

Next-generation artificial pancreas system gears up for test drive

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For several years, JDRF-funded researchers at the University of Virginia Center for Diabetes Technology have been hard at work designing an artificial pancreas system that would allow individuals with type 1 diabetes (T1D) to go about their daily lives and sleep through the night with less worry about life-threatening blood-sugar highs and lows. Now, the budding technology—one of several similar systems being developed by a variety of researchers—is gearing up for a real-world test drive thanks to the Food and Drug Administration's (FDA) recent approval of a pilot study expected to get under way later this summer.

The pilot will be the first U.S.-based long-term study to test unsupervised daily and overnight use of an [artificial pancreas](#) system that—when coupled with mealtime bolusing—automatically controls insulin delivery and keeps blood glucose within a specific range. It will enroll up to 48 adults with T1D to test the system over an 11- to 14-week period. Participants will be asked to use the experimental system (which combines a Dexcom continuous glucose monitor, a Roche Accu-Chek insulin pump, and a cell phone fitted with the University of Virginia's novel predictive software) to monitor their blood-glucose levels and automatically adjust insulin delivery throughout the day, evening, and while sleeping. If the technology proves safe under these real-world conditions, researchers plan to launch a large-scale international study by mid-2015 to further test the system's safety and effectiveness.

The forthcoming studies and the developing system are part of work being conducted under the JDRF Artificial Pancreas Program's

worldwide consortium of researchers. The consortium is committed to advancing the delivery of fully automated, 24-hour artificial pancreas systems that are able to keep blood-glucose levels within a specific range with little to no user intervention. If the University of Virginia's findings prove positive, the research may ultimately be developed into a commercially available, next-generation artificial pancreas system. Such technology would improve upon current systems (which only have the ability to suspend or reduce insulin delivery to prevent low blood sugar) by adjusting [insulin delivery](#) as needed in order to keep blood-sugar levels within a predetermined range.

Provided by JDRF

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