

A LITTLE BIT POOEY RESOURCE PACK

Learning objectives

- Learning about our digestive system and what happens to waste material;
- Understanding that when we are not healthy on the inside we can test what comes outside to diagnose disease;
- Understanding how the faecal occult blood (FOB) test works;
- Learning to question and discuss issues that may affect our own health and lives.

Materials required

For groups to share:

- Make up some pretend patient stool samples using some raw potato or horseradish that has been chopped into pieces and liquidized or blended to a purée. Mix with some dark cocoa powder to resemble faeces. Add small amounts into test tubes or sample tubes. These samples will give a positive FOB test result.
- Make up some pretend stool samples similar to the above, that will give a negative FOB test result, but this time by mixing up some porridge flakes (e.g. Ready Brek) with some dark cocoa powder and water.
- Developing reagent.
(Which can be obtained from Alpha Labs using button below: consists of hydrogen peroxide and ethanol).

Developing reagent

For pairs to share:

- 2-3 FOB cards (which can be obtained from Alpha Labs using button below).

FOB cards

- Stool samples as given above.
- Some 'applicators': lolly sticks or wooden hot drink stirrers, to apply the samples onto the FOB cards.

Time Taken

Approximately 30 minutes



Practical / discussion activities

If a pathologist has been invited, allow them to give a quick background on laboratory testing and their role as a pathologist.

Discuss with the students the digestive system, and what exactly faeces are? What else do we call it (poo, stools)?

[See back of resource for digestive system diagram - Item 1](#)



Our organs are great at telling us when something is wrong inside, by sending something outside. And pathologists know exactly how to find this out, by testing that something... for example, testing our poo! Poo, or 'faeces', is the undigested food matter that comes out of our bottom. But there is so much more in our poo: bacteria, skin cells, salts, minerals and sometimes even blood. The clues in our poos can tell us if we have a healthy gut...or not.



Show students the FOB cards. These are faecal occult blood cards.

'Faecal' refers to 'faeces' i.e. the waste product from gastrointestinal tract (from mouth all the way down to anus), also known as stool. 'Occult' means 'no obvious symptoms or signs' i.e. the presence of blood in the stools that is not obvious.

Show the students how the cards work.

FOB tests are used to screen for various conditions, but mainly bowel (or colorectal) cancer. It detects the presence of haemoglobin, i.e. blood. Blood found in faeces can be a symptom of early cancer. By detecting cancer early enough, the patient can receive treatments so that the cancer cannot spread, and they can be cured.

For every 100 people tested, only 2 have an abnormal result. And of these, they don't usually have cancer. There are other reasons for gastrointestinal bleeding, so further tests must always be done.

immunostics, inc.
hema-screen™
SLIDE TEST FOR FECAL OCCULT BLOOD
WITH ON-SLIDE CONTROLS

Patient's Name _____ Age _____

Street or Hospital No. _____

City _____ State _____ Zip _____

Phone No. _____ Date _____

Open flap-read directions for use. Return to physician.

FOR IN VITRO DIAGNOSTIC USE

DEVELOP AND INTERPRET TEST SMEARS BEFORE DEVELOPING PERFORMANCE CONTROLS

- To develop Specimen Test Area, lift flap, place 2 drops of Hema-Screen™ developer over each smear. Read results in 30-60 seconds.
- Apply one drop of developer onto Control Area. Blue color should appear within 30 seconds on "POS(+)", no change should appear on "NEG(-)".

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immunostics, inc.
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Ask the students to work in pairs, choose a stool sample, and to pick up a FOB card and an applicator. They can write some pretend 'Patient Details' on the front of the card, and lift up the flap to apply the samples. Using the applicator, ask one student to take a small amount of stool sample and smear it onto the first of the two oval areas. Then repeat, but this time ask them to take another small amount from a different area of the stool sample and smear lightly onto the second oval area.

They can follow the instructions on the card. Ask the student to close the flap and pass it onto the other student. This student now should turn over the card, peel the 'developing area' section on the back and apply two drops of the developing reagent onto the two areas.

An intense blue colour should occur within seconds if the test is positive (i.e. that there is blood in the stool sample).



How the test works:

The test paper is covered with a layer of guaiac resin (plant-based material). When the developing reagent (hydrogen peroxide) is added to the guaiac resin, it oxidises it, turning it into a blue coloured quinone.

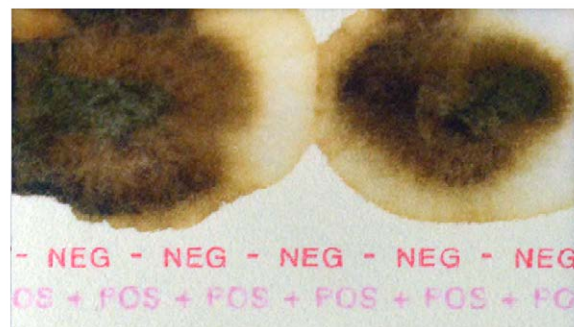
By adding a stool sample, containing haemoglobin, the haem that is present, has a peroxidase-like effect and catalyses the reaction, so the colourless-to-blue reaction happens within seconds.



Positive



Negative





Discussion

Find out what the students understand about the test, and whether they can think of ways in which the test may be misleading. Maybe they have heard of horseradish peroxidase before.

False positives can occur when a patient has just eaten red meat within three days of testing, as red meat contains haemoglobin. Also vegetables with a high peroxidase or catalase content: horseradish and potatoes. As well as if the patient has taken any drugs that can cause intestinal bleeding e.g. anticoagulants (blood thinner), steroids.

Useful links

Fecal Occult Blood tests on LabtestsOnline: :

www.labtestsonline.org.uk/understanding/analytes/fobt/tab/test

Bowel (colorectal) cancer:

www.nhs.uk/conditions/Cancer-of-the-colon-rectum-or-bowel/Pages/Introduction.aspx

Bowel cancer screening:

www.beatingbowelcancer.org/understanding-bowel-cancer/diagnosis/screening-programmes/



