Expert View

TRENDS FOR 2026

A new reality is forming as we enter 2026 – it will not be "business as usual". Geopolitical forces in the largest market for pharmaceuticals, the US, are likely to mean substantial changes. Here, **Tom Oakley** and **Alex Vasiev**, both of Sanner Group, cover those changes, the incretin juggernaut and the march of technical progress with "minitablet" dispensers, large-volume injectors and dual-chamber devices.

US POLICY CHANGES

The US accounts for around 45% of global pharmaceutical sales by value[1] and the majority of global pharmaceutical profits. President Trump has announced a policy of "Most Favoured Nation" pricing for pharmaceuticals, with the aim of aligning drug pricing for US residents with comparable G7 countries.

In addition, there is an "America first" policy regarding onshore pharmaceutical manufacturing. Major pharmaceutical companies have responded by announcing significant investments in US manufacturing sites.[2,3]

While pharmaceuticals were exempt from the tariffs announced on April 2, 2025, the US Bureau of Industry and Security, initiated a Section 232 national security investigation into pharmaceutical imports.[4] The White House subsequently stated that tariffs on pharmaceuticals entering the US will be introduced.[5] The UK has signed a trade deal to avoid tariffs on its pharmaceutical exports to the US in return for increased spending on drugs.[6]

Finally, the US FDA vaccine committee has been replaced by new appointees known to be sceptical of some vaccine technologies, such as messenger RNA vaccines.

Altogether, if these changes take effect before the next US administration enters office in 2029, they represent substantial changes to the way medicines are reimbursed, taxed and regulated, as well as where they are made. The same effects will be felt through the supply chain, affecting drug delivery device manufacturers, packaging suppliers, fill-finish partners and others. Companies throughout the drug delivery ecosystem need to consider multinational strategies or face significant disruption to their business and/or barriers to growth.

Figure 1: Example use of incretin agonist injector by celebrity (in this case Serena Williams).

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THE INCRETIN JUGGERNAUT

Incretin receptor agonists, such as glucagon-like peptide 1 (GLP-1) and glucose-dependent insulinotropic polypeptide, have proven to be clinically effective in managing Type 2 diabetes mellitus and obesity. The demand for incretin receptor agonists has led to a rapid growth in their use, with a 700% increase over four years in the US in the number of patients without diabetes starting treatment.[7]

Two phenomena have accelerated in the incretin boom. First, direct-to-consumer sales of injection devices have become "mainstream", with promotion by social media influencers and increased prominence in modern decentralised media. Celebrities such as Elon Musk, Oprah Winfrey, Sharon Osbourne and Serena Williams have spoken publicly about using incretins for weight management, which brings cultural acceptance and even advocacy (Figure 1).

Second, "compounding" pharmacies have become a far more prevalent part of the market.[8] Compounding pharmacies combine or alter ingredients to create a customised medication for an individual patient based on a licensed practitioner's prescription.[9] They use FDA-approved ingredients, but the resulting formulation is not FDA-approved.[10] Therefore, compounded medicines are regulated differently from the originator and may vary in quality. An example of a compounded formulation is the addition of vitamin B12 to semaglutide. Compounding pharmacies have manufactured large quantities of semaglutide since May 2023, when the FDA placed Novo Nordisk's Ozempic (semaglutide) and Wegovy (semaglutide) on their Drug Shortages List because demand outstripped the quantities that Novo Nordisk could supply to the US market.[11]

Semaglutide was removed from the Drug Shortage List in February 2025,[12] but the compounders have continued marketing semaglutide to the extent that the market for compounded semaglutide in the US is "roughly equal" in size to Novo Nordisk's sales of that drug in that market.[13] This is effectively generic/biosimilar competition before the originator patents expire, which significantly changes the economic viability for developing new medicines. However, compounding pharmacies typically cannot supply the same drug delivery device used by the originator.

Balancing pricing with cost pressures from both competitors and competitor generics can be a challenge, with CVS Caremark reportedly removing Eli Lilly's Zepbound (tirzepatide) from its formulary in July 2025 in a move to balance cost with access to these therapies.[14]

UK regulators uncovered an illicit supply of counterfeit Retatrutide (LY-3437943) – the AbbVie drug currently undergoing clinical trials – and tirzepatide being sold with pen-injector devices by entities on social media.[15] Despite the seizure of thousands of unlicensed pens and raw materials, sellers reportedly continue to promote these unregulated products online, driven directly by consumer demand for these products.

