

NEW YORK STATE
PARASITOLOGY PROFICIENCY TESTING PROGRAM
GENERAL

05 JUNE 2007

The purpose of the New York State Proficiency Testing Program in the category of Parasitology General is to monitor the performance of applicant laboratories in detecting and identifying parasites in fecal emulsions, fecal smears, and blood films.

SAMPLE PREPARATION AND QUALITY CONTROL

All emulsions and slides used in this test were prepared by a commercial source. The emulsions were dispensed into the vials from pools which were continuously mixed during the loading process. Numerous samples of each test specimen were selected at random by the Parasitology Unit of the David Axelrod Institute for Public Health, and were checked to confirm their contents. Extensive quality control tests were also conducted by the supplying vendor and a detailed quality control report was submitted to the New York State Parasitology Laboratory for inspection and verification. Samples were authenticated by 80% of participating laboratories and/or referee laboratories.

SAMPLE 08-A
Report: ALL PARASITES

RESULTS OF PARTICIPATING LABS:

ORGANISM REPORTED	NUMBER REPORTED	PERCENT REPORTED	REFEREE RESULTS	STATUS
NO PARASITES SEEN	142/142	100	10/10	CORRECT

QUALITY CONTROL:

Participating and referee laboratories agreed that **NO PARASITES SEEN** was the correct response (100%). Quality control examination of 4% of this sample showed normal fecal debris. Other tests performed include a Direct Immunofluorescent Assay and ELISA for *Giardia lamblia* and *Cryptosporidium* sp. which were negative for both organisms. A modified acid-fast stained smear was also negative.

SAMPLE 08-B
Report: HELMINTHS ONLY

RESULTS OF PARTICIPATING LABS:

ORGANISM REPORTED	NUMBER REPORTED	PERCENT REPORTED	REFEREE RESULTS	STATUS
<i>Diphyllobothrium latum</i>	142/142	100	10/100	CORRECT

QUALITY CONTROL:

Participating and referee laboratories agreed that ***Diphyllobothrium latum*** was the correct response (100%). Quality control examination of 4% of this sample revealed an average of 39 ova per coverslip. Other tests performed include Direct Immunofluorescent Assay and ELISA for *Giardia lamblia* and *Cryptosporidium* sp. which were negative for both organisms. A modified acid-fast stained smear was also negative.

DIAGNOSTIC CHARACTERISTICS:



Diphyllobothrium latum is an intestinal tapeworm acquired by ingesting raw or poorly cooked freshwater fish. The diagnostic stage is the egg recovered in stool. These eggs are ovoid and measure 60 to 70µm by 20-35µm. They have an operculum at one end and a small knob at the other. The knob may or may not be visible depending upon the position of the egg. These eggs may be confused with *Paragonimus* sp. so measurement with a calibrated ocular micrometer is important.

SAMPLE 08-C
Report: ALL PARASITES

RESULTS OF PARTICIPATING LABS:

ORGANISM REPORTED	NUMBER REPORTED	PERCENT REPORTED	REFEREE RESULTS	STATUS
<i>Necator americanus</i> / <i>Ancylostoma duodenale</i>	142142	100	10/10	CORRECT
<i>Blastocystis hominis</i>	33	23	2/10	NO PENALTY
<i>Entamoeba coli</i>	23	16	3/10	NO PENALTY
<i>Endolimax nana</i>	3	2		NO PENALTY
<i>Entamoeba hartmanni</i>	3	2		NO PENALTY
<i>Entamoeba histolytica</i>	1	1		NO PENALTY
<i>Hymenolepis nana</i>	1	1		NO PENALTY

QUALITY CONTROL:

Participating and referee laboratories agreed that **Hookworm** was the correct response (100%). Quality control examination of 4% of this sample revealed an average of 25 ova per coverslip. This sample was also positive for a number of amoeba and other helminths and therefore no credit was deducted for any of these answers. Other tests performed include Direct Immunofluorescent Assay and ELISA for *Giardia lamblia* and *Cryptosporidium* sp. which were negative for both organisms. A modified acid-fast stained smear was also negative.

DIAGNOSTIC CHARACTERISTICS:



Necator americanus (Hookworm) infection occurs in warm moist areas through skin penetration of filariform larvae from the soil. The larvae migrate through the heart and lungs, are swallowed, and take up residence in the small intestine where the adults mature. The diagnostic stage is the egg passed in stool. They are oval and measure approximately 60 X 40 µm. They have a thin shell with a space between the shell and the developing embryo. Development is usually at the 8 to 32 cell stage. These eggs are indistinguishable from those of *Ancylostoma duodenale*.

SAMPLE 08-D
Report: PROTOZOA ONLY

RESULTS OF PARTICIPATING LABS:

ORGANISM REPORTED	NUMBER REPORTED	PERCENT REPORTED	REFEREE RESULTS	STATUS
<i>Entamoeba hartmanni</i>	138/141	98	10/10	CORRECT
<i>Entamoeba histolytica</i>	3	2	0	INCORRECT
<i>Endolimax nana</i>	1	1	0	INCORRECT
<i>Blastocystis hominis</i>	1	1	0	INCORRECT

QUALITY CONTROL:

Participating and referee laboratories agreed that *Entamoeba hartmanni* was the correct response (98 and 100%). Quality control examination of 4% of this sample showed trophozoites in every 2-3 100X oil emersion fields. They measure 4-8 microns and contain a single nucleus with peripheral nuclear chromatin.

