LIFE SCIENCES INDUSTRY REPORT 2025

PART 2:
GLP-1S: APPLICABILITY IN & BEYOND OBESITY

Uncover the transformative trends that will drive the life sciences industry ahead, backed by expert commentary and data-driven insights.

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Editors' introduction

The pharmaceutical landscape in 2024 has been undeniably shaped by the remarkable rise of GLP-1 receptor agonists. Once primarily recognised for their role in managing type 2 diabetes, these therapies have surged into mainstream consciousness, fuelled by growing demand for weight management solutions and off-label applications. This extraordinary demand has not only propelled GLP-1s to the forefront of industry growth but has also posed significant challenges in supply chains and regulatory oversight.

As companies navigate the aftermath of widespread product shortages, the market is steadily recalibrating. With manufacturing ramp-ups and strategic partnerships underway, companies are poised to meet escalating demand more effectively in 2025.

However, this growth has not been without complications. Counterfeiters worldwide have exploited this landscape of demand and shortages to establish unregulated online "pharmacies" offering semaglutides products at minimal costs, adding to critical concerns around safety, regulation, and brand integrity.

These challenges underscore the pressing need for stronger safeguards and more transparent supply chains.

Simultaneously, the competitive landscape is evolving rapidly. New entrants are stepping into the GLP-1 market, intensifying the race to innovate and capture market share. This influx of competitors is set to reshape pricing dynamics, accessibility, and the trajectory of future research and development.

As the sector stands at a pivotal crossroads, understanding these dynamics is crucial for stakeholders aiming to navigate the opportunities and challenges that lie ahead.

We invite you to explore the insights and analysis within this report and join us in unpacking what the future holds for GLP-1 therapies in 2025 and beyond.

Eloise McLennan
Deep Dive Editor

Nicole Raleigh
Web Editor

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Life Sciences Industry Report 2025 Part 2:
GLP-1s: Applicability in & beyond obesity

Market share

Ozempic holds approximately 45% of the GLP-1 market share, followed by Trulicity at 21%.

Sales growth

The GLP-1 market is expected to grow rapidly, driven by both Type 2 Diabetes and obesity treatments.

Physician prescribing

The US Pharmaceutical Market is projected to grow from $456 billion in 2023 to $715 billion by 2028.

Patient demographics

The majority of GLP-1 patients are aged 36-65, with a fairly even gender distribution.

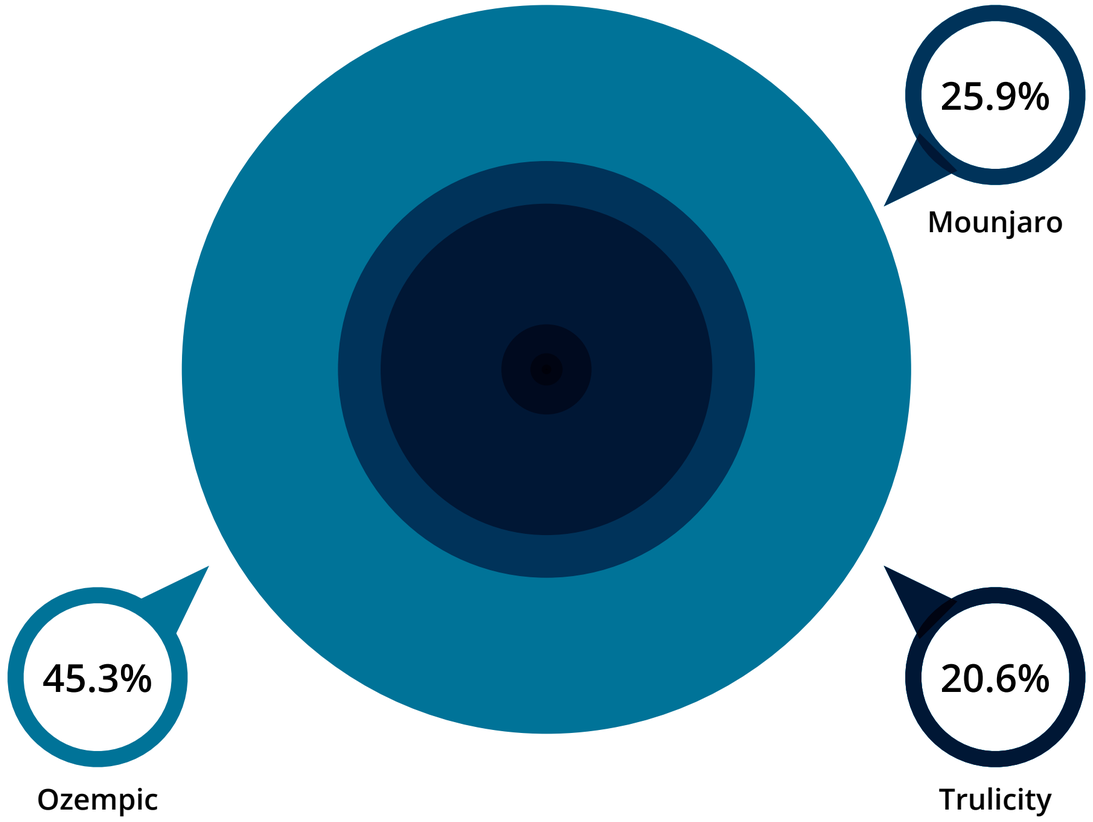
Advertising spend

Ad spending on GLP-1 medications like Ozempic and Wegovy has increased significantly, driven by celebrity endorsements and digital health initiatives.

