

Diabetes:M User's Guide

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Sirma Medical Systems

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1. Introduction

Welcome and thank you for choosing Diabetes:M!

Diabetes:M is one of the most comprehensive diabetes management platforms in the world. In order to understand and use it to its full potential, you should get to know it better.

This guide will help you get started with using the app, as well as provide in-depth information about specific features and options.

If you are looking for a particular feature or option, please see the contents menu. If you have a question, take a look at our FAQ section first.

If you still can't find an answer, please don't hesitate to contact us at: support@diabetes-m.com

Important Safety Information & Disclaimer

The information and statistical data provided by Diabetes:M application is only to help you to track how the diabetes treatment affects your overall condition. All decisions about your diabetes therapy must be taken after consulting with your diabetes specialist.

Limitations of use

Location

Diabetes:M is a mobile application and as such can be used wherever it is possible to use an electronic device. There are some limitations, however. Diabetes:M may not be used where the use of electronic devices such as phones, tablets, and laptops is prohibited. Generally, such places are an aircraft, some areas in hospitals or while you are driving a vehicle, etc., as well as all places where the use of electronic devices is advised against.

Age and capability

Diabetes:M is intended for use by people 18 years old or older. Minors using the application can do so only under strict adult supervision. Diabetes:M should not be used by persons who are not able to properly manage or treat diabetes, due to, but not limited to, lack of mental capacity, lack of technical understanding, lack of medical understanding or who generally have difficulty with the operation of a phone or tablet.

2. Getting started

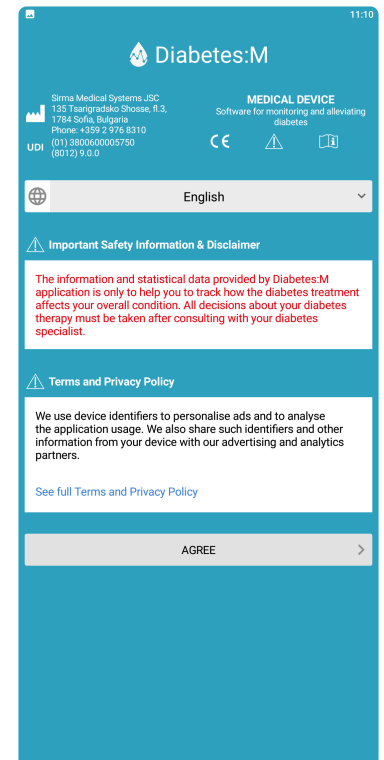
Thank you for choosing Diabetes:M!

On the first screen Diabetes:M will request you to read and agree with the user privacy policy and accept the disclaimer.

When you launch the application for the first time, it will guide you through initial configuration. You'll need to enter your personal data, medications, treatments and glucose levels and sensitivity settings.

Read more in the following configuration wizard related topics:

- [Login](#)
- [Register new account](#)
- [Units of measurement](#)
- [Personal data](#)
- [Therapy](#)
- [Medications](#)
- [Treatment settings](#)



2.1. Login

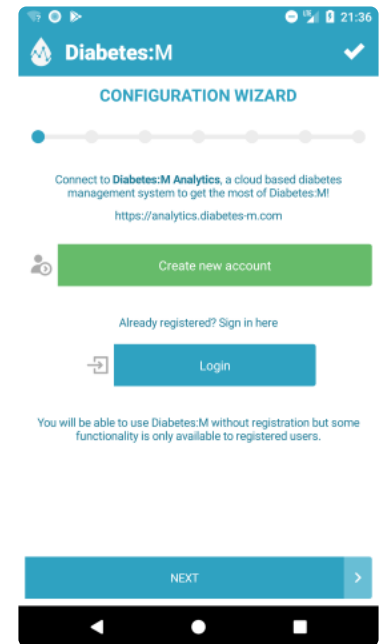
Login/Register

On the first screen of the app, after accepting the terms and conditions of use, you can login with your existing account if you have one or create a new account if you don't have one.

The app can be used without an account, but registering an account gives you some additional features.

With an account:

- all data entered in the app will be stored on our server and accessed at any time from any device
- you can use our web application here: <https://analytics.diabetes-m.com/login>
- you can import data from other sources (glucose meters software, other apps, pumps software, etc)
- your data can be exported in different formats and reports



2.2. Register new account

Account registration

In order to create an account in Diabetes:M you need to enter the following details:

- Username – a username with which you'll be able to login in the app
- Email – a valid email on which you'll receive a verification code and which will be used for promotions and if you forget your password
- Password
- Enable two-factor authentication – when enabled, in order to login in the application, except the password, you will be required to enter an additional security code
- First and Last name
- Gender
- Diabetes type
- Birthdate
- Country
- Pet account checkbox – turn this on if you're using the app for your pet
- Receive email notifications – turn it on if you wish to receive special offers

11:18

User Profile

Username

Email

Password

Repeat password

☐ Enable Two-Factor Authentication

First name

Last name

United States

Link Nipro 4SURE Account

Add Account Code

Female Male

Diabetes Type - Prediabetes

Enter your Birthday

This is a pet account

☒ Receive email notifications

CANCEL REGISTER

It is mandatory to verify your email after registration using the verification code sent to your email. You will not be able to login the application until your email is not verified.

2.3. Units of measurement

On this screen you'll have to setup your desired measurement units. The application will show all data converted to those units:

Units of measurement, you can choose from:

- Metric units – kilograms, grams, milliliters and centimeters
- US units – lbs, oz, fl, inch

Blood glucose unit, available options:

- mmol/L
- mg/dL

Carbohydrates unit, available options:

- Grams
- Bread units (12 grams)
- Exchanges (10 grams)
- Exchanges (15 grams)

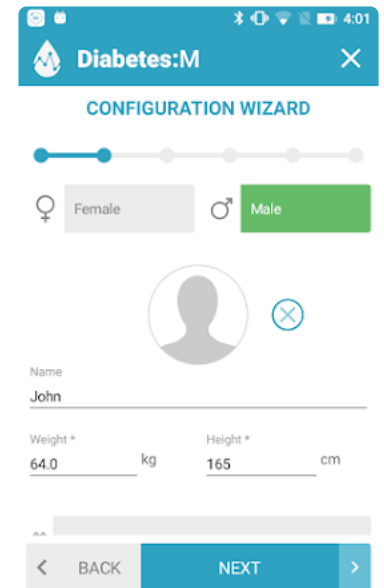
The screenshot shows the 'Diabetes:M' application interface. At the top, there's a status bar with icons for connectivity and battery, and the time 2:34. Below the app title, a 'CONFIGURATION WIZARD' progress bar indicates the current step. The main heading is 'Specify the units of measurement.' There are two radio button options: 'US (lbs, oz, fl oz, inch)' and 'Metric (kg, gram, ml, cm)'. The 'Metric' option is selected. Below this, the 'Blood Glucose Unit' section has two radio button options: 'mmol/L' and 'mg/dL'. The 'mmol/L' option is selected. The 'Carbohydrates Unit' section has two radio button options: 'Grams' and 'Exchanges (10g)'. The 'Grams' option is selected. At the bottom, there is a blue 'NEXT' button with a right arrow.

2.4. Personal data

The configuration wizard will ask you to enter your personal data. It's very important to enter the data marked with asterisk(*) because some of the calculations in the application are based on this data.

Fill the following data on this page:

- Name – needed for the reports and Diabetes:M Monitor
- Sex – required for daily calorie needs calculation
- Weight (*) – needed to determine ISF and I:C defaults
- Height (*) – required for BMI calculation
- Birthday (*) – required to determine blood pressure target zones
- Activity factor – required for daily calorie needs calculation
- Profile picture/photo – appears in the Diabetes:M Monitor



Diabetes:M

CONFIGURATION WIZARD

Female Male

Name
John

Weight * 64.0 kg Height * 165 cm

BACK NEXT



You will be asked to give permissions to the app to use the camera. It is going to be used for profile photos and meal photos later

2.5. Therapy

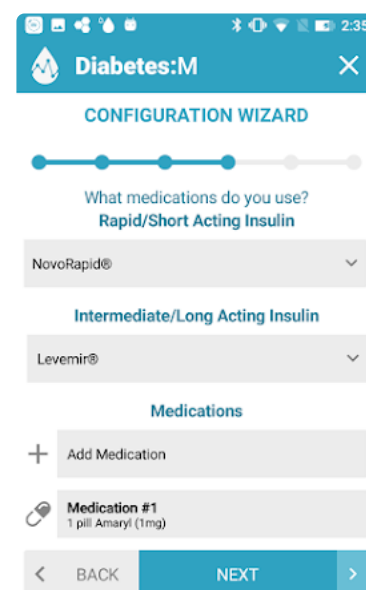
In the **Therapy** screen choose your diabetes therapy type. This will let the application know what settings to ask for on the next screen and also to calculate your medications in a better way. Choose from:

1. Multiple daily injections – if you're on insulin therapy
2. Insulin pump – if you're on a pump therapy
3. Non-insulin treatment – if you're on other types of medications like pills

2.6. Medications

Depending on the therapy type from the **Therapy** screen, the application will let you choose from different types of medications.

If you've chosen **Multiple daily injections** the app will let you add short acting insulin, long acting insulin and other medications if you use any. If you've chosen **Insulin pump** the app will let you choose your insulin type, set your basal profile (insulin per hour, by different intervals through the day) and other medications if you use any. If you've chosen **Non-insulin treatment** the app will let you add pills or other medications with default quantity and your dose.



The screenshot shows the 'Diabetes:M' app interface during the 'CONFIGURATION WIZARD'. At the top, there's a status bar with icons and the time '2:35'. Below the app title, a progress bar indicates the current step. The main question is 'What medications do you use?'. Under 'Rapid/Short Acting Insulin', 'NovoRapid®' is selected. Under 'Intermediate/Long Acting Insulin', 'Levemir®' is selected. Below this, there's a 'Medications' section with a '+ Add Medication' button. Under 'Medication #1', '1 pill Amaryl (1mg)' is listed. At the bottom, there are 'BACK' and 'NEXT' buttons.

2.7. Treatment settings

Glucose targets, insulin sensitivity and insulin ratios

The next screen will let you choose your target glucose levels, insulin sensitivity and insulin to carbohydrates ratio. The following parameters are very important for precise insulin calculations.

- Hyperglycemia and high glucose levels – those levels will be used by the application to warn you when your glucose is high or too high. Also those settings will let the app show you warnings for example to delay your next meal if your glucose is high. Those settings will be used in the provided charts and diagrams too.
- Glucose target – your desired perfect glucose level. This parameter will be used by the app to calculate the needed medicine dosage/ insulin units among with other settings.
- Hypoglycemia and low glucose levels – those levels will be used by the app to warn you about dangerously low glucose levels. They'll be also used in the provided charts and diagrams.
- Insulin sensitivity (hourly) – Insulin sensitivity factor (ISF) is very important for precise calculations for the needed insulin. The application will use this parameter to calculate how much insulin your body will need for a given period of time. Basically this is how much insulin is needed to lower your glucose level to normal ranges if it's currently high in a period of 3-4 hours. If it's hard for you to determine this factor, please leave it by default and try to set it properly after testing your ISF carefully. You can test it by injecting very small amount of insulin when you're with high glucose levels and check how your glucose levels react, checking them every 30-40 minutes during the next hours. Before trying anything like this talk to your endocrinologist.
- Carbohydrates ratio (hourly) – this parameters tells how many units of insulin your body needs to "cover" a specified number of carbohydrates. For example if your ratio is 12, your body will need 1 unit of insulin to cover every 12 grams of carbohydrates that you eat. If you can't determine this value precisely please leave it by default and ask your doctor how to calculate it precisely.

Diabetes:M

CONFIGURATION WIZARD

Glucose Levels Target Range (mmol/L)

Hyperglycemia	Glucose Target	Glucose HI
11	5.6	8

Glucose Low	Hypoglycemia
4.6	3

+ Insulin sensitivity (hourly) 12:00 AM -- 2.84

+ Carbohydrates ratio (hourly) 12:00 AM -- 14

< BACK NEXT >



Important! Those settings are very important for the correct calculations in the application. If you are not sure what is your target, insulin sensitivity and carbohydrates ratio, leave the defaults and consult with your doctor.

3. User profile

On the User profile screen you have the following options:

- [Edit profile](#)
- [Subscription](#)
- [Setup additional family profile](#)
- Logout
- Delete account – deletes your account and all associated data. Deletion is final and unrecoverable. In case you want to preserve your data you can export it before deleting the account, otherwise it will be lost forever.

3.1. Edit profile

You can edit the followign data in your user profile:

- Email – in case you change your email you will receive a code to verify the new one
- Password – you must enter the old and then the new password
- Two-factor authentication – this option can be activated and deactivated
- First and Last name
- Gender
- Diabetes Type
- Date of birth
- Counry
- Pet account
- Receive email notifications

When you finish your changes tap on the “Save” button to confirm.

3.2. Subscription

On this screen you can see the status and expiration date of the subscription, if you have purchased one.

You can change your plan at any time.

You can cancel your subscription through the Play Store for Android and through the App Store for iOS.

3.3. Family profiles

Diabetes:M allows you to register two additional profiles for your family members.

This feature is only available for users with a subscription, so you must have an active subscription.

Setup an additional profile

Click on "Setup additional account" and a form will appear in which you must enter the following data:

- Username – username with which the user of the additional account will be able to log in to the application on a separate device
- Password – password with which the user of the additional account will be able to log in to the application on a separate device
- Name
- Surname

When you save the additional profile, it will appear under "Family profiles" and by clicking on it, you can switch between profiles.



Important! Please pay attention that the account with premium subscription is the main account having access to all created family profiles. The additional family profiles can login on separate devices and use almost all premium features of the application. In case the main account stops the premium subscription, the additional family profiles will no longer use the premium features.

4. Main features

Common patterns

Before using the application let's see some common things which you will see in the app.

Common colors – according to the settings for glucose target levels:

Purple – glucose level below “Hypoglycemia” range setting

Blue – glucose between “Hypoglycemia” and “Glucose Low” range setting












Green – glucose between “Glucose Low” and “Glucose High” range setting

Orange – glucose between “Glucose High” and “Hyperglycemia” range setting






Red – glucose level above “Hyperglycemia” range setting

Common icons:

There are many actions in the applications screens marked with icons. Here is the list with some of the important icons and the actions they represent:

Icon	Action	Icon	Action	Icon	Action
	New log entry		Delete		Clear or Discard
	Go to Bolus Advisor screen		Go to Food screen		Open date selection dialog
	Open time selection dialog		Get help on specific function		Add item
	Use voice		Search		

Notification bar icons

Icon	Description	Icon	Description	Icon	Description
	Synchronization is in progress		Bluetooth device is connected		Smar Assistant is activated
	Alarm notification		News are available		

Screens

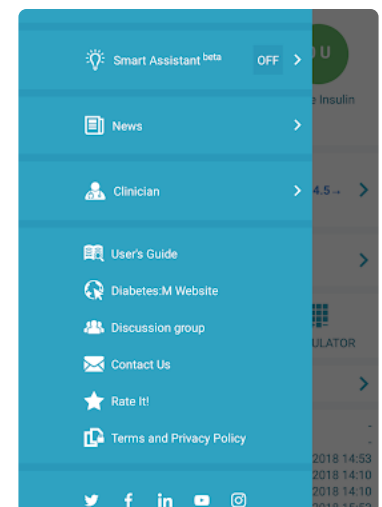
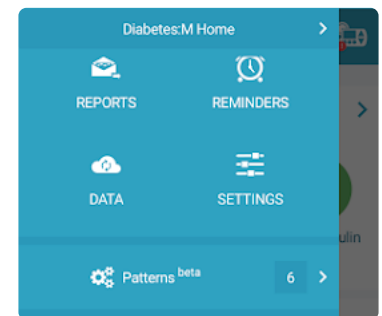
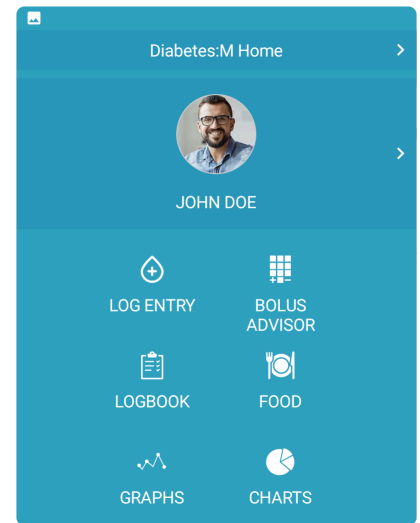
- [Main menu](#)
- [Home](#)
- [Log Entry](#)
- [Logbook](#)
- [Bolus Advisor](#)

- [Food](#)
- [Statistics](#)
- [Graph](#)
- [Charts](#)
- [Reports](#)
- [Data](#)
- [Reminders](#)
- [Settings](#)

4.1. Main menu

The main menu gives you access to all parts of the application.

- **Diabetes:M Home** – leads you to the home screen (described above)
- **Profile** – showing the profile picture and your name. This will lead you to a screen where you can set your personal info.
- **Log entry** – leads to a new logbook entry screen
- **Bolus Advisor** – leads to Bolus Advisor where you can:
 - estimate how much insulin you need for a carbs amount/food/drink/meal
 - estimate the needed increase/decrease of insulin for sickness/exercises
 - estimate extended bolus needed for some food containing more proteins/fats or if you're eating/drinking something slowly over time
- **Logbook** – leads to a list of your logged entries
- **Food** – lets you manage your food and use the Bolus Advisor to calculate needed insulin for foods
- **Graphs** – leads to a graph showing your condition and medications taken over a time period
- **Charts** – leads to detailed statistics over a time period including a lot of graphs/charts
- **Reports** – lets you export all available charts/graphs and other information to pdf/xls/html in pretty format
- **Reminders** – manage your reminders
- **Data** – import/export data from various sources, link external drives, backup/restore your data and settings
- **Settings** – manage your settings
- **Patterns** – a beta functionality which finds potential problems with your diabetes treatments by scanning your data from the last 14 days and analyzing it using predefined patterns
- **Smart Assistant** – enable and configure the Smart Assistant. Check out this page for additional info: [4.4. Smart Assistant](#)
- **News** – opens a screen with the latest news related to Diabetes:M
- **Clinician** – let your clinician access your data remotely including your logbook, charts, graphs and reports
- **Other links** – gives you access to additional help, user's guide, contacts, our social pages and other



4.2. Home screen

The home screen presents the most viable information for the user.