DIAGNOSTIC CHARACTERISTICS:



Nonpathogenic *Entamoeba hartmanni* has a worldwide distribution and is morphologically similar to *E. histolytica*. Transmission occurs through the fecal oral route and the diagnosis is made by detecting cysts and trophozoites in stool. The cysts are small, measuring 5-8 microns and contain 4 nuclei with small, compact, centrally located karyosomes. Rounded chromatoid bodies may or may not be present. The trophozoites measure from 5-12 microns and contain 1 nucleus. The karyosome is compact and usually centrally located. The cytoplasm is finely granular and may contain ingested bacteria but not red blood cells.

SAMPLE 08-E
Report: ALL PARASITES

RESULTS OF PARTICIPATING LABS:

ORGANISM REPORTED	NUMBER REPORTED	PERCENT REPORTED	REFEREE RESULTS	STATUS
NO PARASITES SEEN	133/134	99	10	CORRECT
<i>Babesia</i> sp.	1	1	0	INCORRECT

QUALITY CONTROL:

Participating and referee laboratories agreed that **NO PARASITES SEEN** was the correct response (99 and 100%). Quality control examination of 4% of this sample revealed no organisms.

CRYPTOSPORIDIUM IMMUNOASSAY RESULTS (Incorrect answers are bolded)

METHOD	07-K		07-L		07-M	
	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE
Meridian ImmunoCard STAT Crypto/Giardia	20	0	20	0	20	0
Meridian Merifluor Crypto/Giardia	20	0	20	0	20	0
Remel ProspecT Crypto EIA	23	0	23	0	23	0
Remel Xpect Crypto	1	0	1	0	1	0
Remel Xpect Giardia/ Crypto	5	0	5	0	5	0
TechLab/Wampole Test EIA	5	0	5	0	5	0
Remel ProSpecT Crypto Rapid	1	0	1	0	1	0
Meridian Premier Crypto	1	0	1	0	1	0
MCC Para-Tect Crypto/Giardia	1	0	1	0	1	0

GIARDIA IMMUNOASSAY RESULTS (Incorrect answers are bolded)

METHOD	07-K		07-L		07-M	
	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE
Meridian ImmunoCard STAT Crypto/Giardia	21	0	21	0	21	0
Meridian Merifluor Crypto/Giardia	16	0	16	0	16	0
Remel ProspecT Giardia EIA	30	0	30	0	30	0
Remel ProSpect Giardia EZ	3	0	3	0	3	0
Remel Xpect Giardia	4	0	4	0	4	0
Remel Xpect Giardia/Cryptosporidium	5	0	5	0	5	0
TechLab/Wampole Test EIA	7	0	7	0	7	0
Meridian Premier Giardia	1	0	1	0	1	0
MCC Para-Tect Crypto/Giardia	1	0	0	1	1	0

DISTRIBUTION OF SCORES

SCORE	NO. OF LABS	PERCENT
100	135	94
90-99	2	1
80-89	4	3
0	2	1

ANSWER KEY

<u>SAMPLE</u>	<u>CORRECT ANSWER</u>	<u>POINTS</u>
08-A	NO PARASITES SEEN	20
08-B	<i>Diphyllobothrium latum</i>	20
08-C	<i>Necator americanus</i> / <i>Ancylostoma duodenale</i>	20
08-D	<i>Entamoeba hartmanni</i>	20
08-E	NO PARASITES SEEN	20

TOTAL POSSIBLE POINTS 100

GRADING

The answer key was derived from the response of all participating laboratories as per **CLIA Regulations**, Part 493, Subpart I, Section 493.917. These regulations can be viewed at www.phppo.cdc.gov. These regulations state that 80% or more of participating laboratories **or** referee laboratories must identify the parasite for it to be correct. Similarly, less than 20% of the participating laboratories **or** referees finding parasites or ova is an incorrect response. Organisms reported by 20-80% of the participating laboratories **or** referees are "Unauthenticated", and are not considered for grading.

Each sample has a maximum value of 20 points. Credit is given according to the formula:

$$\frac{\text{Number of correct responses by lab}}{\# \text{ Correct Parasites Present} + \# \text{ Lab's Incorrect Answers}} \times 100$$

IMPORTANT REMINDERS

The next Parasitology Proficiency Test is scheduled for **October 2, 2007**. You are responsible for notifying us **before October 9, 2007** if you do not receive your test. Proficiency test results must be entered electronically through EPTRS by **October 16, 2007** or you will receive a zero. These requirements are clearly stated in your NYS Proficiency Testing Handbook provided by the NYS Clinical Laboratory Evaluation Program or can be accessed via the internet at <http://www.wadsworth.org/labcert/lep/ProgramGuide/WebGuide.pdf>

NEWS AND NOTES

The Clinical Parasitology Lab of the NYSDOH offers two mailing kits for the submission of specimens. One kit contains vials of ZnPVA and Formalin and the other does not. These kits can be ordered by calling 518-474-4175 and requesting kit DOH-2117. Please be sure to specify whether you need preservatives or not. **Remember that the NYS Parasitology Lab only accepts specimens preserved in appropriate fixatives for the test requested.**