Looking ahead, the market may become increasingly stratified. Longer-acting formulations, including monthly or even quarterly dosing, have undergone animal trials.[16] A push towards multi-agonist "Triple G" parenteral therapies, such as Retatrutide, may also result in therapies that require devices to administer larger weekly injections of up to 1.0 mL.[17]

Equally, multiple oral dosage forms targeting the treatment of obesity, such as Lilly's Orforglipron (LY3502970), are now in development. While also offering lower cost and greater access, the availability of oral therapies provides a new option within the class for patients who are unable or unwilling to self-administer an injectable agent. The shorter half-lives may benefit patients who need to adjust their dosage to counteract side effects.

SMART DISPENSERS AND MINITABLETS

Many medicines have better efficacy and safety profiles (better outcomes with fewer side effects and adverse events) if they are personalised to the patient.[18] This can be particularly true where the patient population is inherently highly diverse, such as in paediatrics. Children vary greatly in their body weight, metabolism, tolerance and anatomy. Blanket age range recommendations can be undermined by the significantly different growth rates experienced by children.

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In addition, some patients find it difficult to swallow the pills and tablets used for many medicines. Sometimes compounding pharmacies are used to create alternative presentations of the drug substance, but there could be a case for formulating drugs as powders or minitablets to be metered at the point of use.

Finally, some medicines need to be "titrated", which means beginning with a low dose and gradually adjusting it upwards (or sometimes downwards) until the desired therapeutic effect is reached while minimising side effects. Reasons for titration include:

- **Safety**: Some drugs can cause serious side effects if started at full strength; titration gives the body time to adapt
- **Individual Variability**: Patients respond differently to the same drug depending on age, weight, metabolism, other medications and medical conditions
- **Therapeutic Window**: Some drugs have a narrow range between being effective and being toxic; titration helps to determine the "sweet spot"
- **Monitoring Response**: Doctors can observe how symptoms improve and adjust accordingly.

The drug delivery industry has long provided devices such as pen injectors to allow user-settable doses of injectable drugs such as insulin, GLP-1, growth hormone and so on.

Fine-increment user-settable dosing is less well established in oral drug delivery. Several devices are in development to meet the need for variable dosing. For example, Adare Pharma Solutions' (Philadelphia, PA, US) Diffucaps + AbbatiaLabs' (Payerne, Switzerland) POWDOSE is a combination system where the POWDOSE device dispenses the desired number of minitablets, and the Diffucaps polymer membrane encases the minitablets to control drug release and enhance solubility in the targeted gastrointestinal regions (Figure 2).[19]

OraFID by Sensidose (part of Navamedic, Oslo, Norway) is a prefilled, single-use container and dispenser where the user twists a counter counterclockwise, then clockwise and presses a button to dispense the desired number of minitablets.[20] The Mini-Tablet Dispenser by Phillips-Medisize (Hudson, WI, US) is a cap that fits onto a standard table bottle and helps the user to see the number of minitablets about to be dispensed.[21] Finally, OnDosis (an AstraZeneca spin-out in Gothenburg, Sweden) is an electromechanical minitablet dispenser with the option of syncing dispense data with a smartphone app.[22] This list gives some examples and is not intended to be exhaustive.

There are also developments in 3D-printed tablets and modular oral solid doses. Modular manufacturing means using standardised, flexible production units that can be scaled up or down depending on requirements. The aim is faster adaptation to different drug formulations, easier compliance with regulatory requirements and efficient production of multiple dosage forms in one facility.

CONTINUED GROWTH OF LARGE-VOLUME INJECTIONS

The market for large-volume autoinjectors and on-body delivery systems has expanded rapidly as injectable therapies become more complex and dose masses continue to increase. One driver for this is an industry trend toward reformulating intravenous therapies for subcutaneous delivery, particularly in oncology and immunology.[23] Well-known examples such as Keytruda (pembrolizumab, Merck & Co), Darzalex (daratumumab, Janssen Pharmaceutical), Rituxan (rituximab, Genentech), Herceptin (trastuzumab, Roche) and Skyrizi (risankizumab, Abbvie) illustrate this shift, driven by patient convenience, reduced healthcare burden and improved access.

