Using The HESS Glucometer App

Healthcare Education Simulation Station

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PLEASE READ

DISCLAIMER

The information in the HESS is not intended or implied to be a substitute for professional medical expertise, advice, diagnosis or treatment.

There is no representation and no responsibility for the accuracy of information contained within the HESS.

The HESS is only intended to be used as an instructional aide by qualified medical educational professionals.

About The HESS Glucometer App

The HESS Glucometer App was created to let healthcare professionals conduct learning exercises that involve a hand held Glucometer device in a safe and “low stakes” environment.

The Glucometer App can be used to simulate Blood Glucose vitals on both Manikins and Standardized Patients (actors) where a real Glucometer would either display the healthy vitals of the Standardized Patient or read no vitals from an artificial Manikin limb.

Tablets Suitable To Run The HESS Glucometer App

The HESS Glucometer App can run on Android tablets with Version 8 or above of the Android operating system and with a screen size of approximately 7 inches. The 7 inch screen size is a common Android tablet size that can allow the tablet to still be hand held.

Android tablets with screen sizes smaller than 7 inches may not display the Glucometer App screen elements correctly.

The Glucometer App can be run on larger screen sizes if the educational exercise dictates using a larger tablet – such as displaying the Glucometer App screen on a monitor or projector.

HESS Vitals Accepted By The HESS Glucometer App

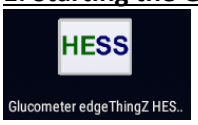
The HESS Glucometer App will recognize and use the following vitals transmitted from the HESS Instructor tablet.

1. Blood Glucose Vitals

The Blood Glucose Vital that the Glucometer App recognizes and uses is the Glucose Level (mg/dL).

Using The HESS Glucometer App

1. Starting the Glucometer App



The HESS Glucometer App can be started by touching the HESS Glucometer App icon on the Android tablet.

2. Starting the Glucometer Vitals Display (when NOT USING a Smart Cable)

When NOT USING a Smart Cable, AFTER the Blood Glucose Vitals have been transmitted successfully from the HESS Instructor App, the "power" button can be used to display the Glucometer Vitals.

The "power" button must be pressed again to "re-read" the patient Blood Glucose Level in order to see any changes to the Vitals.

3. Entering Glucometer Comments

The Comments button can be used to simulate entering comments regarding the Blood Glucose reading. The comments are for simulation purposes only and are not actually logged or saved.

The Comments area allows the selection of a course of action: a)Will Repeat Test, b)Doctor Notified or c) RN Notified – along with a text entry area for free form comments.

4. Starting the Glucometer Vitals Display (when USING a Smart Cable)

When USING a Smart Cable:

a) AFTER the Blood Glucose Vitals have been transmitted successfully from the HESS Instructor App
b) AND AFTER a suitable drop of liquid has been placed on end of the Blood Glucose Strip
c) AND AFTER the liquid has had time to "wick" up along the Blood Glucose Strip

then the "power" button can be used to display the Glucometer Vitals (there will be a slight delay).

The "power" button must be pressed again to "re-read" the patient Blood Glucose Level in order to see any changes to the Vitals.

When USING a Smart Cable, the Smart Cable must have a Blood Glucose Strip inserted in the Smart Cable slot and properly activated by a suitable drop of liquid for any Blood Glucose Vitals to be displayed. See the **Glucometer Smart Cable section** of this guide for more information.

HESS Glucometer App Settings

The HESS Glucometer App has the following Settings available via the Android "3 dots menu" in the upper right corner of the Glucometer App screen:

1. Glucose Normal Range Low And High Levels

Sets values, that if the Blood Glucose Level (mg/dL) falls below or rises above, will display an "Out Of Normal Range" message.

2. Glucose Critical Range Low And High Levels

Sets values, that if the Blood Glucose Level (mg/dL) falls below or rises above, will display an "Out Of Critical Range" message.

3. Glucose Reportable Range Low And High Levels

Sets values, that if the Blood Glucose Level (mg/dL) falls below or rises above, will display an "Out Of Reportable Range" message.

4. Delay Display After Button Press

Sets a delay of between 0-15 seconds after the user presses the power button before displaying the Vitals to simulate the "reading" time of the device.

5. Flip Glucometer Display

Flips the Glucometer App screen to enable easier access to tablet ports – such as the charging port, Smart Cable (USB) port or the audio jack – during use.

6. Device Address

The Glucometer App receiving address for the Vitals – which must match the transmission address for the Vitals in the HESS Instructor App. Device Addresses are 4 characters made up of the characters 0-9 and A-F. **DO NOT USE** "0000" or "FFFF" as Device Addresses. "0000" and "FFFF" have special uses within the HESS. Using these special Device Addresses can cause unpredictable results.

HESS Glucometer App Settings

The HESS Glucometer App has the following Smart Cable Oriented Settings:

7. Enable Smart Cable

Enables the Glucometer App to use the Glucometer Smart Cable.

The HESS Glucometer Smart Cable requires the learner to:

a) insert a real Blood Glucose Strip into the Smart Cable slot
b) place a drop of suitable liquid on the end of the Blood Glucose Strip
c) wait for the liquid to "wick" up the Blood Glucose Strip

before being able to view the Blood Glucose Level on the Glucometer App.

