

**Technology**

Software tool for automated control of blood glucose levels

Inventor

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Key Features

- Tool includes an algorithm designed to automatically calculate insulin amount necessary for blood glucose control
- Safely maintains glucose levels
- Microsoft Windows based
- Easy to use
- Includes access to a nation-wide patient base for testing and validation

Stage of Development

Reduced to practice with software tool developed

Keywords

Medical Software
- Diabetes
- Glucose monitoring
- Hospital monitoring tool

Patent Status

Patent pending – U.S. patent application (12/464,344),
International patent application (PCT/US09/02918)

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Automated Diabetes Control in the Intensive Care Unit – Glucose GENIE (VA Reference No. 08-002)

Novel method and system for automatic control of blood glucose levels in a hospital setting

Technology

The Department of Veterans Affairs' has developed a software tool that enables precise blood sugar management for hospitalized patients in several settings: in the ICU, as well as post-ICU transition (in the Step Down Unit).

Description

The developed software tool, Glucose GENIE (Glycemic Expert for Nurse Implemented Euglycemia) provides recommendations for insulin administration, via both drip and bolus, using a unique algorithm based on several parameters, including the magnitude and rate of change in the patient's blood sugar, the existing and preceding blood glucose (as an index of prior insulin responsiveness), and the existing insulin drip rate (as an index of prevailing insulin sensitivity). Glucose GENIE has been demonstrated as effective in VA hospitals, but will reach its full potential and widespread adaptation through partnership with one or more commercial licensees. VA offers to development partners not only this innovative medical tool, but access to a nationwide patient base for testing and validation.

Competitive Advantage

Existing glucose monitoring software inaccurately assumes a linear relationship between glucose levels and insulin administration. Glucose GENIE accounts for factors that contribute to non-linear glucose response, providing an insulin administration protocol that is more accurate, and tailored to the patient's individual glucose metabolism. Glucose GENIE not only provides a better insulin regimen, it does it faster than other tools currently in use.

Unlike traditional methods and better than existing tools, the present invention:

- Controls glucose levels within 120 minutes for 95% of ICU patients.
- Maintains safe glucose levels in ICU patients with a marked reduction in degree of exposure to potentially damaging hyperglycemia.
- Improves patient outcomes with much better control, demonstrated in the clinical setting as decreasing the need for one or more intravenous medications used for the emergency treatment of clinically significant low blood pressure and in the elimination of deaths from mediastinitis in patients undergoing cardiac surgery.
- Is an easy to use, seamless transition to the ward based protocol.
- Microsoft Excel based, compatible with all Microsoft Windows based platforms and service.

Status

The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).