Hemocue Hb
201 DM
Hemoglobin Analyzer

* READ POLICY PRIOR TO STARTING TUTORIAL
Before Testing a Patient

- ORIENT YOURSELF TO YOUR WORKING AREA
  - Locate testing meter & docking station
  - Locate testing supplies
    - Microcuvettes
    - Liquid Quality Control solutions
    - Lancets
    - Alcohol swabs
    - 2x2 gauze
    - Gloves
    - Biohazard container
    - Refrigerator for QC solutions
    - IDA Page for your testing location
Performing a hemoglobin test using the HemoCue Hb 201 DM analyzer is considered **WAIVED** in complexity by the FDA.

**PURPOSE:** Rapid quantitative measurement of hemoglobin concentration in peripheral blood at the point of care.

- The HemoCue Hb 201 DM system consists of a photometer analyzer with specially designed microcuvettes containing dry reagents in the optical eye.

- The hemoglobin measurement takes place in the analyzer, which follows the progress of the reaction until the end point has been reached.

- Ten microliters of blood are drawn into the optical eye by capillary action and spontaneously mixed with the reagents.

- The HemoCue reader derives hemoglobin results in grams per deciliter from the reaction using Spectrophotometry.
Barcode ID

- Testing personnel are required to take this Initial Orientation and Training, the Initial Competency Exam, and a second Competency Exam within the first year.
- Competency Exams are then required annually thereafter.
- Upon completion of the Initial Orientation and Training and Competency Exam, approved staff will be issued a barcode to be able to use the HemoCue Analyzer.
- This barcode in embedded with unique identifiers specific to each staff member.
- Barcodes should never, under any circumstance, be shared.
Equipment, Reagents and Materials

- Analyzer
- Docking station
  - Keep meter in docking station when not in use.
- Microcuvettes
- Liquid Quality control: Level 1 (Lo) and Level 3 (Hi)
Equipment, Reagents and materials

- Alcohol swab
- Lancet
- 2x2 sterile gauze
- Gloves
Equipment, Reagents and Materials

- Biohazard container
- 70% isopropanol or mild soap solution for cleaning the analyzer and laser scan window
- Refrigerator for Liquid Quality Control storage
- Daily Temperature Log (room and refrigerator)
- Daily Maintenance Log
HemoCue Hb 201 Microcuvettes

- Microcuvettes are stored at room temperature away from any direct heat source.
- Microcuvettes are moisture sensitive. **Always keep the container properly closed.**
- Unopened containers of microcuvettes may be used until the expiration date listed on bottle.
- Open containers of microcuvettes are stable for three months (90 days) if they are tightly sealed between use.
- **Always label each opened container with the open date, initials, and the new three month expiration date.**
HemoCue Liquid Quality Control

- Two Levels: Level 1 (Low control) & Level 3 (High control).
- An open vial is stable for 30 days when stored at room temperature: 15–30°C.
- Or is also stable for 30 days when stored in the refrigerator at 2–8°C.
- **Always write the open date, initials, and new expiration date on the vial.**
- Unopened controls are stable if refrigerated at 2–8°C until the expiration date on the vial.
- Control solutions are replaced every 3 months by POCT Services.
Specimen

- Capillary whole blood (obtained by fingerstick) required and must be tested immediately.

- Specimen labeling is not required when testing is performed in the presence of the patient and only the sample from one patient is tested at a time.

- Otherwise, label all specimens with 2 patient identifiers (patient’s full name and date of birth).
Quality Control Testing

- Internal Electronic Quality Control (EQC)
  - The HemoCue Hb 201 DM analyzer has an internal Electronic Quality Control performed when analyzer displays “Selftesting…”
  - Every time the analyzer is turned on, it will automatically verify the performance of the optronic unit during the “Selftesting” period.
Quality Control Testing

- **Liquid Quality Controls (LQC)**
  - Quality Control tests should be performed and passed **every day prior to patient testing**. (The analyzer will lock down at 0300 and will remain locked until QC is performed.)
  - Push black button to turn on.
  - Pull out cuvette holder.
  - After Selftesting is complete, scan your barcode ID.
  - Click the QC icon.
Quality Control Testing

- Click level 1 test.
- Observe universal precautions.
- Wear gloves.
- Take one microcuvette out of the vial.
- Mix the liquid QC thoroughly by gently rolling the vial between your palms.
- Touch the tip of the microcuvette to the hanging drop from the solution vial.
Quality Control Testing

- Gently wipe the edges of the microcuvette on the gauze - avoid touching the opening.

