

ALASKA PIONEER HOME		P&P No:	04.01
Title: FreeStyle Blood Glucose Monitoring		Approval:	D. COTE
Key Words: Meter, Testing strip, Blood glucose			
Team: Nursing, Pharmacy, Supply	Effective Date: 11/03/10	Page: 1 of 7	

PURPOSE

To describe the blood glucose monitoring of Alaska Pioneer Home (APH) residents who have diabetes mellitus. Tight control of glucose levels in the blood can reduce the risk of diabetes-related complications such as blindness, kidney disease, nerve damage, and circulatory system problems.

POLICY

The APH use the FreeStyle blood glucose monitoring system, an Abbott Diabetes Care product. Blood glucose checks are ordered by the residents’ physicians or health care provider.

The APH nursing staff provides the scheduled blood glucose checks for Level II and Level III residents.

The APH nursing staff understands the testing process and performs the blood glucose check safely and accurately, while maintaining resident dignity and privacy.

The APH licensed nurses respond with standards of care according to the blood glucose values obtained.

The APH nursing staff that performs the FreeStyle blood glucose test has read this policy and procedure, and has demonstrated their skill and understanding during a competency check.

The blood glucose test is included in the State CLIA lab waiver which is maintained by the APH.

DEFINITIONS

Blood glucose is a sugar in the blood. Glucose is produced from carbohydrate foods, the main source of energy used by the body.

Diabetes mellitus is a metabolic disease characterized by a high blood glucose level. This results from a defect in insulin secretion or its action, or both.

FreeStyle control solution is a red liquid that contains a fixed amount of glucose. The solution is used to test the meter and test strips to ensure that they are working together properly.

FreeStyle Lite test strip is a small, narrow, plastic strip that contains chemicals that react with glucose in a drop of blood. The strip is used once then discarded.

Glucometer is a small portable meter for testing the concentration of glucose in the blood. A small drop of fresh, whole, capillary blood is obtained by pricking the skin with a lancet. The

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blood is placed on a disposable test strip that is read by the meter, to determine the blood glucose level.

Hyperglycemia is high blood glucose due to inadequate insulin or the body's inability to use insulin properly. A high glucose value is >240 mg/dL.

Hypoglycemia is low blood glucose, with values <60 mg/dL.

Insulin is a hormone that helps the body's cells use the glucose and lower the glucose level in the blood. It is produced in the pancreas and released into the blood when the amount of glucose in the blood rises.

OSHA compliant lancets have safety features to protect staff from exposure to blood borne pathogens from an injury.

PROCEDURE**I. The FreeStyle Freedom Lite System****A. Equipment**

1. The FreeStyle Freedom Lite meter is used with FreeStyle Lite test strips and FreeStyle control solution.
2. A new FreeStyle Freedom Lite blood glucose monitoring system includes a meter, test strips, and control solution in a zippered pouch. An Owner's Booklet of instruction and a Daily Log are included.
3. The FreeStyle meter and control solution, batteries, and the OSHA compliant safety lancets are dispensed from APH Supply.
4. The FreeStyle Lite test strips are dispensed from APH Pharmacy.
5. The FreeStyle meter has one pre-installed 3 volt lithium battery. The battery provides enough power for 1000 tests.
6. Each meter is labeled with the resident's name, and is used for one resident.

B. FreeStyle Freedom Lite meter

1. The large screen displays test results and other information.
 - a. Memory mode shows test results are stored in the meter memory.
 - b. Battery symbol appears when the meter battery should be replaced.
 - c. Control solution test result shows that test is with the solution.
 - d. Test results are in large digital numbers.

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- e. Message area at bottom of screen displays date, time, and number of tests.
 - f. Sound level symbol indicates high, low, or volume off.
 - g. Thermometer symbol appears if the meter is out of operating temperature range. Operating temperature is 40°-104°F (4°-40°C).
 - h. Blood drop and test strip symbol tell when the meter is ready for blood or solution to be applied.
 - i. Unit of measure is indicated by mg/dL.
 - j. Day average symbol shows the average value of glucose readings from the last 7, 14, or 30 days.
2. The m (mode) button on the left moves the meter to a 7, 14, or 30 day mode, scrolls backward, and silences a reminder alarm.
 3. The c (configure) button marks a control solution test, scrolls forward, silences a reminder alarm, and changes the date, time, alarm setting, sound, and reviews stored readings.
 4. The test strip is inserted into the yellow test strip port at the bottom of the meter. The meter powers on when the test strip is inserted.
- C. FreeStyle Lite test strips
1. Store the test strip package in a cool, dry place, from 40°-86°F (4°-30°C), away from sunlight and heat.
 2. Store test strips only in the original vial.
 3. After removing a test strip from the vial, immediately close the vial cap tightly.
 4. With clean, dry hands, the test strip may be touched anywhere when removing it from the vial.
 5. Do not bend, cut, or alter the test strips.
 6. The test strip sample areas are two small dark half circles at the bottom of the test strip.
 7. Apply blood or control solution to *only one* test strip sample area per test. Do not apply blood to both edges.
 8. Additional blood can be added to fill the sample area for up to 60 seconds.
 9. The test strip acts like a sponge and pulls the blood into the strip through the sample area.

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10. Used test strips and lancets are discarded in a puncture-proof container.

D. FreeStyle control solution

1. Ensure that the meter and the test strips are working together accurately by performing a control solution test.
2. The control solution is good for three months after opening the bottle, or until the expiration date, whichever comes first.
 - a. Write the date new bottle of solution is opened. Discard after 3 months. New replacement bottle is obtained from Supply.
3. Control solution test results must fall within the range printed on the test strip vial. If the result is outside the range on the vial:
 - a. Conduct a second control solution test using a new test strip.
 - b. If the retest result is outside the range, contact Customer Care 24/7 at 1-888-522-5226.

