AZD POINT OF CARE TESTING: AccuChek Inform II Bedside Blood Glucose

Dignity Health

This lesson will take approximately 40 minutes to complete.

Objectives

Upon completion of this lesson, learners should be able to:

1. Identify the purpose of the AccuChek Inform II blood glucose testing
2. Describe safety considerations and testing limitations for AccuChek Inform II blood glucose testing
3. List AccuChek Inform II blood glucose testing reagents and equipment
4. Perform accurate AccuChek Inform II blood glucose testing quality control
5. Describe specimen collection techniques
6. Perform accurate AccuChek Inform II blood glucose testing procedure
7. Describe training and competency requirements for AccuChek Inform II blood glucose testing

AccuChek Inform II Testing Purpose

1. The quantitative monitoring of patient glucose levels is accomplished using a whole blood venous, arterial or capillary (finger or heel stick) specimen and the Inform II meter.
2. The system is used as an aid in monitoring the effectiveness of glucose control.
3. Where applicable, it may be used to adjust administered dosages of insulin.

AccuChek Inform II Testing Safety Considerations and Limitations of Use

1. Follow the institution's Standard Precautions Exposure Control Program.
2. Lipemic samples (triglycerides) in excess of 1800 mg/dL may produce elevated results.
3. Do not use if hematocrit <10% or >65%.
4. Blood concentrations of galactose > 15 mg/dL will cause overestimation of blood glucose results.
5. Intravenous administration of ascorbic acid which results in blood concentration of ascorbic acid >3 mg/dL will cause overestimation of blood glucose results.
6. Intravenous administration of NAC (N-acetylcysteine) which results in blood concentration of NAC > 5mg/dL will cause overestimation of blood glucose results.

AccuChek Inform II Testing Safety Considerations and Limitations of Use (continued)

7. Do not use for critically ill patients per the manufacturer's direction. See AccuChek procedure for further explanation.
8. Do Not Perform Finger Sticks On:
    - Edematous finger
    - Circulatory obstruction of the arm
    - Female patients with mastectomy
    - An arm with dialysis access
9. Do not use during xylose absorption testing

AccuChek Inform II Testing Safety Considerations and Limitations of Use (continued)

10. Impaired Peripheral Circulation

If peripheral circulation is impaired, collection of capillary blood from the approved sample sites is not advised as the results might not be a true reflection of the physiological blood glucose level. Venous or arterial blood may be used for AccuChek testing in this circumstance.

- *Peripheral vascular circulation assessment may include using the capillary refill test. Normal Value: If there is good blood flow to the nail bed, a pink color should return in less than 2 seconds after pressure is removed.*

AccuChek Inform II Reagents and Equipment

1. AccuChek Inform II wireless meter

   ➢ Battery is rechargeable. <u>Place meter in the base for charging when not in use.</u>

   - Look for a lightening bolt in the lower right corner of display to show it is charging.
   - If not charging, wipe the metal contacts of base and meter with an alcohol pad or wet gauze to remove any film that prevents charging.
   - Must be cleaned after each patient use

2. Charging base

   ➢ Light is constantly green when properly plugged in.

   - If light is red or flashing, unplug meter and re-plug into wall outlet.
   - Must be cleaned periodically or when visibly dusty/soiled.

AccuChek Inform II Reagents and Equipment (continued)