The top row on all screens, not just the home screen, includes most used buttons in the app:

- Menu button – present on almost all screens in the app. It will open the main menu from the side.
- Title of the current page
- Pump icon (if you're on insulin pump medication) – this icon will open your basal rate settings and let you choose from your predefined presets
- Reminders icon – lets you manage your reminders

Next is the row with current statistics and 7 days trend (if you click on this row the app will take you to the charts screen):

- The first statistic shows you the last glucose check and the category. It is colored in different colors depending on the value.
- The next pie chart (outer circle) shows the last 7 days trend with your average glucose levels, colored according to the low/normal/high glucose level targets.
- The inner circle of the pie chart shows the estimated HbA1c according to the average logged glucose levels through the last 3 months
- The next circle shows your current active insulin (if you're on insulin/pump treatment)

If you have enabled CGM features like sensor scan, an additional graph will appear under the latest data stats. Check out more about this graph here: <https://sites.google.com/view/diabetes-m-userguide/cgm-features>

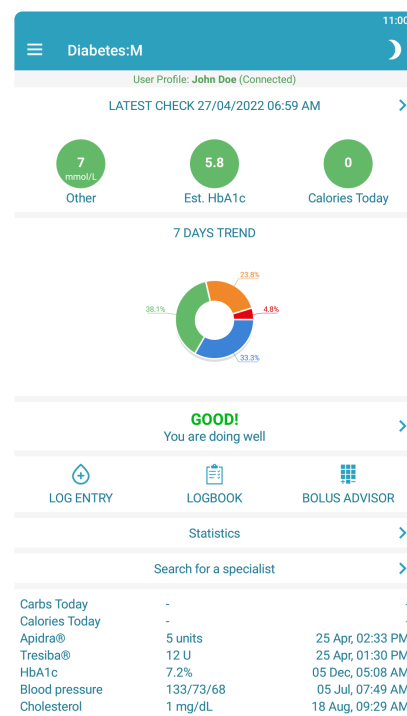
Next is the warnings row. It shows you warnings if your current condition is not very good. You can click over the warning to see more information and more warnings. Check out the possible warnings below, under the statistics section.

Next row gives you quick access to the most used functions of the app – New entry button, Logbook and Bolus Advisor

Next row leads you to the statistics screen with detailed statistics for the last few days/months.

In the end of this screen are latest and most important statistics:

- Carbohydrates, calories today
- Last insulin injections
- Last HbA1c test
- Last cholesterol, blood pressure checks
- Last medications taken



4.3. Log entry

Adding new Logbook entries

When you enter the Logbook you can add new logbook entries or review old ones.

Clicking the “Log entry” button on the main screen takes you directly to the Logbook with all the fields empty and ready for a new Logbook entry. On the Logbook screen you have a lot of options and details that you can enter.

On the top:

- Logbook icon – takes you to the list of existing entries
- Bolus Advisor icon – takes you to the Bolus Advisor. See more in [Bolus Advisor](#) page
- Save icon – saves your logbook entry
- “+” icon – clear all fields, preparing them for a new logbook entry

Tabs:

- Main – the most used tab, lets you enter your usual entry data
- Additional – additional data
- Laboratory – data from laboratory tests

The screenshot shows the 'Log Entry' screen of the Diabetes:M app. At the top, there's a navigation bar with a hamburger menu, 'Log Entry' (selected), a calendar icon, a grid icon, a save icon, and a plus icon. Below this is a tab bar with 'MAIN', 'ADDITIONAL', and 'LABORATORY'. The 'MAIN' tab is active. Under the tabs, it says 'User Profile: Josh Smith (Connected)'. The main form has several sections: 'Date' (19.10.2018), 'Time' (14:18), 'Category' (After lunch), 'Glucose' (00.0 mmol/L) with a hand icon, 'Carbs' (000 grams) with a fork icon, 'Proteins' (0000 grams), 'Fats' (0000 grams), and 'Calories' (0000 kcal). There are also checkboxes for 'Sensor glucose' and 'Estimated glucose'.

4.3.1. Main tab

Basic information

- **Date&Time** – click on the grey date/time fields to open a date/time picker and enter current entry's date and time. Defaults are current date and time.
- **Category** – choose the category of the current entry. The default category is chosen according to the time of the day. You can add custom categories from Settings -> Categories.
- **Glucose** – enter your glucose level manually in the field. Use the “hand” icon to choose a test site if needed.
 - **Sensor glucose** – marks the entry as a sensor glucose, meaning that it comes from some kind of sensor and may not be very accurate. Sensor entries appear grayed out in the logbook.
 - **Estimated glucose** – Mark an entry as “estimated”, meaning that it's not very accurate. Entries marked as Sensor or Estimated won't be used for CGM calibrations. At the moment the app marks the last CGM entry coming from a sensor NFC scan as “estimated”. Entries marked as “estimated” are shown with an exclamation mark in the logbook.

If you're on this screen when you do a finger prick with a connected Bluetooth glucose meter, the glucose field will flash and will get filled with the measured glucose level.
- **Carbs** – enter carbs eaten. Use the plate icon to open the food and use the Bolus Advisor to estimate the needed insulin. If needed you can expand this field by clicking on the “Carbs” and enter fats/proteins/calories manually.

Insulin fields





- **Bolus** – if you're on insulin injections treatment you can enter your bolus for the entry. Also extended bolus can be calculated using the Bolus Advisor.
- **Basal/Basal rate** – you can enter your basal for the entry or if you're on insulin pump treatment you can enter your basal rate if needed.
- **Medications** field – enter your medications if any. The medications that you're taking can be managed in the Settings -> Medications.
- **Photo and notes** – if you want you can add a photo to the logbook entry and a note

When you're ready with your entered info hit the “Save” button (№ 3) and your new entry will appear in the Logbook and will be focused (if it's not hidden).

4.3.2. Additional tab

On the additional tab you can enter:

- Weight
- Ketones
- Blood pressure
- Physical activity – if you want you can calculate needed insulin reduction for exercises using the Bolus Advisor

MAIN	ADDITIONAL	LABORATORY
	Weight	<input type="text" value="000.0"/> kg
	Ketones	<input type="text" value="00.0"/> mmol/L
	Blood pressure	
	Systolic	<input type="text" value="000"/> mmHg
	Diastolic	<input type="text" value="000"/> mmHg
	Pulse	<input type="text" value="000"/> bpm
	Physical activity	

4.3.3. Laboratory

Laboratory tests logging

Diabetes:M supports logging of laboratory results such as

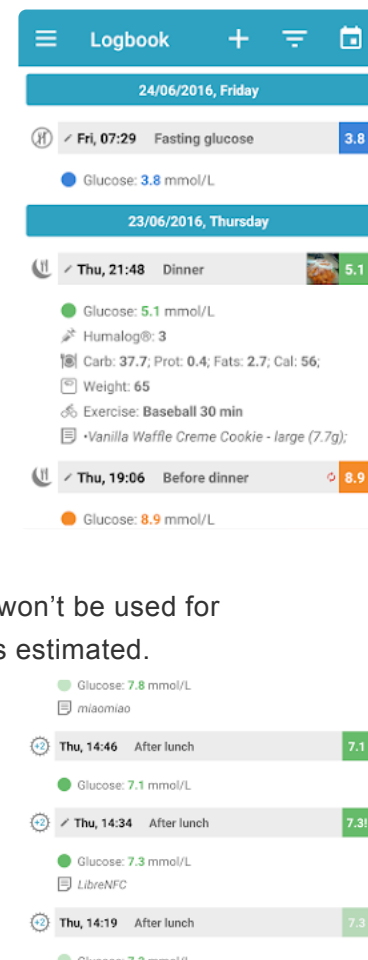
- HbA1c
- Lipid tests like cholesterol, LDL, HDL, Tryglicerides
- Microalbumin test, including test type
- Comprehensive metabolic tests like Creatinine clearance, eGFR, Cystatin C, Albumin, Creatinine, Calcium, Protein, Sodium and more

4.4. Logbook

The Logbook is the list of your existing entries. You can quickly review every entry's information in the list, which is arranged by date from the current date on top to previous dates while going down the list.

For every Logbook entry you can see:


- Day, time and category
- An icon showing that this entry is not synced with the server. (next to the glucose level on the last entry on the screenshot)
- Photo if there is one in the entry
- Glucose level if it exists in the entry. Glucose levels are in different colors
 - Purple – very low glucose level
 - Blue – low glucose level
 - Green – normal glucose level
 - Orange – high glucose level
 - Red – very high glucose level
- With exclamation mark "!" – estimated glucose. Means that this entry won't be used for calibrations. Every last entry coming from NFC scan will be marked as estimated.
- Fainted value – means that this glucose came from a sensor.
- Under the heading line, all added information in the entry is shown
- Entries can be deleted by swiping on an entry from right to left. A "bucket" icon will appear in red next to the entry.




Icons and their categories

Icon	Category	Icon	Category	Icon	Category
	Before breakfast		Before lunch		Before dinner
	After breakfast		After lunch		After dinner
	Before exercise		Before bed		Fasting
	After Exercise		Night		Other

4.5. Bolus Advisor




 This feature is not available in the USA!

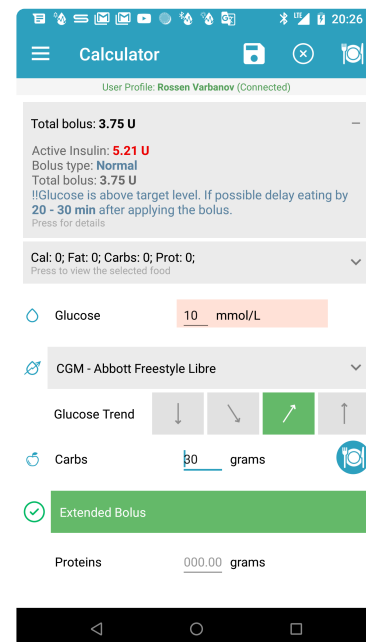
The Bolus Advisor in Diabetes:M is used to calculate the amount of insulin needed by the body for a certain amount and type of food. You have to weigh your food and know its nutrition facts and also measure your glucose levels in order to configure those settings and make the Bolus Advisor works for your situation right.

 For the Bolus Advisor to work precisely you must configure the advisor parameters properly (insulin sensitivity, carbohydrates ratio, active insulin duration). Otherwise the Bolus Advisor may not work correctly and may lead to incorrect insulin dose calculations. Use it only after consultation with your doctor about the configurations and Bolus Advisor's features.

The main feature of the Bolus Advisor is to estimate how much insulin does your body needs to cover a meal. It can also estimate extended bolus if your meal has more fats/proteins, exercise adjustment and sickness adjustment.

On the top row you can see a few icons:

-  – saves current calculations to your current logbook entry or to a new one if none selected
-  – clears all fields
-  – switches the Bolus Advisor to the Food selection screen



To calculate the needed insulin, the Bolus Advisor needs some input data:

- Calculate the needed insulin for a meal – you can enter the carbs or choose a meal from the plate icon. The calculation is done based on your weight, insulin sensitivity, carbohydrates ratio, current glucose level and currently active insulin. After entering the carbohydrates/food and current glucose level the Bolus Advisor will show you the needed insulin in the top grey field. It will also show you the current active insulin and other details (see below)

- Using extended bolus – the Bolus Advisor can calculate extended bolus if you're eating high protein and fats foods, eating some snacks, drinking cocktails etc. You can enable the extended bolus by clicking on the **Extended Bolus** button. If you've already selected some food the proteins/fats/calories fields will be filled, if not you can fill them manually and enter the desired correction if needed. After the extended bolus is enabled, the Bolus Advisor will show in the top grey field how the bolus is split to normal and extended parts and what is the duration of the extended bolus (it can be configured in the log entry screen after saving the calculations)
- If you're on multiple daily injections treatment, the Bolus Advisor will let you choose on how many injections to split the extended bolus and after how much time to be the first injection. Those fields are not visible when you're on pump treatment.



Extended bolus is used when you take foods with more fats. Your body may need more insulin in the next few hours to handle those foods, because the carbohydrates are handled more difficult and slower than normal in this case. The extended bolus feature will calculate how much more insulin you will need to handle this situation. You can set the time periods for the additional insulin, the % correction and the splits on which you want to take it. The correction % here is different for every person and you may want to experiment with fat foods and more glucose measurements to get this percent right.

- Using **Glucose Trend** adjustment – if you are using a sensor or other CGM you can use the rate of change arrows buttons to set the current trend shown by the CGM. That way the Bolus Advisor will take into account the current trend and will propose larger or smaller bolus depending on the trend.
- Using **Exercise Adjustment** – often when having exercises you should reduce your insulin injection units. The Bolus Advisor can do that for you by enabling the “exercise adjustment” option. You can enter your exercise, duration and needed correction. When you're exercising your body may need lesser insulin or medications to handle the carbohydrates intake. It's different for every person so you should measure your glucose levels when you're exercising in order to know how different exercises affect your glucose. You may even need to take some carbohydrates in order to stay in the preferred glucose target levels when you're doing exercises and afterward.
- Using **Sickness Adjustment** – usually when a person is sick, he needs more insulin. The Bolus Advisor can add some corrections to your calculated insulin in case you're sick. Choose the sickness adjustment option on the bottom of the Bolus Advisor and enter your correction, to increase the calculated insulin units.*
With every person this amount is different, so you should measure your glucose levels more when you're sick in order to set your sickness correction properly

For more information about how the Bolus Advisor works, read in section [5.1 Bolus Advisor explained](#)

4.6. Food

Food

On the food screen you can manage your saved food/meals and add an item to the Bolus Advisor to calculate the needed insulin.

On the top row you can see a few icons:

- Save icon – save the current food and calculations to the current logbook entry
- “X” icon – clear all fields
- Bolus Advisor icon – go to Bolus Advisor

On the first grey field there are:

- Total calculated bolus
- When expanded you can see the extended bolus (if enabled in Bolus Advisor) and details about active insulin and how the calculations are made

On the second grey row:

- Currently selected food nutrition data – if you click on the field, a list with the current selected food will appear

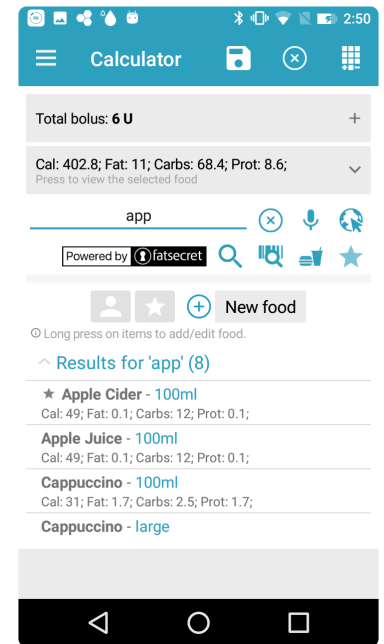
On the next group of buttons:

- Search field
- “X” button – clears the current search
- Microphone button – use voice search
- Planet icon – lets you search in “United states department of agriculture”(USDA) and “Spanish food composition database”(BEDCA)
- Magnifier icon – lets you search in FatSecret foods. NOTE: This feature searches only in US foods of FatSecret, due to restrictions.
- Barcode icon – lets you scan a barcode and add the food to the database if it is not already present.
- Sandwich and cup icon – lets you search your saved meals in your FatSecret profile (FatSecret profile needed)
- Star icon – shows you your favorite FatSecret foods (FatSecret profile needed)

Next group:

- User icon – filters the food list, showing only user added foods
- Star icon – filters the food list, showing you only your favorite foods
- “+” icon (New food) – lets you add a new food (Check “Adding food to Bolus Advisor” below)

Last group



- Shows you foods filtered by your search terms. By default it shows you all foods separated by categories.
- Favorite foods are marked with a star



Important note: Diabetes:M gathers food information from it's own database, from FatSecret database and from the two additional databases (USDA, BEDCA).

When you add favorite food:

- If it's from FatSecret it will be shown only from FatSecret's favorites
- If it's from the local database it will be shown only from your favorites filter
- If it's from USDA, BEDCA, the food is imported into the local database and marked favorite there. It can now be found from the local database.

Adding food to Bolus Advisor

When you click on a food from the list, a quantity selection dialog appears. Depending on the food type and your settings it will display different measurements (grams, oz, ml, fl oz).

When you add the desired amount, the food will be added to the foods list (second grey field in the food screen and on the Bolus Advisor screen)

Editing food

You can edit food by press and hold over it. You can edit USDA and BEDCA foods too. After editing, the food will be stored as user added food.

4.6.1. Recipe analyzer

Analyzing home made meals using Edamam

Edamam's recipe analyzer is part of our Subscription enabled features. Premium users can analyze their home recipes and get the nutrition data of their home made dishes.

Edamam uses big ingredients and foods database to find the ingredients you've entered and analyze their nutrition values. Have in mind that Edamam does take in account the cooking process whether it's boiling, frying or other, so if you enter more details about your recipe – they will be taken in mind.

The edamam recipe analyzer is located in the menu for other food sources in the food screen. When you click on the "Analyze" button, a screen with a text box opens.

In the text box you can enter your recipe, one ingredient on each line. Also you need to enter your servings size.

Here's an example how a typical recipe can be entered in the recipe analyzer:

Type in the ingredients for Diabetic Living's Parmesan Baked Fish recipe:

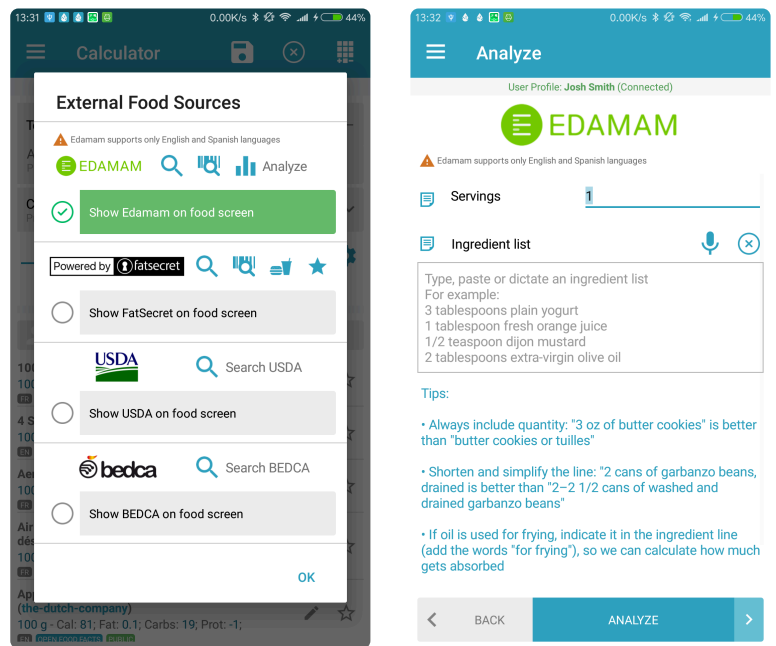
Servings: 4

Ingredient list:

```
4 oz skinless salmon, 1 inch thick
1/4 cup mayonnaise
2 tbsp grated parmesan
1 tbsp green onion
1 tsp Worcestershire chicken sauce
```

Tap "Analyze" and see the results for a single serving. You can also save the meal as a new food for later use.

