NORTHERN NEVADA ADULT MENTAL HEALTH SERVICES

POLICY AND PROCEDURE

SUBJECT: BLOOD GLUCOSE TESTING

NUMBER: NN-LB-05

ORIGINAL DATE: 06/06/89

REVIEW/REVISE DATE: 02/26/92, 12/14/94, 04/23/98, 11/28/01, 03/03/05, 06/07/07, 5/20/10, 12/16/10

APPROVAL: Rosalyne Reynolds {s} , Agency Director

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I. PURPOSE

The purpose of this policy is to establish procedures for on unit blood glucose testing utilizing a simplified blood glucose meter method. The blood glucose meter testing will be used to monitor treatment and as a diagnostic guide.

II. POLICY

It is the policy of Northern Nevada Adult Mental Health Services (NNAMHS) to have blood glucose meters and appropriate supplies available and the nursing staff trained in their use. Only one method/meter will be used throughout the facility.

III. PROCEDURE

1. GLUCOSE TESTING MATERIALS
    a. Blood Glucose meter
    b. Glucometer Contour reagent strips (package of 50 or 100's)
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c. Fingerstick device

d. Alcohol swabs

e. Facial tissue

f. Examination gloves

g. Contour glucometer

2. CONTROL TEST PROCEDURE

a. To assure the accuracy of test results, run control tests each shift when consumer testing is done, using the Contour low and High Control Solutions with Contour Test Strips. Use of controls can alert you to the following problems:

i. Test strips may have deteriorated (due to exposure to air and humidity).

ii. The testing procedure (e.g., sample too small) was not performed correctly.

b. Perform the control test as follows:

I. Always check the expiration & discard date before testing. Controls are good for 6 MONTHS after they are opened or on the original expiration date if they are opened with less than 6 months left before they expire. Be sure to write the open & discard date on the bottles when you open them.

ii. Gently rock the control bottle before opening to mix the solution.

iii. Remove the test strip from the bottle immediately replace the lid. Always replace the lid tightly to protect the strips from room humidity. Leaving the bottle open can cause the strips to deteriorate. Always store them in the original bottle so they aren't damaged.

iv. Hold the test strip with the gray end facing up. Insert the gray end of the strip fully into the port on the meter.

v. The meter will turn on. An image of a test strip with a flashing blood drop will appear letting you know the meter is ready to test.

vi. Hold the bottle on a slant, with the tip near the end of the Test Strip. Gently squeeze the bottle and form a small drop. Touch and hold the Test End of the Test Strip to the hanging drop until the meter beeps. **DO NOT TRY TO PUT THE SOLUTION ON THE TOP OF THE STRIP. THE SOLUTION ENTERS AT THE TIP OF THE STRIP.**

vii. A small amount of solution will be drawn into the Test Strip. The timer begins counting down from "5" seconds.

viii. After 5 seconds, the Control Test result will appear in the Display Window. Compare the result to the range listed on the bottom of your Test Strip Carton.

A) If a problem ever occurs during testing that you cannot solve, refer to the Troubleshooting section of the Operating Manual or call the NNAMHS Lab Manager.

B) If you still cannot identify the problem, contact the Bayer Customer Service Department at 1-800-348-8100.

ix. Compare control results with the acceptable ranges:

A) Acceptable ranges are printed on the bottom of each box of test strips.

B) Proceed as follows:

(1) Results in range, proceed with patient testing.

(2) Results out of range, repeat control tests and record that this was done on the Glucose Monitor Form 119. (Appendix I)

(3) Results in range, record on Glucose Monitor Form (MR 119) and proceed with testing.

(4) Results still out of range and technique and procedure have been verified; consult the troubleshooting guide in the Glucometer manual. Call the NNAMHS Lab Manager if you cannot resolve the problem. DO NOT PROCEED WITH

CONSUMER TESTING UNTIL THE PROBLEM IS CORRECTED.

(5) If the problem can't be resolved borrow a meter form another unit. Be sure controls have been run and are recorded for that meter.

C) Nursing staff will check the expiration and discard dates on high and low controls and replace as necessary.

x. Control results will be reported on the glucometer control sheet.

xi. Controls expire 6 months after being opened. Newly opened control vials must be labeled with the date opened. The date must be verified before using the control. Any outdated control vial must be discarded. The controls expire on the manufacturer's expiration date or 6 months after the vial was opened, whichever comes first.