II. Performing a Control Solution Test**A. Test steps**

1. Insert the tip of the test strip into the meter until it stops. This will power on the meter.
2. Digital display briefly appears to assure that the display screen is working.
3. After the screen check, the date and time briefly appear.
4. Wait for the meter to display the blood drop and test strip symbols.
5. Gently touch *one* of the sample areas on the test strip to the control solution.
6. The meter will beep when the test strip is full. A line moves clockwise around the display screen while the sample is processing.
7. The result will appear on the display screen and the meter beeps twice.
8. Press and hold the “c” button for two seconds to mark the result as a control solution test. The control solution symbol appears at the top right of the display screen.
9. Compare the test result to the range on the test strip vial to assure that the value falls within the range.
10. Chart the test value, date, and initials on the resident’s MAR (Medication Administration Record).

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1. When a new vial of test strips is opened, *and*
2. When a glucose reading is out of the normal range for the resident.

C. Documentation of control test

1. A record of control test values provides a long-term glucometer quality check.
2. The meter display screen shows the value of the control test with the date and time of the last reading.
3. The control test value and date are recorded in the MAR by the *Glucometer Quality Check*.

III. Performing a Blood Glucose Test**A.** Testing blood glucose

1. The following sites are recommended for obtaining blood samples. Resident preference is considered.
 - a. Blood glucose can be tested on the fingers, hand, forearm, upper arm, thigh, or calf.

B. Test steps

1. Nursing staff wears gloves to help prevent exposure to blood borne pathogens.
2. Insert the tip of the test strip into the meter until it stops. This will power on the meter.
 - a. If the test is not started within two minutes, the meter will turn off. To restart the meter, take out the unused test strip and reinsert it unto the meter.
3. Digital display briefly appears to assure that the display screen is working.
4. After the screen check, the date and time briefly appear.
5. Wait for the meter to display the blood drop and test strip symbols.
6. Select a test site and obtain a blood sample with the safety lancet.
7. Fill *only one* sample area on the test strip with blood.
 - a. Bring the test strip to the blood sample at a slight angle.
 - b. Do *not* press the test strip against the test site.
 - c. Do *not* scrape the blood onto the test strip.
 - d. Do *not* apply blood to the test strip when the strip is out of the meter.

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8. Wait to hear one beep or see the line moving clockwise on the meter screen before pulling the strip away from the site.
 - a. The meter requires a very small sample size, 0.3 micro liters of blood, the size of a pinhead.
9. The test result is complete when the test result is on the display screen and two beeps sound, about 5 seconds.
10. FSBS (finger stick blood sugar) results, date, time, and nurse's initials are recorded on the MAR.

IV. LO and HI Readings

- A. Low or high blood glucose readings can indicate a potentially serious medical condition.
 1. The FreeStyle Freedom Lite meter displays results from 20 to 500 mg/dL.
 - a. If a test result is lower than 20 mg/dL, LO will appear on the screen.
 - b. If a test result is higher than 500 mg/dL, HI will appear on the screen.
 2. LO readings *with* symptoms (weak, sweating, nervous, headache, confused)
 - a. Nursing standards of care are followed if hypoglycemia is indicated.
 3. LO readings *without* symptoms
 - a. Retest with a new test strip on a fingertip. If a second LO reading is displayed, follow the nursing standards of care.
 4. HI readings *with* symptoms (fatigue, thirst, excess urination, blurry vision)
 - a. Nursing standards of care are followed if hyperglycemia is indicated.
 5. HI readings *without* symptoms
 - a. Retest with a new test strip on a fingertip. If a second HI reading is displayed, follow the nursing standards of care.

V. Meter Maintenance

- A. Battery
 1. The battery symbol appears on the display when the battery power is low.
 2. When the symbol appears, replace the battery immediately.

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3. Replace the battery within one minute of removing the old battery to avoid losing the time and date settings.
4. Removing the battery does not affect the meter's memory log or stored user settings.
5. Replacing the battery:
 - a. Turn the meter over.
 - b. Slide the battery door to the right to open.
 - c. Pull the plastic tab up to release the battery.
 - d. Install the new battery with the positive (+) sign up.
 - e. To close the battery door, slide in until it snaps into place.

B. Care of the meter

1. Avoid getting dirt, dust, blood, control solution, water, or any liquid in the meter's test strip port.
2. Clean the outside of the meter using a cloth dampened with mild soap and water, QUAT, 70% isopropyl alcohol, or a mixture of one part bleach and nine parts water.
3. Do *not* try to clean the strip port.

HISTORY OF REVISIONS

New: 11/03/10.

Revised:

Reviewed:

ATTACHMENTS

FreeStyle Blood Glucose Training Certificate attach

FREESTYLE BLOOD GLUCOSE TRAINING CERTIFICATE for ALASKA PIONEER HOME

UNDERSTANDING THE SYSTEM:

- Meter, strip, control solution description
- Meter operation
- Strip storage
- Disposal of used supplies
- Safety
- Cleaning the meter

MAIN MENU:

- Menu functions

PERFORMING A TEST:

- Preparing to do a test
- Performing a finger stick
- Applying a blood sample
- Communicating and documenting the blood glucose values

TROUBLE SHOOTING:

- Obtaining supplies
- Control solution tests
- Error messages
- Abnormal results
- Calling for assistance

Print name of APH Nursing Staff

Signature of APH Nursing Staff

Date

Print name of Trainer

Signature of Trainer

Date