Insulet's technology perspective: past, present and future

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At Insulet, we are driven by a mission to improve the lives of people living with diabetes through simplicity and flexibility in the management of insulin delivery. It started in 2000 when John Brooks, the father of a three-year-old boy who had just been diagnosed with diabetes, was not happy with the existing technological solutions to manage his son's diabetes.[1] He believed there must be a better way. Connecting with engineers from the life sciences industry, together they developed the first on-body, tubeless insulin pump and the Omnipod® Insulin Management System was born.

Reducing the burden of diabetes is at the core of everything we do. We are continuously innovating and updating the tubeless delivery platform to make it smaller, lighter and more intuitive, leading us to the version called the Omnipod DASH® Insulin Management System. When designing our products, we listen to and integrate the input from hundreds of users who provide important insights into what will improve their experience and meet their specific needs.[2] Driven to bring consumer-centric technology to more people with diabetes, Insulet expanded with international distribution outside the United States in 2010 and direct international distribution in 2018.

The Omnipod Insulin Management System has been studied in large real-world and controlled studies, which demonstrated reductions in HbA_{1c}, DKA and severe hypoglycemia, and improvements in time in range (TIR) and quality of life for people with diabetes. Beneficial effects on HbA_{1c} levels or severe hypoglycaemia are seen in populations with different starting levels of control, in people were previously using multiple daily injections (MDI) or other insulin pumps, and across all age groups.[3-9]

In our quest to provide more simplicity and freedom, we are now introducing the next generation of Omnipod products: an on-body, tubeless automated insulin delivery system, the Omnipod® 5 Automated Insulin Delivery System. The system consists of three components: 1) an Omnipod 5 App (on a handheld controller or compatible smartphone depending on the country); 2) a wearable Pod that includes an algorithm, communicating via Bluetooth® wireless technology with; 3) the Dexcom G6 continuous glucose monitor (CGM). The algorithm automatically adjusts insulin delivery using a set target glucose, based on current and predicted glucose values, as well as historical insulin dosage values. The system is FDA-cleared and CE-marked, currently commercialised in the USA and pending commercialisation in Europe in 2023.

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Key messages

- Reducing the burden of diabetes is the driver for innovation at Insulet
- Tubeless insulin delivery is clinically proven to be safe and effective
- Innovation at Insulet will drive more simplicity and freedom for people with diabetes

The Omnipod 5 System was shown to be safe and effective in pivotal trials in subjects ranging in age from 2 to 70 years, with observed improvements in HbA_{1c} and TIR and minimal time below range (TBR). [10,11] Improvements in HbA_{1c} were seen across all age groups regardless of baseline HbA_{1c} .[10,11] Randomised controlled clinical trials are underway to provide additional evidence supporting the benefits of the system.

We are excited about what the future holds as this field is evolving so rapidly. We will continue innovating to drive more simplicity. We will do that through multiple iterations of the Omnipod 5 System, with integration with consumer technology, with artificial intelligence eliminating the number of interactions the user must have with their technology, and becoming even more intuitive. We want to take away the burden as much as possible, so people can focus more on the things they love and less on managing their diabetes.

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