

## A Review of the Management of Implanted Medical Devices for Diabetes: Trends and Directions

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### Abstract

The management of diabetes is progressing rapidly from the use of traditional finger sticks for glucose monitoring and multiple daily injections of insulin to more user-friendly devices and approaches. These advances hold the promise of freeing persons with diabetes from the need for continued daily compliance, thereby improving their quality of life and improving control of their underlying diabetes. An underlying theme to solutions based on percutaneous or fully implanted devices is that the useful lifetime of such devices is often limited by the body's foreign body response. This review briefly outlines general factors associated with point-in-time needle stick approaches to the growing use of short-term percutaneous implants ( $\leq 7$  days) to the challenges of more extended devices, both technical and regulatory, faced by developers of these devices.

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**Abbreviations:** (CSII) continuous subcutaneous insulin infusion, (ePTFE) expanded polytetrafluoroethylene, (PVA) polyvinyl alcohol

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