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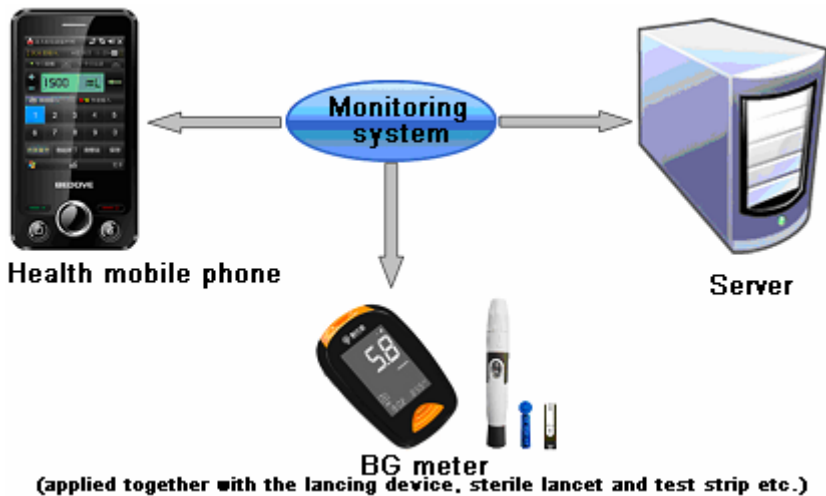
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# 1 Components

Remote & Mobile Blood Glucose Monitoring and Diabetes Patient Follow-Up System collects daily blood glucose (BG) value by BG meter, and transmits the data to the health mobile phone via Bluetooth. Then, the mobile phone sends the data to the server through GPRS. A doctor remotely views the BG variation of a patient, and carries out timely treatment after analysis and diagnosis. The doctor can also interact with the patient through the server. The patient can view doctor advice on the mobile phone as well.

The system consists of BG meter and software (software on health mobile phone and server).





## 2 Overview

### 2.1 BG Monitoring Devices

The BG monitoring devices can measure BG value anywhere and anytime, and transmit the data to health mobile phone via Bluetooth. The system consists of BG meter, lancing device, test strips and sterile lancet.

#### 2.1.1 BG Meter

The BG meter owns functions of data transmission and BG test. The following figure shows the structure of the BG meter, and Table 1 describes functions of each button.





**Back**

**Right side**

6. SET button

7. Battery compartment



8. Bluetooth button



**Table 1**

<b>No.</b>	<b>Name</b>	<b>Function</b>
1	Test slot	Inserting the test strip
2	Bluetooth indicator	Indicating data transmission and working status
3	Display	Displaying the results, and symbols guiding your test
4	Mode button	Turning on/off the meter; browsing and setting modes.
5	Test strip ejector	Ejecting the used strip by pushing up this button.
6	SET button	Entering and confirming the meter settings.





7	Battery compartment	Holding the batteries. AAA alkaline batteries only.
8	Bluetooth button	Pushing up the button when the meter is off to enable the Bluetooth connection.

Data collected by the BG meter are transmitted to the mobile phone when the meter is powered off. The Bluetooth indicator indicates the data transmission status. See Table 2.

**Table 2**

No.	Indicator Status	Description
1	Off	Bluetooth is disabled.
2	Flashing blue	Bluetooth is enabled and

		under connecting.
3	Normally on in blue	Bluetooth connection is set up successfully.

## 2. 1. 11. Replacing Batteries

If the battery symbol appears on the display, it means low battery. Please replace with two new AAA alkaline batteries. If the symbol begins to flash, it means the remaining power is not enough for a test. Replace batteries at No.7 **Battery compartment** in Figure 3.1.

- 1.Power off the BG meter. Press and then lift up the fibula to remove the cover.

- 2.Remove the used batteries, or pat the meter with your palm softly. Do not knock the meter with hard objects.



3. Load two new AAA alkaline batteries. Make sure the anodes and cathodes of the batteries respectively point at the "+" and "-" symbols in the compartment.

4. Insert the two hinges of the compartment cover into the slots and press softly until they fit the fibula.

**Caution: Use AAA alkaline batteries only. Do not use rechargeable batteries.**

## 2. 1. 12. Settings

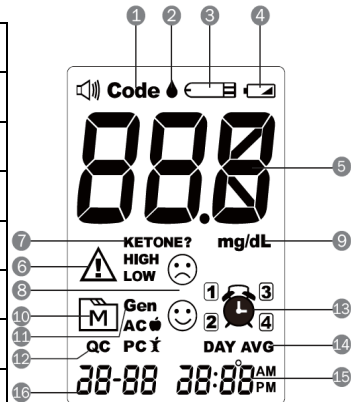
After loading batteries correctly, press the **Mode** button to start the meter. See the following figure and Table 3 for system interface and description of each button.