Check out this blog post for more information: <https://www.diabetes-m.com/blog/premium-features/how-to-analyze-your-recipes-nutrition-values-with-diabetesm/>



4.7. Statistics

Statistics

Diabetes:M provides a lot of statistics in form of diagrams, graphs and charts. You can view your collected data visually and understand it better.

Main statistics

On the home screen there is a field called "Statistics", it takes you to this screen which shows you some personal stats and the statistics for the last 7/14/30/90 days.

The summary sections displays the most important statistics which are calculated using the user's settings and the data in the entries database.

Personal

Weight

*Body Mass Index (BMI) * – based by your weight and height this index indicates whether your measures are in normal limits or you are underweight or overweight

Basal Metabolic Rate (BMR) – BMR represents the number of calories you need to maintain your weight if you are sedentary. It is based by your weight, height, age and sex.

Daily Calorie Needs – usually you need more calories per day than your BMR index. Daily Calorie Needs is based by your BMR and your daily activity.

Total Insulin – the total daily amount of insulin based by the body weight and bolus insulin type (rapid or regular)

Total Basal Insulin

*Carbohydrate Ratio * – represents how many grams of carbohydrates are covered by 1 unit of insulin. Based by body weight and bolus insulin type (rapid or regular)

Insulin Sensitivity – represents how much the blood glucose will be lowered when apply 1 unit of insulin. Based by body weight and bolus insulin type (rapid or regular)

3:07

Statistics

Personal

Weight:	64 kg
Body Mass Index (BMI):	23.5 Normal
Basal Metabolic Rate (BMR):	1597 kcal
Daily calories needs:	1917 kcal
Total insulin (TDD):	35.2 U
Total basal insulin (TBD):	14.1 U
Carbohydrates Ratio (I:C):	1 U : 14g
hh:mm → 1 U : g	12:00 AM → 14;
Insulin sensitivity (ISF):	2.8 mmol/L
hh:mm → mmol/L	12:00 AM → 2.84;

Statistics

Total records:	15831
Glucose readings per day:	0.2
Estimated HbA1c:	5.8%

Period	Count	Hypo	Low	Norm	High	Hyper
7 days	3	-	1	1	1	-
14 days	3	-	1	1	1	-
30 days	3	-	1	1	1	-

Period average statistics

Main statistics

Total records – total records count in the database

Average glucose readings per day – displays how many records with blood glucose value are entered in the database

Estimated HbA1c – HbA1c value based by the blood glucose readings for the last 90 days. Requires minimum of 9 glucose readings to calculate the estimation of HbA1c value.

Table with the glucose reading counts for the current day and the last 7, 14, 30 and 90 days grouped by hypoglycemia, low, normal, high and hyperglycemia blood glucose values.

Table with the averages for glucose readings for the current day and the last 7, 14, 30 and 90 days. Also displays the lowest and highest value for the time period.

Table with carbohydrates and insulin daily totals for the current day and the last 7, 14, 30 and 90 days. Also displays the ratio between bolus and basal insulin daily intake.

Table with weight for the current day and the last 7, 14, 30 and 90 days and the change between

Table with sleep and activity data – if you have enabled the “Smart assistant”

Table with the LBGI and HBGI risk indexes and glucose variability indicator. For details see Blood Glucose Indexes.

13:36 3.33K/s 43%

Statistics

User Profile: Josh Smith (Connected)

Period	Weight (kg)			
	Average	Lowest	Highest	Change
Today	-	-	-	62
7 days	-	-	-	-
14 days	62.5	62	63	-1
30 days	62.7	62	63	-1
90 days	62.8	62	63	-1

Period	Sleep	Sleep & Activity ⁽¹⁾		Calories Burned
		Steps		
7 days	< 8h	3101		1361
14 days	< 8h	3505		1499
30 days	< 8h	3067		1157
90 days	7h-9h	3067		1128

(1) Sleep and activity estimations are based on the device usage and might be incorrect in some occasions.

Period	LBGI ⁽¹⁾	HBGI ⁽²⁾	Variability ⁽³⁾
Today	0.3	5.4	4.4 mmol/L
7 days	0.3	5.9	4.7 mmol/L
14 days	0.2	6.2	4.6 mmol/L
30 days	0.3	7.3	5 mmol/L
90 days	0.3	7.2	2.8 mmol/L

Low Moderate High

(1) LBGI - Low Blood Glucose risk Index
 (2) HBGI - High Blood Glucose risk Index
 (3) Variability - Daily average blood glucose standard deviation
[More information](#)

3:07

Statistics

Period	Glucose (mmol/L)		
	Average	Lowest	Highest
7 days	7.3	5.3	10.3
14 days	7.3	5.3	10.3
30 days	7.3	5.3	10.3
90 days	6.4	2.6	10.3

Period	Daily Bolus	Daily Correction	Daily Basal	Bolus% Basal%
7 days	2.2 U	0.9 U	-	-
14 days	2.2 U	0.9 U	-	-
30 days	2.2 U	0.9 U	-	-
90 days	12.6 U	0.9 U	5 U	71.6%/28.4%

Period	Daily Carbs	Daily Proteins	Daily Fats	Daily Calories
7 days	35 g	2 g	-	199
14 days	35 g	2 g	-	199
30 days	35 g	2 g	-	199
90 days	97 g	4 g	2 g	445

Period	Weight (kg)			
	Average	Lowest	Highest	Change
7 days	62	62	63	-1

Other statistics

Diabetes:M provides a few types of data visualizations showing different variables from your data:

Graph – showing glucose levels and glucose infusion rate throughout the day with options to filter the data

Charts – display all the collected data in various types of reports with time configuration

Reports – prepare reports for some period, export it as XLS, HTML, PDF and save it or share it with your doctor.

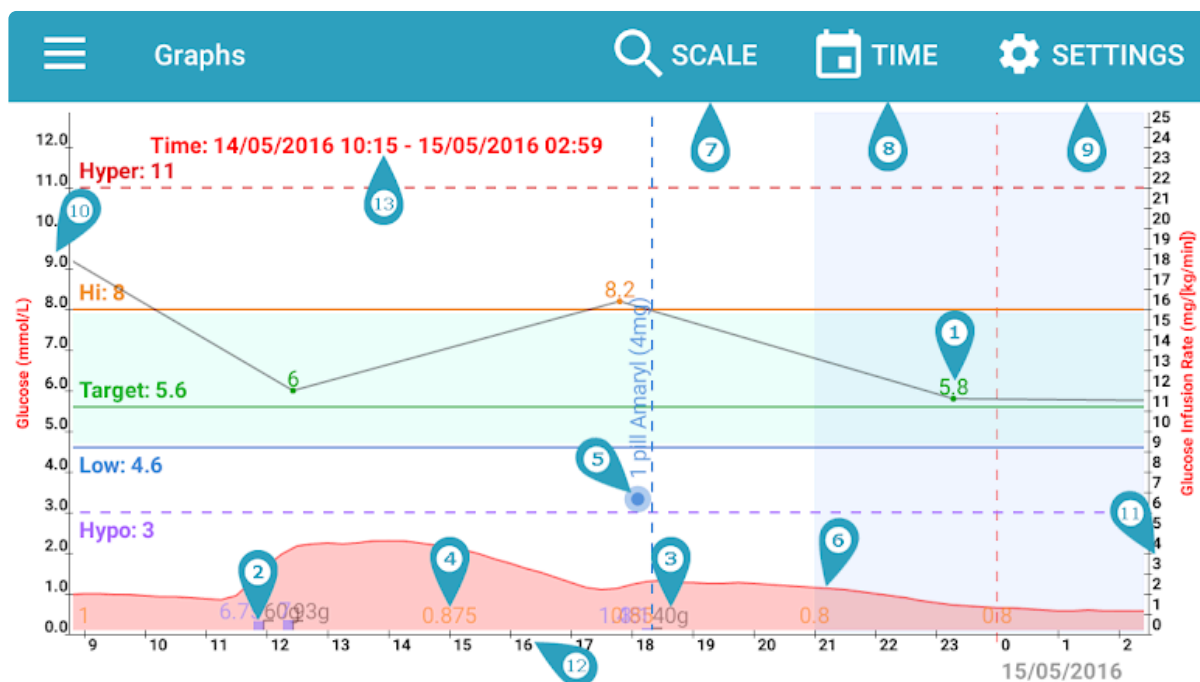
4.8. Graph

Graph

This screen displays all the entries as a graph. You can scroll it left and right to see a particular time interval depending on the selected scale.

*The graph is important because it shows you all viable information distributed by short periods of time. You can easily find patterns in your daily medications/insulin intakes and your foods intakes. You can also analyze how different actions affect your body, for example exercises, insulin injections or bigger/lower food intakes.

1. Glucose Entry
2. Insulin injection mark
3. Carbohydrates amount mark if present. Note that it should match the insulin mark if insulin covers the carbohydrates amount according your carbohydrates ratio for the time of the entry.
4. Basal rate change
5. Medications mark
6. Insulin activity graph. You can see the peaks of activity especially if you have multiple injections before the expiration time of the first injection.
7. "Scale" changes the scale of the graph. You can select from day, week, month and year.
8. "Time" positions the graph view at a particular time
9. "Settings" allows you to configure which marks and elements in the graph to see.
10. Glucose levels line
11. Glucose infusion rates line
12. Timeline showing 0-24 hours from the day
13. Shown time interval



4.9. Charts

Charts screen shows statistical data charts.

When you tap on the chart (except the pie charts) it goes full screen where users can pinch or double tap to zoom in/out the chart.

The following diagrams are available:

- [Ambulatory Glucose Profile \(AGP\)](#)
- [Distribution by days](#)
- [Distribution by category](#)
- [Glucose Overlay](#)
- [Glucose Week Overlay](#)
- [Glucose History](#)
- [Averages by meal](#)
- [Insulin daily totals](#)
- [Carbohydrates and insulin averages by meal](#)
- [Food nutrition data and grams intake](#)
- [Injection and test sites](#)
- [Metabolic control](#)
- [Insulin Sensitivity/Carbohydrate Ratio](#)
- [Weight history](#)
- [Blood Pressure & Pulse history](#)
- [HbA1c history for the last 2 years](#)
- [Cholesterol history for the last 2 years](#)

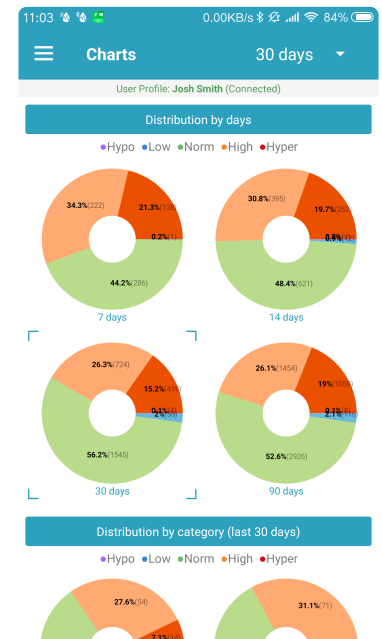
4.9.1. Summary

Distribution by days and chart interval selection

These pie charts show your blood glucose distribution according the target limits you entered in the settings.

You can select the time interval for the other charts as tapping on the corresponding pie chart. Its border will be highlighted.

They are useful because you can see easily what your glucose levels averages were in the last 7/14/30/90 days and check how you were doing in the near past.



Distribution by category for the selected interval

These pie charts show your blood glucose distribution per time category as night, before meal, after meal or other if the reading appears in other time.

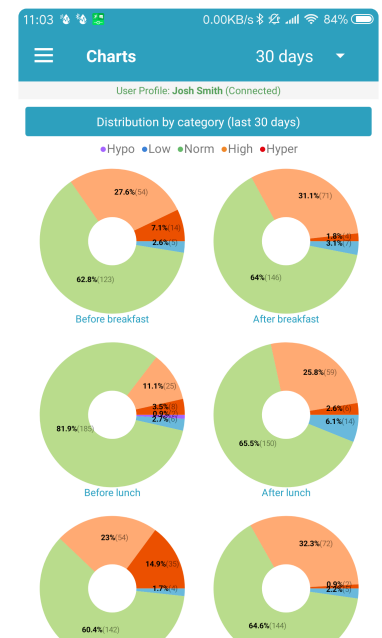
In those charts you can find if you have problems in some time of the day, for example if your glucose before bed was usually higher than it needs to be or you're not measuring your glucose enough in some time of the day.

Such strange things about your glucose measurements can be seen easily on those charts.

Time categories are:

- "Night" – between 21:00 to 07:00 in the morning
- "Before" meal – 1 hour before the meal
- "After" meal – 2 hours after the meal
- "Other" – all other hours and categories as "Snack" and "Fasting Glucose"

Meal hours as breakfast, lunch and dinner are specified in the Settings screen.



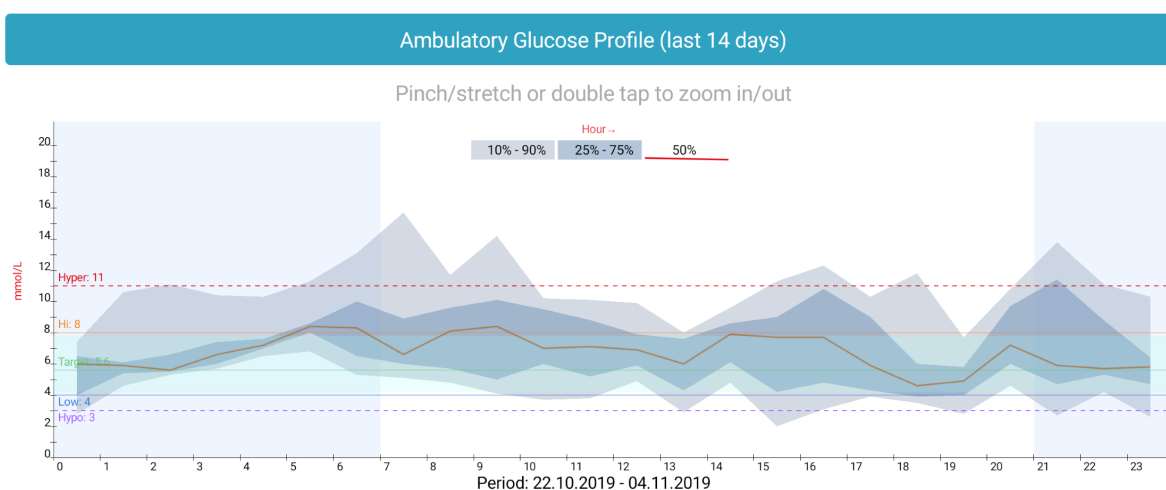
4.9.2. Glucose

Ambulatory Glucose Profile (AGP)

Ambulatory Glucose Profile (AGP) is a chart for interpreting a patient's daily glucose and insulin patterns. AGP chart provides graphic characterizations of daily glucose patterns. It shows the 10%-90% and 25%-75% percentiles zones and 50% median line of all the glucose readings for the selected interval during 24 hours. This helps to see for which hours you glucose varies the most.

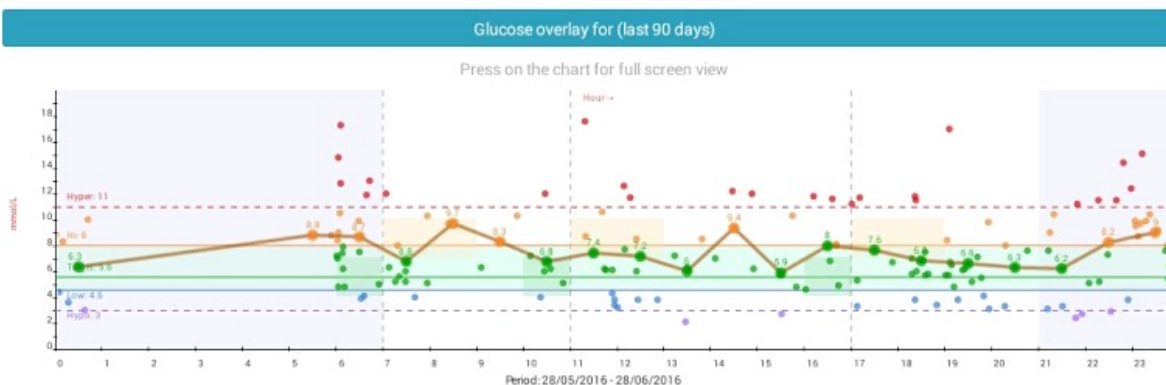
More information about how to interpret the chart can be found in the article **"AGP Core Curriculum – AGP Clinical Academy"** by Prof. Roger Mazze and Dr. Iain Cranston at

<https://static1.squarespace.com/static/5a4cf19e51a5840a334adcfd/t/5a8b45ae71c10b58453cf148/1519076808390/AGP+Core+Curriculum+02-2018.pdf>



Glucose Overlay

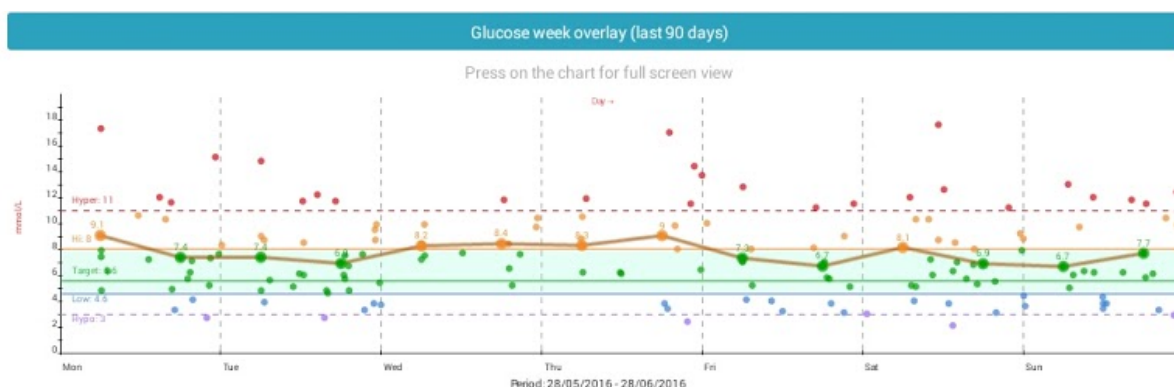
This chart shows the distribution of all the glucose readings for the selected interval during 24 hours. This helps to see for which hours you don't have enough information. Usually all the readings are clustered around the meal hours but it is good to know what are the values for our blood glucose during the whole day. You can also find some patterns in some hours of low/high glucose levels through the day.