Data and insights powered by EVERSANA

Type 2 diabetes market share (GLP-1)

Ozempic accounts for ~45% of entire market share followed by Trulicity (21%)



Source: EVERSANA claims (Oct'23 to Sep'24); Accessed on 3rd December 2024

Claims associated with patients treated with GLP-1 (type 2 diabetes approved drugs) and diagnosed with type 2 diabetes (E11)

~43% of brand claims are used by patients with a confirmed diagnosis of type 2 diabetes (E11)

**The chart above doesn't include off label use*

Market dynamics (GLP-1)

The GLP-1 market is expected to grow rapidly in the next few years for both type 2 diabetes and obesity

CURRENT MARKET DYNAMICS

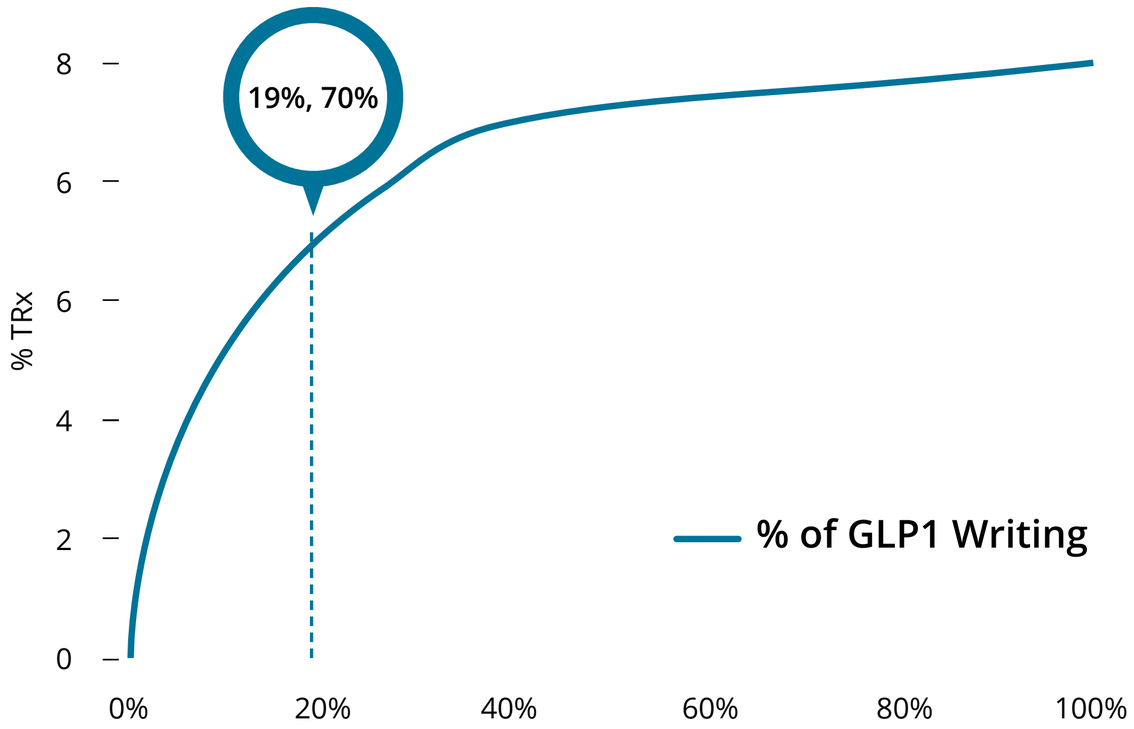
- Until oral Rybelsus, the GLP-1 receptor agonists were all injectables used as later lines of therapy, despite generally having better glycemic control
- In 2014, Eli Lilly introduced Trulicity, which has benefitted from a very convenient single-use autoinjector device
- Novo Nordisk introduced its own weekly formulation, Ozempic, in 2018, which had moderately better glycemic control than Trulicity, and double the weight loss
- The oral formulation of Ozempic, Rybelsus, was approved in the US in September 2019, but is expanding the class rather than lowering sales of injectables, due to less efficacy than Ozempic
- The positive CVOT results for Victoza, which led to related label additions in the US and EU in 2017, along with the introduction of Trulicity, have led to substantial growth in sales of the class

MARKET OPPORTUNITY

- Physician adoption of guideline recommendations could further expand usage of the class
- Combination of Ozempic and Mounjaro with amylin analogs or DACRA compounds may improve weight loss
- High obesity dose of Ozempic may be used in diabetics, though some payers in the US may require prior authorisation (PA)
- Oral Rybelsus is likely to expand usage to earlier therapy lines, taking share from other oral drugs
- Higher convenience in taking oral small molecules
- Ozempic is being tested in HFpEF and Rybelsus in Alzheimer's disease, though these are speculative

Type 2 diabetes GLP-1 physician prescribing

19% of ~339K HCPs account for 70% of GLP-1 Rx & Px; ~19K Specialists account for 17% of market share