Set the meter as follows:

1. Press the **SET** button. Item to be set is flashing.
2. Press the **Mode** button to set values for the flashing items. Press once to enter fine adjustment (the flashing value increases by +1 after each pressing of **Mode** button). Press and hold the **Mode** button to enter quick change.
3. After finishing the preceding setting, press the **Mode** button again to proceed. Item to be set is flashing.

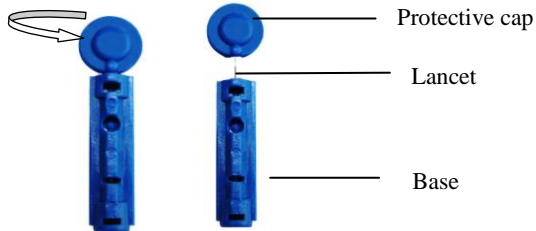

**Table 3**

1	Code	9	Measurement unit
2	Blood drop symbol	10	Memory symbol
3	Test strip symbol	11	Measurement mode
4	Low battery symbol	12	Control solution mode
5	Test result	13	Reminder alarm
6	Error warning	14	Day average
7	Ketone warning	15	Time
8	Face/Low/High symbol	16	Date



## 2.1.2 Sterile Lancet

It is used to prick your finger to obtain blood samples. The sterile lancet consists of protective cap, lancet and base. Pull off the cap before use. The appearance is shown in the following figure.



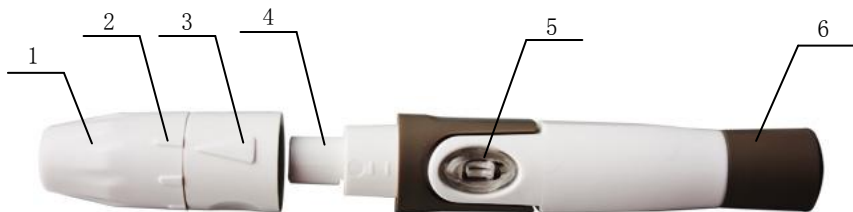
**Caution: Never share a sterile lancet. The sterile lancet is for single use only. Always**



**use a new sterile lancet each time when doing a test.**

### 2.1.3 Lancing Device

The lancing device is used together with the lancet to obtain blood samples. The following figure shows the appearance of the lancing device, and Table 4 describes the functions.



**Table 4**

<b>No.</b>	<b>Name</b>	<b>Function</b>
1	Adjustable cap	Turning the cap to adjust the penetration depth.
2	Depth indicator	The longer the depth indicator is, the deeper the penetration is, and vice versa.
3	Arrow	Identifying the depth of penetration.
4	Lancet holder	Securing the lancet by inserting it into the lancet holder.
5	Release button	Pressing the button to prick your finger.
6	Cocking control	Pull the cocking control to get ready for prick.



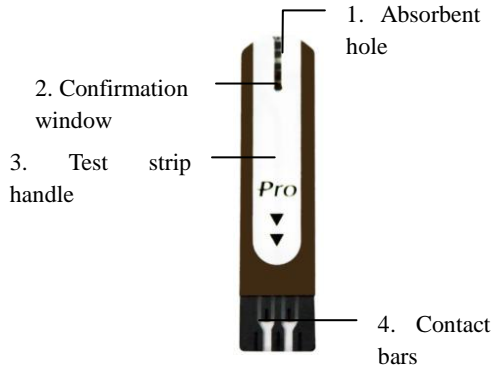


## 2.1.4 Test Strip

The BG meter can measure the BG value of whole blood by obtaining blood samples with the test strip.

The absorbent hole is close to the blood sample, and will absorb the sample into the test strip when the blood sample is applied.

The figure on the right shows the



front of the test strip, and the following table describes the functions.

**Table 5**

<b>No.</b>	<b>Name</b>	<b>Function</b>
1	Absorbent hole	Close to the sample, and absorbing the sample into test strip.
2	Confirmation window	Checking whether the sample is sufficient through the confirmation window.
3	Test strip handle	Handling the test strip
4	Contact bars	Inserting the end into the test slot on the BG meter.



Store the test strips in their original vial, which contains desiccant inside, and keeps the test strips from moisture. Code number and optional color chart are printed on the test strip vial. Table 6 describes the functions.

**Table 6**

<b>No.</b>	<b>Name</b>	<b>Function</b>
1	Code number	Used for calibrating the BG meter.

2	Optional color chart	<p>After reading the test result, you can directly compare the color on the test strip with the color chart on the test strip vial.</p> <p>The chart presents blue colors in two depths, respectively standing for glyopenia (2.8 mmol/L) and hyperglycemia (19.4 mmol/L). White shadow stands for unused test strips.</p>
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## 2.2 Health Mobile Phone

The figure on the right shows the appearance of the health mobile phone;

Table 7 describes the function and usage of the health mobile phone keys.