Glucose Week Overlay

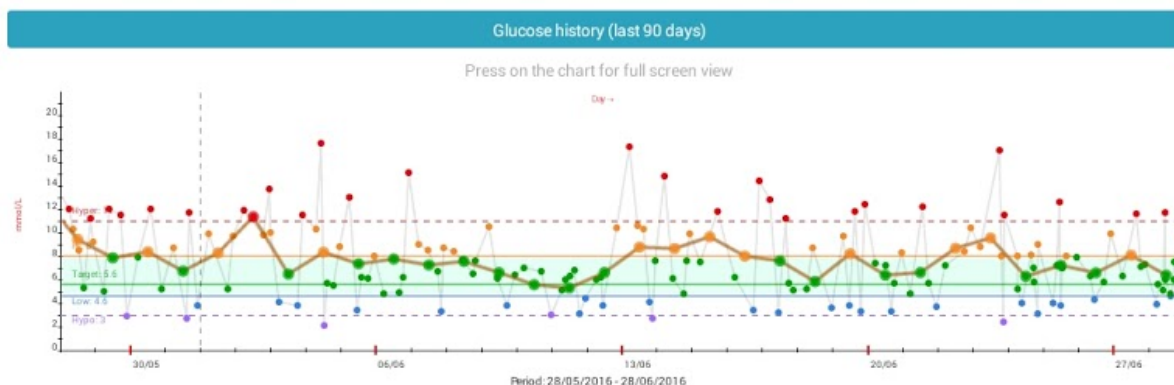
This chart shows the distribution of all the glucose readings for the selected interval during the week. It can help you find strange glucose level readings by day, for example you may find out some day of the week you have lower/higher glucose levels and you can then think about why this happens and find some actions or events in that day that affect your glucose levels.

For every day the averages are calculated for the first and the second half of the day. For every day there are two averages from 12:00 am to 12:00 pm and from 12:00 pm to 12:00 am.



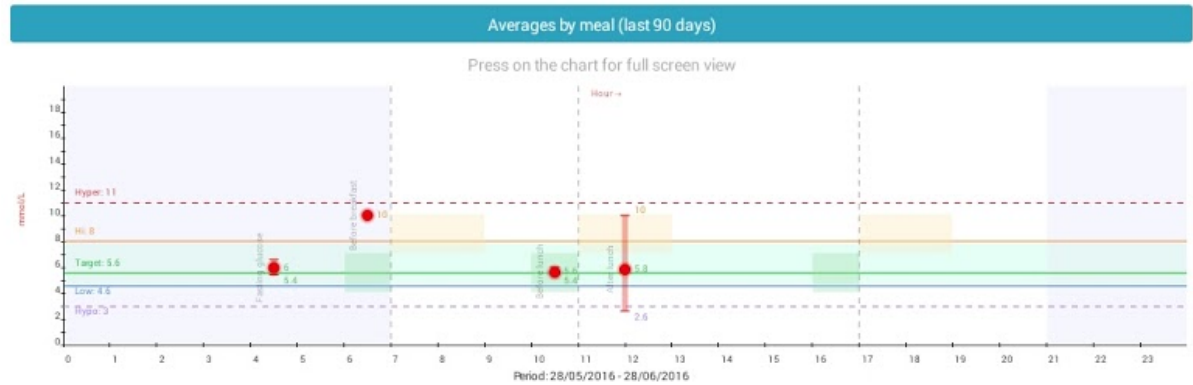
Glucose History

This chart shows the history of all the glucose readings for the selected interval. Averages are calculated per day. You can find out how some events affected your diabetes management, for example if you were on a vacation for a few days, you can see those days averages here.



Averages by meal

This chart shows the minimum, maximum and average values of blood glucose per meal categories. The chart can help you find if you have too big deviations of the blood glucose during the day. Usually you may have good average glucose values, but if you have big deviations it's not a good sign for your diabetes management.

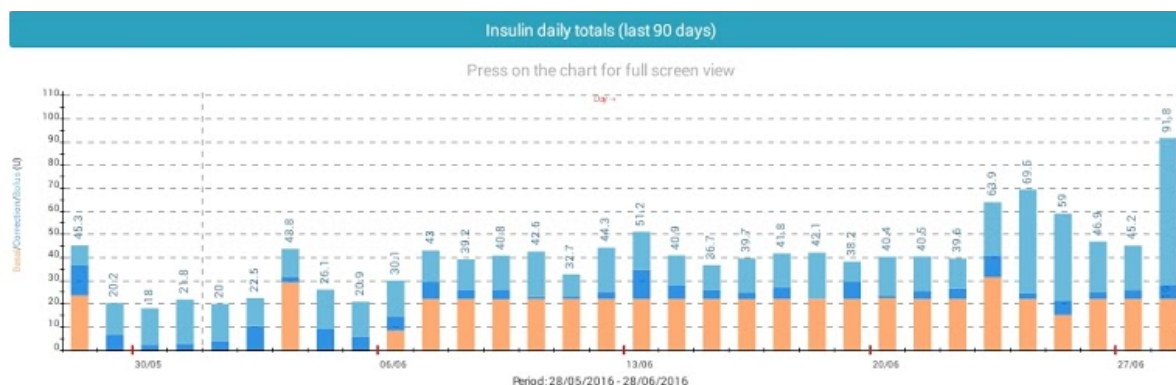


4.9.3. Insulin & meal

Insulin daily totals

This chart shows the insulin daily totals for the selected interval. Bars show the ratio between basal (orange), bolus (light blue) and correction bolus (dark blue) insulin totals.

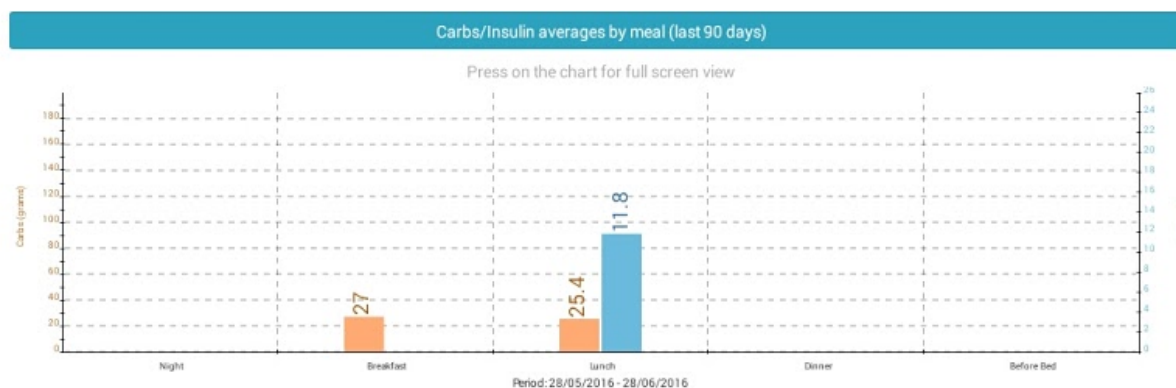
It can help you find out if your insulin injections are similar through the day or if you have too many corrections, which may be a bad sign.



Carbohydrates and insulin averages by meal

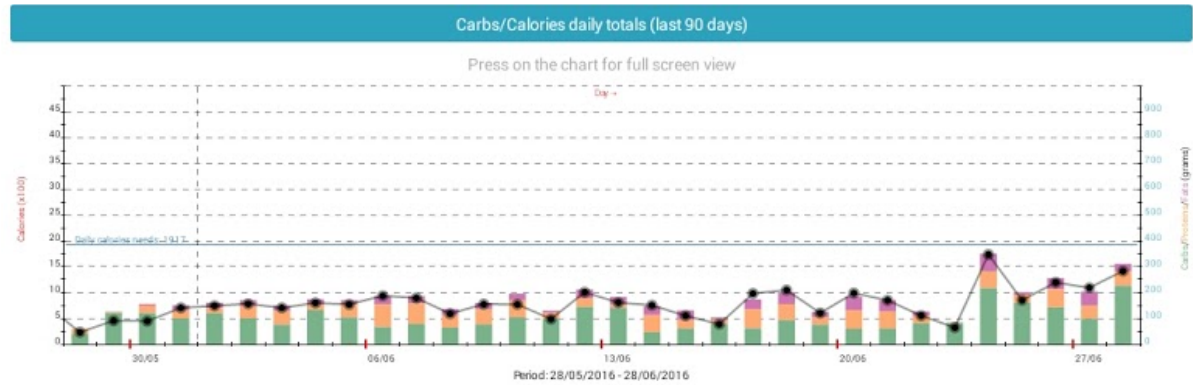
This chart shows the average insulin and carbohydrates by periods of the day – night, breakfast, lunch, dinner, before bed.

It can help you to see your average carbohydrates intake and your average insulin intakes by time of the day. This way you can find how different carbohydrates amounts affect your insulin intakes and the opposite.



Food nutrition data and grams intake

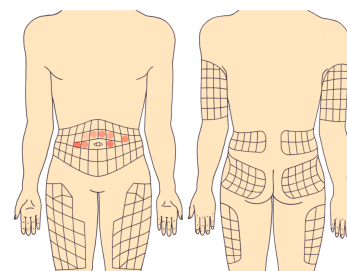
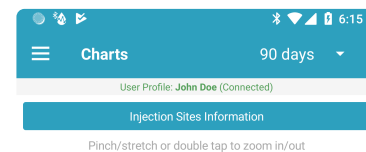
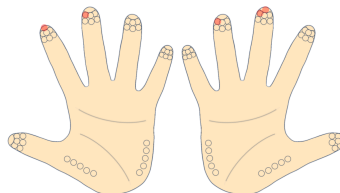
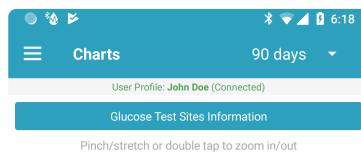
This chart shows carbohydrates (green), proteins (orange) and fats (purple) of the food you take over the selected period of time, distributed by times of the day. Also it shows calories count (the black line with dots), needed calories and food's weight.



4.9.4. Injection & test sites

Injection and test sites

Those graphics show the insulin injection sites and glucose test sites on the hands. The most frequently used spots (and most recent spots) are with darker color. Spots color decays in time and disappear in some time if not used again.

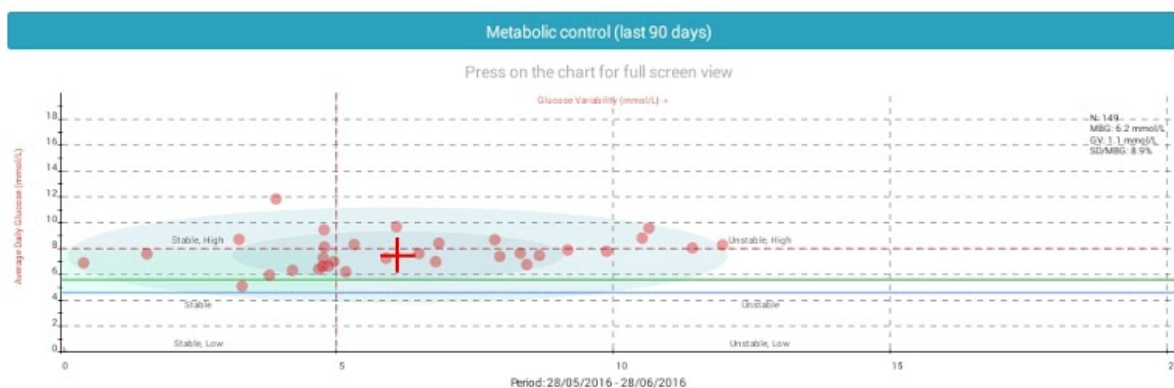


4.9.5. Advanced

Metabolic control

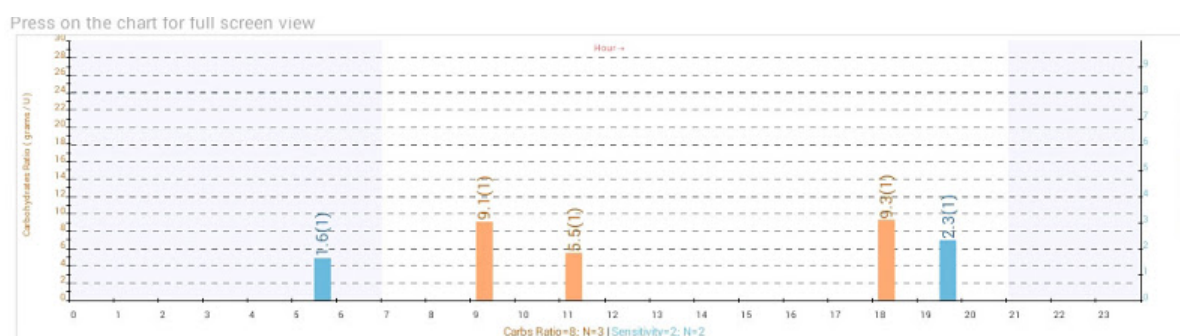
This chart shows the glucose variability and average daily glucose. It tells you if your glucose is varying too much and if your daily glucose levels are normal. In the best scenario most of the dots (readings) should be in the inner circle.

If most of the readings are in the inner circle it means that your glucose was stable and didn't vary too much.



Insulin Sensitivity/Carbohydrate Ratio

This chart shows calculated carbohydrate ratio and insulin sensitivity based by the information during the selected interval. Diabetes:M tries to identify patterns in the data you entered with which it can calculate some insulin sensitivity and carbohydrates ratio. If you have enough correct data available, those calculated values after the analysis should almost match your real insulin sensitivity and carbohydrates ratio values.



Description

1. Insulin sensitivity bar (blue)
2. Carbohydrate ratio bar (orange)
3. Average value calculated for the hour (over the bars)
4. Count of the successful calculations for the hour. The hour average is calculated using these values (in the brackets)

In the chart description at the bottom of the chart you can see the total averages for these values based by all successful calculations.

Calculation basics

To calculate carbohydrate ratio successfully there must be a glucose reading, insulin dose and carbohydrate entry and there must be at least one glucose reading during the second, third or fourth hour after the first reading.

To calculate insulin sensitivity successfully there must be a glucose reading below or above the target and insulin dose entry but NOT a carbohydrate entry. There must be at least one glucose reading during the third, fourth or fifth hour after the first reading.

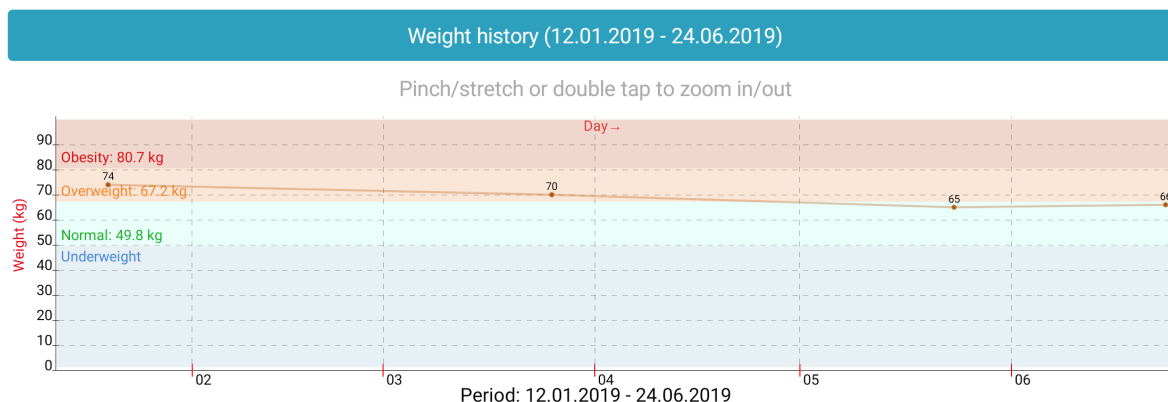


These values could be wrong if there are not appropriate data patterns found and not enough successful calculations are made for some hours. Using these values for correcting insulin doses must be done with extreme caution and increased blood glucose measuring.

4.9.6. Other

Weight history

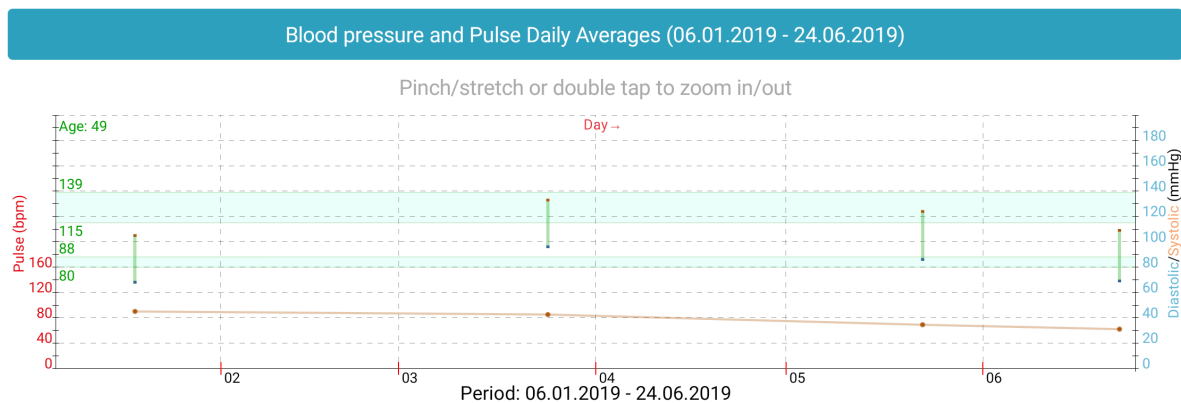
This chart shows the history of all the weight recordings for the selected interval.



Blood Pressure & Pulse history

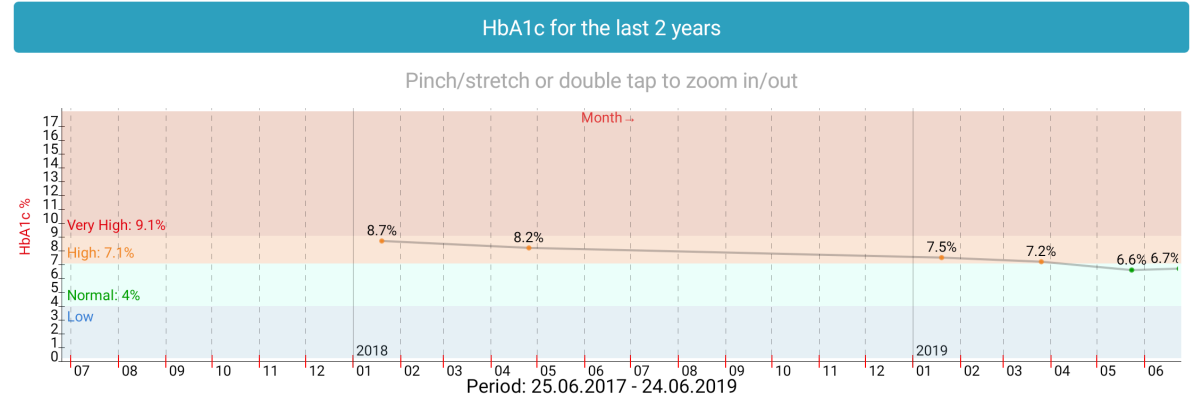
This chart shows the history of all the blood pressure and pulse recordings for the selected interval.