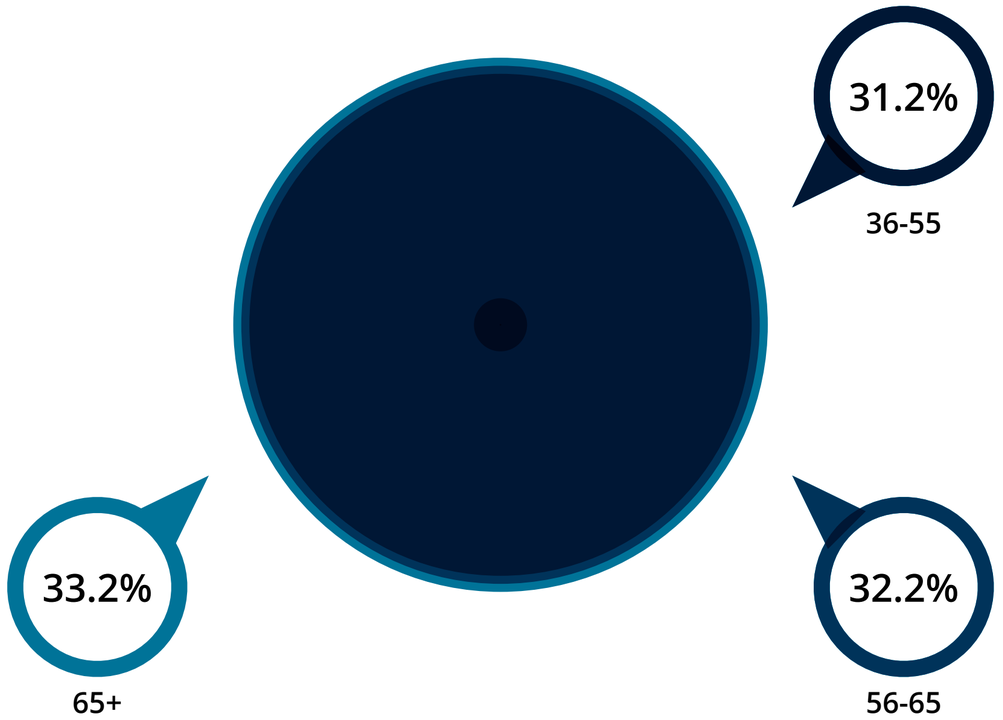


Source: EVERSANA claims (Oct'23 to Sep'24); Accessed on 3rd December 2024

Patients treated with GLP-1 (type 2 diabetes approved drugs) and diagnosed with type 2 diabetes (E11)

Type 2 diabetes GLP-1 patient demographics

Distribution of 4.6M patients across gender, age group & geography



Source: EVERSANA claims (Oct'23 to Sep'24); Accessed on 3rd December 2024

Patient Pool: Patients treated with GLP-1 (type 2 diabetes approved) and diagnosed with type 2 diabetes (E11)

*Data and insights powered by **EVERSANA***

Spending on obesity and diabetes

Direct to Consumer (D2C) will become a viable distribution channel for healthcare and pharma companies. More healthcare and pharma brands will sell prescription medications, treatments, and medical services directly to consumers

The estimated national TV spending for Ozempic (Novo's GLP-1) in October 2024 is approximately **$14.6 million**, an increase from **$10.8 million** in September 2024.

GLP-1s have become exceptionally popular due to celebrity and influencer endorsements. A surge in prescriptions is coinciding with ads communicating the drugs' benefits and where consumers can access them.

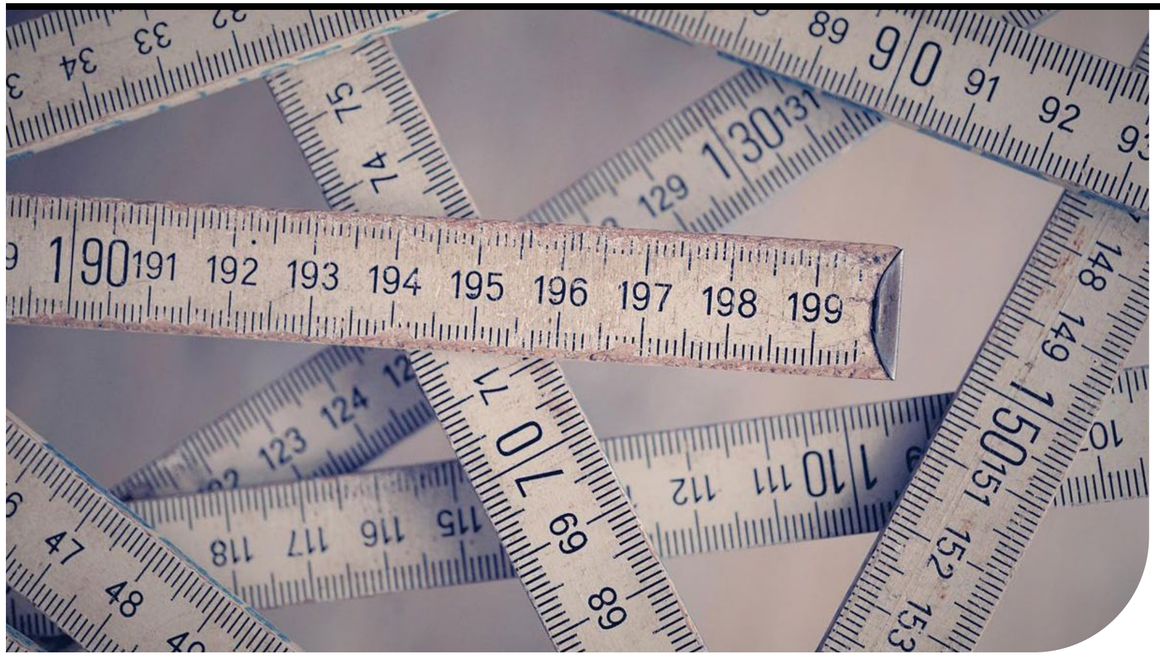
Retailers, digital health start-ups, and healthcare incumbents are connecting patients to D2C telehealth providers who can prescribe GLP-1s. These companies primarily target consumers who lack easy access to a doctor who will prescribe weight loss medications or whose health plans have limited or no coverage of the drugs.

In 2023, Rybelsus channelled **66%** of its funds to TV, **30%** to video, and the remaining between Display and print. In contrast, Wegovy primarily favoured online video, using **96%** of its budget.

Ad spending on GLP-1 weight loss and diabetes medications (e.g., Ozempic and Wegovy) is skyrocketing among drugmakers and healthcare companies.

Jardiance's advertising leaned heavily on TV at **94%**, with minor allocations to display, streaming, video, and native content in 2023.

*Data and insights powered by **EVERSANA***



Weight loss gold rush: Developers vie for next blockbuster treatment

Weight loss treatments are rapidly becoming a focal point for pharma R&D, driven by the commercial success of Eli Lilly and Novo Nordisk's therapies. With over 100 potential treatments in the pipeline and a surge in innovation, Ben Hargreaves finds the race is on to develop a next-generation solution for obesity.

The pipeline of potential treatments has grown to over 100 assets – late stage trials are particularly well-represented, with 36 phase 3-stage trials on-going. Morgan Stanley estimated that the global market for obesity drugs could be set to increase more than 15-fold, with an expectation that 9% of the US population could be taking such drugs by 2030.