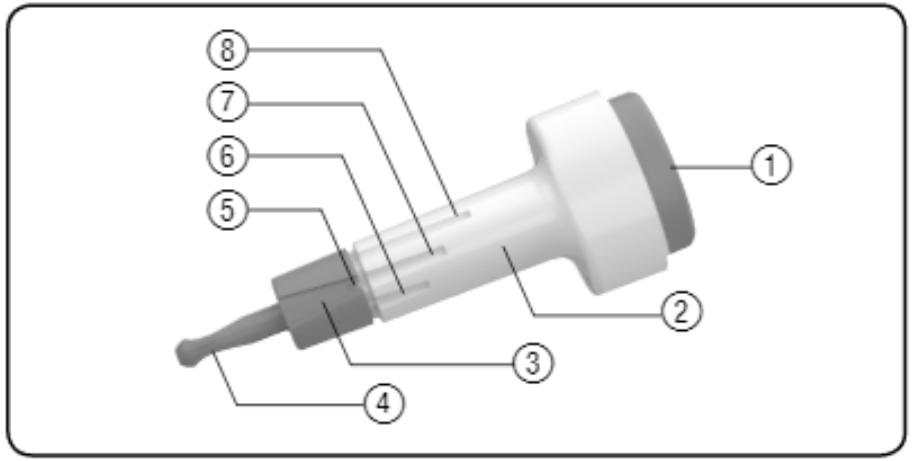
3. AccuChek Inform II Strip: Each box contains 50 reagent strips and 1 Advantage Key Code chip.
   - Keep the test strips in the original capped vial they came in, contains a drying agent.
   - Replace the vial cap immediately after taking out a test strip.
   - Store at room temp, 4° - 30°C (39° - 86°F). Do not freeze.
   - Use test strips at temps between 16°and 35°C (61°and 95°F) and 10-80% relative humidity.
   - Expiration date is printed on the reagent vial.

AccuChek Inform II Reagents and Equipment (continued)

4. GAUZE
5. BIOHAZARDOUS WASTE CONTAINER FOR SHARP OBJECTS
6. SAFE-T-PRO PLUS LANCETS

AccuChek Inform II Reagents and Equipment (continued)

Components of the single-use lancing device



① Release button
② Housing
③ Penetration depth adjuster
④ Sterility cap of the needle
⑤ Penetration depth indicator
⑥ Low penetration depth (approx. 1.3 mm)
⑦ Medium penetration depth (approx. 1.8 mm, pre-set)
⑧ High penetration depth (approx. 2.3 mm)

AccuChek Inform II Reagents and Equipment (continued)

7. AccuChek Inform II Glucose Control Solution: Contains 2 control solutions, one for the hypoglycemic range (Control solution 1, gray cap) and one for the hyperglycemic range (control solution 2, white cap).

- Control solutions are stable for 3 months after first opening the bottles, or until the expiration date, whichever comes first.
- Vials must show the date opened.
- Do not use the solution if cloudy or beyond expiration date.
- Store at room temp, 4° - 30°C (39° - 86°F). Do not freeze.

AccuChek Inform II Quality Control

1. Quality Control testing is performed to assure accurate and reliable patient results, to detect if a problem exists in the blood glucose test procedure, and to assure proper performance of the AccuChek Inform II meter, test strips and operator technique.
2. No preparation of the glucose control solutions is necessary.
3. Successful quality control testing, on two (2) levels of control material, is performed a **minimum of once each day of use.**
4. All operators are required to run controls at least once annually to retain access to the meter.

AccuChek Inform II Quality Control (continued)

4. Quality control testing is also performed:
   - When patient test results are higher or lower than expected even after test has been repeated.
   - If the AccuChek Inform II meter has been dropped.
   - When the cap has been left off the test strip vial or when the test strip vial has been exposed to extreme heat, humidity, or cold.

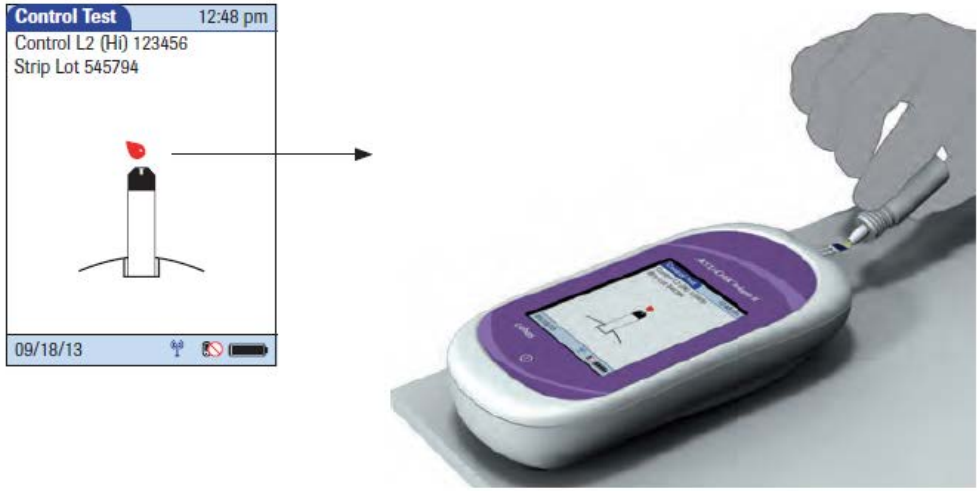
AccuChek Inform II Quality Control Procedure