Figure 2: POWDOSE device.

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For biologics, particularly monoclonal antibodies, high dosage mass often translates into either highly viscous formulations, large-injection volumes or both. These physical properties place significant demands on delivery devices, driving innovation, as devices increasingly need higher power (Table 1) or longer and slower delivery times, which favour on-body devices.

The increasing power requirements of large-volume and high-viscosity injections have led many companies to explore gas pressure as a means of driving the delivery mechanism. Gas-powered actuation is not new, but it addresses several inherent limitations of traditional spring-driven autoinjector designs.

One key limitation of springs is the dynamic impact associated with releasing large amounts of stored mechanical energy, which can generate force peaks and increase the risk of glass breakage. Gas-based systems can deliver high power in a more controlled and progressive manner using valving or expansion chambers, avoiding the sharp force transients that occur when a spring impacts the plunger stopper. Managing high internal pressures remains challenging when working with glass primary packaging, and one approach taken by Aktiv (Broomfield, CO, US) in its PenPal device is to use the outer casing as a pressure chamber, pressurising both the inside and outside of the primary container (Figure 3). This reduces pressure differential across the glass wall and mitigates hoop stress.

Product	Manufacturer	Power Source	Primary Packaging	Delivery Progress Indication	Development Status	Maximum Delivered Volume (mL)
Aerio platform	Kaleo	Gas	Cartridge or prefilled syringe	Visual and audible	Development with low-volume variant on market	10
ArQ-Bios	SMC	Gas	Prefilled syringe	Visual, audible at start and end	Development	5
HVAI	Halozyme/ Antares	Spring	Prefilled syringe	Visual and audible (undisclosed)	Clinic[24]	10
LVDC	Windgap Medical	Gas	Cartridge	Undisclosed	Development	10
Maggie 5.0	SHL Medical	Spring	Cartridge	Visual, continuous audible	Development	5
PenPal	Aktiv Medical Systems	Gas	Cartridge	Undisclosed	Development	5.5
YpsoMate 5.5	Ypsomed	Torsion spring	Prefilled syringe	Visual, continuous audible	Development	5.5

Table 1: Overview of large-volume autoinjector technologies.

Figure 3: PenPal by Aktiv Medical Systems.

Compared with spring-driven mechanisms, gas-powered systems can also deliver a much flatter force profile throughout the injection. This improves control of the delivery rate and is particularly important for concentrated biologics and long-acting injectables, which often exhibit non-Newtonian behaviour and therefore an apparent viscosity that varies with applied pressure.

Windgap Medical (Watertown, MA, US) has demonstrated that gas actuation can also enable reciprocal motion, making it well suited to applications such as automated reconstitution and multidose delivery, where pausing, restarting or cyclic movement may be required.

From a platform perspective, gas-powered systems offer a high degree of flexibility and adaptability. Delivery performance can often be tuned by adjusting the gas fill, measured gravimetrically in production, rather than requiring a redesign of the spring. Common propellants include gases such as argon and nitrogen, which are relatively insensitive to environmental variability and capable of delivering very high pressures, as well as gases stored in a liquid phase, such as carbon dioxide and hydrofluoroalkanes. These provide lower pressures but a consistent force profile, subject to stable ambient temperature and pressure.

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Given the growing interest in large-dose subcutaneous administration, this segment can be expected to develop. Tolerability of large injections remains a significant challenge, although this may be partially addressed using adjuvants such as hyaluronidase. In this context, the inclusion of a 10 mL autoinjector from Halozyme (San Diego, CA, US) should be viewed as a strong signal of the company's confidence in the viability of this as a delivery approach.

DUAL-CHAMBER INJECTORS

Dual-chamber technologies have traditionally been developed to support lyophilised drug products, where the drug is reconstituted with a diluent prior to injection. The dual-chamber format is well established and widely accepted because it simplifies preparation while maintaining stability during storage. However, dual

chambers are not well suited to liquid-liquid co-delivery because they commonly rely on the compression of a significant air volume before the stopper reaches the bypass that connects the two chambers. The need for this air volume limits compatibility with larger liquid-liquid fills, and standard fill-finish processes.