For drug developers, the commercial potential of the area means that there is a gold rush of R&D occurring, where many companies are looking to be the first to bring a next-generation treatment to market. At the head of the pack are the current therapeutic area leaders, Lilly and Novo Nordisk, with the former having five obesity-focused assets moving through early to late-phase trials and the latter having seven product candidates. However, there is a surge of R&D and approaches, making the emergence of a serious contender to the two companies' dominance inevitable.

New angles of attack

Like any treatment area, one new type of therapy can arrive and rapidly become the standard of care, rendering obsolete, or at least less profitable, the previous incumbents. For those conducting R&D into developing a new form of weight loss therapy, the most obvious target is the development of an oral treatment.

Lilly and Novo Nordisk's GLP-1 agonist treatments are currently delivered weekly via injection. This form of delivery may be complicated by the high prevalence of needle phobia that exists within the general population, which has been noted as being as high as 35%. An oral treatment could therefore see increased uptake, with research having previously found a preference for oral treatments over injections. In addition, an oral treatment could address the capacity issues that have plagued the current market leaders, allowing for a potential reduction in the price of the treatment and therefore a broader coverage.

As such, there is a race by major obesity drug developers to successfully commercialise an oral treatment. Earlier this year, Novo Nordisk released that its potential oral therapy, NN9487, was able to outperform Wegovy (semaglutide) in phase 1 trials. The company also has a further oral candidate that has already progressed through phase 3 trials.

Lilly's orforglipron is also currently in phase 3 trials, after posting phase 2 data showing that the potential treatment was able to achieve 14.7% mean weight reduction in overweight or obese adults. As an outlier, not being a big pharma company, Viking Therapeutics has developed a potential oral treatment, which has completed phase 2 studies and was able to reveal positive results, making it one of the leaders in the race to potentially develop a viable oral therapy.

The pipeline is not limited to innovations on the GLP-1 agonists, with various approaches

moving through the clinic looking to improve the efficacy or safety of the current therapies. One is emerging from within Lilly's pipeline, in the form of bimagrumab, which is a monoclonal antibody targeting ActRIIA/ActRIIB. One of the positive aspects of this treatment is the lack of weight rebound in clinical trials following a 12-week period after stopping treatment.

The big question will be which candidates in development will become the leaders of the next-generation of therapies.

Beyond this, smaller companies are taking novel approaches to tackling weight loss. An example is a novel monoacylglycerol transferase 2 (MGAT2) inhibitor being developed by Shionogi, which is delivered in capsules. A clinical-stage biotech, NeuroBo Pharmaceuticals, is also taking a different approach by trialling a long-acting oxyntomodulin peptide analogue, DA-1726, that was able to show superior weight loss and similar hypoglycaemic effects when compared to Novo Nordisk's Wegovy in trials.

Expanding pipeline

The burst of activity from smaller companies means that M&A in the space is beginning to heat up. The main two players, Lilly and Novo Nordisk, are behind many of the acquisitions, having the extra capital on hand from the revenue of their weight loss products to fund the deals.

Last month, Lilly paid up to $1 billion to form a partnership with Haya Therapeutics. The latter company is focused on identifying potential RNA therapies in the 'dark genome' to treat chronic conditions, in this case for obesity. The deal adds to a $494 million agreement with Fauna Bio to apply AI drug discovery for multiple targets in weight loss, which was concluded at the end of 2023.

Novo Nordisk has been just as active in making smaller-scale deals to expand its portfolio, such as through a research partnership with Metaphore, valued up to $600 million. The agreement will see the two companies look to develop two 'next-generation' therapeutics for obesity management. The big pharma company also agreed a $255 million licensing deal with EraCal to develop its oral small molecule programme in the area.

Big pharma, big interest

It is not just Lilly and Novo Nordisk building out pipelines in the area: other big pharma companies are now circling to try to break into the market. Pfizer is one of the main companies trying to play catch up, deciding in July to pursue a once-daily version of its oral, modified-release GLP-1 agonist, after a twice-daily version had resulted in a high rate of drop-out from trials.

Roche joined the group in pursuit of a section of the market through its $3.1 billion takeover of Carmot Therapeutics. The deal gave the company access to an oral obesity drug candidate and it posted phase 1 data from the once-daily pill, known as CT-966, in July. The treatment candidate resulted in an average weight loss of 7.3% at four weeks and Roche announced that it planned to progress the potential therapy into phase 2 trials.

Rather than pursue an acquisition, Boehringer Ingelheim is working with Zealand Pharma to develop survodutide, which is an injectable treatment that is combined with glucagon. The candidate has already progressed into phase 3 trials, with earlier trials showing that it could help patients with 19% weight loss.

With a wave of treatments showing potential in weight loss, the next step for the next-generation of treatments may not just be convenience, but also helping with other co-morbidities and health risks. Novo Nordisk received approval from the FDA in March, which provides Wegovy with an expanded indication to reduce the risk of cardiovascular death, both heart and stroke. In August, Lilly was able to show that treatment with Mounjaro (tirzepatide) has the potential to reduce the risk of worsening disease in people with heart failure and obesity.

With such a large potential market for obesity patients and broader health benefits from the treatments' use, the industry is likely to see its pipeline of potential therapies continue to expand rapidly. The big question will be which candidates in development will become the leaders of the next-generation of therapies.

Ensuring product authenticity in the pharmaceutical industry with cloud technology

This year has seen a rapid rise in the demand for Ozempic due to it being popularised by celebrity endorsements online, leading to a shortage of product.

Ozempic is a brand of semaglutide that helps individuals with type 2 diabetes manage their blood sugar levels, but it is increasingly being prescribed for weight loss in some countries.

Ozempic is currently in short supply due to high demand, leading some doctors to prescribe it off-label, even though it is not officially approved for weight loss. In August, The National Pharmacy Association (NPA) warned against purchasing counterfeit weight loss injections, as shortages of Ozempic are expected to persist into 2025.

