



## Information technology plays an important role in the management and treatment of diabetes. Some key roles of IT in diabetes include.

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### ABSTRACT

Information technology plays a critical role in diabetes management by providing tools to monitor blood sugar levels, manage insulin therapy, provide remote counseling, and offer educational resources. These advances help people with diabetes better understand and manage their condition, leading to improved health.

### Keywords:

Glucose monitoring IT, insulin, insulin pens IT, technologies, glucometers, insulin pumps, sensors.

A glucometer is a medical device used to measure the concentration of glucose in the blood. It is usually used by people with diabetes to control blood sugar levels. The device works by taking a small sample of blood, usually obtained by pricking the skin with a lancet, and then using a test strip and meter to measure the level of glucose in the blood. This information can help people with diabetes manage their condition and make decisions about their diet, medications, and overall health.

### Etiology And Pathogenesis

The pathogenetic basis of diabetes depends on the type of the disease. Two types of it are distinguished, which are fundamentally different from each other. Although modern endocrinology calls the classification of the disease conditional, it is important to determine the treatment strategy in each type of the

disease. This requires a separate stop on each of them.

In general, diabetes is actually a type of metabolic disease. At this time, only carbohydrate metabolism is disturbed. This indicator is called hyperglycemia. The most important basis of the problem is a violation of the interaction of insulin with the tissue. Glucose is needed by the body as the main energy substrate to continue life processes. Failure of glucose to pass to the tissues, failure of glucose to be stored as glycogen in the liver causes its amount in the blood to increase.

These changes are called diabetes. It is also called insulin-dependent diabetes. Often, young people, under 40 years old, thin people suffer. The disease is severe, insulin is given for treatment.

The reason: the body produces antibodies that destroy pancreatic cells.

Type 1 diabetes cannot be completely cured, but in some cases, the disease does not bother the patient too much if the gland activity is kept in the normal range and the diet is followed. It is necessary to take artificial insulin regularly. Since insulin is broken down in the gastrointestinal tract, it can only be injected during meals. Following a strict diet, it is recommended to completely exclude easily digestible carbohydrates (sugar, sweets, fruit juices) from the diet.

During the treatment of diabetes and its dynamic assessment, the first method for diagnosis is to study the level of glucose (sugar) in the blood. Treatment and further action is determined based on this indicator.

During the study of the disease, experts have drawn up a table of specific indicators. These indicators are necessary not only for endocrinologists, but also for patients.

**Glucose Monitoring:** IT enables the use of continuous glucose monitoring (CGM) systems that provide real-time glucose level information. CGMs can be connected to mobile apps or wearable devices, allowing people with diabetes to monitor their blood sugar levels more conveniently and accurately.

**Insulin management:** IT systems such as insulin pumps and insulin pens with built-in dose calculators help people with diabetes manage their insulin therapy. These devices track insulin doses, provide reminders, and help calculate the appropriate dose based on blood glucose levels and carbohydrate content.

**Diabetes Management Apps:** There are a variety of mobile apps that allow people with diabetes to monitor blood sugar levels, take medications, track physical activity, and record food intake. These apps provide valuable insights and help people manage their diabetes effectively.

**Telemedicine and remote monitoring:** IT enables remote consultations with healthcare providers, allowing people with diabetes to receive guidance, support and education without having to visit a clinic in person. Remote monitoring systems can also send blood glucose data to healthcare providers for analysis and adjustment of treatment plans.

**Decision Support Systems:** IT systems provide decision support tools to help healthcare

providers and individuals with diabetes make informed decisions about insulin dosage, medication changes, and lifestyle changes. These systems use algorithms and data analytics to make personalized recommendations.

**Education and support:** Information technology provides access to online resources, educational materials, and support communities for people with diabetes. Online platforms and mobile apps offer valuable information, advice and guidance on diabetes self-management, resulting in better outcomes and improved quality of life.

In general, information technology plays a critical role in diabetes management by providing tools to monitor blood sugar levels, manage insulin therapy, provide remote counseling, and offer educational resources. These advances help people with diabetes better understand and manage their condition, leading to improved health.

It is very important to understand certain parts of diabetes with the help of information technology, to get information quickly and accurately, to improve its treatment processes. These technologies include devices such as glucometers, insulin pumps, and sensors. They help users to control their diabetes and stay active.

Glucometers automatically read the user's blood sugar levels while helping to calculate pre-meal or pre-activity insulin doses. Insulin pumps automatically inject insulin and monitor the user's sugar levels. And the sensors help in monitoring the user's sugar level and determine the necessary changes in his lifestyle. At the same time, information technology is also very important in maintaining archives and collecting information about users. This information will be a key supporter for treatment processes and will provide ease and accuracy in diabetes control.

Glucometer device is used to detect current diabetes.

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