DO NOT select "Yes" for this option unless a Glucometer Smart Cable is being used in the learning exercise. See the **Glucometer Smart Cable section** of this guide for more information.

8. Smart Cable Vendor ID

Used ONLY if a "non-HESS" (3rd Party) Glucometer Smart Cable has been built to be used as the Glucometer Smart Cable. This should be zero if using a genuine HESS Glucometer Smart Cable OR if not using a Smart Cable.

9. Smart Cable Product ID

Used ONLY if a "non-HESS" (3rd Party) Glucometer Smart Cable has been built to be used as the Glucometer Smart Cable. This should be zero if using a genuine HESS Glucometer Smart Cable OR if not using a Smart Cable.

HESS Glucometer App Usage Notes

1. Bluetooth Reset Button

If, after numerous attempts, the Glucometer App is still not receiving Vitals transmissions – even though the Instructor transmission and the Device receiving addresses match – the "Bluetooth Reset" button in the upper right corner of the screen can be used to reset the Android tablet's Bluetooth functions. This often will resolve Bluetooth oriented issues without having to stop or disrupt the app.

2. When Done, "Power Off" Tablets – Don't Just "Suspend" Them

The Android tablets should be completely "powered off" when stored or the battery will drain to 0% charge. Completely drained batteries can then take 20-30 minutes of charging just to get the tablet to power up for usage. Even if the tablet screen is dark it can be misleading because the tablet may only be "suspended". Pressing the power button for ½ second will indicate if the tablet is completely powered off – by either "unsuspending" the tablet screen if the tablet is only "suspended" – or remaining dark if the tablet is completely powered off.

HESS Glucometer Smart Cable

The HESS Glucometer Smart Cable was created to allow a real Blood Glucose Strip to be attached to an Android tablet running the Glucometer App.

To use the Glucometer Smart Cable, the Settings of the Glucometer App must have the "Enable Smart Cable" option set to "Yes".

Smart Glucometer Strip components

Abbott Freestyle Precision Neo blood glucose test strips

To attach the Glucometer Smart Cable, insert the USB plug of the Glucometer Smart Cable into a suitable USB Adapter cable - which should be plugged into the USB port of the tablet running the Glucometer App. Such a USB Adapter cable allows attachments with full sized USB plugs to be used with tablets – which usually have smaller "mini-USB" or "micro-USB" ports.

If the Glucometer App is running you will need to provide Permission in a popup window to use the attached Glucometer Smart Cable.

Once the Glucometer Smart Cable is attached and communicating properly - the text in the blue toolbar at the top of the Glucometer App will be green rather than white. This green text is the "Smart Cable Indicator" that confirms the Glucometer Smart Cable is working.

This text should stay green for the duration of the learning exercise. The text may briefly turn blue when a Bluetooth transmission is received – or even briefly turn white – but it should quickly return to green to indicate proper communication with the Glucometer Smart Cable.

If the text remains white or blue for more than a second, the Glucometer Smart Cable is not communicating properly and should be reset using one of the following steps (AND any vitals should then be re-transmitted to the Glucometer App):

a. Try detaching and then reattaching the USB cable as in the initial installation.
b. Try closing and restarting the Glucometer App and reattaching the USB cable.
c. In very rare cases, try powering off the Android tablet and then restarting it.

HESS Glucometer Smart Cable

The HESS Glucometer Smart Cable requires the learner to:

a) insert a real Blood Glucose Strip into the Smart Cable slot
b) place a drop of suitable liquid on the end of the Blood Glucose Strip
c) wait for the liquid to "wick" up the Blood Glucose Strip

before being able to view the Blood Glucose Level on the Glucometer App.

Note: The Abbott Freestyle Precision Neo blood glucose test strips must be inserted into the socket such that the electrical contacts on the strip make proper contact with the electrical contacts in the socket. If the Abbott Freestyle Precision Neo blood glucose test strip is inserted upside down, the Glucometer Smart Cable will not work correctly.

About The Genuine HESS Glucometer Smart Cable

The genuine HESS Glucometer Smart Cable was built using an Arduino board with a Blood Glucose Strip socket that meets the requirements of Abbott Freestyle Precision Neo blood glucose test strips.

When the Abbott Freestyle Precision Neo blood glucose test strip is inserted into the socket, a drop of liquid containing "sugar" can be placed on the tip of the strip. The liquid will "wick" up the strip and cause a small electrical current to flow within the strip. This current will cause the Glucometer Smart Cable to communicate with the Glucometer App that the Blood Glucose Level should be displayed on the screen. This is very similar to the way a real glucometer works.

The liquid can be "sugar water", possibly saliva – or even real blood – as long as there is some level of "glucose" in the liquid.

Other Glucometer Smart Cables

Specifications for building "non-HESS" (3rd Party) Glucometer Smart Cables are available at **www.BetterNurseEducation.com** . 3rd Party Glucometer Smart Cables may have different requirements for blood glucose strips, liquid content, etc. Use of 3rd Party Glucometer Smart Cables requires the entry of an appropriate Smart Cable Vendor ID and Smart Cable Product ID in the Glucometer App Settings.