

CONNECT IN PHARMA REPORT: FUTURE TRENDS IN DRUG DELIVERY DEVICES

“*The Future of Pharma Production, Manufacturing and Packaging Trend Report*”, a new report from the organisers of Connect in Pharma, has highlighted a range of forces shaping the future of the pharmaceutical manufacturing and drug-delivery industry in Europe, from machine learning and connected devices to eco-friendly strategies. The report identifies a surge in advances within drug-delivery devices as one of several important trends for the industry.

This report, produced in partnership with Sciad Communications (London, UK), drew on a survey and exclusive interviews with industry insiders, including *ONdrugDelivery’s* publisher Guy Furness. In addition to naming the top trends in pharmaceutical manufacturing for 2023, it also provides advice on how professionals in the pharma manufacturing and drug delivery sector can continue to survive and thrive. What follows is an expert from the report.

THE RISE OF DRUG DELIVERY TECHNOLOGIES AND BIOLOGICS

According to survey insights and industry insiders, pharma companies are seeing an explosion of advances within the drug delivery field. Three areas seeing marked innovation and market expansion include the inhalable biologics market, long-acting injectable formulations and connected devices that aim to improve the effectiveness and adherence of medications.

The rise in injectable and inhalable formulations is partially driven by an increase in genomic capabilities and biological and biosimilar medicines, whose large, fragile molecules need alternative delivery mechanisms that avoid



the harsh environment of the digestive tract. These complex and sensitive therapies require new techniques and advanced materials for administration to ensure their stability and safety.

INHALATION TECHNOLOGIES

Exactly half of the survey respondents confirmed that their company is or will be involved in developing, manufacturing or packaging drugs that are inhaled, with dry powder inhalers (DPIs) and nasal delivery devices revealed as the most popular formulations.

New breeds of inhalation device aim to treat a range of diseases, such as cancers, cystic fibrosis, diabetes and multiple sclerosis, among others. Devices that deliver drugs through the nasal passage show particular promise for drugs that need to cross the blood-brain barrier quickly, whether to counteract a migraine, an allergic reaction or an opioid overdose.

Several survey respondents noted the huge growth potential in inhalable drug

delivery devices, citing the potential for fast absorption and the high bioavailability of biologics delivered via the nasal passage or lungs. One respondent said that the development of designs for reusable inhalers to reduce their carbon footprint was an area of particular interest. Inhalation devices that can deliver vaccines was also cited as an area with many opportunities.

Industry insiders have high hopes – but not for the first time. Pharma has long pursued the development of inhalers for systemic drug delivery via the lungs. Yet, despite huge investment and many meaningful advances, the industry didn’t reap the rewards expected in the 2000s, said *ONdrugDelivery’s* publisher Guy Furness.

“There’s been quite a renaissance of late though, spurred in large part by the biologics revolution. The current period of development around these new inhalation drug delivery devices seems more clear-eyed than the previous period,” Furness said. “As such we’re seeing real progress, there’s every reason to believe that this sector will realise its huge potential.”

While the field of systemic delivery via the lungs is now more mature, and technology has advanced apace, challenges still remain. The most significant hurdles are the need to demonstrate patient safety and satisfactory bioavailability via a patient-friendly device, according to Furness.

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“Connecting these delivery devices to the internet of medical things and ensuring their sustainability are also uppermost in the minds of companies working in this space,” he added.

Developers of these drug delivery devices also need to navigate an evolving regulatory environment, a factor noted by several survey respondents. The new EU Medical Device Regulation, for example, creates significant regulatory challenges for drug device combination product manufacturers, which will delay the approval and launch process for many products.

Another survey respondent cited the increased demands placed on manufacturers to document their manufacturing flow. Other major challenges include the shorter-acting effects of inhalable drugs and the need to find carbon-neutral manufacturing solutions.

INJECTABLE TECHNOLOGIES

The other area singled out for major growth in the industry is the development of new drug delivery systems for injectable treatments. Half of survey respondents confirmed that their company is or will be involved in developing, manufacturing or packaging injectable formulations. “The increase in injectables is an important trend for manufacturers,” commented one

respondent, who noted that it’s also a factor driving the focus on aseptic manufacturing.

The injectable drug delivery market is expected to introduce new devices aimed at a range of pathologies, including ocular conditions (through intravitreal injection) and new treatments for autoimmune diseases, oncology, respiratory therapies and pain management. The most established area where new devices have already made significant headway is for the treatment of diabetes.

Both survey and interview responses highlighted the positive influence these drug delivery innovations are having on the treatment of diabetes, a condition affecting about 422 million people worldwide, according to the WHO. Indeed, 79% of survey respondents whose companies are involved in injectables noted uses in diabetes treatment, with progress enabled by the possibilities derived from connected technology that uses embedded electronics and sensors to relay information back to the healthcare provider – including time, volume and site of injection.

ABOUT CONNECT IN PHARMA

After a successful launch in 2022, Connect in Pharma returns to Geneva, Switzerland on June 14–15, 2023, to bring together the community of

professionals shaping the future of drug delivery, manufacturing, outsourcing and packaging. Connect in Pharma aims to drive innovation, business and new partnerships in four key areas – innovative packaging, drug delivery systems, sub-contracting and manufacturing. Taking place in Geneva, the centre of a major pharmaceutical and biopharma cluster, Connect in Pharma is the perfect place to meet key influencers from leading pharmaceutical groups, biopharma, industry clusters and suppliers.

Access the complete version of “The Future of Pharma Production, Manufacturing and Packaging Trend Report” by Connect in Pharma at: connectinpharma.com/connect-365/trend-report-2023



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