The NPA has urged people to speak to the local doctor or pharmacist for alternatives to Ozempic, rather than purchasing off-label products from online marketplaces. Cases like this shine a light on the importance of clearer labelling to prevent counterfeit products.

There are a number of ways pharmaceutical businesses can prevent situations like this from occurring.

Combatting counterfeiting is key

It is difficult to diminish the importance of accuracy in the pharmaceutical industry, as one error or misinterpretation can pose significant consequences to consumers.

The huge growth of global commerce has led to a rising threat from counterfeit goods. These illegitimate products pose serious safety threats to individuals who choose to purchase them, highlighting the need to combat this issue. Research by Fortune Business Insights projects that, between 2018 and 2026, the global anti-counterfeiting packaging market is expected to grow by 45%. Brands must complete their due diligence and ensure they clearly authenticate their products.

One way to achieve this is by using a standardised cloud-based barcode labelling solution with approved suppliers and distributors, which can significantly reduce the risk of counterfeit goods entering the supply chain.

Cloud-based labelling solutions provide secure access to approved suppliers and partners while offering numerous benefits to manufacturers. They help prevent mislabelling through automation and support regulatory data, multiple languages, and customer-specific labelling requirements. Ultimately, these solutions exponentially improve labelling consistency and reliability. Taking this type of action can help alleviate some of the concerns that health bodies currently have about the pharmaceutical industry.

Digital passports ensure product authenticity

The digital evolution that all industries have experienced over the last decade has resulted in product authenticity and transparency becoming key priorities for both businesses and consumers. The Welsh Emerging Drugs and Identification of Novel Substances service (WEDINOS) tested over

Cloud-based RFID encoding of serialisation technology offers an effective approach to drug and brand authentication.

7,000 drug samples submitted from across the UK during 2023-24. They discovered that 42% were either counterfeit pharmaceutical products or illicit drugs containing substances different from the intended purchase. Statistics like this serve as an important reminder that firms must allocate time and resources to authenticate the products they trade.

To achieve this, Digital Product Passports (DPP) have emerged as an important tool for supply chains. DPPs offer detailed insights into a product's journey from manufacturing to distribution and are increasingly recognised as a valuable tool for influencing purchasing decisions. By scanning a product's digital passport, consumers can access information about its origin, ingredients, sustainability practices, and more, enabling them to make more informed choices.

In the case of Ozempic, the World Health Organization (WHO) has encouraged people to only purchase the drug from reputable and authenticated sources and to stay clear of other available channels. To support this, pharmaceutical companies should ensure their available products have DPPs, certifying their goods for consumers to feel more at ease with their purchasing decision.

Cloud serialisation offers authenticity protection

Serialisation technology also offers another solution to combat the issue of counterfeit and expired drugs entering the market.

Pharmaceutical businesses desire a solution to protect their brand with the many illicit products currently available for consumers to buy. The cloud-based RFID encoding of serialisation technology offers an effective approach to drug and brand authentication. The process involves reader devices comparing the information on each drug tag to a central database, which authenticates and verifies each drug package before it leaves the manufacturing facility and continues through the supply chain.

Cloud-based RFID traceability streamlines the detection and removal of counterfeit products. This technology enables the encoding of specific information – such as product type, batch number, expiration date, and manufacturer – facilitating real-time tracking and monitoring. Notable regulatory bodies such as the FDA, EMA, and WHO require certain documentation and secure access to a pharmaceutical company's databases for the product they offer in their jurisdiction. With the aid of cloud technology storing the necessary data, serialisation technology provides these bodies with access to the data they require.

Future-proofing operations

With the rise in global counterfeiting operations, stakeholders need to be aware of their responsibility when it comes to pharmaceutical goods and their legitimacy. Companies can make this task easier by adopting cloud-based serialisation and standardised barcoding to prevent counterfeit goods from entering the market.

Going forward, DPPs will play a crucial role in ensuring the authenticity of pharmaceutical products, helping consumers avoid issues similar to those recently seen with Ozempic. Incidents like this must be avoided in markets with significant safety risks. Cloud technology can play a leading role in this effort, and pharmaceutical companies should consider adopting it to safeguard the public from potential health and safety concerns.

About the author

Laura Johnson is senior director of sales, life sciences, at Loftware. She brings over twenty-five years of experience to Loftware, with a focus on solving customer's business challenges to drive efficiencies in manufacturing, packaging, warehousing, and distribution environments. Johnson's expertise includes automatic data capture through barcode technologies, vision inspection, printing, and RFID data collection, as well as system integration with major MES, PLM, and ERP systems like SAP and Oracle. Johnson provides industry guidance to associates in sales, presales, professional services, marketing, and product management.

Address the impact of trending health information with conversation data

When health solutions become suddenly and overwhelmingly popular, there is increased demand on communication channels that impact customer experience and solution access. Misinformation often accompanies these trending topics - for instance, as occurred with the recent explosion of Ozempic - and this can cause customer confusion and frustration.

These situations also further complicate the complex healthcare landscape for customers, leading to repetitive interactions with service agents - a cycle known as the Eddy Effect. Increased interactions slow the customer journey and put additional strain on organisational resources.

Healthcare organisations need to provide clarity amidst the online noise to combat the effects of misinformation. By analysing conversational data from various touchpoints, leaders can identify emerging trends early and craft targeted communication to address potential confusion before it escalates. Targeted education efforts, informed by conversational data insights, can directly reduce call centre volumes, mitigate customer frustration, and guide consumers towards reliable sources of information.

Internet misinformation's impact on customer experience

In a recent study of TikTok, the first 100 video results for "Ozempic" received nearly 70 million views from users, showcasing the power of social media in disseminating healthcare information.

When videos about individual and anecdotal experiences with a healthcare solution go viral, it can lead to generalised misinformation and inaccurate claims about drug eligibility, usage, and side effects. This misleading information can cause an influx of questions and demands from misinformed patients who expect to have the same access, experience, and results as those who created the videos.

Imagine conversations like:

"I saw a video about using [a specified drug] for [this purpose]. Can I do that?"

