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Section: Parasitology Manual	Subject Title: Laboratory Procedures for Stool Examination	
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Hatching *Schistosoma* Eggs

PRINCIPLE

It may be necessary when schistosome eggs are recovered from stool or urine to determine viability. The presence of viable miracidia indicates an active infection that may require treatment. The viability of the miracidia can be determined in two ways: 1) by doing a wet prep on a fresh stool one can examine the egg for actively moving flame cells (primitive excretory cells); and 2) the miracidia can also be released from the eggs by a hatching procedure- the details of which follow below. Schistosome eggs passed in stools develop relatively quickly into miracidia which actively seek out fresh water snails so they can get on with their lives. This method provides all the environmental clues necessary to persuade the eggs to hatch and for the miracidia to concentrate where they can be seen.

SAFETY

Treat fresh stool samples as a biohazard. The miracidia will invade snails, not humans, at this stage so there is no chance of contracting Schistosomiasis by contact with the hatch water.

REAGENTS

0.85% NaCl saline,
dechlorinated tap water

SPECIMEN

Emulsified fresh stool that has not been refrigerated.

PROCEDURE

This is considered to be a non-routine procedure therefore it should only be performed by experienced personnel.

- a) Emulsify stool in 150 ml of normal saline and strain through wet gauze into a 250 ml sidearm flask. Allow to settle for 2 hours.
- b) Decant the supernatant and refill the flask by pouring dechlorinated tap water to the brim.

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- c) Cover the flask with black paper, aluminum foil, black paint or paper bag, except for the side arm which is exposed to light.
- d) The flask is placed near a window or some other form of illumination and left overnight.
- e) After 16 hours, start checking for miracidia and continue for 48 hours. Most hatches will be positive within 24 hours. The miracidia can be seen swimming in the water in the side arm with the use of a hand lens.

QUALITY CONTROL

- As chlorine can kill the miracidia it is necessary make sure that the water has stood long enough for the chlorine in it to dissipate-- usually by leaving at room temperature overnight or spring water/bottled water can be used.
- As it is not possible to have a positive control specimen to use with this procedure, therefore the technologist should review the appearance and size of the schistosome eggs and miracidia to ensure that they match reference material (i.e. *Bench Aids for the Diagnosis of Intestinal Parasites* (WHO).
- Ensure that the microscope has been calibrated in the last year and that the results of the calibration are displayed on the microscope base.

REPORT

- If no miracidia are found report “No miracidia found”
- If miracidia are found report “miracidia found”

LIMITATIONS OF PROCEDURE

- Adult schistosomes settle in the host’s blood system and therefore it can take weeks to months for the eggs to be passed. A negative result may indicate that adults are present but that eggs are not being passed.

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