The Johns Hopkins Hospital Point-of-Care Testing Program

Self-Study Packet

GASTRIC OCCULT BLOOD AND pH

Gastroccult®

Operator Competency

Only operators who have completed a defined training program and can demonstrate competence will be able to perform Gastroccult® testing.

Operator competency will be assessed annually by two methods.

1. Successful performance of quality control (Performance Monitor and 2 levels of pH buffers)
2. One of the following:
    - Testing an unknown specimen
    - Having the supervisor or qualified delegate periodically observe routine work
    - Written test

Test Order

A physician's order, standard protocol, or order by other health professionals authorized to request laboratory tests is required for gastric occult blood and /or pH testing.

Reagents and Storage

All slides, Developer and buffers are stable until the manufacturer's expiration date.

All slide boxes and Developer bottles are to be dated when opened.

1. Gastroccult® slides are stored in the original box/packaging at room temperature (15-30^{o}C or 59-86^{o}F).
2. Gastroccult® Developer is stored tightly capped at room temperature (15-30^{o}C or 59-86^{o}F).
3. pH buffers (pH 2 and pH 7) are stored tightly capped at room temperature (15-30^{o}C or 59-86^{o}F).

Quality Control Label

A JHMI Quality Control label should be affixed to the box of Gastroccult® slides when it is first opened. Record the open date at the top of the QC label in the space below "Date Opened".

Quality Control Frequency

1. Weekly on each opened box of Gastroccult® slides and bottle of Developer.
2. Initially when opening a new box of slides, Developer, or pH buffer.
3. Occult blood QC (Performance Monitor)- After each patient test.

Quality Control- Performance Monitor

1. Record the lot number and expiration dates of the Gastroccult® slides and Developer on the Gastroccult® QC log sheet, along with the date, time and operator initials.
2. Open the slide and apply 1 drop of Gastroccult® Developer to the area between the positive and negative Performance Monitor areas on the slide.
3. Interpret the result within 10 seconds
    - No color should appear in the "negative" location
    - A blue color should appear in the "positive" location
4. Document results on the Gastroccult® QC log sheet.
    - The development of a blue color is considered a positive result and should be recorded as "Pos" or "Positive.
    - No color development is considered a negative result and should be recorded as "Neg" or "Negative".
    - **Do not use (+) or (-) signs**.
5. Document any QC failures and corrective actions on the QC log sheet.
6. Record the date and operator initials on the QC label attached to the Gastroccult® slide box.

Quality Control- pH

1. Record the lot number and expiration dates of the pH buffers on the QC log sheet.
2. Open 2 Gastroccult® slides. Label one slide as pH 2 and the second slide as pH 7.
3. Apply one drop of pH 2 buffer to the pH test circle of the first slide labeled pH 2, then apply one drop of pH 7 buffer to the pH test circle of the second slide.
4. Within 30 seconds, visually compare the pH test area on the slide to the pH color chart comparator.
5. Record the actual number value of the pH QC result on the Gastroccult® QC log sheet.
6. Document any QC failures and corrective actions on the Gastroccult® QC log sheet.

Quality Control – Results Documentation Summary

1. Record date, time, operator initials, and the lot number and expiration dates of slides, Developer and buffers on the Gastroccult® QC log sheet.
2. Record the Performance Monitor results as "Pos/Positive" and "Neg/Negative".
3. Record the number value of the pH buffers.
4. Place a check mark (√) in the QC Pass/Fail box to note whether QC passed or failed.
5. Document any QC failures and corrective actions in the Comment Section of the Gastroccult® QC log sheet

Quality Control Failures and Corrective Actions

If the QC (pH or Performance Monitor) results fail, i.e., the expected results are not obtained:

1. Check to make sure that the slides and Developer/pH buffer have not expired.
2. Repeat the test.
3. If repeat test fails, open a new bottle of Developer/pH buffer and repeat test.
4.. If this test fails using the new Developer/pH buffer, open a new box of Gastroccult® slides and retest using the new slides and new Developer/pH buffer.
5. If the repeat test fails using the new slide and Developer/pH buffer, STOP PATIENT TESTING AND REPORTING OF PATIENT RESULTS until the quality control issues are resolved and the expected results are obtained and recorded.
6. Document all steps taken in the Comment Section of the Gastroccult® QC Log Sheet.
7. Contact the POCT Program Office for assistance.

Specimen Collection

1. Use at least 2 unique patient identifiers (neither to be the patient's room number) to verify a patient's identity when collecting samples for testing.
2. Label the specimen container with the patient identifiers.
3. The proper specimen for Gastroccult® testing is gastric aspirate (obtained by nasogastric intubation) or vomitus.
4. Samples must be fresh (not refrigerated) and tested promptly.
5. Gloves must be worn during sample collection and testing (Standard Precautions).

Patient Testing

1. Check the JHMI QC label on the box of slides or the Gastroccult® QC log sheet to make sure that quality control has been performed for the week.
2. Label a Gastroccult® slide with patient identifiers.
3. Open the slide and apply 1 drop of the patient sample to the pH test area and 1 drop to the Gastroccult® test area (occult blood test area)
4. Within 30 seconds, read the actual number value of the pH test by comparing the color of this spot with the pH color chart on the card.
5. Apply 2 drops of Gastroccult® Developer to the occult blood test area. Read the occult blood results within 60 seconds.
6. Apply 1 drop of Gastroccult® Developer between the positive and negative Performance Monitor areas on the slide. Interpret the results within 10 seconds.
7. Record the patient's results, along with the date, time and operator initials on the chart, flowsheet, or electronic patient record.

Patient Testing (continued)

8. When documenting the results in the patient's chart, place a check mark (√) or "QC okay" next to the results to indicate that Quality control has successfully been run within one week and the Performance Monitor reacted correctly.
9. Results should be noted as Point-of-Care Testing results to distinguish them from laboratory results.

Reference Range

Gastric Content pH: 1.5 – 3.5

Interferences

A. **Foods:**
Many foods (ex. incompletely cooked meat, raw fruits and vegetables such as melons, turnips and radishes) have peroxidase activity that can produce a positive Gastroccult® test result. Therefore a positive test result does not always indicate the presence of human blood.

B. **Medications**:
1. Gastroccult® is free from interferences by normal therapeutic concentrations of cimetidine (Tagamet), iron or copper salts.
2. Antacids: It is unlikely that there will be any inhibition of the occult blood test by antacids if gastric samples are tested no sooner than 60 minutes after last antacid administration and following stomach irrigation.
3. Antacid products containing magnesium hydroxide (ex. Mylanta II and Maalox Plus) exhibit the most inhibitory effect on the test.

C. **Ascorbic Acid**:
Ascorbic Acid (vitamin C) has been shown to cause false negative test results for occult blood. This can also be expected to be true for the Gastroccult® test.

Limitations

1. Some gastric samples may be highly colored and appear as blue or green on the test area. Test results should only be regarded as positive if additional blue is formed after the Developer is added.
2. As with any occult blood test, the results of the Gastroccult® cannot be considered conclusive evidence of the presence or absence of upper gastrointestinal bleeding or pathology.
3. Gastroccult® test results should be used only in conjunction with other information relevant to the clinical status of the patient.
4. Because the Gastroccult® test is visually read and requires color differentiation, it should not be interpreted by people who are colorblind or visually impaired.

