CLAIMS

1. A method for predicting blood glucose levels, in particular for postprandial blood glucose level prediction, the method being computer-implemented and comprising:

receiving a first medical data set of a patient covering a time range, said first medical data set comprising glucose data and further other medical data of said patient,

extracting a second medical data set from said first medical data, wherein the second medical data set is a subset of the first medical data set and wherein the extracting comprises at least one of:

identifying duplicates in the first medical data set and removing identified duplicates,

identifying data values that lie above a predefined maximum threshold data value or identifying data values that lie below a predefined minimum threshold data value and removing data associated to said identified data values,

identifying data values that differ from predetermined expected data values by more than a predetermined amount and removing data associated to said identified data values,

identifying incomplete data for which data values are missing and removing identified incomplete data,

identifying at least one predetermined time-dependent data pattern and removing data associated to said identified time-dependent data pattern,

providing the extracted second medical data set as input to a blood glucose level prediction model, and

predicting future blood glucose levels of the patient using the output of the blood glucose level prediction model based on the second medical data set.

2. The method according to the preceding claim, wherein the further other medical data of said patient comprises at least one of the following: data on meal intakes, e.g. amount of carbohydrates from meal intakes, or data on medication, e.g. data on insulin injections, and/or other analyte data.

3. The method according to one of the preceding claims, wherein identifying duplicates in the first medical data set is based on checking whether the duplicates lie within less than a predetermined short time interval, e.g. within less than 5 minutes in time.

4. The method according to one of the preceding claims, wherein identifying data values that lie above a predefined maximum threshold data value is based on a predefined maximum threshold data value derived from statistical analysis of previously recorded medical data sets of the patient.

5. The method according to claim 4, wherein said predefined maximum threshold data value is based on determining the interquartile range above the 75% quartile of all available data values of a specific data type, e.g. amount of carbohydrates and/or amount of insulin.

6. The method according to one of the preceding claims, wherein providing the extracted second medical data set as input to a blood glucose level prediction model comprises identifying in the second medical data set at least one data segment, wherein the data segment is a subset of a plurality of data points of the extracted second medical data set, that covers at least a minimum time range, e.g. at least 30 minutes.

7. The method according to one of the preceding claims, wherein identifying data values that differ from predetermined expected data values by more than a predetermined amount comprises checking whether a recorded bolus insulin amount differs from an expected bolus insulin amount by more than a predetermined amount, e.g. by more than 10, 20 or 40%.

8. The method according to one of the preceding claims, wherein identifying at least one predetermined time-dependent data pattern and removing data associated to said identified time-dependent data pattern comprises detecting an invalid rise in glucose levels.

9. The method according to one of the preceding claims, wherein providing the extracted second medical data set as input to a blood glucose level prediction model comprises providing the extracted second medical data set as a training data set to a blood glucose level prediction model algorithm, e.g. a neural network algorithm, and training the blood glucose level prediction model algorithm with the extracted second medical data set,

and/or wherein the blood glucose level prediction model is based on the Kirchsteiger model.

10. The method according to one of the preceding claims, wherein an obtained prediction of future blood glucose levels is displayed to a patient and/or wherein, based on an obtained prediction of future blood glucose levels, a recommended dosage of insulin to be administered is

displayed to a patient and/or wherein, based on an obtained prediction of future blood glucose levels, a recommended dosage of insulin is automatically administered via automatic control of an insulin pump.

11. A computing system comprising:

a computer memory,

one or more processors, a display,

the computing system being configured to receive a first medical data set of a patient, and

the computer memory comprising computer-executable instructions which, when executed by the one or more processors, cause the one or more processors to perform the method according to one of the preceding method claims for predicting blood glucose levels.

12. The computing system according to the preceding claim, wherein the computing system is one of the following types: a computer server, a personal computer or a mobile computing system, e.g. a smartphone, tablet or laptop.

13. A glucose monitoring system comprising:

a sensor for obtaining glucose data of a patient,
a computer memory, one or more processors, a display,

the computer memory comprising computer-executable instructions which, when executed by the one or more processors, cause the one or more processors to perform the method according to one of claims 1 to 10.

14. The glucose monitoring system according to the preceding claim, further comprising an insulin pump and wherein the glucose monitoring system is further configured to control the insulin pump, in particular for controlling the dosage of insulin that can be administered by the insulin pump, and wherein the glucose monitoring system is configured to determine a recommended dosage of insulin to be administered based on an obtained prediction of future blood glucose levels.

15. A computer-readable storage medium for storing computer-executable instructions that, when executed by a computer system, perform the method according to one of claims 1 to 10.