

Title: Gastric Occult Blood Gastrocult		
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TITLE: Gastric Occult Blood

Gastrocult Method

Purpose

This procedure is intended to be a rapid screening test designed to detect the presence of occult blood in gastric aspirate or vomitus specimens.

Scope

This procedure is intended as a guideline for all personnel assigned to the automated testing section of Concord Hospital Laboratory.

Principle of the Test

The Gastrocult® slide test is based on the oxidation of guaiac by hydrogen peroxide to a blue colored compound. In this test, alpha guaiaconic acid (an active phenolic compound of guaiac) reacts with hydrogen peroxide (active component of the developer) in the presence of heme (peroxidative-type of catalyst present in hemoglobin) to produce a highly conjugated blue quinone compound. Since heme, hemin, or hematin are also present in peroxidase, it is probably these fractions of hemoglobin which catalyze the oxidation of guaiac.

Clinical Application and Usefulness

The Gastrocult® slide test is a simplified, standardized variation of the guaiac test for occult blood. The test slide card contains specially prepared guaiac impregnated paper that is ready for use without additional preparation. This test method is for in vitro diagnostic use as an aid for early detection of gastric trauma or deteriorating gastric conditions.

Specimen



BIOHAZARD

All body fluids should be handled as if capable of transmitting infectious diseases. Use universal precautions when in contact with such materials. Refer to the Laboratory Infection Control Policy in the Safety Manual.

Specimen Collection and Handling:

- Patient Preparation: None
- Specimen Requirement: Either gastric aspiration obtained by naso-gastric intubation or vomitus may be used. ***Sputum specimens are also acceptable provided the sample is thoroughly absorbed into the body of the guaiac treated filter paper.*
- Minimum Requirement: Enough sample to be absorbed into the body of the guaiac treated filter paper of the test slide.
- Stability and Storage: Samples applied to the occult blood test area may be developed immediately or prepared and stored for up to 4 days at room temperature (15-30° C).

Reagents and Supplies

Reagents and Supplies Utilized:

- Gastrocult® slides (test cards) containing guaiac treated filter paper.
- Gastrocult® Developer- developer contains a stabilized mixture of less than 2.9% hydrogen peroxide, 30% denatured ethyl alcohol in a citrate-buffered aqueous solution, ready for use. **Caution:** developer is an irritant. Avoid contact with eyes and skin. Should contact occur, rinse promptly with water.
- Specimen applicators

In-House Preparation:

- Not applicable

Acceptable Reagent Performance:

- The Positive Performance Monitor turns blue within 10 seconds after adding the developer.
- The Negative Performance Monitor should **not** turn blue after adding the developer.

Storage Requirements:

- Temperature: Store at 15-30° C (room temperature), do not freeze or refrigerate, protect from light and heat. Do not store with volatile chemicals (e.g. ammonia, bleach, bromine, iodine, or household cleaners). **Keep slides sealed in special wrapper until ready to use.** Gastrocult developer is flammable and subject to evaporation.
- Stability: Until stated expiration date of cards and developer if stored as recommended. Do not use beyond expiration date.
- Labeling: all reagents are to be labeled as to content, date prepared or received, and/or placed in service.

Calibration

- Not applicable

Quality Control

QC Utilized: On-slide Positive and Negative Performance Monitors located under the sample test area on the developing side of the test card

QC Preparation and Handling: Card is stored at room temperature; protect from light and heat.

Tolerance Limits: The positive and negative performance monitors react appropriately. If the monitors do not react as expected, the test results should be regarded as invalid.

Frequency with Which Controls are Run: Positive and negative performance (control) monitors are run with every specimen.

Corrective Action when Tolerance Limits are Exceeded: Repeat test; check expiration dates and storage handling. Notify supervisor.

Recorded and Stored QC Data: Results of performance monitors are entered in the LIS along with the lot number and expiration date of the developer and the Gastrocult card used.

