

Sources of Glycemic Variability—What Type of Technology is Needed?

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Abstract

People on insulin therapy are challenged with evaluation of numerous factors affecting the blood glucose in order to select the optimal dose for reaching their glucose target. Following medical recommendations precisely still results in considerable blood glucose unpredictability, often resulting in frustration in the short term due to hypoglycemia and hyperglycemia, and, in the long term, will likely result in complications.

The kinetics of insulin do indeed vary significantly and have become an important focus when developing new insulin analogues and delivery systems; however, numerous of other factors impact glycemic variability. These have different dependences and interactions and are therefore difficult to characterize. Some of the factors are highly dependent and influenced by the type of insulin and devices used in therapy. Development of future therapy products is therefore highly focused on how to minimize glycemic variability.

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Abbreviations: (CGM) continuous glucose monitor, (CV) coefficient of variation, (NPH) neutral protamine Hagedorn, (PK) pharmacokinetic

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