- Examine microcuvette for bubbles.

- Place the filled microcuvette in the cuvette holder.

- Push the cuvette holder into the measuring position (closed).
Quality Control Testing

- Scan the liquid QC barcode.
- Scan microcuvette vial.
- Analyzer will beep and display a numeric result.
- If the result are acceptable press ok.
- You may add predefined comments or add your own if desired.
- If the result failed, QC must be repeated.
Quality Control Testing

- Pull the cuvette holder out to the “loading” position.
- Dispose microcuvette in the biohazard waste container.
- Repeat above procedure for Level 3 QC.
Patient Testing

- Using two patient identifiers (patient’s full name and date of birth), verify patient identification, and explain the procedure to patient and/or family.

- Observe universal precautions.

- Turn on the analyzer.
Patient Testing

- Scan Operator Bar Code ID.
- Run Liquid Quality Control if it has not been performed.
- To run a patient test, press the Microcuvette symbol.
Patient Testing

- The analyzer will display “Enter patient ID”. Click on the icon to scan the patient ID.

- Scan the patient’s ID band (barcode) or manually enter the patient’s MRN.

- The analyzer will display “Please Fill and Insert a Cuvette”.

- Remove a microcuvette from its vial by sliding it out onto a clean surface. **Reseal container immediately.**
Patient Testing

- Obtain patient sample by fingerstick:
  - After cleaning the patient’s finger with alcohol swab and letting dry use a lancet to prick it.
  - Wipe away the first 2 or 3 drops of blood with a lint free wipe (gauze). **Do not use cotton balls!**
  - Apply light pressure towards the fingertip until another drop of blood appears. Do not squeeze the finger.
  - Hold the microcuvette with the pointed end away from you.
  - Touch the pointed tip of the microcuvette to the drop of the blood droplet.
  - Allow the microcuvette to fill by capillary action. **Do not attempt to refill.**
Patient Testing

• Gently wipe the outside of the microcuvette with gauze using a sideways motion. **Do not touch the opening of the microcuvette.**

• Examine the microcuvette for bubbles. If bubbles are present, use a new microcuvette and repeat sampling.

• Place the filled microcuvette in the black cuvette holder and push the cuvette holder to the "MEASURING" position.

• During the measurement the screen will read “Please Wait Measuring ...”
Patient Testing

- The analyzer will beep and the patient test result will be displayed.
- Read and record (document) result.
- If results are out of the normal range, repeat the test.
- Values >23.5 g/dL must be confirmed by sending a STAT patient specimen to the Clinical Laboratory.
- Pull out the black cuvette holder and dispose of the microcuvette in a biohazard waste container.
Limitations

- Air bubbles in the microcuvette will result in erroneously low values. The microcuvette should be inspected for bubbles before testing.

- The microcuvette should be filled in a continuous process. It should never be topped off after the initial filling.

- Blood inside the analyzer will interfere with hemoglobin measurement.
Limitations

- If the analyzer displays an error code, refer to the Troubleshooting Guide located in the Reference Manual, or notify the Point of Care Testing Services in the Clinical Laboratory.

- **Liquid QC contain human red cells.** Use Universal Precaution when handling the solutions.

- Excessive squeezing of the finger can dilute the sample with tissue fluid / interstitial fluid, and may give lower results.

**MSDS** – Located on the SFGH-POCT.org website under “HemoCue”.
For Further Questions or Information
Contact POCT Services

SFGH-POCT.org