates to out-of-stock sizes versus leftover sizes, an inaccurate size curve prediction can lead to lower profits and higher inventories. It may be too soon to discern whether adjusting to the dramatic shift in body sizes is permanent, but calculating an accurate size curve can help improve inventory planning.

In terms of beauty, weight loss from GLP-1 is known to have a physical impact on the face and skin, causing sagging or sunken effects. To reverse this, patients may turn to procedures such as dermal fillers or wrinkle-smoothing treatments, and away from thinning effect products such as contouring makeup. Companies such as AbbVie (ABBV - NASDAQ) and Galderma (GALD.SW) offer aesthetic injectables that help combat these effects.

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One Corporate Center
Rye, NY 10580-1422
Tel (914) 921-5100
www.gabelli.com

Eli Lilly (LLY - $774.23 - NYSE) Strong GLP-1 - Fueled Growth

COMPANY OVERVIEW

Headquartered in Indianapolis, Eli Lilly (NYSE: LLY) is a global biopharmaceutical company that discovers, develops, manufactures, and markets medicines aimed at treating a variety of diseases across diabetes, oncology, immunology, and neuroscience.

Highlights

- **Continued significant excitement about the commercial opportunity of GLP-1s:** The GLP-1 class of drugs continues to generate significant excitement among investors, particularly as the opportunity for use of the drugs in a non-diabetic setting becomes increasingly clear. Its diabetes drug *Mounjaro* has seen robust growth in the ~18 months that it has been on the market. Access for the drug as of February 1st was 90% for patients type 2 diabetes across commercial and Medicare Part D lives, consisting of 92% commercial and 82% Part D. Eli Lilly's recently launched weight loss drug *Zepbound,* is also off to a great start with strong formulary access of ~1/3 of commercial lives covered as of February 1st. While the company has noted that there is significant demand from patients paying cash for the drug, Eli Lilly also has a commercial savings card program to provide access to patients that are not able to pay cash and have not met their deductibles.

- LLY has been investing heavily to increase manufacturing capacity for both the active pharmaceutical ingredient (API) as well as the auto-injectors. The company is also easing manufacturing constraints through the use of alternative delivery of the drug through its multi-use KwikPen, which recently received regulatory approval in the U.K; wider EU approval is expected in mid-2024. Despite the heavy investments, LLY expects demand to continue to outstrip supply in 2024. Positive data readouts from outcome trials, a head start in negotiating access for these drugs with PBMs, and long lead times to ramp up manufacturing all contribute to a very significant competitive moat for both LLY and NVO as the GLP-1 market rapidly grows over the next decade.

- **Other Products:** Outside of GLP-1s, the most anticipated drug launch by LLY is in the Alzheimer's space. The FDA recently convened an advisory committee to discuss the safety and efficacy of its experimental treatment, *Donanemab,* for early Alzheimer's disease. The decision to delay the approval of the drug came as a surprise to the company and investors but FDA approval is still expected by the end of 2024. 55M people globally are affected by dementia, with 70% of that population having Alzheimer's disease, which is characterized by the buildup of two proteins in the brain, amyloid and tau. The drug slowed disease progression by 35% compared with placebo in patients with low-to-medium levels of tau. Brain swelling was observed in 24% of treated patients, while 31% experienced microhemorrhages. Once LLY launches *Donanemab*, the market is expected to be evenly split between LLY and Biogen's *Leqembi*. It will take time to ramp up sales given the infrastructure requirements related to diagnosis of the disease (PET scans, MRIs etc.) & infusion delivery.

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One Corporate Center
Rye, NY 10580-1422
Tel (914) 921-5100
www.gabelli.com

April 5, 2024

Novo Nordisk (NOVO.B – DKK 876.70 – CO) GLP-1 Evolutionary

COMPANY OVERVIEW

Headquartered in Bagsværd, Denmark, Novo Nordisk develops and manufactures pharmaceutical products and services, with a focus on diabetes, obesity, and other serious chronic diseases including rare blood and endocrine diseases. Novo has recently come into spotlight with its significant progress in the GLP-1 space, offering Ozempic for type 2 diabetes and Wegovy for obesity.

Investment Summary

- Novo Nordisk originally introduced its semaglutide therapy under the name of Ozempic, labeled for type 2 diabetes and now the world's best-selling diabetes medicine with nearly 50% market share. It was approved by the FDA in 2017 and grew sales by 60% in 2023 to DKK 96 billion. Aside from this once-weekly injection, Novo Nordisk has seen positive uptake for its once-daily oral GLP-1, Rybelsus (DKK 19 billion 2023 sales).