The target zones are calculated depending by the age. When pulse pressure is above or below the safe range the bar is in red.



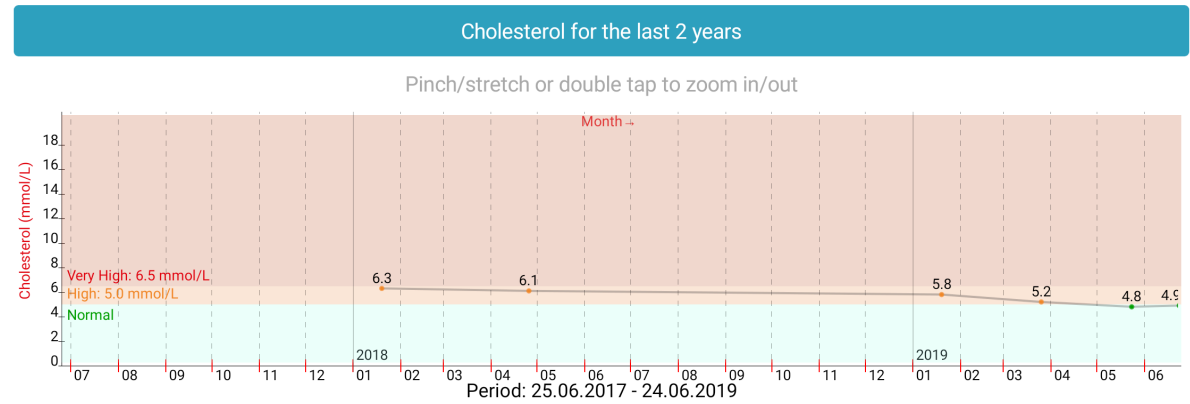
HbA1c history for the last 2 years

This chart shows the history of all the HbA1c recordings for the last 2 years.



Cholesterol history for the last 2 years

This chart shows the history of all cholesterol recordings for the last 2 years.



4.10. Reports

Using the Reports screen users can generate various reports which the specialists can review.

Report types

Ambulatory Glucose Profile (AGP)

Ambulatory Glucose Profile (AGP) is a single page report for interpreting a patient's daily glucose and insulin patterns. AGP provides both graphic and quantitative characterizations of daily glucose patterns.

Pattern Analysis

This is an advanced pattern analysis of the logbook data. The Diabetes:M server tries to find various patterns in the last 14 days and how often they happen in your daily routines. The system lists all occurrences and the possible reasons which might cause the particular pattern to appear.

Although it shows all patterns, the really important ones are those with more than 2 or 3 occurrences.



IMPORTANT!!! This analysis is intended only to help identify some events of interest in the huge amount of logbook data. Never do any treatment changes based only on the listed patterns and their descriptions. **ALWAYS** consult with your doctor first.

LogBook

The LogBook report contains a table including all logged entries for the given period of time. The table includes entry number, date/time, glucose level (colored for low/high/normal), carbohydrates taken, insulin doses (including basal and extended boluses), other medications, category (after/before dinner/breakfast etc.), notes, additional info. The report is good to show your treatment and intakes in details.

LogBook (Compact)

Report which includes glucose, carbohydrates, bolus and basal in a table separated by every hour of every day in the reporting period.

CategoryDistribution

Report which includes glucose, bolus and carbohydrates, grouped by category (breakfast, after breakfast, lunch, after lunch, etc.) for every day from the reporting period

Detailed Report

Detailed report which includes graphs and charts from those seen in the application (Graphs and Charts). Most of the charts can be configured to show different periods of time, including copies of the charts with more than one time period. In this report you can include almost all charts:

- “Distribution by category” charts – places the distribution by category pie charts in the attached

main report for the last 7, 14, 30, 90 days or for a custom time period.

- “Glucose overlay” chart – places the glucose overlay charts in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Metabolic control” chart – places the metabolic control chart in the attached report for the last 7, 14, 30, 90 days or for a custom time period.
- “Category averages” chart – places the meal time averages charts in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Insulin daily totals” chart – places the totals for insulin intake chart in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Carbs/Insulin averages” chart – places the averages for insulin and carbohydrates intake charts in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Carbs/Calories totals” chart – places the totals for carbohydrates and calories intake charts in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Glucose history” chart – places the glucose history charts in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Weight history” chart – places the weight history chart in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “Blood Pressure and Pulse history” chart – places the blood pressure and pulse history chart in the attached main report for the last 7, 14, 30, 90 days or for a custom time period.
- “HbA1c history” chart – places the blood pressure and pulse history chart in the attached main report for the last 2 years.
- “Cholesterol history” chart – places the cholesterol history chart in the attached main report for the last 2 years.
- “Injection sites information” graphic – places the injection sites information graphic in the attached main report for the last 2 years.
- Patterns report – report including all the data from our patterns feature including all the patterns found within the last 14 days and the entries matched in the patterns

The reports can be generated in different formats – XLS, PDF, HTML and can be printed, shared in some apps (google drive, email clients and others similar) or sent via email.

Sample reports:

- Distribution by category report
[Sample Distribution by category report](#)
- Logbook report
[Sample Logbook report](#)
- Compact Logbook report
[Sample compact logbook report](#)
- Detailed report with charts and statistics
[Sample detailed report](#)
- Patterns analysis report
[Sample patterns analysis report](#)

4.11. Data

Manage Data screen provides tools for data management such as linking external drives, import-export features, backup and restore.

Link external drives

- Link FitBit (coming soon) – lets you synchronize your FitBit data with Diabetes:M. When you enter physical activity data and weight in FitBit, Diabetes:M will automatically log this information in your logbook. Note that synchronization is only one way, Diabetes:M cannot write to FitBit
- Link Google fit – lets you use your Google fit account for synchronization. When you enter physical activity data weight and nutrition in Google fit, Diabetes:M will automatically log this information in your logbook.
- Nightscout – you can link your Nightscout site and get all your data to be synchronized with Diabetes:M. At first Diabetes:M synchronizes the data for the last 3 months (it will take 1-2 minutes and you need a registered account+internet connection) and after this it's being synchronized by a time interval which you can set when activating the synchronization.

Devices

- Enable sensor scan – if your phone has NFC you can scan your sensor by enabling this feature. When it's enabled, just turn on your NFC if it's off, touch your sensor with your phone, let it stay there for 2-3 sec. It should vibrate twice and show you the current glucose level. (more info here: [CGM Features](#))
- Add bluetooth glucose meters – add a bluetooth glucose meter from our glucose meters list (check out more info here: [Bluetooth devices](#))

Data management

- Sync with server – manual sync with the server. This will upload unsynced data from your device to the server.
- Restore data from server – deletes all local data from the device and downloads data from server.
- Delete logbook data – deletes all entries in the logbook
- Delete user's food data – deletes all user's food

Import/Export Diabetes:M Data

- Export Data (CSV) – exports the data in tab-separated format.
- Import Data (CSV) – imports the data from a file exported using "Export Data (CSV)".
- Export Data (XLS) – exports the data in XLS format.
- Import Data (XLS) – imports the data from a file exported using "Export Data (XLS)".

Import/Export Food

- Export Food (CSV) – exports the food added by the user in tab separated format.
- Import Food (CSV) – imports the food data from a file exported using "Export Food (CSV)".
- Export Food (XLS) – exports the food added by the user in XLS format.
- Import Food (XLS) – imports the food data from a file exported using "Export Food (XLS)".

- Clear Food – Clears all the food added by user only.

Import/Export external software data

Diabetes:M provides a lot of options to import data from other diabetes management software, insulin pumps software, glucometers software.

- Import Data .CSV (CareLink®) – imports the data from the Medtronic CareLink application CSV export file.
- Import Data (FreeStyle) – imports data from Abbot Freestyle Libre, Abbot Freestyle Optium Neo, AbbotInsulinx
- Import Data .CSV (Glucofacts™) – Import data from Glucofacts Deluxe software
- Import Data .CSV (t:connect™) – Import data from t:connect software
- Import Data .CSV (OneTouch®) – Import data from OneTouch software
- Import Data .CSV (TRUEmanager™) – Import data from TRUEmanager software
- Import Data (Dexcom Studio™) – Import data from Dexcom Studio software
- Import Data (Accu-Check™) – Import data from Accu-Check 360°, Accu-Check SmartPix, Accu-Check Mobile2CSV software
- Import Data .CSV (Gluco Diary) – Import data from Gluco Diary software
- Import Data .CSV (Activmed) – Import data from Activmed software
- Import Data .CSV (CareSens) – Import data from CareSens software
- Import Data .CSV (OnTrack) – Import data from OnTrack application



If some import feature is not working please contact the support, as we don't have all the needed devices and software to keep things up to date. Also if your device is not in the list, contact us and provide a sample exported file so we can add an import feature.

4.12. Reminders

In the Reminders screen users can create some reminders easily. There are two types of reminders – Recurrent and One-Time reminders. Both types can trigger an alarm at the exact time and 2 hours after the specified time for additional glucose level measurement.

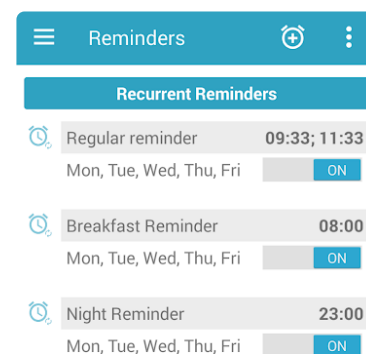
Menus

Add Reminder drop-down menu

- Recurrent Reminder – opens dialog for repeatable reminder creation.
- One-time Reminder – opens dialog for one-time reminder creation.
- Breakfast Reminder – opens dialog for recurrent reminder creation with predefined title and breakfast hour.
- Lunch Reminder – opens dialog for recurrent reminder creation with predefined title and lunch hour.
- Dinner Reminder – opens dialog for recurrent reminder creation with predefined title and dinner hour.
- Night Reminder – opens dialog for recurrent reminder creation with predefined title and predefined hour at 03:00 AM during the night.
- Glucose Tolerance Test – pops up date and time selection dialogs specifying the glucose tolerance test start date and time. After that it creates 3 reminders for +1, +2 and +3 hours after the test start time to remind the user to check his glucose.

Tools drop-down menu

- Enable All – enables all reminders in the list.
- Disable All – disables all reminders in the list.
- Clear All – deletes all the reminders from the list.



4.13. Settings

Settings

The Settings screen is the place where you initially setup Diabetes:M application. It is really important to provide correct information for all the settings, so you can get the most accurate data analysis later in the application.

Also from here you can start the configuration wizard which you've gone through when you've installed the application. For more info on the configuration wizard check here: [Getting started](#)

Brief settings description

Units and Formatting – you can select US or metric system, blood glucose unit like mmol/L or mg/dL, HbA1c unit, carbohydrates unit, date formats.

Personal Data

Sex, Weight, Birth date, Activity Factor – these are needed to calculate your BMI, BMR, daily calorie needs, total insulin and basal amount.

Glucose Levels Target Range – Glucose Hi, Glucose Low and Glucose target values needed for statistics and insulin dose Bolus Advisor.

Diabetes Treatment

Users can select their treatment preferences:

- **Therapy** – choose from multiple daily injections, insulin pump, non insulin treatment. Depending on this option you'll have different options in the medications menu and also will have different calculations and statistics information.
- **Insulin dose precision** – the precision of your insulin pen or insulin pump
- **Use the sensor data in analysis** – lets the app use sensor data in all statistics, graphs, charts, reports and analysis
- **Rapid/Short insulin activity duration** – set your approximate rapid insulin duration. This will help the Bolus Advisor to estimate your insulin dosage more precisely
- **Carbohydrates ratio (hourly)** – this parameters tells how many units of insulin your body needs to "covert" a specified number of carbohydrates. For example if your ratio is 12, your body will need 1 unit of insulin to cover every 12 grams of carbohydrates that you eat. If you can't determine this value precisely please leave it by default and ask your doctor how to calculate it precisely. For more information on how to calculate this ratio please visit:
– http://www.mendosa.com/insulin_carb_ratios.htm
- **Insulin sensitivity (hourly)** – Insulin sensitivity factor (ISF) is very important for precise calculations for the needed insulin. The application will use this parameter to calculate how much insulin your body will need for a given period of time. Basically this is how much insulin is needed to lower your glucose level to normal ranges if it's currently high in a period of 3-4 hours. If it's hard for you to determine this factor, please leave it by default and try to set it properly after testing your ISF carefully. You can test it by injecting very small amount of insulin when you're with

high glucose levels and check how your glucose levels react, checking them every 30-40 minutes during the next hours. Before trying anything like this talk to your endocrinologist.

For more information please check those articles:

- http://www.diabetesincontrol.com/wp-content/uploads/PDF/insulin_sensitivity_factor.pdf
- <https://dtc.ucsf.edu/types-of-diabetes/type1/treatment-of-type-1-diabetes/medications-and-therapies/type-1-insulin-therapy/calculating-insulin-dose/>

- **Meal times** – your daily meals



Those settings are very important for the correct calculations in the application. If you're not sure what they need to be please consult with your doctor.

Categories

You can add additional time interval categories like snack, before breakfast, after breakfast etc.

Medications

In this category users can specify the rapid and long insulin types, basal profiles if you're with insulin pump and also up to six oral medications.

Reminders

In this section users can enable automatic reminders after some data input.

User Interface – in this category users can change the application language and the font size. They can also select which screen to be the first screen when application starts. Users can select from the Home screen, Log Entry screen or Bolus Advisor screen.

5. Advanced features

Diabetes:M provides some advanced features that will help with the diabetes therapy.

- [Bluetooth devices](#)
- [CGM features](#)
- [Patterns](#)
- [Smart assistant](#)
- [Android wear](#)

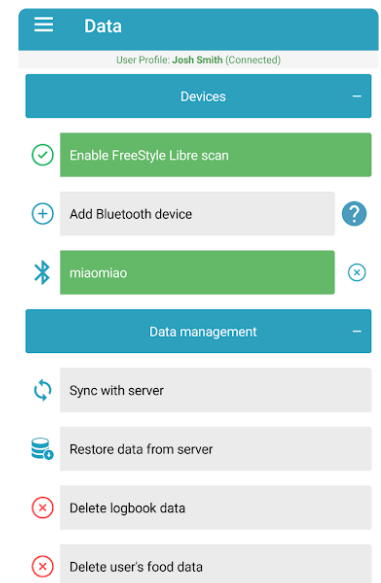
5.1. Bluetooth devices

Diabetes:M can receive data from Bluetooth glucose meters.

Supported meters

For now the supported glucose meters are:

- Contour® Next One
- Accu-Chek® Aviva Connect
- Accu-Chek® Guide
- Accu-Chek® Instant
- OneTouch Verio Flex®
- CareSens™ N Premier
- CareSens™ Dual
- One Drop™
- Nipro 4SURE™ Smart
- Nipro 4SURE™ Smart Duo
- Publix TRUE METRIX® AIR
- ReliOn™



Diabetes:M also supports sensor transmitters (**ANDROID ONLY**):

- MiaoMiao – <https://miaomiao.cool/>
- Ambrosia's Blucon – <https://www.ambrosiasys.com/>

For more information about Miaomiao and Blucon's features, please go to [CGM Features](#).

How to connect

A bluetooth glucose meter or sensor transmitter can be added by going to Data -> Devices -> Add Bluetooth device

1. To connect a device follow the instructions from the device's manual about how to switch the device to pairing mode.
2. Go to Diabetes:M "Data" and tap on "Devices".
3. Tap on "Add Bluetooth device" and wait for the device to appear in the list.
4. Tap on the device to pair it.
5. If the pin is requested check the device screen for the pin or follow the device's instructions for how to obtain it.



It is not recommended to have multiple apps connected to the same device simultaneously because they may interfere with each other while communicating with the

device.

Troubleshooting

If you can't pair the device try some of the following tips:

- Make sure that the device is close to the phone
- Turn the Wi-fi off and try again
- Restart the bluetooth (turn it OFF and ON again)
- Restart the phone

Receiving data from bluetooth glucose meters

When your glucose meter is paired with Diabetes:M, it will receive the historical readings and every new glucose value when you do a finger prick. There are few things that you can do with a paired glucose meter:

- Finger prick with the app running or in the background – Diabetes:M will receive the glucose value and will save it in the logbook. The entry will also have the glucose meter's name in the notes field.
- Make a finger prick with an opened new entry screen – if you make a finger prick when the new entry screen is opened, the red glucose field will flash a few times and will get filled with the value received from the glucose meter
- Make a finger prick with an opened Bolus Advisor screen – the red glucose field will flash and will be filled with the received glucose value

The screenshot displays the 'Log Entry' interface of the Diabetes:M mobile application. At the top, there's a navigation bar with 'Log Entry' selected. Below it, tabs for 'MAIN', 'ADDITIONAL', and 'LABORATORY' are visible. The user profile 'Josh Smith (Connected)' is shown. The entry form includes fields for Date (19.10.2018), Time (14:18), and Category (After lunch). The Glucose field is prominently displayed in red with the value '00.0 mmol/L'. Below the Glucose field are checkboxes for 'Sensor glucose' and 'Estimated glucose'. Further down, there are fields for Carbs (000 grams), Proteins (0000 grams), Fats (0000 grams), and Calories (0000 kcal).

5.2. CGM Features

 **Android only for now!**

Activating the CGM features

Diabetes:M can receive data from sensors. This can be done in two ways:

- Scanning the sensor – if your phone has NFC capabilities, you can “scan” the sensor with your phone and it will receive the latest entry and the entries from the last 8 hours
- Using a bluetooth transmitter – Diabetes:M can receive data from Miao Miao and Ambrosia’s Blucon. Those are small transmitters that sit on top of the sensor and pass data to the phone every 5 minutes.

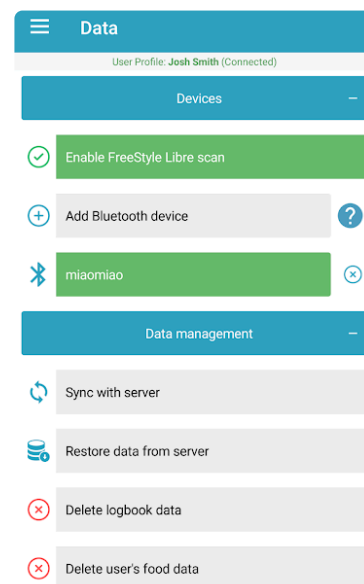
Sensor scan

In order to use the NFC scanning capabilities of the app, you must enable it first. This is done by going to Data -> Devices -> Enable sensor scan. After that you can touch the sensor with your phone, it will vibrate, hold for 1-2 seconds until it vibrates a second time and receive a reading.