Procedure

- Remove slide card from special wrapper
- Open slide card
- Apply 1 drop of gastric sample to the occult blood test area.
- Apply 2 drops of Gastroccult® developer over the sample in the occult blood test area.
- Read occult blood test results within 60 seconds.
- The development of any trace of blue color in the occult blood test area is regarded as a positive result.
- Add 1 drop of developer between the Positive and Negative Performance Monitor areas.
- Interpreting the Performance Monitor results.
 - **A blue color** will appear in the **positive Performance Monitor** within 10 seconds. The color will remain stable for at least 60 seconds.
 - **No blue color** should appear in the **negative Performance monitor** area when the developer is added. ****Note:** If the gastric sample is applied in such a way that it contacts the Performance Monitor area, the negative Performance Monitor may appear positive. Contact with the Performance Monitor area by the gastric sample should be avoided. Submit for recollection if applicable.
 - Any blue color originating from the Performance Monitor areas should be ignored when determining sample test results.

Procedure Notes:

- **NOTE:** Some gastric samples may be highly colored and appear as blue or green once applied to the test area. Test results should be regarded as positive if **additional blue** coloration is formed after the developer is added.
- Gastroccult® test was designed to determine the presence of occult blood in gastric samples. Classical fecal occult blood tests were not designed for use with gastric samples. Factors common to gastric samples such as low pH, high drug concentrations, metal ions, or plant peroxidases in food may affect the function of guaiac-based occult blood tests. *Gastroccult® slides and developer were designed to function reliably in the presence of these factors.*
- Gastroccult® test will reliably detect hemoglobin levels equal to or greater than 50 mcg/ml in gastric juice at pH 1 through 9. This is equivalent to 30-50 microliters of blood per deciliter of gastric fluid based on the hemoglobin content in blood of normal adults.

For technical assistance, contact the Technical Marketing Department at Beckman Coulter, Inc. (1-800-877-6242).

Calculations

- Not Applicable

Reporting Results

Reporting Format: Report as Positive or Negative

Reference Range: Negative

Limitations of Procedure

As with all laboratory results, definitive diagnostic and therapeutic decisions should not be based on any single result or method. Gastrocult® cannot be considered conclusive evidence of the presence or absence of upper gastrointestinal bleeding or pathology. The Gastrocult® test is designed for use as a preliminary screening aid and is not intended to replace other diagnostic procedures as gastroscopic examination or x-ray studies.

- The Gastrocult® slide test is ***not recommended for fecal specimens.***
- ***Gastric specimens submitted on Hemocult® or Hemocult® SENSA® cards are not acceptable.***
- ***Do not use Hemocult or Hemocult® SENSA developer*** on the Gastrocult® slide.
- Gastrocult® is free from interferences of therapeutic concentrations of cimetidine (tagamet), iron or copper.

Interfering Substances:

- Antacid products containing magnesium hydroxide (e.g. Mylanta II, And Maalox Plus) exhibit the most inhibitory effect on the Gastrocult® test. If gastric samples are taken ***no sooner than 60 minutes after*** last antacid administration and stomach irrigation, there should be no inhibition of the Gastrocult® test

False Positive:

- Many foods (e.g. incompletely cooked meat, raw fruit and vegetables) have peroxidase activity which can produce a positive Gastrocult® test result. Therefore, a positive test result does not always indicate the presence of human blood.

REFERENCES

- 1) Gastrocult® package insert, Beckman Coulter, Inc., Fullerton CA., 09/2001.

DISTRIBUTION

HISTORICAL APPROVAL

Automated Testing

Initiated by: Greta Cook MT(ASCP), Anne Carew MT(ASCP) Date: 12/1992

Adopted: 12/1992

Approved: Gary York MD Date: 4/04/05

Revised: Lorraine Weston 04/2005 Sylvia Stacy MLS(ASCP)^{CM} 12/19/18

Retyped: 04/2005

Supercedes: 19/1992