5. FINGERSTICK PROCEDURE

a. Select a puncture site:

i. The side of the fingertip is the preferred site.

ii. The site should be warm and must not be swollen.

iii. Blood flow can be increased to the site by holding a moist, warm cloth on the site for 3 minutes or by running warm water over the hands.

b. Cleaning the puncture site:

i. Use an alcohol wipe to clean the puncture site.

ii. Allow the site to dry while you prepare the fingerstick device.

A) This is important as excess alcohol can affect the blood glucose result.

c. Performing the finger stick:

i. Remove the protective cover from the finger stick device and set it aside.

ii. Position the recessed area of the platform over the puncture site so that the skin protrudes through the platform hole.

iii. Press the activating button, allowing the lancet to puncture the skin.

iv. The drop of blood that forms should be used for the glucose test.

v. Discard the used finger stick device into a Biohazard Sharps Container.

6. THE BLOOD GLUCOSE TEST PROCEDURE

a. Remove the test strip from the bottle. Close the bottle immediately.

b. Hold the test strip with the gray side up. Insert the gray end of the test strip fully into the port on the meter.

c. The meter will turn on. An image of a test strip with a flashing blood drop will appear letting you know the meter is ready to test.

d. Obtain a drop of blood.

Touch and hold the test end of the Test Strip to the drop of blood until after the Meter "beeps." Blood will be drawn automatically into the Test Strip. The timer will begin counting down from "5" seconds.

g. After 5 seconds, the blood glucose result will appear in the Display Window. If "low" appears in the display, the blood glucose may be below 10 mg/dl. If "Hi" appears, the result may be above 600 mg/dl.

h. Record the blood glucose results on the Blood Glucose Monitor Form (MR 119).

i. All blood glucose meter testing results below 50 mg/dl or above 350 mg/dl will be repeated. If the second result is also below 50 or above 350 the RN on duty will contact the attending or OD physician to see if he/she would like a follow-up laboratory glucose test. If laboratory verification is ordered by the physician the RN will contact the NNAMHS laboratory or LabCorp.

7. METER MAINTENANCE

a. DO NOT USE ALCOHOL or other organic solvents in cleaning any part of the instrument.

b. DO NOT ALLOW EXCESS water or detergent to run into the instrument when cleaning.
   i. Water or detergent can damage internal components.
c. Instrument Exterior and Display Screen
   i. Carefully wipe the instrument exterior and display screen with a soft, clean cloth or lens tissue moistened lightly with water. A mild detergent or disinfectant solution, such as 1 part bleach mixed with 9 parts water. Wipe the machine dry with lint-free tissue or clean cloth.
   ii. Do not use alcohol or solvents to clean the display screen as these will cause clouding of the screen to occur.
d. Handle the instrument with care
   i. Dropping the instrument can cause internal disturbance, resulting in electronic malfunctions.
   ii. Do not expose instrument to excessive humidity, extreme heat or cold, dust or dirt.
   iii. Store the meter in the case provided whenever possible.
e. Battery Replacement
   i. When a half empty battery appears on the display screen the batteries are low, replace the batteries as soon as possible. If a battery appears on the screen for 10 seconds and the meter turns off the batteries are dead. Replace them immediately.
   ii. Follow directions in the meter manual for battery replacement using two 3-volt lithium batteries.
f. Document meter maintenance on the "Monthly Maintenance and Check Test Log sheet" (Appendix II)

8. TROUBLESHOOTING
   a. Causes of problems
      i. Error in user technique.

ii. Reagent strip deterioration.

iii. Instrument not calibrated, not properly maintained or malfunctioning.

b. Follow the troubleshooting chart included in the meter manual to systematically check for the problem.

c. Call the NNAMHS Laboratory for assistance if the problem cannot be resolved

9. TRAINING, CERTIFICATION, COMPETENCY

a. Training and Certification

i. Personnel performing the blood glucose testing must be trained and certified. Personnel will be limited to RNs .

ii. Training sessions at a minimum, will cover the following:

A) Programming of the meter.

B) Check test performance.

C) Control testing performance.

D) Finger sticking technique.

E) Consumer testing

F) Cleaning and maintenance of meter.

G) Changing battery and troubleshooting problems.

H) Record keeping.

I) Description of the meter and its component parts.

J) Actual hands on use of the meter demonstrating participants understanding of the meter and its use.

iii. Documentation of the successful completion of the training will be placed in the participants personnel file.

iv. The Nursing Service Department will maintain a list of personnel who can perform the glucose on-unit testing.

