Cholesterol Testing
Total Cholesterol

– Not bad in itself
– Helps to keep our bodies healthy
– Too much can be harmful. Risk for coronary heart disease, heart attack, or stroke
– Consists of several parts
– Desirable result: <200 mg/dL
Common Blood Tests to detect Cardiac Disease

HDL Cholesterol ("Healthy or Happy")
- High Density Lipoprotein
- Good Cholesterol
- Keeps LDL from getting lodged in your artery
- Higher level the better. Increase your HDL by:
  - Reducing saturated and trans fat
  - Eating a balanced nutritious diet
Desirable: > 60 mg/dL
Common Blood Tests to detect Cardiac Disease

LDL Cholesterol ("Lousy")
– Low Density Lipoprotein
– Bad Cholesterol
– Too much in your blood can clog arteries
– Eating saturated or trans fat will increase LDL

Optimal: <100 mg/dL
Near optimal: 100 – 129 mg/dL
Borderline high: 130 – 159 mg/dL
High: > 159 mg/dL
Triglycerides (Trigs)

- Most fat exists in food and body as Trigs
- Non essential calories converted to Trigs
- Transported to fat cells to be stored
- High Trigs can be indicator of Diabetes

Desirable: <150 mg/dL
Borderline high: 150 – 199 mg/dL
High: > 200 mg/dL
Fasting Requirements for Blood Tests

- **Total Cholesterol** no fasting required
- **HDL Cholesterol ("Healthy or Happy")**
  High Density Lipoprotein no fasting required
- **LDL Cholesterol ("Lousy")** fasting required
  Low Density Lipoprotein
- **Triglycerides** fasting required
Glucose

- High Glucose is indicator of Diabetes Mellitus
- Defect in ability to use or produce insulin
- Complications
  Stroke
  High Blood Pressure
  Kidney Disease
  Peripheral Arterial Disease
CardioChek Components

MEMo Chip

Enter Key

Optical Glass

40 µL capillary tube and plunger

Test Strip

Next Key

2.8 mm lancet
CardioChek MEMo Chip®

• Each vial of test strips comes with a lot specific MEMo Chip.

• This MEMo Chip contains all the lot-specific calibration and other information needed to properly perform testing.

• It is important that the lot number on the MEMo Chip matches the lot number on the vial of test strips.
CardioChek Test Strips

- Take care to avoid exposing the strips to extreme temperature such as freezing or extreme heat.

- Optimal operating temperature: 20-27°C, 68-80°F.

- Avoid exposing the strips to ambient conditions by leaving test strips outside of the vial.

- Remove the strip just before testing and recap the vial immediately after a strip is removed.

- Never store the MEMo Chip inside the vial, doing so may compromise the test strips and affect the results.
Optics Check / Check Strips

- Perform an Optics check with a check strip (CK STRIP) when:
  - Daily
  - If instrument is dropped.
  - When a result is not consistent with prior results.

- The Optics Check checks the CardioChek optics to make sure the optics are working properly.

- Does not replace quality control.

- Use one of two solid gray check strips provided in the storage pouch of the CardioChek PA.
Quality Control

• Multi-Chemistry Controls and HDL Controls are used with PTS test strips.

• Running controls is recommended:
  - Monthly as a continued check on storage conditions
  - With a new lot of test strips.
  - To troubleshoot your instrument.

• ChekMate Quality Control Test Strips:
  - A dry QC to replace liquid QC in states that require daily QC.
  - Four results at two levels each corresponding to the optics within the instrument.
Cleaning Optical Glass

• Locate the optical glass and test strip guides.

• Open an alcohol wipe/prep pad. Remove the excess alcohol by squeezing the wipe over the sink.

• Fold the wipe and carefully wipe the optical glass and strip guides. If the area is especially dirty, this may require additional wipes.
• If the alcohol wipe appears dirty after cleaning, repeat the above step with a new alcohol wipe until the alcohol wipe remains clean.

• Immediately dry the optical glass completely with cotton gauze.

• Make sure the glass is clean and dry and free from any fingerprints, dust or smudges.
Cleaning Exterior

- If the exterior of the analyzer needs cleaning, wipe with damp (not wet) alcohol wipe or medical grade disinfectant (such as Sporocidin).

- Wipe the surfaces and the display area carefully, being careful to avoid the test strip insert opening.

- **DO NOT USE BLEACH, WINDOW CLEANER OR HYDROGEN PEROXIDE.**

- To check optical glass integrity simply hold the instrument near a light source and rotate it at various angles being sure to look for any smudges, scratches or cracks.
Performing a Fingerstick

- Have patient briefly let their arm hang down to the side to increase blood flow.

- Wear proper protective equipment.

- Gently massage the hand from just below the wrist moving downwards towards the fingers to increase blood flow.

- Clean the fingertip using an alcohol wipe or prep pad.

- Allow alcohol to completely dry prior to performing a fingerstick.
Performing a Fingerstick

• Position the sterile lancet on the side of the fingertip.

• Puncture the skin using the safety lancet.

• Wipe away the first drop of blood with clean gauze, this is important since the first drop may contain traces of alcohol and tissue fluids.
Performing a Fingerstick

• After wiping away the first drop of blood, gently apply pressure to the finger to produce a large drop of blood.

• Avoid milking the finger. This may cause tissue fluid dilution or hemolysis and affect the accuracy of results.

• To avoid gaps and air bubbles in the capillary tube, position the capillary tube so it is slightly tilted upward.
Sample Collection

- Use the appropriate capillary tube corresponding to the test strip (15, 30 or 40uL). There are two sizes of plungers that are required to use the glass capillaries.
Sample Collection

- Holding the capillary tube with colored line towards you and black line towards patient, place the tip over the drop of blood allowing the capillary action to draw the blood into the capillary tube until sample reaches black fill line.

- If required, gently massage the finger starting from the palm to produce a drop of blood.
Running the Test

- Install the MEMo Chip into the instrument.
- Turn on the instrument.
- Ensure the MEMo Chip Lot Number corresponds to the test strip lot number.
- Instrument displays: “INSERT STRIP”
- Ensure test strip is inserted fully and the display reads “APPLY SAMPLE”.

[Image of a handheld device with instructions]

[Image of a diagram showing the insertion of a test strip]
Applying Sample to Test Strip

- If you have not already done so, place required black plunger in top opening.

- Place capillary tube with inserted plunger over test strip blood application window (white area on strip).

- Hold the capillary tube slightly above the blood application window making sure to avoid touching the surface of the strip.
Applying Sample to Test Strip

• Apply pressure gently and fluidly to the plunger to dispense entire sample onto the center of the blood application window.

• Avoid rapidly dispensing sample, since this might cause excess blood to overflow from strip onto the optical window.
Applying Sample to Test Strip

- Once sample is applied, results will appear on the display within about two minutes.
- If running a multi-analyte test strip, press the Next button to display the next analyte result.
Regulatory Contacts

Clinical Laboratory Improvement Amendments of 1988
- www.cms.hhs.gov/clia

- CLIA PROGRAM Division of Licensing & Regulatory Services
  41 Anthony Avenue, Station #11 Augusta, ME 04333-0011
  (207) 287-9339  Contact: Dale Payne

Rule Chapters for the Department of Health and Human Services

- Ch. 256 Maine Medical Laboratory Rules

- Ch. 119 Regulations Governing the Licensing and Functioning of Home Health Care Services