**Table 7**

<b>No.</b>	<b>Name</b>	<b>Function</b>
1	Power button	Powering on/off the mobile phone; Pressing the button to awake the phone when it is standby.
2	Talk key	Dialing numbers
3	Navigation key	Navigation and confirmation.
4	e+Health key	Pressing the key to start the system and display the interface when the interface is hidden.
5	End key	Press the key to end a call or hide the interface.



<b>No.</b>	<b>Name</b>	<b>Function</b>
6	e+Health shortcut icon	See e+Health key

### 3 Measuring BG Value

Before measuring, prepare a clean, dry table and all necessary items (including BG meter, lancing device, sterile lancet, test strips, alcohol and cotton swabs).

#### 3.1 Preparing for Obtaining a Blood Sample

1. Pull off the cap of the lancing device. Insert the lancet into the lancet holder of the lancing device. Push down the lancet until it is secured in the lancet holder.

2. Twist the protective disk off the lancet, and then replace the cap of the lancing device.

**Note: You can adjust the depth of penetration as needed.**

3. Pull the cocking control back until it clicks.





4. Wash your hands with soap and warm water. Clean your hands and sterilize the puncture site with cotton swab and alcohol.

**Note: Rub your hand from the wrist to fingertip two or three times to stimulate blood perfusion.**

### 3.2 Preparing the BG Meter

1. Insert the test strip facing up into the test slot. The BG meter automatically starts.

**Note: Make sure no test strip is inserted in the BG meter before operation.**

2. The BG meter automatically displays code number. You can start measuring when the displayed code number is the same as that on the test strip vial.

### 3.3 Starting Testing

1. Press the lancing device's tip firmly against the lower side of your fingertip. Choose a different spot each time you test to prevent soreness and calluses.

2. Press the release button of the lancing device. If needed, you can rub your finger softly from the pad of finger to fingertip to stimulate blood perfusion.

3. Make sure a new test strip is inserted into the BG meter. Use the absorbent hole of test strip to touch the blood sample. Blood will be drawn in. You can check whether the sample is sufficient through the confirmation window. If the blood is deficient, the blood drop symbol flashes.

4. When the BG meter is reading the result, the clock symbol flashes on the display.



The result is displayed in approximately 5 seconds.

5.The test result is stored in the memory.

6.Push up the test strip ejector. The test strip is ejected, and the BG meter automatically switches itself off. If no push-up operation is performed, the BG meter switches off automatically three minutes after displaying the test result.

7.Enable the software on the health mobile phone.

8.Pushing up the Bluetooth button when the meter is turned off to enable the Bluetooth connection. The connection of mobile phone and BG meter succeeds when the Bluetooth indicator keeps on. You can upload data then.

Note: Discard the used test strip into a disposal container.

9. Pull off the cap of the lancing device. Take off the lancet from the lancet holder.

10. Discard the lancet into a disposal container for sharp items.

**Note: Follow the instructions of dismantling and discarding the used lancet strictly to prevent accidental puncture.**



## 4 Operations on the Phone

Press the e+Health key or click the shortcut icon on the phone screen. The interface of healthcare monitoring platform is displayed. See the figure on the right:



Click **Diabetes Follow-Up** on the interface. The main interface of diabetes patient follow-up is displayed. See the figure on the right.


Diabetes follow-up includes BG monitoring, follow-up scheme, health advice, complaint, device management, settings and update.





## 4.1 Typing BG Value



Select  on the main interface of BG monitoring. The BG monitoring interface is displayed. See the figure on the right:

You can enter BG monitoring data, view BG trend and analysis report here. Two methods are available for BG value input: BG meter transmission and manual input. You can

The screenshot shows the 'Blood Glucose' application interface. At the top, there is a status bar with the Windows logo, the text 'Blood Glucose', and icons for signal strength, battery, and time (1:45). Below the status bar are three tabs: 'BG Value Input', 'BG Trend Chart', and 'Analysis'. The 'BG Value Input' tab is active. The interface contains several input fields and dropdown menus:

- Input Mode:** A dropdown menu with 'BG meter' selected.
- BG Value:** A text input field followed by 'mmol/L'.
- Date:** A text input field with '2011-03-14' entered.
- Time:** A text input field with '13:45:31' entered.
- Type:** A dropdown menu with 'Fasting' selected.
- Position:** A dropdown menu with 'Fingertip' selected.
- Remarks:** A large text area for entering notes.

At the bottom of the screen, there is a navigation bar with three icons and labels: 'Historic Record', 'Upload', and 'Save'. Below this bar is a keyboard icon and the text 'Back'.

change the input method by selecting different options.

