

## Clinical Hurdles and Possible Solutions in the Implementation of Closed-Loop Control in Type 1 Diabetes Mellitus

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### Abstract

From an engineering perspective, controlling blood glucose appears to be a fairly straightforward single input (glucose), single output (insulin) control problem. Unfortunately, mimicking Mother Nature turns out to be a complex endeavor. The primary hurdle in developing a useful, safe closed-loop control algorithm for an artificial pancreas is the time delays associated with current continuous glucose monitors and subcutaneously delivered insulins. This article will provide a brief history of the artificial pancreas, outline the main clinical hurdles restricting its current implementation, and list possible solutions for success.

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**Abbreviation:** (T1DM) type 1 diabetes mellitus, (TI) Technosphere Insulin

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