- Semaglutide was further expanded for obesity treatment under the name of Wegovy. It gained its first FDA approval in 2021, but most recently the indication was approved to reduce the risk of heart attack and stroke in obese or overweight adults with cardiovascular disease. These label updates improve the uptake and consideration for wider reimbursement. In 2023, this once-weekly injection generated DKK 31 billion sales, while its previous counterpart Saxenda (once-daily injection) generated DKK 10 billion sales. Due to recent supply challenges, Novo is rolling out Wegovy on a volume-capped basis. In terms of R&D investments, Novo will focus on GLP-1 as it relates to oral administration and improved percentage of weight loss.

- In February 2024, Novo Holdings (Novo Nordisk parent company) announced the intention to acquire Catalent for $16.5 billion. With the Catalent footprint, Novo will have access to three additional fill-finish sites (Italy, Belgium, Indiana) that will significantly improve GLP-1 supply shortages. This increases Novo's fill finish sites to 14 total and ability to serve millions of patients. The deal is expected to close by year-end 2024, with capacity benefits commencing in 2026. Novo plans to honor Catalent's current contracts with other pharmaceutical companies.

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One Corporate Center
Rye, NY 10580-1422
Tel (914) 921-5100
www.gabelli.com

April 5, 2024

Dexcom, Inc. (DXCM - $139.00 - NASDAQ) Continuous Glucose Monitors (CGMs)

COMPANY OVERVIEW

Headquartered in San Diego, CA, Dexcom is a manufacturer and distribution of continuous glucose monitoring (CGM) systems for patients with diabetes. Its CGM system eliminates fingersticks for blood glucose measurements. Its latest version is the Dexcom G7 CGM which features a 10-day wear sensor, along with customizable alerts and various apps to share glucose data.

As one of two leading CGM companies in the world, Dexcom continues to launch new products and features to increase adoption among diabetic patients and expand its total addressable market over time. We highlight some key business and financial aspects:

- ***2023 Revenue Growth***. Dexcom's revenue increased 24% organically to $3.6 billion due to the launch of its G7 sensor in the US, improved insurance coverage, increased sales rep coverage and solid operational execution. In 2023, Dexcom added 600,000 users to its base and has 2.3 million Dexcom users globally at year-end 2023. In April 2023, Medicare expanded coverage of CGM to Type 2 diabetics who are using insulin or have had certain hypoglycemic events. Some commercial insurers have followed with similar coverage decisions. In 2023 and the last three years, Dexcom's international sales have grown at a faster rate than its US business due to under-penetration in most countries. With this growth, Dexcom opened a new manufacturing facility in Malaysia in mid-2023 to increase its sensor production as its revenue has doubled in the past four years. The company is breaking ground on a new facility in Ireland that is expected to open in 2026.
- ***2024 Expectations***. In 2024, Dexcom expects to grow revenue at a 18-20% rate due to continued momentum among the Type 2 population, expansion of Dexcom ONE on the G7 platform and the Stelo launch. In the summer of 2024, Dexcom will launch Stelo, the first CGM to be marketed without a prescription. This cash pay product is geared toward Type 2 diabetics not on insulin to monitor their glucose levels. Stelo will feature a 15-day wear sensor with glucose readings shown on a person's smartphone. Dexcom expects to grow faster in international markets in the near-term, especially with the launch of its Dexcom ONE+ product in various international markets in 2024.
- ***Strong CGM Market.*** Dexcom's revenue has grown significantly from $1.0 billion in 2018 to $3.6 billion in 2023, or a 29% CAGR. Its main competitor Abbott's FreeStyle Libre has grown even faster with revenue of $1.3 billion in 2018, growing to $5.3 billion in 2023, or a 32% CAGR. The CGM market has grown robustly due to innovation and strong execution by these two companies that hold 80%+ market share. We expect the CGM market to continue to grow robustly over the next few years.
- ***GLP-1.*** According to Dexcom, claims data shows that CGM usage grows faster in GLP-1 users than those not taking GLP-1s. Management believes there is a complimentary nature of Dexcom CGM across all therapy regimes in diabetes, noting that patients and doctors can see the benefit of medication adherence via their CGMs.

