Hemocue Hb 201+ Overview

Purpose

The Hemocue Hb 201+ is a portable analyser used for the quantitative determination of haemoglobin in whole blood at the patient's bedside.

Overview

The Hemocue Hb 201+ is a system used for the quantitative measurement of Haemoglobin in capillary, venous or arterial blood. The system consists of an analyser with specially designed microcuvettes containing dried reagents. The microcuvette serves as a pipette, reaction vessel and a measuring cuvette. 10µl of blood is drawn up into the optical eye by capillary action and mixed with the reagents. The haemoglobin measurement takes place in the analyser which follows the progress of the reaction until the steady state is reached. The system is factory calibrated against the haemoglobincyanide method which is the international reference for the determination of the haemoglobin concentration in blood, and needs no further calibration.

Principle

The reaction in the microcuvette is a modified azidemethaemoglobin reaction. Sodium desoxycholate lyses the erythrocytes releasing the haemoglobin. Sodium nitrite converts the haemoglobin iron from the ferrous to the ferric state to form methaemoglobin. The methaemoglobin then combines with azide to form azidemethaemoglobin and is measured photometrically at two wavelengths, 570nm and 880nm.

Health and Safety

- Ensure gloves are worn throughout testing procedure.
- Be aware of sharps hazards.
- Discard lancet into a biohazard bin.

Materials

- Store at room temperature, DO NOT refrigerate
- Cuvettes are stored in the tightly closed vial - Open vial stability is 3 months, record the open expiry date on the outside of the vial.
- Remove only the number of cuvettes required.
- Do not return unused cuvettes to the vial.

Specimen Collection & Handling

Capillary, venous or arterial blood may be used.

- Venipuncture: Collect EDTA (Purple top) tube; mix by gentle inversion before filling cuvette.
- Syringe Draw: Venous or arterial blood may be tested immediately after collection via a hanging drop directly from the syringe.
- Capillary: Directly from a finger prick. This method must not be used in patients with peripheral circulatory failure.

Patient Testing

Refer to the Hemocue Patient Testing or Quick Guide methods for instructions.

- All kit materials are single-use items.
- Ensure that all consumables are discarded into biohazard bins on completion of patient testing.

Training

Only staff who have received training from a Lead User or the Point of Care Testing Quality Manager are authorised to use the system. Copies of training records must be sent to the POCT QM.
Ongoing competency of all staff must be assessed annually with either a Ko Awatea course or practical observation of the operator.

Limitations

- Sulfhaemoglobin is not measured by this method.
- Carboxyhaemoglobin levels above 10% may interfere with the system.
- The cuvettes must not be used if the desiccant in the vial turns pink
- Handle the cuvettes by the winged end only, DO NOT touch the optical eye.
- Air bubbles in the cuvettes will result in erroneous values. The cuvette must be inspected for bubbles before testing.
- The cuvette should be filled in a continuous process, it should not be topped up after initial filling.
- Blood inside of the device will interfere with the haemoglobin measurement.
- Blood collected in vacutainer tubes with liquid anticoagulant (Blue and Green Tops) may give erroneous results due to the effects of dilution.
- An individual's capillary circulation status can affect results.

Outage procedures

Power outage

- Analyser is battery operated and will continue to function normally.

IT Outage

- Analyser is not interfaced.

Analyser failure

- Contact the POCT Quality Manager on 2453 for support.
- Send EDTA samples to the laboratory for CBC testing until the fault is resolved.