

Glucose Sensing Issues for the Artificial Pancreas

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Abstract

The first retrospective continuous glucose monitor entered the market in 1999. Now that this tool gives online data, the question arises whether it is ready to be incorporated into a closed-loop system. The author discusses the following questions: (1) Is the accuracy of current continuous glucose monitoring (CGM) systems good enough for use in a prototype artificial pancreas system?; (2) How do we assess CGM accuracy?; (3) What is the minimal distance between a continuous glucose monitor and an insulin delivery site in which a CGM can function accurately?; and (4) Does any physiological and instrumental delay associated with continuous glucose monitoring hamper the development of an artificial pancreas?

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Abbreviations: (CGM) continuous glucose monitoring, (HbA1c) hemoglobin A1c, (RT) real time

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