"My Facebook friend only paid [this amount] for their prescription, but mine is more."

"I don't think this drug is working for me. Everyone I see online is having [this result]."

Repeated scenarios like these can cause a surge in contact centre calls and strain internal resources. Consumers can also become stuck in frustrating, repetitive cycles, calling in numerous times to understand why their experience is different, why they are ineligible for the treatment they seek or why their bill is higher than expected.

This frustration negatively impacts the customer experience and causes consumers to become stuck in their customer journey. Organisations must actively listen for sudden shifts in customer conversations to prepare for surges of misinformation caused by internet popularity.

Identifying misinformation with conversational intelligence

Proactively listening to a customer conversation is critical to effectively address patient questions, set expectations, and avoid contact centre strain around viral health solutions. Visibility into conversations like the ones outlined above can

highlight sudden changes in how customers talk about using a particular solution and indicate that misinformation may have spread.

By understanding areas of confusion, organisations can intentionally craft informational messages for newsletters, social media, and other areas of consumer outreach.

By collecting, aggregating, and monitoring data from conversations over time, organisations can spot trends early and develop a plan to educate consumers. AI tools can listen to these conversations at scale, analyse the root causes of customer concerns, and surface areas of frustration that customers encounter on their journeys. Generative AI is one way for organisations to expand their ability to use conversations as a key source of business insights.

Opportunities to summarise conversation topics streamlines trends reporting across thousands or millions of data points to drive leadership decision-making. By allowing these AI tools to proactively surface topics directly from the data source, organisations can save time in data analysis to focus on immediately delivering value and clarity to customers.

With these insights, healthcare leaders can recognise, identify, and anticipate viral trends, allowing them to implement targeted communication and education efforts proactively. Conversational intelligence empowers organisations to craft messaging that clarifies facts, highlights safe usage, and leads customers towards reliable information sources, thus combatting misinformation encountered on social platforms.

Leaders can also use conversational intelligence insights to proactively inform communications strategy. By understanding areas of confusion, organisations can intentionally craft informational messages for newsletters, social media, and other areas of consumer outreach. These insights can inform and improve agent training, ensuring contact centre agents recognise the signs of misinformation when a customer calls in and understand how to address trending topics head-on.

Developing actionable strategies from AI insights

The applications of conversational data are a powerful source of information for optimising the customer experience. Leveraging data from conversational intelligence can help healthcare organisations streamline operations, improve training materials for contact centre agents, and enhance workflows with automation. Conversational insights can also better train virtual assistants and chatbots to answer patient health questions and provide evidence-based information to customers.

As consumers turn to social media, online forums, and other online platforms for information and insight into treatment experiences, the potential for misleading content and viral trends will persist. Identifying and responding to these trends will be invaluable to the customer experience. Embracing data-driven conversational AI insights empowers healthcare organisations to navigate viral trends, while confidently prioritising education and high-quality care.

About the author

Amy Brown is the founder and CEO of Authenticx – the software platform that analyses and activates patients' voices at scale to reveal transformational opportunities in healthcare. Brown built her career as a rising executive in the healthcare industry, during which time she advocated for underserved populations, led and mobilised teams to expand healthcare coverage to thousands of Indiana, US, residents, and learned the nuance of corporate operations. In 2018, Brown decided to leverage her decades of industry experience to tackle healthcare through technology and founded Authenticx with the mission to bring the authentic voice of the patient into the boardroom and increase positive healthcare outcomes.

JP Morgan 2024 – Jen Nwankwo

While 2023 may have been the year of AI for the consumer consciousness, for companies using the technology in a focused way in drug development it was just another year of learning and advancing, as is 2024.

On Day One of the JP Morgan Healthcare Conference this month, editor-in-chief Jonah Comstock caught up with Jen Nwankwo, CEO of 1910 Genetics, a biotech advancing small and large molecule drug discovery with multimodal AI, to talk about the potential of the technology for improving R&D productivity, which Nwankwo points out has been declining for years.

They discuss how AI-powered companies can stand out in a crowded field and some of the ways 1910 is using AI, from early-stage computer modelling to robotics-enabled laboratory automation. They also talk about the regulatory landscape around AI drug discovery, and Nwankwo shares her predictions for biotech in 2024, including M&A, the future of big tech in pharma, IPOs, and more.

Don’t miss this engaging sit down with an up-and-coming AI-powered biotech in the video here.

The Ozempic dilemma: Balancing demand, supply, and patient safety in a viral GLP-1 world

As Ozempic and other GLP-1 drugs explode in popularity, driven by their off-label use for rapid weight loss and viral social media trends, the pharmaceutical industry faces unprecedented challenges. With demand far outpacing supply, can manufacturers and regulators keep up with the "trendification" of these treatments – or will patient safety be the cost of their newfound fame?

In the cautious world of healthcare, "going viral" typically raises alarm bells. Yet, for a select few medications, virality can catapult them from mere blockbusters to cultural phenomena. Joining the ranks of Viagra, Xanax, and Botox, a new superstar has emerged: Ozempic.

Ozempic, along with its sister drug Wegovy, belongs to a new class of therapeutic known as GLP-1 receptor agonists. Originally developed for diabetes management, these medications have found a second life as potent weight loss aids. They work by mimicking the action of a hormone called glucagon-like peptide 1 (hence GLP-1), stimulating the body to produce more insulin and decreasing blood sugar spikes by slowing digestion.

With 890 million people affected globally and 42% of American adults classified as obese, the allure of a "miracle" weight loss solution – an average 15% weight reduction, according to clinical research – that reduces your food intake, appetite, and hunger is undeniable.

However, when the realms of beauty and pharma collide, the results can be explosive – and not always in a good way. Ozempic has transcended its medical roots, finding its way into rap lyrics, daytime TV, and even Jimmy Kimmel's Oscars monologue.