A) List will be kept current and updated.

B) List will indicate which personnel have been certified to teach and

train other personnel.

C) Retraining must be done at least yearly.

b. Competency:

i. Staff competency checks will be completed annually. Nurses who have not completed all portions of the competency successfully will not perform glucometer testing.

ii. Methods of checking competency shall include:

A) The Medical Technologist will observe each nurse using the glucometer.

B) A monthly review of log sheets ”Glucometer Controls”, meter maintenance records (Appendix II will be done by the NNAMHS Laboratory.

C) Each nurse will successfully complete testing on a blind specimen. The specimens will be assigned randomly by the Medical Technologist.

iii. Competency records will become a part of the nursing service personnel file.

IV. DEFINITIONS

1. Programming - A type of calibration in which the meter's electronics are set to match the strips of Glucometer Elite being used.
2. Check test - A method used to check meter performance.
3. Control testing - A method used to verify that the user's technique is correct and that the meter system is working properly.
4. Controls - Solutions containing known amounts of glucose that are utilized as part of the control testing procedure.
5. Finger stick procedure - A method whereby a blood sample required for testing may be obtained.

6. Autolet and Lancet - A commercial device utilized in the finger stick procedure to secure the blood sample.
7. Maintenance - A method of cleaning the meter to insure accurate and reliable operation of the instrument.
8. Troubleshooting - A systematic way of isolating a problem and determining what is needed to correct it.
9. Battery - A source of power generated to allow the meter to work properly.

V. REFERENCES

1. National Committee for Clinical Laboratory Standards. Ancillary blood glucose testing in acute and chronic care facilities; Tentative Guideline. NCCLS Document C30-T {ISBN 1-56238-126-1}. NCCLS, 771 East Lancaster Avenue, Villanova, Pennsylvania, 19085. 1991.
2. Tietz, N.: Fundamentals of Clinical Chemistry, 2nd Ed., W.B. Saunders Co., Philadelphia, PA; 1976, p. 243; and 3rd edition 1987, p. 42;9.
3. Tietz, N.: Fundamentals of Clinical Chemistry, 3rd Ed., W.B. Saunders Co., Philadelphia, PA; 1987, p. 427.
4. Atkin, S., Jaker, M.A., Chorost, M.I., Reddy, S.: Fingerstick Glucose Determination in Shock, Annals of Internal Medicine, 1991, 114: 1020-24.
5. National Diabetes Data Group: "Classification and Diagnosis of Diabetes Mellitus and Other Categories of Glucose Intolerance," Diabetes 28, 1039-1057.
6. Henry, John Bernard M.D.: "Clinical Diagnosis and Management by Laboratory Methods," 17th Ed., p. 1433, 1984.
7. Diabetes Update Ames Glucosystem, 1994.
8. Quality Assurance Resource Program, the Center for Diabetes Education, 1988.
9. Quality Assurance In-service Manual, the Center for Diabetes Education, 1988.
10. Bayer Contour user guide.

VI. ATTACHMENTS

1. Glucose Monitor Form, 119
2. Meter Maintenance Record
3. Glucometer Controls
4. Letter from Bayer Healthcare

Bayer HealthCare

Date: July 9, 2004

Elkhart Area Site

Bayer HealthCare
1884 Miles Avenue
P.O. Box 40
Elkhart, IN 46515-0040

To: Valued Customer

From: G. Tancos

Re: Ascensia® Contour™ Blood Glucose Monitoring System

In reply to your recent communication regarding the ability to use the subject Blood Glucose System on multiple patients, the following is being offered.

The FDA cleared this Blood Glucose System for monitoring blood sugars in both home and professional use via the 510(k)-pre-market notification process. As part of that process, the FDA reviewed product labeling and determines if the product is basically safe and effective for its intended use.

The system is designed and labeled for use as a blood glucose monitoring system for diabetes management in both individuals, as well as in a professional setting. Obviously, a professional setting could allow the system to be used on multiple patients. The product labeling that was cleared by the FDA states that healthcare professionals that use the system on multiple patients should be aware of infection control procedures approved or implemented by their facility. Your *User Guide* provides information relative to this use.

I hope this information may be of help to you. If you need additional information or have any specific question or comments please contact our 24/7 Customer Service line at 1.800.348.8100.

Sincerely

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