Quality Controls (QC) and Calibrations

The ABL90 has an Automatic Quality Management System (AQM) built in to ensure that calibrations and controls are run regularly and on time. If these are out of range, patient testing will not occur.

24/7 timeline for AQM activities

The default calibrations and built-in QC measurements are scheduled over a 24-hour cycle. The schedule minimizes the time spent on calibrations as well as ensuring optimal use of solutions in the solution pack.

Calibration

Automatic 2-point calibrations are scheduled to ensure optimal sensor performance and analyser uptime. The first calibration is scheduled for 9am each day.

Quality Control (QC)

Built-in QC on three dedicated QC solutions (low, normal, high) ensures broad coverage of the physiological range. One level runs at least every 8 hours, and are timed from the first calibration each day.

System Checks

Checks all the fundamental aspects surrounding sample measurements such as assessing sensor drift, cleaning the sample path and all electronic parts.

Analysis Check

For every sample measurement, a 1-point calibration assesses sensor drift and a system check is performed. If there are no measurements in this period, then analysis checks are scheduled for every two hours.

Hb Calibrations

These calibrations are performed by the Laboratory staff 3 monthly, using the Hb calibrator. This task will also appear in the *other activities* box when due. Hb calibrator is found in the drawer under the ABL800. Liaise with Biochem senior staff as all blood gas analysers need calibrating at the same time. Run all 3 levels of control after the Hb calibrator and review the QC plots.

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External Quality Assurance

Weekly Sample Comparison

Each week a random patient sample comparison will be performed between ICU ABL90 and the Laboratory ABL800. Samples are run using the date as the sample ID so results can be located in Aqure. Data will be entered into the spreadsheet located at: J:\Departments\POCT\Equipment\ABL90\Sample Comparison – Weekly\Weekly Sample Comparison ABL800 A vrs ICU ABL90 2023

RCPA

Monthly RCPA samples are run, for both blood gas and Co-oximetry. Results will be reviewed by the POCT QM and the Clinical Biochemist.

Blood Gas

- Remove the ampoules from the fridge and leave to equilibrate at room temperature for at least 1 hour before analysing.
- Shake ampoule vigorously for 15-20 seconds, holding only the top and the bottom of the ampoule.
- Swirl the ampoule to return fluid to the bottom of the ampoule with a protective layer of bubbles at the top.
- Sample immediately after cracking the ampoule, fit to the QC adaptor.
- Samples should be sampled within 30 seconds of opening.
- Report all parameters from this sample except for Hb, O2Hb, MetHb and COHb.

Co-oximetry sample (always run AFTER gas sample)

- Allow to stand at room temperature for at least an hour.
- Add exactly 0.5ml of deionised water using the 0.5-1.0ml automatic pipette from haematology. Check that the pipette is delivering 0.5ml gravimetrically.
- Allow the vial to stand for 5 minutes then swirl the contents gently.

Turn **OFF** repression of "?" results, otherwise results will be blank due to the matrix effect of the RCPA sample.

- Go to Utilities > Setup > General Setup > Parameters and Input > Parameters.
- Parameters that need to be unrepressed > ctHb, FO2Hb, FCOHb and FMetHb.
- Untick - Repress parameter rule box.

- Swirl the vial and test via a plain 1ml syringe.
- Once both samples have been run:
    - Turn parameter repression back ON
    - A rinse
    - A manual calibration

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