1. Press the power button towards the bottom of the front of the meter.
2. Enter or scan operator ID and press the green check mark button.
3. Select Control Test.
4. Either select the desired control level and scan corresponding bottle or scan the vial of control solution. Scan by pressing the barcode button at top right of display.
5. Scan the vial of test strips to verify the correct lot number in use. Perform QC as required.

AccuChek Inform II Quality Control Procedure (continued)

6. Run control test

- Remove an unused test strip from the test strip vial. REPLACE VIAL CAP. When the flashing strip icon appears, gently insert the test strip (yellow target area facing up, gold bars with arrows indicating direction are inserted) into test strip port. Once strip is correctly inserted, a blood drop symbol will flash on the display.
- Touch drop to the **EDGE** (<u>not the top</u>) of the strip at the yellow target area once blood drop begins flashing. The solution is drawn into the test strip automatically.
- The result PASS or FAIL will appear. If FAIL appears, press comment icon in lower left and press comment OPERATOR ERROR and then checkmark 2 times. Repeat the test.



AccuChek Inform II Quality Control Procedure (continued)

7. Patient testing cannot be performed if either quality control level is outside of the acceptable ranges. Due to QC lockout used with the AccuChek Inform II System, potential instrument issues are identified and corrected.
   - Any quality control results that fall outside of the acceptable control limits are documented in the meter and the Information Management System captures the data.

Troubleshooting Out-Of-Range Quality Control Tests

1. If a quality control test result is out-of-range, try the following to correct the issue:
   - Repeat the test; pay close attention to technique.
   - Be sure the appropriate control is being used, level 1 when prompted for level 1 and level 2 when prompted for level 2.
   - Try a new vial of control solution to rule out problems with the old set.
   - Try a new vial of test strips to rule out problems with the strips.
2. Do not use the instrument until the issue(s) is/are corrected.

Specimen Collection and Handling

Capillary, venous, neonatal (excluding cord blood) and arterial whole blood specimens may be used for testing. Sufficient sample is needed to fill the tip of the test strip.

- Capillary samples must be tested immediately.
- Venous and arterial specimens can be fresh or obtained from collection tube samples. Arterial lines should be cleared before blood is drawn.
- Only EDTA and heparin anticoagulants may be used. Perform testing within 30 minutes of specimen collection to avoid glycolysis.
- Serum separator tubes are acceptable if blood is used immediately, before the clotting process has started.

Obtaining a Capillary Specimen

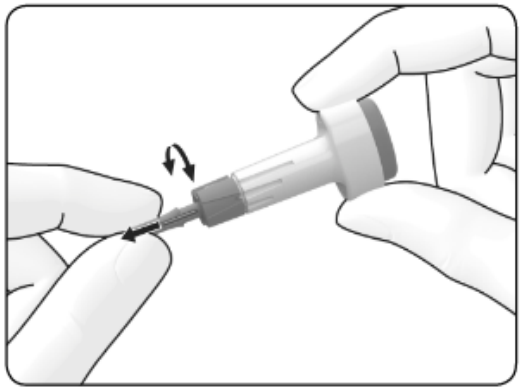
1. Prepare the selected puncture site:
   - Wash well with soap and water then rinse and dry completely.
   - Use a warm wash cloth if not ambulatory.
   - Although NOT RECOMMENDED, if alcohol is used thoroughly dry the fingertip before performing finger stick. Alcohol can affect the result.
2. Universal precautions must be followed when collecting and handling blood specimens.
3. Twist the purple tip of the Safe-T-Pro Plus lancet to loosen it and then pull off. Do not use the lancet if the protective cap has been previously removed.