This meteoric rise from humble diabetes drug to cultural phenomenon has sent shockwaves through the pharmaceutical supply chain. Despite first gaining FDA approval in 2017, in under three years prescriptions surged 300%, reaching 9 million by September 2023, leaving manufacturers struggling to meet demand.

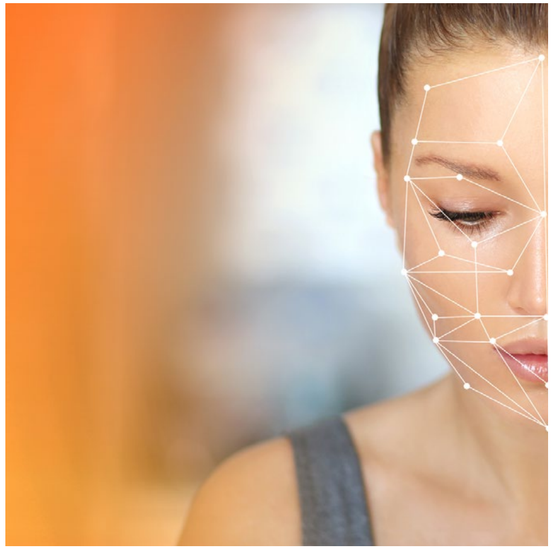
Indeed, beneath the glitz of Hollywood transformations and viral TikTok challenges lies a darker reality. The "trendification" of Ozempic and semaglutide is putting immense pressure on supply chains and creating a dangerous vacuum – one that's increasingly filled by counterfeit medications, placing countless patients at risk.

Viagra, Xanax, Botox... Ozempic?

The dramatic weight loss of several Hollywood celebrities in recent years sparked whispers of a new secret weapon: Ozempic. Originally a diabetes drug, Ozempic gained a reputation for its off-label ability to trigger significant weight loss.

While no celebrity officially endorsed it, the visible transformations of actors, producers, and socialites added fuel to the speculation. When Elon Musk confirmed on Twitter that he was using Wegovy, Ozempic's sister drug, to achieve his new physique, the secret was out. Hollywood's latest "miracle drug" was no longer confined to the elite.

Despite its reputation as the "Hollywood weight loss drug", it's crucial to note that Ozempic has never been approved for weight management. Only three drugs – Novo Nordisk's Wegovy and Saxenda, and Eli Lilly's Zepbound – are actually approved for that purpose. Now, if used correctly, these drugs can be a lifeline



for patients. Typically, a responsible doctor approaches prescriptions with a titration mindset: starting at a low dose and slowly increasing it to find the optimal level for each individual patient.

Credit: Eli LillyHowever, social media paints a very different picture of GLP-1 usage. TikTok, in particular, is flooded with posts promoting rapid, extreme weight loss – sometimes as much as 10 to 15 pounds in a week – by people who do not appear to have a medical need for a weight loss drug. These posts dramatically outnumber those posted by patients using the platform to spread awareness and share experiences, and typically omit critical information about responsible use and potential side effects.

Even under prescription guidelines, drugs like Ozempic come with side effects that are extensively studied and regulated. When used without medical supervision, the risks become unpredictable and potentially dangerous. Influencers have amplified this trend, with TikTok becoming the breeding ground for the "Ozempic phenomenon". Hashtags like #Ozempic and #OzempicJourney have proliferated, transforming the drug into a perceived "quick-fix" for rapid weight loss, divorced from its original medical context.

"It was not expected to happen," says Tinglong Dai, a public health supply chain expert from Johns Hopkins Carey Business School. "Ozempic serves a relatively niche market for type 2 diabetes patients, but that's not the reason it's in shortage now. The surge in demand stems from people discovering its off-label use, turning it into a trend, almost like a fashion statement. Social media accelerated this demand overnight."

TikTok has indeed turned Ozempic into a lifestyle trend, with over 273 million views on the #Ozempic hashtag alone. Videos range from testimonials of rapid weight loss to viral parodies, like the "Ozempic face" trend, where users joke about the gaunt appearance the drug allegedly gives them. Parodies of the Ozempic jingle and challenges like the "Ozempic hand" test further underscore how the drug has infiltrated popular culture. Once a serious treatment for metabolic conditions, it is now casually discussed alongside fashion and beauty trends.

But this popularity comes with serious risks. The informal and often misleading discourse on platforms like TikTok lacks the critical medical oversight that typically accompanies prescription medications. Social media influencers, often unregulated, showcase examples of rapid weight loss, sometimes using images of individuals who wouldn't even be classified as obese. As more users seek out Ozempic for weight loss, it has caused widespread shortages, leaving diabetes patients – who rely on the drug for their health – struggling to access it.

Despite the drug's viral fame, actually obtaining Ozempic is no easy task. The process is not as simple as seeing a TikTok post and getting a prescription; it involves a comprehensive evaluation of the patient's health and lifestyle. Patients often face significant barriers, with insurance companies employing prior authorisation processes to manage costs and ensure proper use. This can require consultations with obesity specialists or participation in lengthy weight management programmes before a GLP-1 receptor agonist is even considered. Many are discouraged by the high price tag, even with insurance coverage, and some struggle to afford the copays.

Persistent drug shortages add to the complexity, leaving patients unable to fill their prescriptions, even after navigating the insurance maze. These barriers have created a complex landscape wherein demand outstrips supply, fuelling frustration for legitimate patients and encouraging the rise of a dangerous black market for counterfeit drugs.

Shortages and growing demand

The sudden and overwhelming demand for GLP-1 agonists, like Ozempic and Wegovy, has placed immense pressure on pharmaceutical supply chains. What started as a treatment for type 2 diabetes has rapidly expanded into a weight-loss phenomenon, far exceeding the initial market's scope. According to Dai, the unexpected surge in demand has stretched biomanufacturing capabilities to their limit: "None

of these companies could just ramp up their production capacity overnight because that's not how biomanufacturing works. It takes years to build new facilities, get regulatory approvals, and expand production capacity."

