

AMHERST COLLEGE EMERGENCY MEDICAL SERVICES (ACEMS) GLUCOMETER PROTOCOLS

VERSION 1.1, LAST UPDATED: APRIL 2023

Introduction

The Massachusetts Office of Emergency Medical Services (MA OEMS) Pre-Hospital Statewide Treatment Protocols (Version 2023.1) considers the use of blood glucose results from a glucometer part of routine field diagnostic testing which may be utilized by EMT-Basics in any call, as indicated. However, the use of a glucometer must be carefully regulated because of its close association with sharps and potential for needlesticks and bloodborne illness. This document outlines proper use of a glucometer in the setting of a college campus for the Amherst College Emergency Medical Services (ACEMS) and its volunteer EMTs. ACEMS considers the implementation of pre-hospital glucometry protocols an important step in advancing the level of care available on campus.

Indications for Use

Based on MA OEMS Pre-Hospital Statewide Treatment Protocols (Version 2023.1), indications for the use of a glucometer to test patient blood glucose are:

- Altered Mental Status
- Altered Neurological Status
- Diabetic Emergencies
- Coma
- Stroke

Based on common calls on the Amherst College campus, additional indications for the use of a glucometer to test patient blood glucose include:

- Syncope
- Vertigo
- Seizure
- Intoxication, consumption of drugs/alcohol
- Known History of Diabetes, accompanied with the above or any of the following, at the discretion of the Med-10 and other on-scene personnel:
 - General malaise
 - Anxiety, Irritability, or Agitation

- Shakiness
- Tachycardia, bradycardia
- Tachypnea, bradypnea
- Dietary changes
- Diaphoretic skin
- Headache
- Vision Changes
- Intense thirst/hunger

Using the Glucometer

Only Med-10s, the highest of ACEMS' three ranks, will be trained to utilize the glucometer and therefore must be present for glucometry to proceed. As in any other procedure, the patient must be informed that a blood glucose reading is indicated, informed *in clear language* what glucometry entails, and asked for consent to proceed. Proper body substance isolation (BSI) equipment **must** be utilized when handling the glucometer, strips, single-use lancets, etc.

Reasonable efforts should be made, when applicable, to assist the patient check their own blood glucose with a personal glucometer. If the patient does not have their own glucometer or is unable or unwilling to perform the procedure themselves AND glucometry is indicated as outlined above, then the Med-10 may proceed with glucometry.

1. Open the bottle of test strips, turn on the glucometer, and insert the test strip into the machine. Place the sharps container nearby for easy disposal later. Prepare a 2x2" gauze and band-aid nearby as well. Check that the glucometer is working properly and is not damaged.
2. Use an alcohol swab to clean one of the patient's fingers thoroughly. Often, the patient may elect which finger is best for testing.
3. Once the alcohol has evaporated, use a single-use lancet fingertip to pierce the patient's finger on the side or pad, whichever is preferred. Use the gauze to wipe away the first drops of blood, then touch the test strip gently to the blood to take the reading.

IMPORTANT: Immediately discard the single-use lancet into the red sharps container. Do not put the lancet down, hand it to another EMT, or allow the lancet to float around the workspace.
4. Place the glucometer on a flat surface and wait for the blood glucose reading. In this time, clean the patient's finger with the gauze and/or alcohol wipe, then cover the finger with a bandaid.

5. Write down the blood glucose results, including the units, in the PCR.
6. Dispose of any bloodied materials, including gauze, strips, gloves, etc. in a red biohazard bag and dispose of the bag in Morrow 008 after the call, as normal.

Safety

1. Proper body substance isolation (BSI) equipment **must** be utilized when handling any equipment that may be contaminated with human body fluids, especially blood. These items may include, but are not limited to:
 - a. the glucometer itself
 - b. test strips
 - c. single-use lancets
 - d. sharps container
 - e. gauze/ bandaging materials
2. Once the single-use lancet has been used to draw blood from the patient's finger, it must be disposed of into a red, hard-sided sharps safety container immediately. Under no circumstances will an ACEMS member place the lancet down onto any surface once it has been used.
3. All materials (such as gauze, bandaids, gloves, etc.) bloodied in the process of obtaining a blood glucose reading must be placed in a red biohazard bag and disposed of in Morrow 008 (the ACEMS office) or Keefe Health Center immediately following a call.

Documentation

As with all interventions performed by ACEMS, the use of the glucometer will be carefully recorded on a patient care report (PCR). This documentation will include:

- The reason the glucometer was used
- Whether it belonged to the patient or to ACEMS
- The blood glucose reading and subsequent treatment/transport decisions

Storage

Because glucometer strips are temperature-sensitive, care will be taken to preserve their function. Med-10s bring the ACEMS AED and an attached bag containing other

temperature-sensitive equipment (e.g., epinephrine injectors) inside with them at all times when exiting the ACEMS vehicle. The glucometer will be stored in this bag and kept inside.

Role of BG Readings in Treatment Decisions

Blood glucose readings will supplement but not solely inform treatment or transport decisions. Abnormally low readings will indicate the administration of oral glucose, and high readings will contraindicate this intervention. However, if patients' signs/symptoms are severe enough to warrant glucometry, the responding ACEMS crew will consider activating the Amherst Fire Department (AFD) for advanced life support and hospital transport regardless of the blood glucose reading.

Supporting Agencies

Massachusetts Office of Emergency Medical Services (MA OEMS)

Per MA OEMS Administrative Requirements Manual (AR) 5-520, ACEMS is bound by law to meet the following requirements for use of a glucometer in the prehospital setting:

- A. ACEMS must have an identified medical director, under an affiliation agreement or a memorandum of agreement with a hospital, to provide medical oversight. This can be accomplished by incorporation into an existing affiliation agreement, or memorandum of agreement required for administration of medications, or by execution of a separate agreement.
- B. The medical director under the agreement in (A) shall be responsible for ensuring appropriate training and competency of all EMTs using glucose monitoring, and for all aspects of medical oversight of the program.
- C. ACEMS must maintain training records for review by the Department.
- D. ACEMS must have ongoing quality assurance/quality improvement (QA/QI), either internally or through the agreement in (A), for assessing EMT competency, including, at a minimum, a yearly review of such training and competency in glucose monitoring.
- E. ACEMS must use a glucose monitoring device that is:
 - 1) approved by the U.S. Food and Drug Administration (FDA);
 - 2) utilizes capillary action;
 - 3) measures whole blood;
 - 4) uses one-time lancet;
 - 5) uses small specimen size to decrease the risk of bloodborne pathogen exposure;

6) requires minimal calibration and cleaning.

- F. All patient glucose monitoring results must be documented on the trip record.
- G. ACEMS must ensure strict adherence to bloodborne pathogen policies and procedures, including universal precautions, sharps disposal and reporting requirements currently defined by the Department.
- H. ACEMS must run controls, where applicable, in accordance with manufacturer's instructions.
- I. ACEMS must ensure strict adherence to the use, care and cleaning of the glucose monitoring device in accordance with the manufacturers' instructions.

Training

All current Med-10s will receive initial training from a healthcare provider at Amherst Health Services (AHS) already trained in glucometry. As part of this training, this practitioner will supervise Med-10s using the device so that experienced Med-10s can conduct subsequent training for new Med-10s independently of AHS, but AHS will provide refresher training as needed.