Obtaining a Capillary Specimen

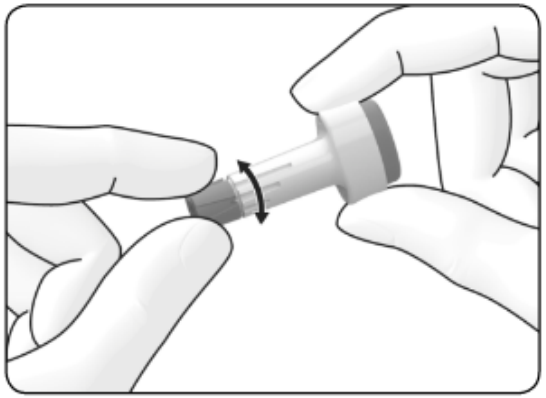
4. Select the depth by turning the depth adjuster (Please note: the penetration depth is pre-set at the medium depth setting. Do not set the penetration depth before removing the sterility cap.)
5. Stimulate the finger by rubbing (milking) the area to increase capillary flow. Do not do this after puncture.
6. Firmly press the lancet against the fingertip and press the release button, without moving either the device or finger. Wipe away the first drop of blood with a clean, dry gauze pad.
7. Use the second drop of blood for testing.

Safe-T-Pro Plus Lancet

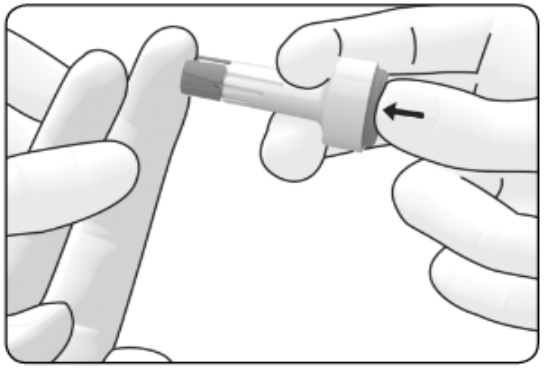
1. **Hold the Accu-Chek Safe-T-Pro Plus single-use lancing device, twist off the sterility cap, and throw the cap away.** (Please note: Do not use the single-use lancing device if the sterility cap has been previously removed.)



2. **Select the depth you want by turning the depth adjuster.** (Please note: The penetration depth is pre-set at the medium depth setting. Do not set the penetration depth before removing the sterility cap.)



3. **Gently press the Accu-Chek Safe-T-Pro Plus single-use lancing device against the fingerprint or palmar surface of the fingertip (middle or ring finger is preferred) and press the release button. Wipe away the first drop of blood with a clean, dry gauze pad.**



Simple Three-Step Sampling

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AccuChek Inform II Patient Test Procedure

The AccuChek Inform meter will prompt step-by-step through the patient test procedure. Adding strip or sample before meter is ready will result in an error code.

1. Press the power ON button (purple).
2. Enter or scan operator ID (employee ID#) and press the green check mark button.
3. Select Patient Test then Glucose testing (if an option). QC must be performed after 1AM before any patient testing.
4. Scan the patient's account number (FIN#) barcode from the patient armband (NOT BLOOD BANK ARMBAND). If armband will not scan, manually enter the 8 digit account number (FIN#) and replace the armband after testing.

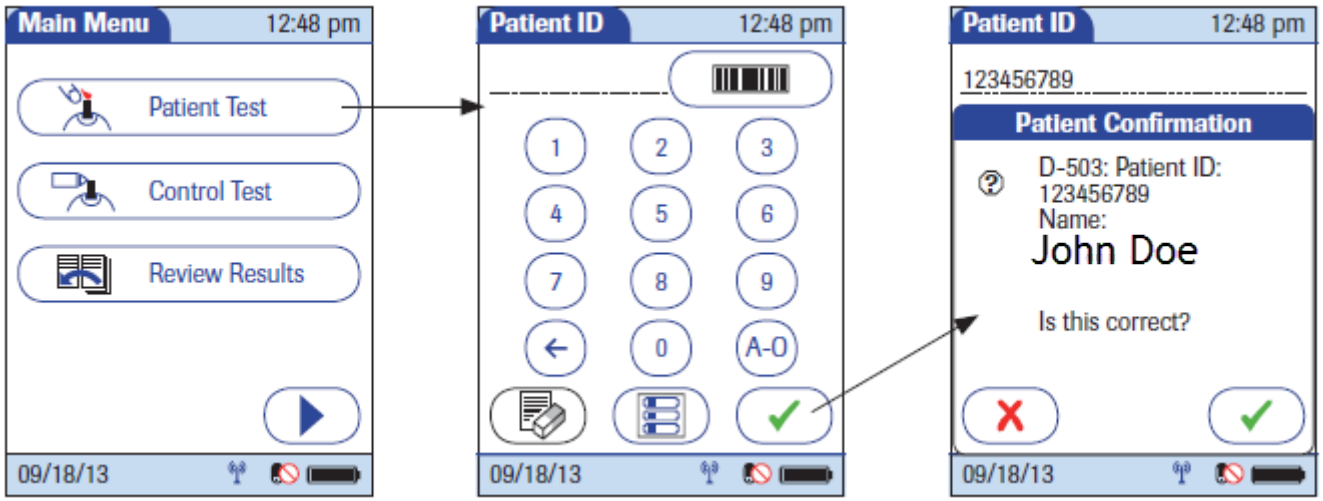
AccuChek Inform II Patient Test Procedure (continued)