Bluetooth transmitter

This feature is available only for users with a subscription.

You can add Miao Miao or Blucon/Nightrider as a bluetooth device. Search for a bluetooth device, choose the transmitter and enter a password/code if needed. The transmitter will appear in the added devices list in green and will start receiving data.

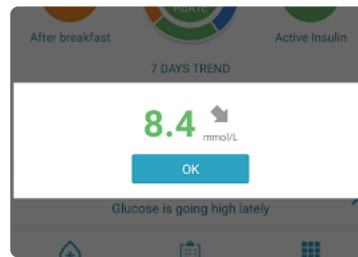


CGM dashboard

When the CGM features are activated, a CGM dashboard will appear on the main screen of the app.

There are a few things to know about it:

- It shows some horizontal lines and a green zone. Those lines represent your glucose target levels set in the settings.
- There are vertical lines with times under them representing the time period
- The colored line on the graph shows the calibrated glucose readings with the appropriate color according to your glucose targets settings
- The gray line which may appear above/below the colored one shows the raw not calibrated values coming from the sensor. If there are no calibrations or the raw values are almost equal to the calibrated ones, this line won't be visible as it will be under the colored one.
- The sensor's status is shown above the graph, also if there's a transmitter, the transmitter's statuses will be shown there too. For example if the transmitter's battery is low it will be shown there.
- The latest sensor reading including the trend is shown on the right of the graph. It's colored according to the glucose level. If it's shown in gray, this means that it is older than 5 minutes.



CGM settings

Clicking on the CGM graph will lead you to the CGM settings. There you can setup a few things:

- Logbook entry interval – Diabetes:M doesn't save all the entries in the logbook. This is the time interval to save an entry. If it's set to 15 minutes, then a reading from the sensor will be saved to the logbook every 15 minutes.
- Show CGM notifications – if this is selected, every time a new reading is received, the app will fire a notification with the reading and the trend. This can be very useful if you have a transmitter and your phone is lying on the desk and you can see the latest reading without opening the app. Those notifications will also go to smart bracelets, fitness bracelets or smart watches if their software allows them to receive notifications from third party apps.
- Make CGM notification sticky – this will pin the CGM notification showing your last glucose value. The notification will be updated every 5 min, but your phone's notification light won't flash and the screen won't turn on. The notification will still go to smart bracelets/watches every 5 min.
- High/low glucose prediction alarm – the app can fire an alarm if your glucose goes over 11 mmol/L or below 4 mmol/L
- Enable "No recent data" alarm – will fire an alarm when there are no readings coming from a

CGM

User Profile: Josh Smith (Connected)

Persistence

Logbook entry interval - 15 minutes

Use calibration

Alarms

Show CGM notification

Make CGM notification sticky

Enable high glucose prediction alarm

Enable low glucose prediction alarm

Enable "no recent data" alarm

sensor transmitter for the last 20 minutes

- Display interval – this will change the displayed time interval on the graph
- Display calibration points – the calibration points will be shown as red crosses on the graph. If disabled, they will be hidden.

CGM calibrations

Sometimes the values coming from the sensor are not very accurate. That's why we support calibrations. Every manually inserted glucose entry in the logbook, which is NOT marked as estimated or sensor, will be considered as a calibration.

After 20-25 minutes, a red cross will appear on the CGM graph showing the calibration.

Here are some important notes about calibrations:

- Calibrations should be made on stable glucose level – calibrations work better when the current glucose level is stable, for example at least 2 hours after a meal and when there are no correction in the last 2 hours.
- It's better to make at least 1 calibration on normal glucose level and 1 on higher glucose level – higher glucose levels usually are not measured very accurately by sensors and it's good to have 1 calibration when your glucose level is higher.
- Add calibrations at least once per 2-3 days – our calibrations last for 3 days each, so it's good to make at least 1 calibration per 2-3 days for best results
- "Use calibration" setting must be enabled – in order to see calibrated values instead of raw ones, this must be enabled in the CGM settings.

5.3. Patterns

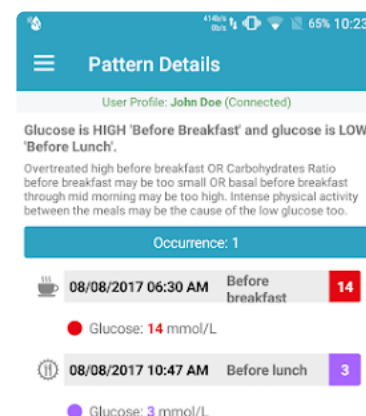
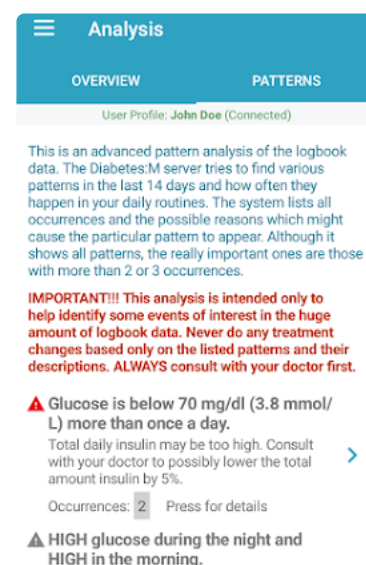
Our patterns feature analyzes all your entries for the last two weeks and looks for common trends in your glucose levels. The more entries you have – the better the analysis works. If a pattern is found, the service will show all related log entries, as well as some suggestions on why this particular repeating event might occur. This will help both you and your doctor find potentially problematic events in your treatment and correct them easily.

The different patterns are listed in the main screen with their short description, importance level and occurrences count.

When you click on a pattern – another screen opens with the details about the pattern and all the occurrences that were detected. You can click on any occurrence and the logbook will open showing you the whole day and also highlighting those occurrences.

If you find it hard to review all the information on your phone, you can always go to the web interface on your laptop or PC and see it comfortably there.

Patterns are currently fully available to Premium subscribers. Free users can see only their most frequently recurring pattern.



IMPORTANT NOTICE: Please note that our analysis service is only informational and is intended to help you better understand your condition. ALWAYS consult your doctor before making changes to your treatment!

5.4. Smart assistant

The Smart Assistant will try to learn your daily routines and will provide more relevant reminders and recommendations. It will also try to analyze and automatically log your physical activities.

You have to activate it on your primary mobile device, which will be receiving the notifications. In order to work correctly, Smart Assistant needs to track your location. To do that you have to allow access to your location data. Be aware that this feature will keep the app active and will slightly increase the battery usage.

Smart Assistant will need time to learn your places of interest and your daily routines. It may take a few days until you start receiving reminders and recommendations.

You will receive notifications in the following cases:

After you wake up and

- no blood sugar check has been logged in the next 30 minutes (approximately).

When you leave home and

- no check has been logged in the previous 2 hours.

After walking or running and

- no blood sugar check has been logged in the next 15 minutes.

When you start driving and

- there is a blood sugar less than 4.5 mmol/l (81 mg/dl) 30 minutes before starting to drive.
- there is no blood sugar check logged 30 minutes before starting to drive.

Before you normally go to sleep and

- there is a high blood sugar check between 30 min and 1 hour before going to bed.
- there is a low blood sugar check 30 min before going to bed.
- there is no blood sugar check 1 hour before going to bed.

When you are on an airport

- you will receive a reminder to check your diabetes accessories.

When you are visiting restaurant or cafe and

- there is a blood sugar less than 4.5 mmol/l (81 mg/dl) 30 minutes before visiting the venue.
- there is no blood sugar check logged 30 minutes before visiting the venue.

When you leave restaurant or cafe

- you will receive a reminder to check your blood sugar 2 hours after meal.

When you are starting physical activity or visiting activity zone and

- there is a blood sugar less than 4.5 mmol/l (81 mg/dl) 30 minutes before the physical activity.
- there is no blood sugar check logged 30 minutes before the physical activity.

When you finished physical activity or left the activity zone and

- there is no blood sugar check logged 15 minutes after the physical activity.

Smart Assistant will also automatically log physical activities using the following rules:

- User finished walking with duration more than 20 minutes.
- User finished running with duration more than 10 minutes.



Note that tracking accuracy depends on the mobile and wi-fi infrastructure in the user's region. At some places and locations it might be less accurate than others, depending on the coverage.

To use voice notification, you have to wait for Android OS to download the voice pack supporting your language. This should happen automatically after you receive the first voice notification. Currently the voice notifications are available in English only, but we'll add more soon.

5.5. Wear OS and Apple Watch

Wear OS and Apple watch app

Diabetes:M has an Android Wear OS app with watchfaces and Apple watch app! To use it just connect your android wear or Apple watch and the app will install automatically. Both Wear OS and Apple watch apps differ slightly but the functions are almost the same. In this guide Wear OS app is used as example.

You can start the app by tapping on the watch face. To switch between the app pages just swipe left or right. To exit the app tap and hold for few seconds and exit icon will appear.

Screens

Overview screen

Overview screen displays the most important values as

- Active insulin
- Last glucose and time
- Last carbohydrates and time
- Last bolus



Glucose entry screen

Glucose can be entered by tapping on the buttons and increase or decrease the glucose value with amounts listed on the buttons.



Food entry screen

Carbohydrates can be entered in the same way as the glucose value. Using the arrows on the both sides, users can switch between carbohydrates → proteins → fat → calories and can enter those values too.



Calculation result screen

The watch will calculate the needed insulin dose if it's connected to the phone and it will provide some notes if additional carbohydrates intake is needed or user have to delay the meal if the blood sugar is too high.



Bolus screen

Bolus can be entered in the same way as the glucose and food value. Using the arrows on the both sides, users can switch between bolus → extended bolus → duration and can enter those values too.



Category and notes screen

Here users can select the category and type or dictate a note. When done hit save on the top of the screen and the entry will be created in Diabetes:M logbook.



Watchfaces

There are 3 watch faces, one with a digital clock, one with an analog and CGM watchface.



Analog and digital watchfaces

On the digital and analog watch faces you can see your

- Last glucose

- Last insulin
- Last carbohydrates
- Current active insulin

CGM Watchface

Diabetes:M provides a watchface showing CGM data when the sensor scan feature is turned on or Blucon or Miaomiao are linked.

5.6. Clinicians

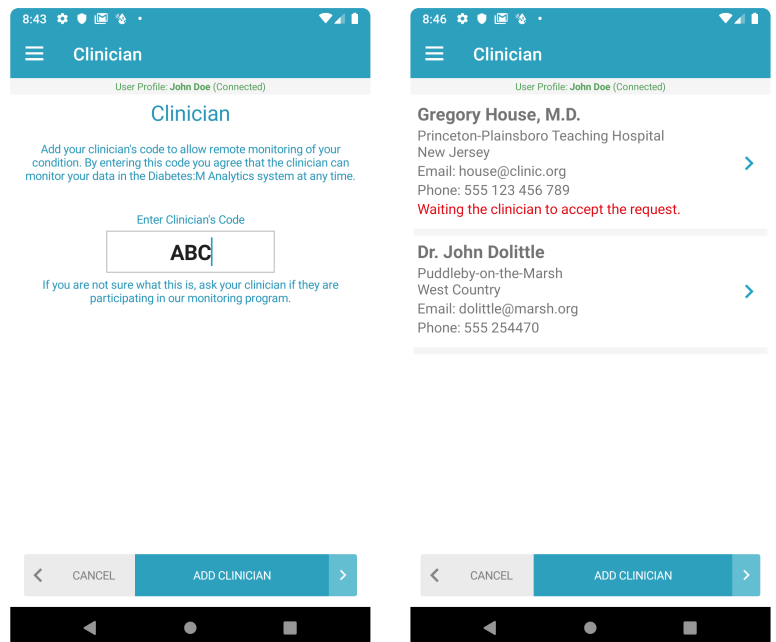
One of the most important features of Diabetes:M is the ability to share the data with clinicians. In order for the clinicians to get access to your data they must have a clinician account registered in our system. They can register and acquire a personal clinician's code through here: <https://www.diabetes-m.com/login/>.

The clinician must give you his clinician code that he have received after the registration, you can enter it into the app and send a request to the clinician for data monitoring.

This feature is only available for users with a subscription, so you must have an active subscription

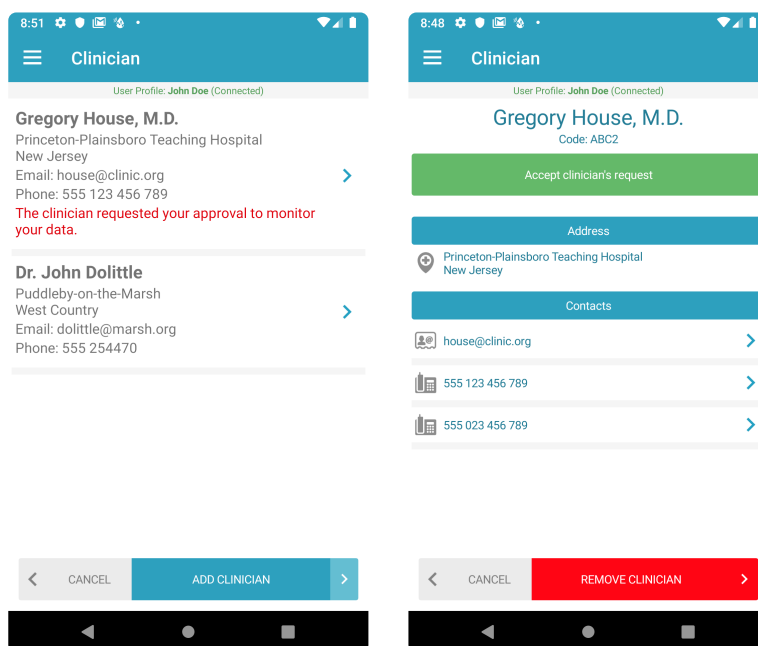
Adding a new Clinician

Open the left drawer menu and tap on "Clinician" option. If you don't already have a clinician then a screen for the code entry will be displayed otherwise a list of all clinicians that are allowed to access your data will be shown instead. Once the clinician's code is added, Diabetes:M will wait for the clinician to accept the request. Until then a message "Waiting the clinician to accept the request." will be shown in the clinician's info.



Approving a Clinician's request

Another possibility is a clinician to request access to your data. In this case the clinician will be visible in the list but the message “The clinician requested your approval to monitor your data.” will be visible. To approve the clinician's request tap on the list item and open the clinician's details. Tap on “Accept Clinician's request” to allow the clinician access to your data.



Removing a Clinician

You can remove the clinician and revoke its access to the data at any time. You simply have to open the screen with his details and tap on “REMOVE CLINICIAN” button at the bottom of the screen.

6. Others

This section provides additional details on some topics.

- [Bolus Advisor explained](#)
- [Active insulin](#)
- [Blood glucose indexes](#)
- [Injection sites](#)
- [Insulin action curves](#)
- [Import/Export formats](#)

6.1. Bolus Advisor explained

Common terms

Coefficients

ISF – Insulin Sensitivity Factor

I:C – Insulin to carbohydrates ratio

Active insulin or Insulin On Board (IOB)

IOB = IOBcarb + IOBcorr + RemainingExtendedInsulin – Insulin On Board or Active Insulin

IOBcarb – active insulin from carbohydrates

IOBcorr – active insulin from previous correction

RemainingExtendedInsulin – the remaining amount of the extended bolus

The IOB calculation is based on the curve shown in [9.2 Active insulin](#) topic.

The algorithm to split IOB to IOBcarb and IOBcorr is:

```

→ IOBcarb = 0
→ IOBcorr = 0

FOR all entries in the last 8 hours DO
    → Calculate *bolusPercent* from the time of the entry to the current time,
        according to the IOB curve for the selected active insulin duration

    IF entry has carbohydrates THEN
        → carbBolusIOB = min(bolus, carbohydrates/I:C) * bolusPercent
        → corrBolusIOB = bolus * bolusPercent - carbBolusIOB

    IF entry doesn't have carbohydrates THEN
        → carbBolusIOB = 0
        → corrBolusIOB = bolus * bolusPercent

    → extendedInsulinIOB = 0

    IF entry has extended insulin THEN
        → Calculate *extendedInsulinIOB* according its duration and current time

    → IOBcarb = IOBcarb + carbBolusIOB + extendedInsulinIOB
    → IOBcorr = IOBcorr + corrBolusIOB
END

```

$$\rightarrow \text{IOB} = \text{IOBcarb} + \text{IOBcorr}$$



If extended bolus is applied then the remaining amount is added to the IOBcarb and respectively to the total IOB for the bolus calculation. That way the future insulin, which will be added during the extended bolus duration, will be included in the correction in order to avoid overdosing.

The remaining extended insulin amount is NOT added when Diabetes:M is displaying the Active insulin on the Home screen and in the Bolus Advisor result area so the Active insulin value in those screens is the real IOB.

6.1.1. Standard bolus

Diabetes:M Bolus Advisor calculates the standard bolus using the next two formulas:

Bolus insulin

```
bolus = carbohydrates / I:C + correction
```

Glucose correction

```
correction = (glucose - target) / ISF
```

Calculation rules

See below, in [Glucose Trend arrow adjustment](#), how the trendGlucose and trendCorrection are calculated

```
glucose = glucose + trendGlucose

correction = correction + trendCorrection

IF glucose > target AND correction - IOB > 0 THEN
  → correction = correction - IOB

IF glucose > target AND correction - IOB <= 0 THEN
  → correction = min(0, correction - IOBcorr)

IF glucose <= target THEN
  → correction = min(0, correction - IOBcorr)
```

Glucose Trend arrow adjustment

For more details and information visit

[A Simplified Approach Using Rate of Change Arrows to Adjust Insulin With Real-Time Continuous Glucose Monitoring](#)

by David C. Klonoff MD, FACP, FRCPE, Fellow AIMBE, David Kerr, MD, FRCPE

```
trendGlucose = 30 min * selectedTrendPerMinute
```

```
trendCorrection = trendGlucose / ISF
```

```
IF trendGlucose<0 THEN
```

```
→ trendCorrection = max(trendCorrection, correctionLimit)
```

```
IF trendGlucose>=0 THEN
```

```
→ trendCorrection = min(trendCorrection, correctionLimit)
```

!! trendCorrection is negative when the trend is down and positive when the trend is up

Trend correction limit

Trend arrow	Change/min (mmol/l)	Max Correction Limit (IU)
↓↓	< -0.167	-2
↓	< -0.11	-1.5
↘	< -0.06	-1
↗	> +0.06	+1
↑	> +0.11	+1.5
↑↑	> +0.167	+2

Exercise adjustment

```
exerciseBolusAdjustment = bolus * (1 - selectedExerciseAdjustmentInPercent / 100)
```

Sickness adjustment

```
sicknessBolusAdjustment = bolus * (1 + selectedSicknessAdjustmentInPercent / 100)
```

The final calculation

```
bolus = carbohydrates / I:C + correction + exerciseBolusAdjustment + sicknessBolusAdjustment
```

6.1.2. Extended bolus

The extended bolus is supported by insulin pumps and it is a bolus amount applied constantly over a specified time period. For MDI treatment, Diabetes:M Bolus Advisor splits the proposed extended bolus and it can be used even when users are on MDI therapy.