Several solutions are being developed to support therapies that require the controlled delivery or mixing of two liquid components immediately prior to injection. This need arises where liquid-liquid stability is limited or unproven; where an excipient, buffer or stabiliser must be introduced shortly before administration; or where formulations benefit from remaining physically separated until the point of use. There is a split between the development of new dual-chamber primary packaging or devices that use standard primary packaging, achieving sequential delivery from two separate containers.

Kindeva's (Woodbury, MN, US) DuoDote® is a commercialised example of a dual-liquid delivery system. Used for the emergency treatment of nerve agent poisoning, the device contains atropine and pralidoxime chloride in two separate chambers and delivers them sequentially through a single needle in one activation. The product is FDA-approved and, in early 2025, Kindeva Drug Delivery's Meridian Medical Technologies division secured a significant contract to supply DuoDote® to the US Strategic National Stockpile.[25]

Windgap Medical has developed dual-liquid autoinjector platforms based on separate reservoirs rather than a single dual-chamber syringe with a mechanical bypass. This approach enables controlled sequential or co-ordinated delivery of two liquids through a single needle. The architecture is particularly well suited to molecules that need to be isolated because of specific fill-finish or packaging requirements, large-volume and high-viscosity applications. It can also be used to perform reconstitution.

Credence MedSystems'[26] (Menlo Park, CA, US) Dual Chamber Syringe System enables multiple liquids to be delivered in sequence with a single press of the plunger rod. The system also features a proprietary passive needle retraction system and has recently been adapted into a new autoinjector concept (Figure 4).

Figure 4: Credence Medical autoinjector concept, which includes Credence's Sequential Dual Chamber System.

Capa Valve[27] (Hertfordshire, UK) has developed a patented valve system that can be installed into standard syringes to create dual-chamber functionality without needing bespoke primary packaging. The valve technology allows two liquids (or a liquid and a diluent/powder) to be stored separately and then dispensed sequentially through a single syringe. This approach uses established infrastructure, minimising manufacturing complexity.

BD has explored dual-liquid syringe concepts that maintain compatibility with standard prefillable syringe formats.[28] They recently published a white paper on the BD Dual-Injection Valve, which similarly keeps two liquid components separate within a single primary container.

This is an interesting area of innovation that may see growth as drug-drug and drug-biologic combination therapies become more prevalent due to their enhanced effectiveness, ability to tackle complex diseases such as cancer and chronic conditions, and facilitate personalised medicine where the combination is adjusted to a specific sub-set of the population.[29]

CONCLUSIONS

As we enter 2026, the pharmaceutical and drug delivery landscape is entering a period of fundamental change. Geopolitical developments are reshaping how medicines are priced, regulated, manufactured and supplied, with effects that will be felt globally. For companies across the drug delivery ecosystem, these shifts demand a reassessment of their long-term strategy.

The continued rapid expansion of the incretin receptor agonist market has reshaped not only pricing strategies but

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also patient expectations and the nature of competition. The emergence of early generic-like competition and counterfeit products adds further complexity, while longer-acting injectables, multi-agonist therapies and oral alternatives point to sustained innovation in this therapeutic area for many years to come.

Device technologies are evolving to meet future needs. Variable dosing systems, smart dispensers and minitablet-based approaches address the growing requirement for personalisation, particularly for diverse or vulnerable patient populations. Dual-chamber liquid-liquid injection further expands the available toolkit for drug developers, enabling the delivery of more complex and potentially personalised therapies. At the same time, the continued growth of large-volume subcutaneous delivery is driving innovation in high-power autoinjectors as an alternative to on-body systems, although the tolerability of such injections remains an open question.

Taken together, these trends suggest that innovation remains strong across the industry, yet there is no one-size-fits-all solution. Instead, success is increasingly defined by adaptability to the needs of patients, pharmaceutical companies, payers and regulatory authorities.

ABOUT THE COMPANY

Sanner is a global manufacturing company that develops and produces plastic packaging and drug delivery systems for pharmaceutical, medical and healthcare customers. Sanner specialises in desiccants and effervescent tablet packaging.

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