- DO NOT USE any patient number but the **account number (FIN#)**
  - **Pre-arranged exceptions may include:**
    - *Critical Pre-Admits* in the ER, Trauma OR, High Risk Labor / Delivery and Nursery ICU. These areas may complete the "Unregistered Patient Result Form" and fax to Point of Care.
    - Clinics without auto-charting: use patient ID as per clinic procedure.

AccuChek Inform II Patient Test Procedure (continued)

5. If the entered Patient Account # is found, the meter will display patient name, account number, and DOB. Due to data limitations, this information is not always shown (see next slide if patient name and DOB do not show)
6. Select **check mark** if correct ... **X** if incorrect

****CHECK THE NUMBER...DO NOT JUST press check mark****



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AccuChek Inform II Patient Test Procedure (continued)

7. If the patient Account # entered is not matched to a patient, the meter will display a message asking to verify the account number. Check displayed number with the patient armband.
   - If correct, touch **check mark**
   - If not correct, touch **X** and rescan or re-enter the correct ACCOUNT#.

****CHECK THE NUMBER -- DO NOT JUST PRESS THE CHECK MARK!****

8. Scan the test strip vial.
9. Remove a test strip from the vial and immediately replace the cap on the vial.
10. When the flashing strip icon appears on the monitor display, gently insert test strip with the yellow target area facing up until an audible tone is heard.

**** STRIP MUST BE INSERTED *BEFORE* DOSING! ****

AccuChek Inform II Patient Test Procedure (continued)

11. When the flashing drop icon appears on the monitor display, obtain the blood sample. Briefly touch drop of blood to the EDGE of the yellow target area, the blood is drawn into the test strip automatically. Do not apply specimen on top of the strip. The yellow target area must be completely filled.

    - If the strip was not filled completely when administering sample, you must remove the strip and start over

12. An hourglass will appear on the display while waiting for the result.

13. When the result appears:

    - If result is NOT critical, press the comment icon in lower left of display then choose check mark, and then the final checkmark if result and correct comment display. Comments may be corrected by pressing comment key.

    - If it is a critical result (**see AccuChek Procedure for critical results**): The test must be repeated. Press comment icon in lower left of display. Press **DO NOT CHART** and then press the check mark. Verify the correct comments are in the display with the result then press the final check mark.

AccuChek Inform II Patient Test Procedure (continued)

- Repeat the test ASAP (<30 minutes).
  - If still critical, choose comments **Notified RN PA MD**. Press check mark. Verify the right comments are in the display with the result and then press the final check mark. For low critical result, confirm with a laboratory glucose.
  - If repeat is close to original result but not critical, press the comment icon, check mark, and then the final checkmark when result and comment display.
  - If result is significantly different from first result, press **DO NOT CHART** and then checkmarks. Test a new sample and place appropriate comments as above.

➢ If result does not fit the clinical state of the patient, choose comments **DO NOT CHART,** press checkmarks and repeat the test. Verify by sending a specimen to the laboratory if result still seems unusual.

14. Properly dispose of all lancets or needles into the proper safety device. Dispose of used test strip properly.
15. Turn the meter off to log out of the meter and clean per procedure.
16. The meter will automatically upload results into Cerner via a wireless connection. Docking the meter will prompt it to download immediately.

