

## EXERCISE 14: OCCULT BLOOD

Points: 5

- Objectives:
1. State the purpose for performing the occult blood test.
  2. Define “occult” blood.
  3. Describe the diet and state the forbidden foods/medications for two days prior to performance of the test.
  4. List the foods which patients are encouraged to eat prior to the test.
  5. State how the slide is prepared, including the length of time the slide may be used.
  6. State the principle of the occult blood test.
  7. Develop the 2 occult blood slides provided by the instructor and correctly interpret and record the results of the patient and controls.

### Discussion

The occult blood test is a rapid, convenient and virtually odorless qualitative method for detecting fecal occult blood. Occult is word meaning “hidden”. Blood can be present in a stool sample, but due to the digestive process, will not retain its bright red color. The occult blood tests detects excess blood loss which may have significance when related to certain diseases such as colorectal cancer. A positive test usually indicates blood in excess of normal and should be followed up medically. A negative test usually indicates that no blood, in excess of normal, is apparent in the fecal specimen tested. The accuracy of the test depends upon the status of the patient at the time the specimen is taken and may be affected by interfering substances.

The occult blood is recommended for use as a diagnostic aid during routine physical examination, when hospital patients are first admitted, to monitor for bleeding in patients recuperating from surgery and other conditions, and in screening programs for colorectal cancer. It is not a test for colorectal cancer or any other specific disease. It is used as a qualitative aid to the diagnosis of various gastrointestinal conditions which manifest themselves by the presence of fecal occult blood.

### Principle of the Test

The test consists of a special guaiac impregnated paper. A smear from a stool sample is applied to one side of the paper, the paper is turned over and a special developer is added. The developer will react with hemoglobin released from lysed red blood cells resulting in the formation of blue color if blood is present. The test reaction is based on the oxidation of guaiac by hydrogen peroxide to a blue-colored compound. Hemoglobin, if present in the fecal specimen, acts as a pseudo-peroxidase material. It catalyzes the oxidation of alpha guaiaconic acid (active component of guaiac paper) by hydrogen peroxide (active component of the developer) to form a highly conjugated blue quinone compound. Appearance of any blue color on the specimen area of the slide is an indication of the presence of occult blood.

## Patient Preparation

If possible the patient should be placed on a meat-free low-peroxidase diet to reduce the possibility of false positive indications. This special diet should be started two days before testing and continued through the testing period. Such a diet may help reduce the number of false positive results. It also provides roughage that may help uncover silent lesions which may bleed intermittently and may increase the rate of true positive reactions. The recommended diet will also increase the likelihood of a soft stool for greater ease in obtaining fecal samples by wiping.

### SUGGESTED DIET:

- Avoid:**
1. Red or rare meat, and the following raw vegetables and fruits: broccoli, turnips, horseradish, cauliflower, red radishes, parsnips and cantaloupe.
  2. Vitamin C in excess of 250 mg per day.
  3. Aspirin and anti-inflammatory drugs which may cause gastrointestinal irritation for 7 days prior to and during the test period.
  4. No iron supplements.
- Try to eat:**
1. Cooked vegetables and fruits, especially lettuce, spinach, and corn.
  2. Prunes, grapes, plums and apples.
  3. Peanuts, popcorn and bran cereals.
  4. Well-cooked fowl and canned tuna fish.

If any of the above dietary restrictions and recommendations are known to cause discomfort, patients should be instructed to inform their physician. The patient should always consult the physician before discontinuing or interrupting any prescription medications.

## Specimen Collection

The specimen required is a small stool sample which should be applied as a very thin smear onto both windows of the slide. Slides may be developed immediately after specimen application or may be stored and developed up to 8 days after specimen application. Once they have been prepared with a specimen, keep the slides away from heat and light. The work area should be kept clean and free of blood to avoid accidental contact of blood with the slides.

Patients experiencing hemorrhoidal bleeding, having a menstrual period, or bleeding from the nose, gums, etc. should delay testing for at least 48 hours from the time that all such bleeding has stopped. To increase the chances of detecting intermittent gastrointestinal bleeding, it is recommended that stool samples be collected from three consecutive bowel movements and that two smears be made from two different areas of each bowel movement, especially from darkened or discolored areas of the feces. Excessive GI bleeding may result in black, tarry stools.

## **Procedure: Occult Blood Test**

1. Write the patient information from the front flap of the slide onto your report form.
2. Turn the slide over and open the flap to expose the test area. **NOTE:** The slides have fecal material on them, handle with care.
3. Apply two drops of developer solution to each smear in the Specimen Test Area.
4. Read results within 30 to 60 seconds. Any trace of blue color is positive for occult blood. Color begins to fade after 2 to 4 minutes.
5. Develop the performance control only after specimen tests have been completed and interpreted. Apply one drop of developer solution to the Performance control Line. A blue color should appear within 30 seconds when the reagent test paper and developer are performing according to specifications.
6. Record the results of the patient and the performance control on the report form.

### Exercise 13: Occult Blood Test - Recording Results

Name \_\_\_\_\_ Date \_\_\_\_\_

**NOTE:** Record results as “Positive” or “Negative. The “control” area of the slide is at the bottom of the slide. The positive control has a “+” and must be blue, the negative control is a “-“ and must remain colorless.

Patient Name	ID Number	Control Result		Patient Result
		Positive	Negative	
1.				
2.				

## EXERCISE 14: OCCULT BLOOD

Name \_\_\_\_\_

Points: 8

1. What types of conditions is the occult blood used to monitor or diagnose? (1 point)
2. What is the principle of the occult blood test? (1.5 points)
3. List three foods which should be avoided two days before performing the occult blood test. (1.5 points)
4. List three foods which patients should be encouraged to eat three days prior to the occult blood test. (1.5 Points)
5. List three conditions which would result in a delay of 48 hours from the time condition ceases in the performance of the occult blood test. (1.5 points)
6. How long may the occult blood slides be stored after application of the specimen? (0.5 Point)
7. How many stool samples should be tested to increase the chances of detecting intermittent GI bleeding? (0.5)