The algorithm which Diabetes:M uses is explained in details in the article

Bolus Calculator with Nutrition Database Software, a New Concept of Prandial Insulin Programming for Pump Users

by Ewa Pańkowska M.D., Ph.D., Marlena Błazik, M.D.

<https://journals.sagepub.com/doi/10.1177/193229681000400310>

According the rules published in the article Diabetes:M performs the following calculations:

```
CU = carbohydrates / 10
FPU = (proteins * 4 + fats * 9) / 100
IRFactor = 10 / I:C

IF CU + FPU = 0 THEN
    → CUperc = 0

IF CU + FPU > 0 THEN
    → CUperc = CU / (CU + FPU)

CU_FPU_correction = NBSBCorrection / 100

bolusNormal = 0.0
IF CU_perc >= 0.2 AND CU_perc <= 0.8 THEN
    → bolusNormal = CU * IRFactor * (1 - CU_FPU_correction)

IF CU_perc > 0.8 THEN
    → bolusNormal = CU * IRFactor

bolusExtended = 0.0
IF FPU >= 1 AND CU_perc < 0.2 THEN
    → bolusExtended = FPU * IRFactor

IF FPU >= 1 AND CU_perc >= 0.2 AND CU_perc <= 0.8 THEN
    → bolusExtended = FPU * IRFactor * (1 + CU_FPU_correction)

IF FPU<1 THEN
    → duration = 0

IF CU_perc > 0.8 THEN
    → duration = 0 hours
```

```
IF FPU >= 1 AND FPU < 2 THEN
  → duration = 3 hours

IF FPU >= 2 AND FPU < 3 THEN
  → duration = 4 hours

IF FPU >= 3 AND FPU < 4 THEN
  → duration = 5 hours

IF FPU >= 4 THEN
  → duration = 8 hours
```

The final calculation

$\text{bolusStandard} = \text{bolusNormal} + \text{correction} + \text{exerciseBolusAdjustment} + \text{sicknessBolusAdjustment}$

bolusStandard must be applied immediately

bolusExtended must be applied over duration hours.

$\text{total bolus} = \text{bolusStandard} + \text{bolusExtended}$

6.1.3. Safety check warnings

Diabetes:M Bolus Advisor has multiple safety checks to ensure the input data is correct and to prevent calculating excess bolus. There are 3 types of safety checks described below:

Insulin sensitivity (ISF) and Carbohydrates ratio (I:C) check

This check ensures that users have provided both parameters or at least their defaults can be calculated. If parameters are not entered manually then the defaults are calculated using 1800 and 500 rule formulas:

```
Total Daily Insulin (TDI) = Weight( in Pounds) / 4 or
Total Daily Insulin (TDI) = Weight (in Kilograms) * 0.55

ISF = 1800 / TDI
I:C = 500 / TDI
```

When the Weight is not set and ISF and I:C are not set manually in the Settings, then the following warning is displayed and Bolus Advisor will calculate always 0 bolus.



WARNING: Insulin Sensitivity (ISF) and Carbohydrates Ratio (I:C) are not set!
In order for the Bolus Advisor to work correctly, you must set your Insulin Sensitivity (ISF) and Carbohydrates Ratio (I:C) in Diabetes:M **Settings/Diabetes Treatment**. You can also enter your Weight in **Settings/Personal Information** so the default values can be calculated. If you are not sure what these parameters are then leave the defaults and consult with your doctor.

Excess active insulin check

When the active insulin is more than 20% of the average bolus from the last 7 days and no glucose value is entered , then the following message is displayed:



WARNING: Excess active insulin is detected!
There is excess active insulin and the bolus is calculated without a blood sugar check. Check your blood sugar before applying any bolus!

Bolus limit exceeded check

The bolus limit is calculated automatically using 3 different algorithms depending on the current data and settings.

There is bolus data for 3 or more days in the last 7 days

```
bolus_Limit = averageBolus7Days + 1.5*stdevBolus7Days + 0.5
```

If calculated bolus exceeds the bolus_Limit then the next warning message is displayed:



WARNING: Bolus dose exceeds the limit of {bolus_Limit}
The calculated bolus of {bolus_Dose} exceeds the calculated limit of {bolus_Limit} based on the average daily bolus from the last 7 days. Please verify that all the inputs are correct.

There is bolus data for less than 3 days in the last 7 days

```
IF weigh and height are not entered THEN
  calorieDailyNeeds = 2000;
} ELSE {
  calorieDailyNeeds = BMR * 1.2  (little or no exercise activity factor)
}

carbLimit = 50% * calorieDailyNeeds / 4
protLimit = 20% * calorieDailyNeeds / 4
fatLimit = 30% * calorieDailyNeeds / 9

bolus_Limit = calcExtendedBolus(carbLimit/3, protLimit/3, fatLimit/3)
```

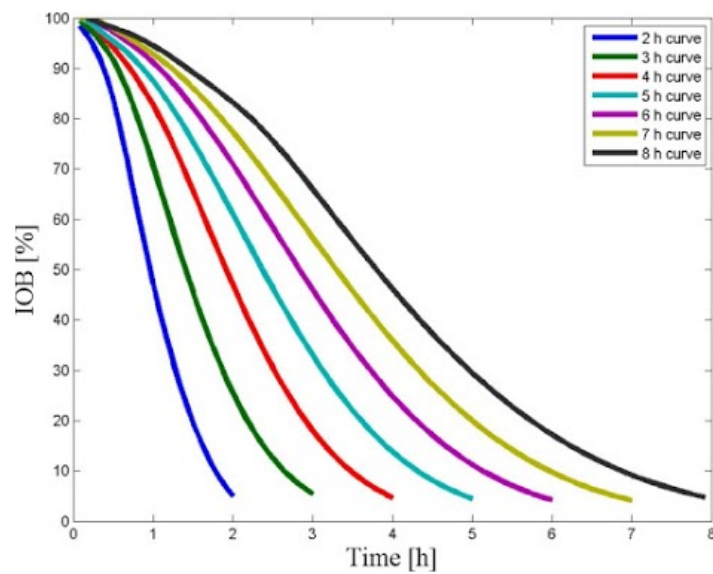
If calculated bolus exceeds the bolus_Limit then the next warning message is displayed:



WARNING: Bolus dose exceeds the limit of {bolus_Limit}
The calculated bolus of {bolus_Dose} exceeds the calculated limit of {bolus_Limit} bolus per meal, which is based on your daily calories need. Please verify that all the inputs are correct.

6.2. Active insulin

Diabetes:M calculates Active Insulin or Insulin On Board (IOB) using the following curve:



6.3. Blood glucose indexes (BGI)

Blood glucose index (BGI) values are risk indicators for hypoglycaemia and hyperglycaemia probability.

For BGI calculation, please refer to [Risk Analysis of Blood Glucose Data: A Quantitative Approach to Optimizing the Control of Insulin Dependent Diabetes](#) by [Boris P. Kovatchev](#), [Martin Straume](#), [Daniel J. Cox](#), and [Leon S. Farhy](#)

Risk	LBGI	HBGI
Minimal	≤ 1.1	–
Low	$> 1.1 - \leq 2.5$	≤ 4.5
Moderate	$> 2.5 - \leq 5.0$	$> 4.5 - \leq 9.0$
High	> 5.0	> 9.0

Usually, the farther the Blood Glucose Index is from the safe area, the higher is the risk potential for low or high glycaemic levels.

- Low blood glucose index (LBGI) indicates the probability for hypoglycaemia
- High blood glucose index (HBGI) indicates the probability for hyperglycaemia

Blood Glucose Variability is important measure because it provides additional clarification for HbA1c value. HbA1c shows the blood glucose average for the last 3-4 months but the good HbA1c could be a result of very high and very low blood sugar levels which large variability must be avoided by all means. For variability index in Diabetes:M is chosen the average daily Blood Glucose Standard Deviation (BGSD) for the selected time interval.

The variability risk estimation is as follows:

σ = Blood Glucose Standard Deviation of glucose readings x_1, x_2, \dots, x_N where

$$\sigma = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \mu)^2}, \text{ where } \mu = \frac{1}{N} \sum_{i=1}^N x_i.$$

GLHypo – Hypoglycaemia Limit

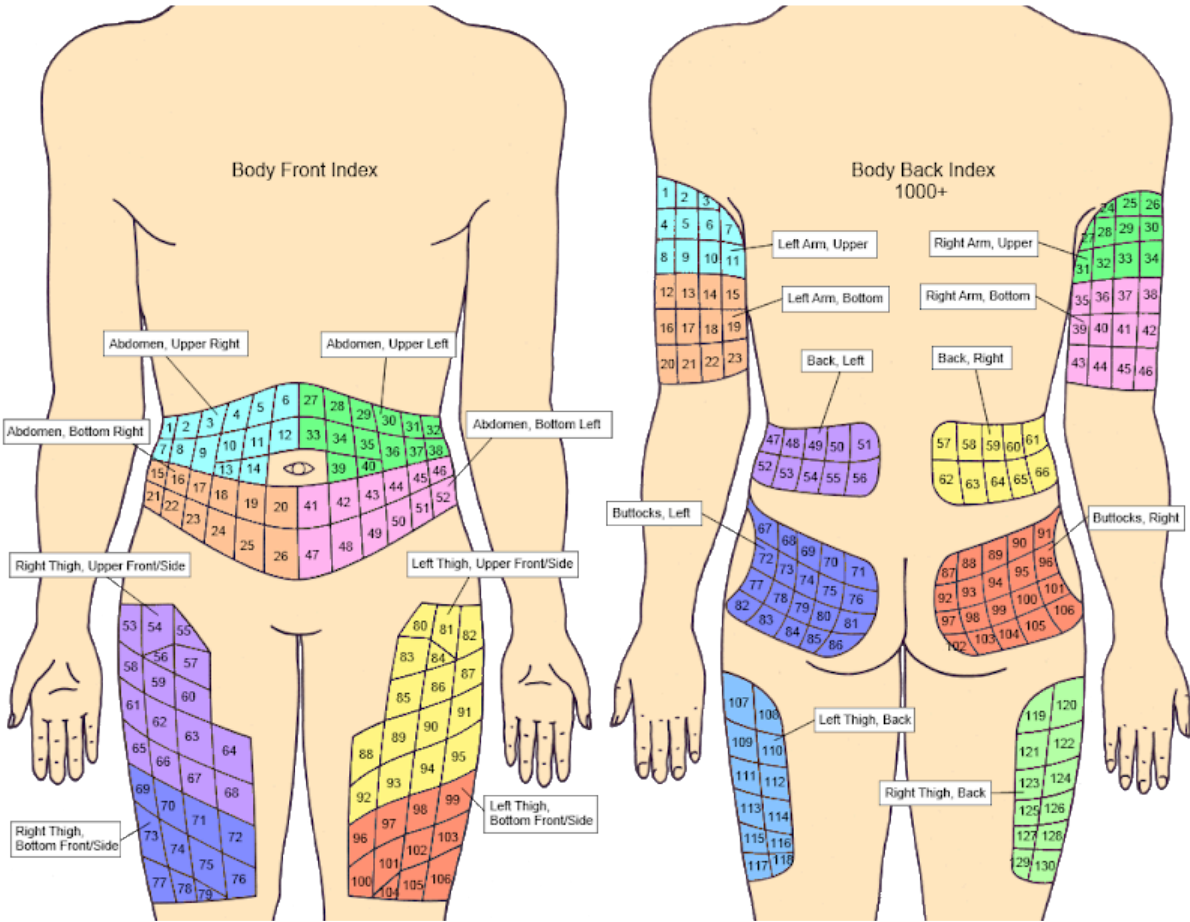
GLLow – Glucose Low Limit

GLHigh – Glucose High Limit

GLHyper – Hyperglycaemia Limit

Risk	Variability = $2 \cdot \sigma$
Low	variability \leq [GLHigh - GLLow]
Moderate	[GLHigh - GLLow] \leq variability \leq [GLHyper - GLHypo]
High	variability $>$ [GLHyper - GLHypo]

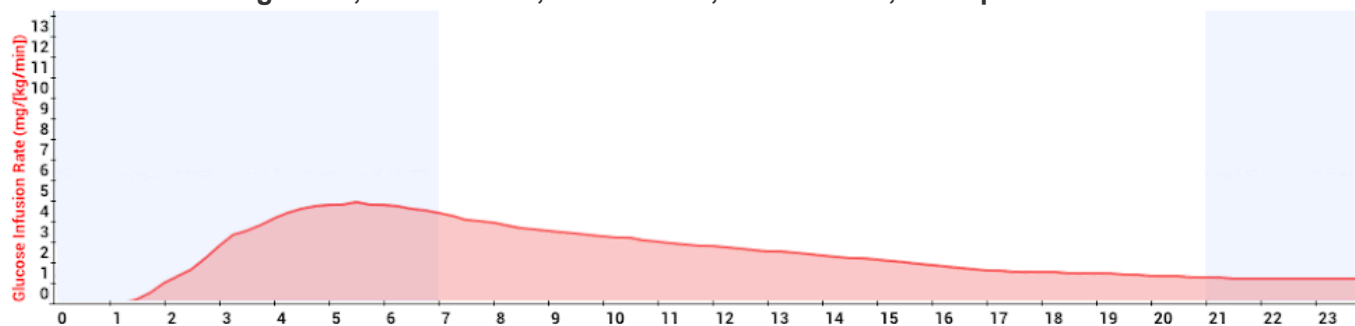
6.4. Injection sites



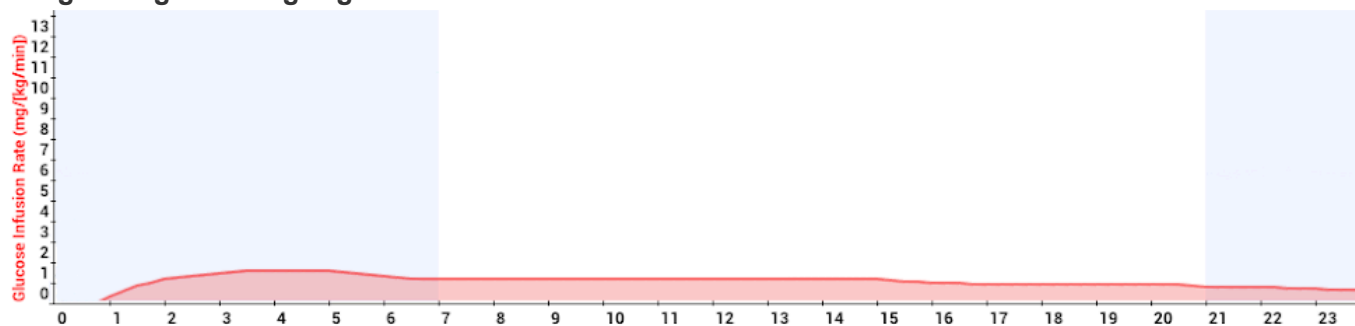
6.5. Insulin action curves

The following charts present the insulin action curves over time (Glucose Infusion Rate) calculated for 0.4 IU/kg or 30 IU for 75 kg weight. These graphs are displayed in the Graph screen for every entry containing insulin data the Weight is entered in Settings/Personal/Weight.

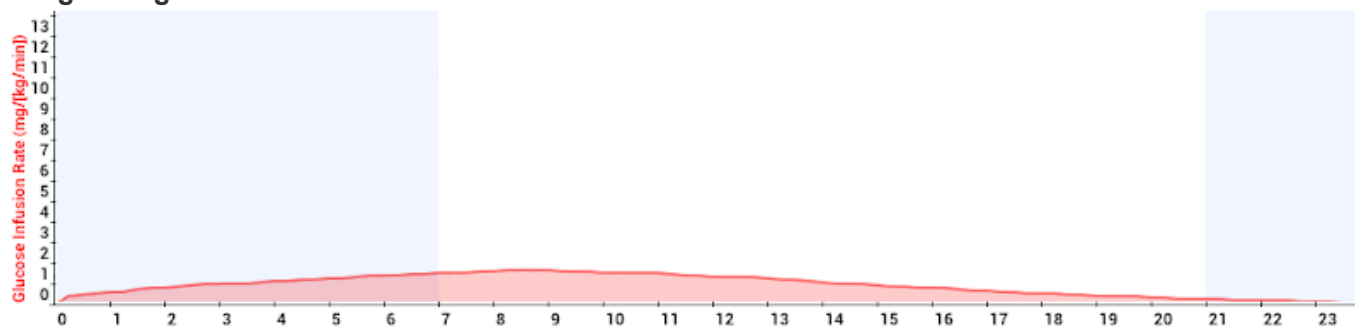
Intermediate-acting: NPH, Humulin N®, Novolin N®, Insulatard®, Protaphane®



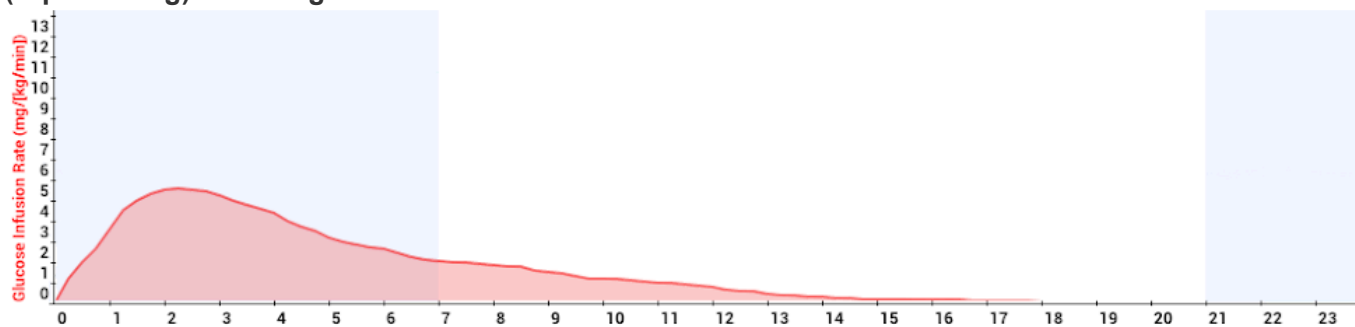
Long-acting insulin glargine: Lantus®



Long-acting insulin detemir: Levemir®

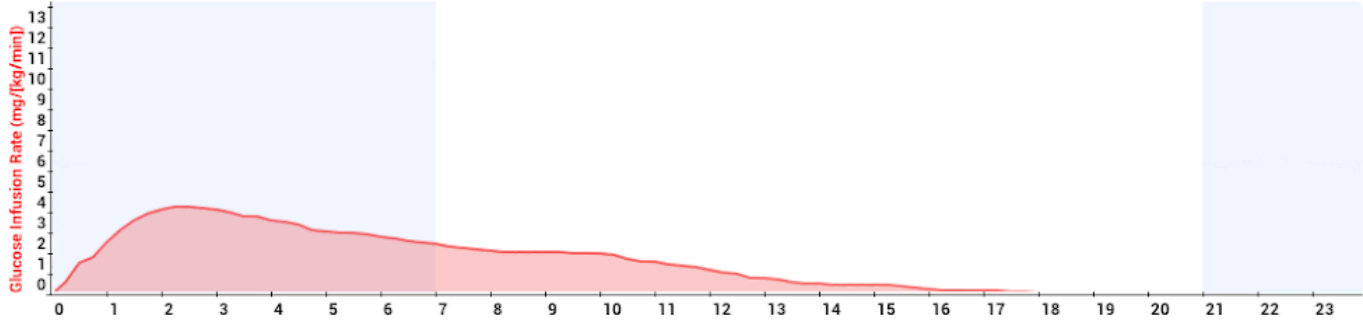


Pre-mixed insulin aspart protamine suspension 50% (intermediate-acting) and insulin aspart 50% (rapid-acting): Novolog® 50/50

