Performance of Fecal Occult Blood (FOB) Test

Point of Care Testing 2013
Background

- **All** clinical laboratory testing is subject to strict regulation by the federal government, New York State, and voluntary agencies such as JCAHO.
- This includes simple procedures done by healthcare workers near the patient bedside. Although these are often in a “waived test” category, basic quality procedures are required.
- Aside from regulatory considerations, it’s good for patients to get the right answer (by performing the test properly) and keep proper records!
In a recent study:
(R. Selinger et al., Am J Med 2003; 114:64-7)

- **12%** of patient care providers (20 out of 162) were unable to interpret sample test cards correctly—80% (16 out of 20) reported a false-negative result, the remaining 4 reported a false-positive result.
- **46 providers (28%)** missed at least one question or misinterpreted at least one test card consequently failing the overall questionnaire.
Objective

• Learn to perform fecal occult blood testing correctly, so that patient care is optimized and regulatory requirements are met.
Fecal Occult Blood using Hemoccult® Test Kit
Principle of Hemoccult®

- Hemoccult is composed of guaiac impregnated paper enclosed in a cardboard frame which permits sample application.
- When hemoglobin from the fecal specimen comes in contact with the test paper, a pseudoperoxidase reaction will occur upon the addition of the developer solution. A blue color is formed, which is directly proportional to the concentration of hemoglobins.
- The color reaction will occur within 30 seconds.
- $\text{Hb} + 2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$
- $\text{O}_2 + \text{Guaiac} \rightarrow \text{oxidized Guaiac (Blue)}$
- Quality/Performance monitors are incorporated into each slide test to provide quality control system for each test result.
- Positive monitor will turn blue if slide is functioning properly.
- Negative monitor will remain colorless.
Test Procedure

- Open front slide cover.
- Apply a very thin smear of stool in box A.
- Apply another thin smear of stool in box B.
- Wait 3-5 minutes, to allow spec. to dry.
- Close cover.

To perform test:
- Open perforated window on back of the slide, labeled “Laboratory use only”.

Test Procedure cont.

- Apply two (2) drops of Hemoccult Developer over each smear.
- Read results within 60 seconds. (Fading of color will occur after 60 seconds)
- Record results: any trace of blue color, within or on the outer rim of the specimen, is positive for occult blood.
- Performance monitors must be developed after patient test is completed.
Negative Patient Result
Positive Patient Results
Quality Control - Performance Monitors

- Place one (1) drop of developer between the Positive and Negative boxes.
- Read results within **10 seconds**.
- Positive Monitor should turn **blue**.
- Negative Monitor should **not** have any trace of blue.
- **Record QC results, Reagent lot# and expiration dates on patient’s record.**
- **Use of expired reagents is not permitted for patient testing.**
QC Monitor should be developed after Patient is completed
1. Check appropriate patient result.
2. Note color of both QC monitors, and check off the respective results.
3. Enter Lot # and expiration dates for the card and the developer.
4. Sign and enter physician ID on document.
Documenting results in Medical Record

- A test result performed at POC must be signed by the person who performed the test.
- The documented result must have an audit trail to the QC test result and the reagent lot / expiration date, used in the procedure.
- Person performing the test must have a record of training and Competency Assessment for the POC test procedure.
Storage of Reagents

- Store cards and developer in cool dry place, at room temperature, away from volatile chemicals, heat, fluorescent lights or sunlight.
- Developer is a mixture peroxide and alcohol, must be tightly capped.
- Store in a cabinet or a drawer.
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