The core issue isn't just production; it's the sheer volume of demand. With approximately 40% of the US population struggling with obesity, the pool of potential GLP-1 users has ballooned far beyond type 2 diabetes patients. "You no longer talk about 5% or 6% of the population; you're talking about 40%," says Dai. This unexpected growth has left many diabetes patients in a precarious position, struggling to fill prescriptions, often travelling hundreds of miles in search of the drug.

Pharmaceutical companies are now racing to catch up. Eli Lilly has invested $5.3 billion to expand manufacturing capacity, while Novo Nordisk is building a $4.1 billion fill-finish plant in Clayton, North Carolina. However, these expansions take time, with Dai noting, "It can easily take two to three years to complete the validation process, get all the paperwork, and get your plants inspected. You won't be able to start production as early as 2026."

Image: Dennis Sylvester Hurd - Reducing A1C via Flickr https://flic.kr/p/2q3U18p

The complexities of biomanufacturing are a significant hurdle. Precise control over temperature, contamination prevention, and compliance with regulatory standards make scaling up production a lengthy process. "You need a lot of workers, testing, retesting, and maintaining conditions to ensure safety. It's a very tricky process," Dai emphasises.

As pharmaceutical companies work to scale up production, they must also manage patient expectations. Healthcare providers have been advised to limit new prescriptions, and off-label use has been discouraged. "The best thing they can do is lower everyone's expectations, while they spend billions of dollars to increase production," says Dai.

With significant investments underway and new entrants like Sanofi and AstraZeneca considering the market, there is optimism that supply will eventually meet demand. However - as Dai cautions - "everything that goes up must eventually come down", hinting that the current frenzy around GLP-1s may subside, leaving manufacturers to strike a careful balance between production and demand.

Exploiting a growing appetite for weight loss drugs

The soaring demand for weight loss drugs, coupled with global supply shortages, has created a perfect storm for a more insidious problem to thrive: a flourishing counterfeit market that preys on desperate patients. As shortages persist and demand skyrockets, illicit sellers are stepping in, offering fake or substandard versions of these drugs to patients seeking affordable alternatives. This trend is particularly noticeable online, where unregulated websites and social media ads peddle counterfeit versions of popular weight loss medications, often with enticing discount codes.

Tim Mackey, a professor at UC San Diego who has conducted research into no-prescription GLP-1 purchases online, notes: "Whenever a drug becomes popular, it's going to be available illegally online." Indeed, Mackey's research uncovered over 1,000 links related to illegal sales of semaglutide, with 42% belonging to 59 illegal online pharmacy sites. These sites often masquerade as research chemical vendors or tout the drugs as "pharmaceutical grade" or "not for human consumption", without requiring a prescription. According to Mackey, "Even though they're representing themselves as research chemical providers, they're actually very directly selling into the human patient market."

The issue has caught the attention of global regulators, who have issued warnings about counterfeit semaglutides. In the UK, the Medicines and Healthcare products Regulatory Agency (MHRA) reported seizing 369 potentially fake Ozempic pens between January and October in 2023, marking the first identification of such counterfeits in the country. The United States FDA has seized thousands of counterfeit Ozempic units and, in June 2024, the World Health Organization (WHO) issued a medical product alert regarding falsified batches of semaglutide products, specifically Ozempic, detected in Brazil, the UK, and the US.

The counterfeit operation extends beyond mere imitation. Criminals are using forged drug batch numbers to sell dangerous lookalike weight loss products, potentially linked to a massive global counterfeiting operation. Pharmaceutical companies authenticate batches of drugs with combinations of letters and numbers printed on the packaging, which are then used to track the product in a given country. However, criminals can obtain these batch numbers through corrupt connections at manufacturing facilities or by purchasing genuine drugs and using scanning technology to copy the packaging.

The health risks posed by counterfeit drugs are severe. Regulatory bodies worldwide have reported incidents of severe side effects linked to fake semaglutide products, including hypoglycaemia and seizures. In Austria, patients experienced life-threatening symptoms after using falsified Ozempic, while in Lebanon 11 people suffered dangerously low blood sugar after injecting suspected counterfeit versions.

Image: Pokey Aardvark - Ozempic Waiting Room via Flickr https://flic.kr/p/2q4X2uN

The problem extends beyond just drug quality. Mackey's team found that many illegal sellers engage in non-delivery schemes or scams, including hidden charges, such as fake customs fees. In one instance, they were asked for an additional $1,000 to clear supposed customs fees, which was later confirmed to be a scam.

As the demand for GLP-1 drugs continues to rise and access remains limited, the proliferation of counterfeit products is likely to persist. As Mackey warns: "It's just the beginning of a long process where we're going to have counterfeit GLP-1s on the web, and it's not going to be something we solve very quickly."

The weight of deception

Regulators and law enforcement are hard at work in the pursuit and closure of these black market sites. But there is one big problem, particularly in the online world. Fake websites are like a hydra: shut down one bad actor and two more will appear in its place. As such, it is an ongoing uphill battle for industry and regulators to counter this trend.

As TikTok tightens its guidelines and pharmaceutical companies race to address supply issues, a larger question looms: are manufacturers truly prepared to navigate the combined forces of social media-driven demand and regulatory loopholes in the pharmaceutical market?

The ongoing battle against counterfeit GLP-1 drugs and supply shortages highlights the complex challenges faced by companies like Novo Nordisk and Eli Lilly. Despite proactive measures, including legal actions and increased security efforts, the problem persists. Moreover, the 503B programme's regulatory fragmentation further complicates matters, allowing seemingly "trustworthy" direct-to-consumer companies to capitalise on compounded semaglutide sales, with far less stringent oversight than their name brand inspiration.

Meanwhile, as influencers on social media platforms like TikTok continue to fuel the narrative of these drugs as "miracle" weight-loss solutions, transforming treatments for serious metabolic diseases into fashionable weight-loss solutions, despite manufacturers' attempts to promote responsible use; the industry has been left to grapple with the short- and long-term consequences of this multifaceted and rapidly evolving landscape.

About the author

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