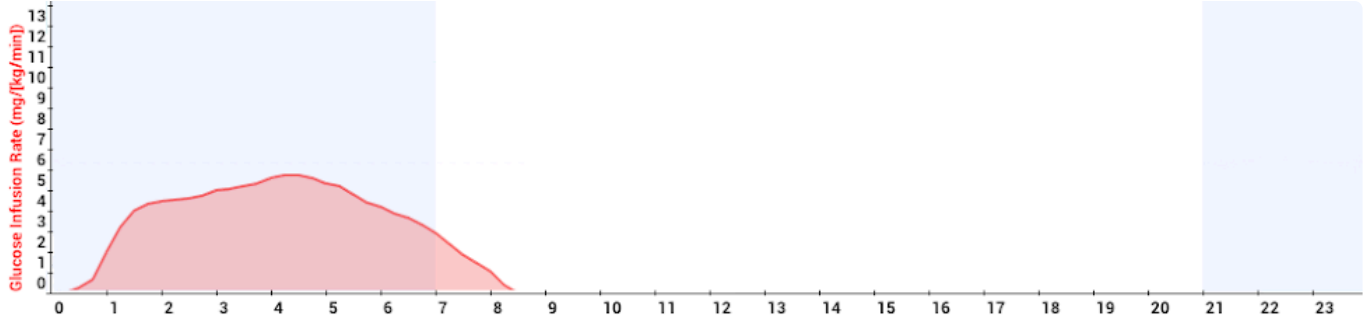


Pre-mixed insulin aspart protamine suspension 70% (intermediate-acting) and insulin aspart 30%

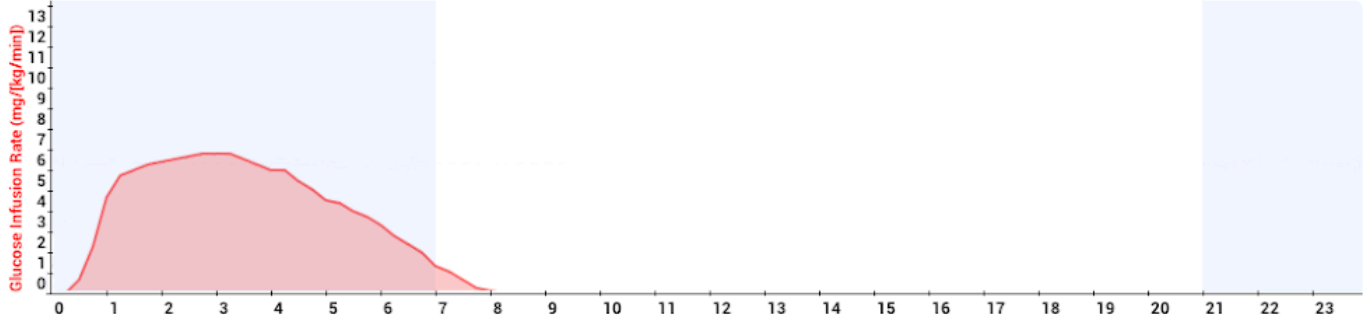
(rapid-acting): Novolog® 70/30



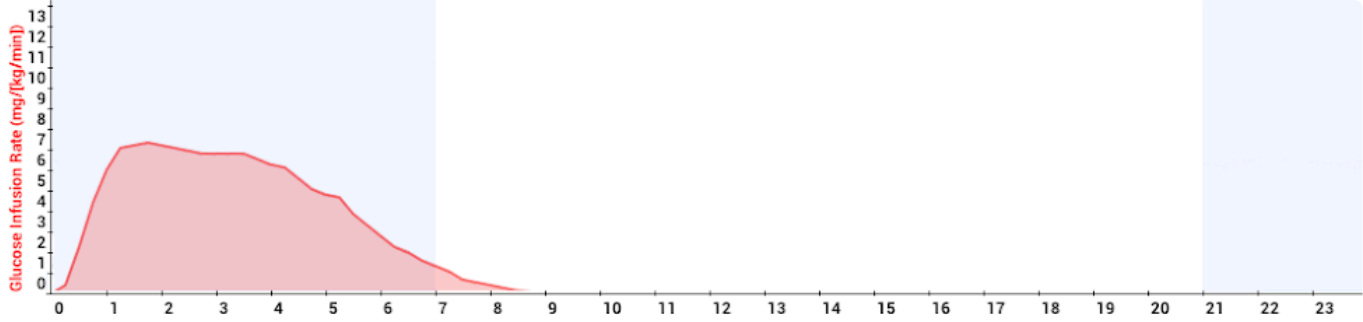
Short-acting: Regular, Humulin R®, Novolin R®



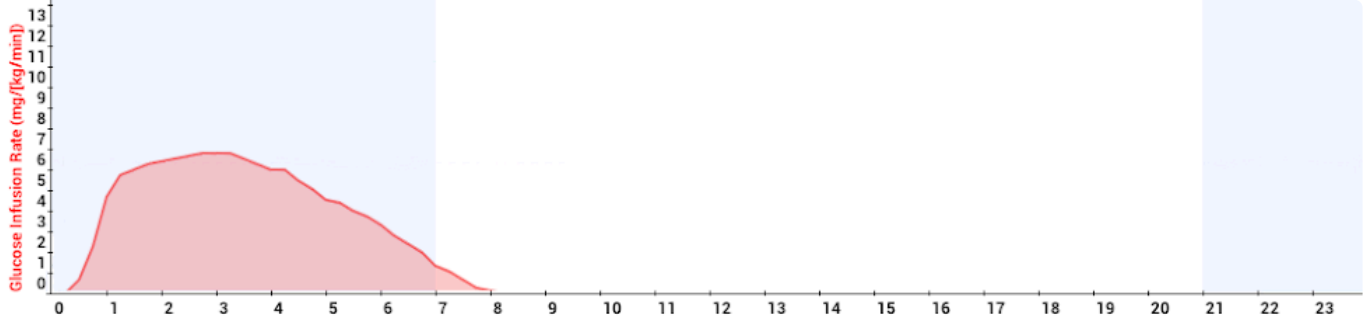
Rapid-acting: Humalog®



Rapid-acting: Apidra®



Rapid-acting: Novolog®




6.6. Import/Export formats

Import/export formats for Logbook entries (Simple)

Diabetes:M provides simplified import from tab delimited CSV file. The simple import format of the file is:

```
Datetime;Glucose;Bolus;Basal;Carbs;Notes
2018-07-23 12:15;5.6;12;13;44;note1
2018-07-24 11:11;150;11;0;0;note2
2018-07-25 10:15;5.2;0;16;44;note3
```

 The format for the date and time is: yyyy-MM-dd HH:mm
The glucose can be in both mg/dL and mmol/L

Import/export formats for Logbook entries

Diabetes:M provides export and import to and from tab delimited CSV file.

You can download a sample file from here:

<https://cdn.manula.com/user/14415/docs/import-template-new.csv>

Here are some notes on the file format:

DateTime format is yyyy-mm-DD HH:mm:ss (year-month-day 24hour:minutes:seconds)

Glucose is in mmol/L

Weight is in kilograms

The bolus_insulin_type must be exactly one of these indexes:

-1	None	0	Other	1	Humalog®	2	Novolog®
4	Novolin® R	5	Humulin® R	13	NovoRapid®	15	Actrapid®
17	Regular	23	Insuman® R	25	Gensulin R	27	Liprolog®
31	U-500	37	Afrezza™	38	Fiasp®		

The basal_insulin_type must be exactly one of these indexes:

-1	None	0	Other	3	Apidra®	6	Lantus®
7	Novolin® N	8	Humulin® N	3	Apidra®	6	Lantus®
9	Levemir®	10	Novolog® 50/50	11	Novolog® 70/30	12	NovoRapid® 70/30

14	Insulatard®	16	NPH	18	Protaphane®	19	Novolog® 30/70
20	Novolin® 70/30	21	Tresiba®	22	Ryzodeg®	24	Insuman® N
26	Gensulin N	28	NovoMix® 30	29	NovoMix® 50	30	NovoMix® 70
32	Toujeo®	33	Humalog® Mix50/50™	34	Humalog® Mix75/25™	35	Mixtard® 30
36	Humulin® 70/30						

Category must be exactly one of these indexes:

9	Fasting	0	Snack	1	Before breakfast	11	Breakfast
2	After breakfast	3	Before lunch	12	Lunch	4	After lunch
5	Before dinner	13	Dinner	6	After dinner	10	Before bed
7	Night	14	Before exercise	15	After exercise	8	Other

Exercise_index must be exactly one of these indexes:

-1	Select exercise	0	None	1	Other	2	Aerobics
3	Australian football	4	Backcountry skiing	5	Badminton	6	Baseball
7	Basketball	8	Beach volleyball	9	Biathlon	10	Biking
11	Boxing	12	Calisthenics	13	Circuit training	14	Cricket
15	Cross-country skiing	16	Cross skating	17	Curling	18	Dancing
19	Diving	20	Downhill skiing	21	Elliptical	22	Ergometer
23	Fencing	24	Fitness	25	Fitness walking	26	Football
27	Frisbee	28	Gardening	29	Golf	30	Gymnastics
31	Handball	32	Handcycling	33	Hiking	34	Hockey
35	Horseback riding	36	Housework	37	Ice skating	38	Indoor skating
39	Indoor volleyball	40	Inline skating	41	Jogging	42	Jumping rope
43	Kayaking	44	Kettlebell	45	Kickboxing	46	Kite skiing
47	Kitesurfing	48	Martial arts	49	Meditating	50	Mixed martial arts
51	Mountain biking	52	Nordic walking	53	Open water swimming	54	P90x
55	Paddle boarding	56	Paragliding	57	Pilates	58	Polo
59	Pool Swimming	60	Racquetball	61	Road biking	62	Rock climbing

63	Roller skiing	64	Rowing	65	Rowing machine	66	Rugby
67	Running	68	Sailing	69	Sand running	70	Scuba diving
71	Skateboarding	72	Skating	73	Skiing	74	Sledding
75	Snowboarding	76	Snowmobiling	77	Snowshoeing	78	Soccer
79	Softball	80	Spinning	81	Squash	82	Stair climbing
83	Stair climbing machine	84	Stationary biking	85	Strength training	86	Surfing
87	Swimming	88	Table tennis	89	Team sport	90	Tennis
91	Treadmill	92	Treadmill running	93	Treadmill walking	94	Utility biking
95	Volleyball	96	Wakeboarding	97	Walking	98	Water polo
99	Weight lifting	100	Wheelchair	101	Windsurfing	102	Wrestling
103	Yoga	104	Zumba				

Medications format

```
[{"medication_id":0,"name":"Metformin","dose":"1",
"dose_unit":"mg","user_id":0,"default_quantity":1.0,"quantity_unit":"ml",
"deleted":false,"last_modified":0,"input_id":0,"quantity":1.0}]"
```



The fastest way to see the export/import format is to enter few entries in Diabetes:M, do Export Data (CSV) and see the file.

A working template is attached to that page so it can be downloaded and can be used to produce your own import file. To see the file in the text format described above, open it with NotePad or other text editing program.

Old Import format for Logbook entries (still working, use the template in the end of the paragraph)
Diabetes:M provides export and import to and from tab delimited CSV file.

You can download a sample file from here:

<https://cdn.manula.com/user/14415/docs/import-template.csv>

Here are some notes on the file format:

Where \t is the tabulator symbol, \n is the carriage return symbol.

DateTime format is dd.MM.yyyy HH:mm:ss (day.month.year 24hour:minutes:seconds)

Glucose is in mmol/L

Weight is in kilograms

The BolusInsulin must be exactly one of these strings (the symbol ® may be omitted):

Humalog®	Novolog®	Apidra®	Novolin R®
Humulin R®	NovoRapid®		

The BasalInsulin must be exactly one of these strings (the symbol ® may be omitted):

Novolin N®	Humulin N®	Lantus®	Levemir®
Novolog® 50/50	Novolog® 70/30	NovoRapid® 70/30	

Category must be exactly one of these strings:

Snack	Before breakfast	After breakfast	Before lunch
After lunch	Before dinner	After dinner	Night
Other	Fasting glucose		

Exercise must be exactly one of these strings:

Fitness	Leisurely walking	Walking fast	Jogging
Running	Swimming	Dancing	Roller skating
Bicycling	Golf	Softball	Badminton
Football	Basketball	Volleyball	Frisbee
Skiing	Boxing	Tennis	Table tennis
Martial arts	Rock-climbing	Wrestling	Hiking
Garden/Yard work			

Medications format

```
[pills]x [medication name] ([dose])| [pills]x [medication name] ([dose])| [pills]x [medication name] ([dose])| ...|
[pills]x [medication name] ([dose])
```

Example:

02x Metformin (500mg)|01x Actos (15mg)

Example:

```

Total Records\t2
No\tDateTime\tGlucose\tCarbs\tBasalValue\tBolusValue\tBasalInsulin\t
BolusInsulin\tNotes\tCategory\tWeight\tCarbRatio\tSensitivity\tMedications\t
WeightEntry\tHbA1c\tSystolic\tDiastolic\tPulse\tExercise\tDuration\tComment
0\t28.06.2013 11:54:49\t2.0\t20\t8.0\t6.0\tLantus@\tHumalog@\tnote1\t
After breakfast\t81.0\t11.0\t2.0\t02x Metformin (500mg)|01x Actos (15mg)1\t
28.06.2013 08:51:39\t5.0\t10\t12.0\t11.0\tLantus@\tHumalog@\tnote2\t
Before breakfast\t81.0\t11.0\t2.0\t02x Metformin (500mg)\t83.0\t6.9\t130\t80\t
75\tJogging\t60\tearly morning

```

A working template is attached to that page so it can be downloaded and can be used to produce your own

import file. To see the file in the text format described above, open it with NotePad or other text editing program.

A sample import file could be downloaded from the next location:

<https://cdn.manula.com/user/14415/docs/import-template.csv>

Import/export format for foods

The easiest way to import foods in Diabetes:M is to use the sample file below and have in mind that you need to change a few things:

- No column must be incremented by 1 for every new row
- Total records on the first line must match records count in the file
- ID's column must be unique (increment every row's ID by 1)
- Date column contains date + time in timestamp format and the ID must be unique. You can convert your dates here <http://www.epochconverter.com/>. or just use the last row's date
- Food's categories are added by their index and the indexes are in the list below |#00.Beans and Legumes|#01.Beverages|#02.Breads and Cereals|#03.Cheese, Milk and Dairy|#04.Deserts|#05.Eggs|#06.Fast Food|#07.Fruits|#08.Nuts and Seeds|#09.Pasta, Rice and Noodles|#10.Salads|#11.Sauces, Spices and Spreads|#12.Snacks|#13.Soups|#14.Vegetables|#15.Meat|#16.Fish and Seafood|#17.Other|#18.User Added Food

The columns that you need to take care of are colored. A sample food import file can be downloaded from here:

<https://cdn.manula.com/user/14415/docs/mydiabetes-food-export-201612301630.xls>

7. Sources

Sources

This page provides references to all external sources which are used for creating Diabetes:M application.

- Bolus Calculator with Nutrition Database Software, a New Concept of Prandial Insulin Programming for Pump Users**
by Ewa Pańkowska M.D., Ph.D., Marlena Błazik, M.D.
<https://journals.sagepub.com/doi/10.1177/193229681000400310>
- Pumping Insulin : Everything You Need to Succeed on an Insulin Pump, 5th Edition**
by John Walsh, PA and Ruth Roberts, MA
- Statistical Tools to Analyze Continuous Glucose Monitor Data**
by "William Clarke, M.D. and Boris Kovatchev, Ph.D.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2903980/>
- Risk Analysis of Blood Glucose Data: A Quantitative Approach to Optimizing the Control of Insulin Dependent Diabetes**
by Boris P. Kovatchev, Martin Straume, Daniel J. Cox and Leon S. Farhy
<https://drive.google.com/file/d/0Bw1emMGLdpZTTVZNR2VDLXJ0MWc/view>
- Confusion Regarding Duration of Insulin Action – A Potential Source for Major Insulin Dose Errors by Bolus Calculators**
by John Walsh, PA, CDTC, corresponding author Ruth Roberts, MA and Lutz Heinemann, PhD3
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4454113/>
- Managing high-fat, high-carbohydrate meals**
material from "Baker IDI Heart and Diabetes Institute"
<https://www.baker.edu.au/health-hub/fact-sheets/extended-wave-bolus>
- A Simplified Approach Using Rate of Change Arrows to Adjust Insulin With Real-Time Continuous Glucose Monitoring**
by David C. Klonoff MD, FACP, FRCPE, Fellow AIMBE, David Kerr, MD, FRCPE
<https://journals.sagepub.com/doi/full/10.1177/1932296817723260>
- Diabetic Athlete's Handbook**
by Sheri R. Colberg, PhD

8. About the manufacturer



Corporate Headquarters
Sirma Medical Systems JSC
135 Tsarigradsko Shosse Blvd., fl.3,
1784 Sofia, Bulgaria

Phone: +359-2-976-8310

Fax: +359-2-974-3988

Email: info@sirma-medical.com

Website: www.sirma-medical.com



Diabetes : M

MEDICAL DEVICE

SOFTWARE FOR MONITORING AND ALLEVIATING DIABETES

Model: Mobile version

UDI

(01) 3800600005750
(8012) 9.0