### 1.BG Meter Transmission

The BG meter transmits data to the health mobile phone after automatically connecting to the latter. If the health mobile phone enables GPRS, it automatically sends data to the server.

### 2.Manual Input

The patient enters data on the mobile phone after measuring the BG value with BG meter.

Historical data: viewing stored BG data.

Upload: uploading stored but not uploaded data to the server.





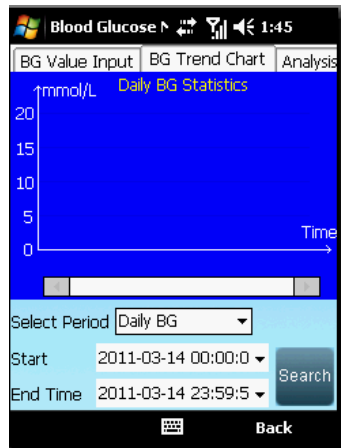
Storage: storing the BG value after the user inputs the data.

## 4.2 Viewing BG Trend



Select **Blood Glucose** on the main interface of BG monitoring. The BG monitoring interface is displayed. See the figure on the right:

Click **BG Trend**. Then select the start time and end time. The BG trend chart during the required period is displayed.

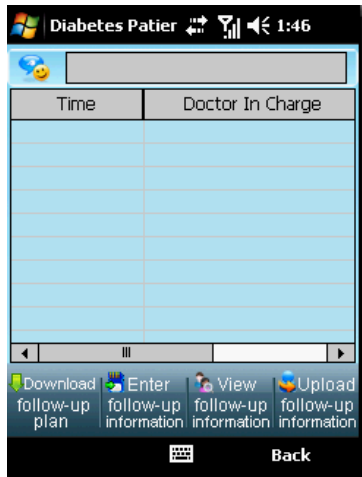


### 4.3 Viewing Follow-Up Scheme



Select **Follow-Up Scheme** on the main interface of BG monitoring. The follow-up scheme interface is displayed. See the figure on the right:

The patient can download, enter, view and upload follow-up scheme here. The patient checks each parameter according to the follow-up scheme downloaded from the server, and then records the values to the follow-up information. After saving the






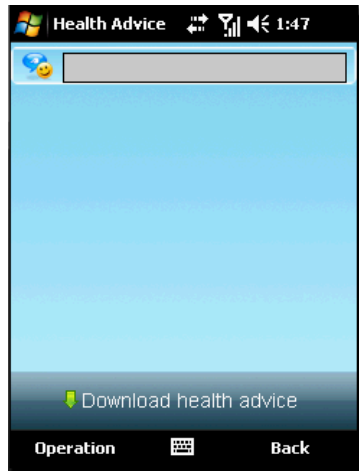
information, the patient can upload it to the server.


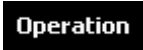
#### 4.4 Viewing Health Advice



Select  on the main interface of BG monitoring. The interface of health advice is displayed. See the figure on the right:

The doctor can send health advice through the server; the patient can view health advice on the mobile phone.



Click  to download the latest advice. Reminders are displayed periodically if you do not download the advice. Click  to update or delete the health advice.



## 4.5 Complaint



Click **Complain** on the main interface of diabetes patient follow-up. The interface of complaint is displayed. See the figure on the right:

The patient can send the feedback to the server when not feeling well by clicking **Complaint**. The doctor can also view the complaint through the server.

The screenshot shows a mobile application interface titled "Complain". At the top, there is a status bar with a Windows logo, signal strength, and the time 1:46. The main interface has a light blue background and contains the following fields:

- Doctor Name:
- Content:
- Patient:
- Time:

At the bottom, there is a navigation bar with three buttons: "View History" (with a magnifying glass icon), "Upload" (with a cloud icon), and "Save" (with a floppy disk icon). Below this bar is a black bar with a keyboard icon and the word "Back".

Click **Upload** after filling in relevant information to save it to the phone, and then upload it to the server.

## 5 Precautions

- ☺ The power indicator flashing red slowly indicates low battery. Please replace the AAA alkaline batteries with two new ones. Do not use rechargeable batteries.
- ☺ Make sure the distance between the BG meter and mobile phone is between 5 cm and 10 m when uploading BG data.
- ☺ When entering data, press the power button on the top of the health mobile phone to enable it if it is in power-saving state.
- ☺ If the follow-up interface is hidden or covered by other software interfaces, press



on the lower right to return to the follow-up interface.

### **Additional Information:**

- Figures and descriptions in the operation guide are only for demonstration. Please adhere to actual products in case of any discrepancy.
- Please contact relevant hospital personnel for any questions during operation.

### **FCC NOTE:**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.