

LOUISIANA STATE UNIVERSITY HEALTH SCIENCES CENTER-SHREVEPORT
PROVIDER PERFORMED TESTING/MICROSCOPY

HEMOCULT PROCEDURAL GUIDELINES

Principle:

Hemocult test is a guaic slide test for the qualitative detection of fecal occult blood. It is useful in the diagnosis of a number of gastrointestinal disorders and is recommended for use in:

1. Routine physical examinations
2. Routine hospital testing
3. Mass screening for colorectal cancer

The presence of blood in fecal material may indicate gastrointestinal pathology such as hemorrhoids, diverticulitis, fissures, colitis or colorectal cancer. As with any occult blood test, results cannot be considered conclusive evidence of the presence or absence of gastrointestinal bleeding or pathology.

Guaic impregnated paper enclosed in a cardboard frame permits sample application to one side, and development and interpretation on the reverse side. The test is based on the oxidation of phenolic compounds present in the guaic (i.e. guaiconic acids) to quinones resulting in production of the blue color. When the fecal specimen containing occult blood is applied to the test paper, contact is made between hemoglobin and guaic. A pseudoperoxidase reaction will occur upon the addition of the developer solution, with a blue chromagen formed proportionally to the concentration of hemoglobins. The color reaction will occur after thirty seconds

Specimen Requirements:

Patient Preparation:

1. It is recommended that the patient be placed on a high residue diet starting 2 days before and continuing through the test period. Raw vegetables containing high peroxidase activity should be avoided. For a detailed list of acceptable and unacceptable foods, refer to package insert. Special diets can be omitted initially with restrictions imposed upon the retesting of positive results. Dietary restrictions, retesting and follow-up are left to the discretion of the physician.
2. Medications: For 7 days prior to and during testing, aspirin or other anti-inflammatory medicines should not be ingested. For 2 days prior to and during testing, do not use rectal medicines, or tonics or vitamin preparations which contain Vitamin C (ascorbic acid) in excess of 250 mg per day.
3. Avoid collection of specimens when bleeding hemorrhoids are present or open cuts on hands.
4. Avoid collection of specimen during menstrual cycle.
5. Avoid improper specimen collection.

Specimen:

Obtain two samples from fresh fecal material. It is recommended that two samples for testing be collected from each of three successive evacuations, onto the guaic paper (separate slide card for each evacuation).

Written: 1/08

Reviewed/Revised:

Reagents And Supplies:

1. Slides and Monitors - Store at room temperature (15-30°C). Stable until expiration date. Protect from heat, humidity, light, fluorescent light, UV radiation, excessive air flow, or volatile chemicals (e.g. iodine or bleach). Do not refrigerate or freeze.
Signs of Deterioration: Discoloration of the normally light tan paper may occur if exposed to sunlight, fluorescent or ultraviolet light. Failure of the control system to react as expected may be indicative of deterioration of the developer or the slide, and test results should be regarded as invalid.
Controls - A positive monitor is impregnated with a substance which turns positive (blue) if the product is functioning properly.
2. Developer - Contains <6% hydrogen peroxide and denatured ethanol.

WARNING: For in-vitro diagnostic use. **DANGER:** Flammable. Never pipette by mouth. Vapor harmful. Do not ingest or place in eyes. May cause blindness or be fatal if swallowed. Keep away from heat, sparks, or an open flame. Avoid contact with eyes and skin. Should contact occur, flush affected area with water and get immediate medical attention.

Store tightly capped at 15-30°C protected from heat and light. Stable until expiration date. Do not substitute reagents from other manufacturers.

Signs of Deterioration: Failure of the positive monitor to react as expected may be indicative of deterioration of the developer or the slide and the test results should be regarded as invalid.

Calibration:

Not Applicable.

Quality Control:

A negative and a positive monitor are located on the slide and are performed with every test. Should monitors fail to perform properly, specimen collection and test procedure must be repeated with new slide card.

Procedure:

NOTE: Always wear gloves when performing procedure.