Gabelli Funds
One Corporate Center
Rye, NY 10580-1422
Tel (914) 921-5100
www.gabelli.com

April 5, 2024

BellRing Brands, Inc. (BRBR - $58.80 - NYSE) — Shaking it Up

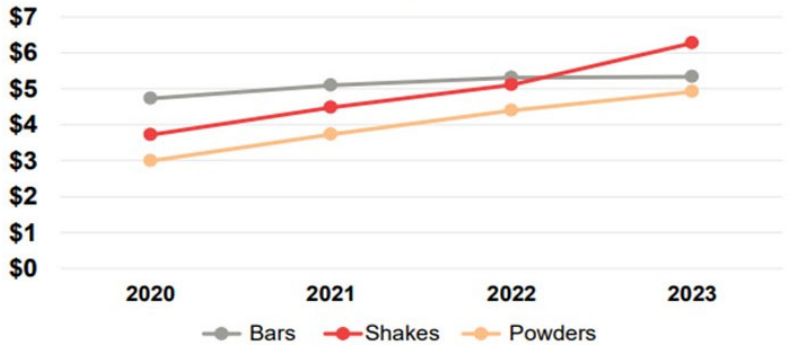
COMPANY OVERVIEW

BellRing Brands, Inc. headquartered in St. Louis, MO with operations in Emeryville, CA, develops, markets, and sells food and beverage products that compete in the convenient nutrition snacking category. Its leading brands include Premier Protein ready-to-drink shakes and powders and Dymatize, a premium-powder brand. The company completed an IPO in October 2019 but was fully separated from Post Holdings Inc. (POST-NYSE) following a tax-free spin-off to shareholders on March 10, 2022.

Investment Case

- BellRing competes in the $20 billion fast-growing US convenient nutrition snacking category, which is comprised of ready-to-drink shakes, bars, and ready-to-mix powders. The category is forecasted to grow high single-digits to low double-digits over the next few years primarily driven by faster growth across shakes and powders, as these products have favorable health and wellness attributes such as high-protein levels, lower sugar and vitamin fortified. It is also underdeveloped relative to bars, as household penetration is only 45% for shakes and 32% for powders compared to 74% for the total convenient nutrition category.

Exhibit 1 **US Convenient Nutrition Category – Measured Retail Sales ($ billions)**



Source: Circana US Multi Outlet, incl. Convenience for 13-weeks ended 12/31/2023 (BRBR presentation).

- BellRing is the market leader in shakes with its Premier Protein brand that garners over 22% market share. It has grown revenue at a 17% CAGR over the past five years, including 10% volume growth in spite of supply constraints in 2019 and again in 2022, which has yet to be fully resolved. Suppliers are expected to add 20% incremental capacity for Premier shakes in 2024, which follows 13% added in 2023. The additional supply would allow the company to replenish inventory levels but also restart marketing and support a full slate of promotional activity, which would likely contribute to expanded shelf space at retailers.

- The company generates top-tier industry financial results with gross margins of 32%, projected EBITDA of $400 million and earnings forecasted to grow at a double-digit pace over the next five years. Given its asset-light model and minimal capex, free cash flow conversion is well over 100% of earnings. We anticipate free cash flow will be used to repurchase shares, as it is not able to prepay its 7% 2030 notes until 2027.

- Given its high-growth, strong margins and asset-light model, BellRing may be an attractive acquisition target. Post Holdings completed the spin-off to shareholders in March 2022, which eliminates the risk to the tax-free status of the separation if it were to be acquired.

Daniel Barasa
914-921-8384
dbarasa@gabelli.com

Sarah Donnelly
914-921-5197
sdonnelly@gabelli.com

Kevin Dreyer
914-921-7791
kdreyer@gabelli.com

Joseph Gabelli
914-921-8331
josephg@gabelli.com

Jeff Jonas, CFA
914-921-5072
jjonas@gabelli.com

Jennie Tsai
914-921-8436
jtsai@gabelli.com

Sara Wojda
44 (0)20 3206 2116
swojda@gabelli.com

ONE CORPORATE CENTER RYE, NY 10580 Gabelli Funds TEL (914) 921-5100

This whitepaper was prepared by ***Daniel Barasa, Sarah Donnelly, Kevin Dreyer, Joseph Gabelli, Jeff Jonas, CFA, Jennie Tsai and Sara Wojda.*** The examples cited herein are based on public information and we make no representations regarding their accuracy or usefulness as precedent. The Research Analyst's views are subject to change at any time based on market and other conditions. The information in this report represent the opinions of the individual Research Analyst's as of the date hereof and is not intended to be a forecast of future events, a guarantee of future results, or investments advice. The views expressed may differ from other Research Analyst or of the Firm as a whole.

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800-422-3554 • 914-921-5000 • Fax 914-921-5098 • info@gabelli.com