Reporting AccuChek Inform II Results

1. PCTs and CNAs must report ALL AccuChek / Blood Glucose results to the patient's licensed nurse.
2. Results that are critical are repeated, and if verified, require notification to the RN, PA, NP or MD. Specific critical values are in the AccuChek Procedure. See previous slide in Patient Test Procedure for appropriate comments to be added to the result in the meter.
3. For neonates, repeat testing for any critical result and use caution with any result near low critical limit. Notify MD/NP of any critical result.

Report Results- Important Reminders

1. To reject a result select the comment "REPEAT DO NOT CHART".
   - If this comment is selected the result will not go to the patient's chart.
   - The repeat test must occur within 30 minutes; immediate repeat testing is preferred.
2. Multiple comments may be selected.
   - If "REPEAT DO NOT CHART" is selected, Do Not Select "NOTIFIED RN PA MD".
3. The glucometer is for patient testing ONLY. Do not use on yourself or coworkers. The hospital is accredited and approved for patient testing only!

Troubleshooting AccuChek Inform II

1. If the patient blood glucose value seems unusually high or low, and does not reflect the clinical picture, there may be a problem with the monitor, the test strips, the code chip entered into the meter, or your testing performance technique.

   - Repeat **the test, making sure all steps followed. If still in doubt send a sample to the main lab for testing.** The following can cause unusually high or low results:

     - Strip was not correctly inserted as far as possible into the monitor.
     - Strip was not stored in vial with cap tightly sealed.
     - Strip was stored in extreme temperatures.
     - Yellow target area NOT completely filled.
     - Too much blood applied to pad.
     - See “Safety Precautions and Limitations of Use” at the beginning of this module.

Troubleshooting AccuChek Inform II

2. If "Error 83 Bad Strip" message appears on the display, the test strip may be defective or the test was not performed correctly.
   - The test strip should be inserted into the meter prior to applying blood to the test strip.
   - If this display appears *before* blood is placed on the strip, remove the test strip and reinsert.
   - If the error display remains, repeat the test with a new strip.

Troubleshooting AccuChek Inform II (continued)

3. If the meter displays "Error 88-Bad Dose", it is possible an incorrect amount of blood was applied to the test strip.

- Repeat the test using a new test strip.
- If the "Temperature Lock Out -128" appears on the display, the temperature is out of the operating range of the meter.
- Refer to the Maintenance and Handling for proper usage and handling recommendations. After ensuring proper handling, repeat the test.

AccuChek Inform II Storage and Cleaning

HANDLING:

Handle the Inform II meter with care. Sudden shocks caused by dropping or rough treatment may affect performance. If the Inform II meter is dropped test its performance with glucose controls before using it again

STORAGE:

Do not place meter on a window sill. Keep the meter away from high humidity or extreme temperatures. Use between 61-95°F (16-35°C).

CLEANING:

Use purple Sani-Cloth wipes. Meter should be in contact with solution for 2 minutes. Air dry before re-docking the meter. Clean after each patient.

DO NOT USE CLEANERS WITH HYDROGEN PEROXIDE

****KEEP SOLUTION OUT OF THE STRIP PORT****

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Training and Competency

1. Only certified personnel may perform testing on the AccuChek Inform II meter.
2. Initial training occurs upon hire and on the unit by qualified personnel.
3. Annually thereafter, competency is assessed at the time of yearly evaluation and performance of quality control during the year.

References

- Standard Precautions Policy 29000
- Standard Precautions Exposure Control Program Policy 29001
- Policy #WN 827 Neonatal Hypoglycemia
- Roche Inform II Procedure Template, Roche Diagnostics – Indianapolis, IN; © 2012, Roche Diagnostics, 4302-00-1012
- ACCU-CHEK Inform II Test Strips package insert; Roche Diagnostics – Indianapolis, IN; © 2016, Roche Diagnostics, 07981554001-0516
- ACCU-CHEK Inform II Controls package insert; Roche Diagnostics – Indianapolis, IN; © 2012, Roche Diagnostics, 05213525004-1012

AccuChek Inform II Module Completion

- You have completed the review of this module
- You are required to score **100% on the test** to pass this competency.

Thank You

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