1. Open the tab on the slide card.
2. Using the applicators provided, obtain a small sample of fecal material.
3. Apply a very thin smear to the paper window area of the slide labeled A.
4. Reuse applicator to obtain a second sample of the fecal material, from a different location, in the same manner.
5. Apply a very thin smear to the paper window area of the slide labeled B.
NOTE: On subsequent bowel movements, repeat above steps on additional slides.
6. Allow the smears to air dry, then close the cover.
7. Open the perforated window on the back of the slide.
8. Apply two drops of developer to the back side of boxes A and B.

Written: 1/08

Reviewed/Revised:

9. Read results after 30 seconds and within 2 minutes. Any trace of blue color, within or on the outer rim of the specimen, is positive for occult blood.
10. Apply one or two drops of developer between the positive and negative monitor boxes.
11. Read results after 30 seconds and within 2 minutes.
NOTE: If positive monitor turns blue and negative monitor shows no trace of blue, then the test is acceptable and results may be reported. If the monitors do not function properly, the test is invalid and must be repeated with new slides.
12. Record the test results on the patient's chart or flowsheet.
13. Record results on the **Hemocult Testing Log Sheet for Provider Performed Testing**. Include patient name and medical record number (can adhere addressograph label to log sheet), initials of the person performing the test, date, results of QC (pos. and neg. monitors), lot number and expiration for card and developer.

Calculations:

Not Applicable.

Reporting Results:

Expected Results:

The guaic paper test detects occult blood but they are not diagnostic for disease. Positive occult blood tests may be obtained for reasons which range from red meat in the diet, diverticulitis, hemorrhoids, and colitis to colorectal cancer.

The hemocult test will detect 10 mg of hemoglobin per gram of homogenized fecal material.

Procedural Notes:

1. If positive monitor turns blue and negative monitor shows no trace of blue then the test is acceptable and results may be reported. If the monitors do not function properly, the test is invalid and must be repeated with new slides.
2. It is recommended that the patient be placed on a high residue diet starting 2 days before and continuing through the test period. Raw vegetables containing high peroxidase activity should be avoided. For a detailed list of acceptable and unacceptable foods, refer to package insert. Special diets can be omitted initially with restrictions imposed upon the retesting of positive results. Dietary restrictions, retesting and follow-up are left to the discretion of the physician.
3. Medications: For 7 days prior to and during testing, aspirin or other anti-inflammatory medicines should not be ingested. For 2 days prior to and during testing, do not use rectal medicines, or tonics or vitamin preparations which contain Vitamin C (ascorbic acid) in excess of 250 mg per day.
4. Avoid collection of specimens when bleeding hemorrhoids are present or open cuts on hands.
5. Avoid collection of specimen during menstrual cycle.
6. Avoid improper specimen collection.
7. Signs of Deterioration: Discoloration of the normally light tan paper may occur if exposed to sunlight, fluorescent or ultraviolet light. Failure of the control system to react as expected may be indicative of deterioration of the developer or the slide, and test results should be regarded as invalid.

Written: 1/08

Reviewed/Revised:

Limitations Of Procedure:

1. Results obtained cannot be considered conclusive evidence of the presence or absence of gastrointestinal bleeding or pathology.
2. False negative results may be obtained, since most bleeding occurs intermittently.
3. Hemocult is to be used as a screen and is not intended to replace other diagnostic procedures such as proctosigmoidoscopy, barium enema or X-ray studies.
4. Only hemoglobin released upon hemolysis of the red cell is detected. Should whole blood be applied to the test paper, it is necessary to hemolyze the red cells by the addition of a drop of water before adding the developer.
5. Ingestion of ascorbic acid (Vitamin C) in high doses has been shown to cause false negative results, and intake should be discontinued 2 days prior to, and during, the test period.
6. Peroxidase from fruits and vegetables can cause false positive results.
7. Elimination of red meat from the diet during the test period eliminates the source of hemoglobins which may cause false positives. Oral medications (such as aspirin, indomethacin, reserpine, phenalbutazone, corticosteroids, etc.) and heavy alcohol consumption may cause irritation or bleeding of the gastrointestinal tract and should be discontinued for 7 days prior to and during the test period.

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Written: 1/08

Reviewed/Revised:

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