NEW YORK STATE

Parasitology Proficiency Testing Program

Parasitology (General)
02 February 2010

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. This document reports the results for the February 2010 proficiency test in Parasitology (General).

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 Laboratory of the New York State Department of Health , and were assayed for quality and confirmation of organisms. Extensive quality control tests were also conducted by the supplying vendor and a detailed quality control report was submitted to the Parasitology Laboratory for inspection and verification. Samples were authenticated by 80% of participating laboratories and/or referee laboratories.

10-A (All Parasites)

Correct diagnosis: No Parasites Seen.

Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
No Parasites Seen	122/122	100	10/10	**Correct**

Quality Control and Referee Information

Participating and referee laboratories agreed that **No Parasites Seen** was the correct response (100%). Quality control examination of 4% of this sample showed no organisms per coverslip. 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.

10-B (Helminths Only)

Correct diagnosis: *Diphyllobothrium latum*.

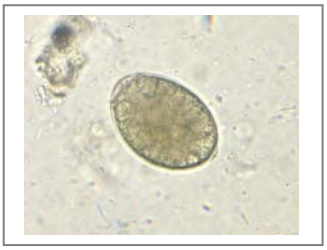
Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
Diphyllobothrium latum	122/122	100	10/10	**Correct**

Quality Control and Referee Information

Participating and referee laboratories agreed that ***Diphyllobothrium latum*** was the correct response (100%). Quality control wet mount examination of 4% of this sample showed an average of 10 ova per coverslip. 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.

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 could be confused with *Paragonimus* sp. if size is not considered. Measurement with a calibrated ocular micrometer is important.

10-C (All Parasites)

Correct diagnosis: *Schistosoma haematobium*.

Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
Schistosoma haematobium	121/122	99	10/10	**Correct**
No Parasites Seen	1	1	0	**Incorrect**

Quality Control and Referee Information

Participating and referee laboratories agreed that ***Schistosoma haematobium*** was the correct response (99 and 100%). Quality control examination of 4% of this sample revealed an average of 8 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

Schistosoma haematobium is the causative agent of urinary schistosomiasis. The diagnostic stage is the fully embryonated egg which is released to the environment in the urine or, in heavy infections, in the stool. These eggs have no operculum, measure approximately 150 µm, are light brown, and have a prominent terminal spine. Egg excretion is periodic so collection of samples should occur between 12:00pm and 3:00pm or a 24-hour urine specimen should be collected.

10-D (Protozoa Only)

Correct diagnosis: *Dientamoeba fragilis.*

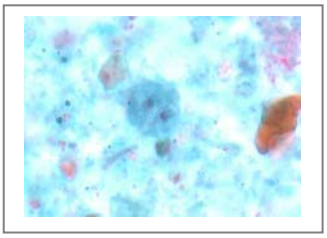
Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
Dientamoba fragilis	112/122	92	10/10	**Correct**
Endolimax nana	8	7	0	**Incorrect**
Entamoeba hartmanni	4	3	0	**Incorrect**
No Parasites Seen	4	3	0	**Incorrect**
Chilomastix mesnili	1	1	0	**Incorrect**
Iodamoeba butschlii	1	1	0	**Incorrect**

Quality Control and Referee Information

Participating and referee laboratories agreed that ***Dientamoeba fragilis*** was the correct response (92 and 100%). Quality control examination of 4% of this sample showed trophozoites in almost every oil immersion field. Most have two nuclei but some have only one.

Diagnostic Characteristics



Dientamoeba fragilis is distributed worldwide and has been reclassified as a flagellate rather than an amoeba. There is no known cyst stage. Trophozoites are either uni- or bi-nucleated. Uni-nucleate organisms could be confused with *Endolimax nana*. The nuclear chromatin is often fragmented and no peripheral chromatin is seen. Amoeboid in shape, these flagellates measure between 5-15 µm with a typical range of 10-12 µm. The cytoplasm is finely granular and may contain vacuoles.

10-E (All Parasites)

Correct diagnosis: *Babesia* sp.

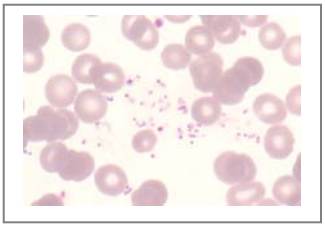
Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
Babesia sp.	98/116	84	9/10	**Correct**
No Parasites Seen	10	9	0	**Incorrect**
Plasmodium falciparum	6	5	1	**Incorrect**
Plasmodium vivax	1	1	0	**Incorrect**
Plasmodium malariae	1	1	0	**Incorrect**

Quality Control and Referee Information

Participating and referee laboratories agreed that ***Babesia* sp.** was the correct response (84 and 90%). Quality control examination of 4% of this sample showed parasites in every 100 X oil immersion field. Both intracellular and extracellular parasites were observed. The presence of many extracellular parasites and the absence of pigment confirm the diagnosis of *Babesia* sp..

Diagnostic Characteristics



***Babesia* sp.** has a wide spread distribution which now includes several counties in New York State having moved up the Hudson Valley in recent years . Parasites are transmitted by several species of ticks. Like malaria, the parasites infect red blood cells. They appear as small, pleomorphic rings which may be confused with the early stage of *Plasmodium falciparum*. Infected cells are not enlarged and do not exhibit stippling or Mauer's dots. No other stages are seen and no pigment is present. Occasionally tetrads may be seen and parasites are often seen outside the red blood cells.

Scoring Information

Immunoassay Results

Cryptosporidium	**10-A**		**10-B**		**10-C**	
METHOD	**-**	**+**	**-**	**+**	**-**	**+**
Meridian ImmunoCard STAT Crypto/Giardia	21	0	22	0	22	0
Meridian Merifluor Crypto/Giardia	19	0	19	0	19	0
Remel ProspecT Cryptosporidium EIA	22	0	21	1	21	1
Remel Xpect Cryptosporidium	1	0	1	0	1	0
Remel Xpect Giardia/Cryptosporidium	5	0	5	0	5	0
TechLab/Wampole Test EIA	6	0	6	0	6	0

Giardia	**10-A**		**10-B**		**10-C**	
METHOD	**-**	**+**	**-**	**+**	**-**	**+**
Meridian ImmunoCard STAT Crypto/Giardia	23	0	23	0	23	0
Meridian Merifluor Crypto/Giardia	15	0	15	0	14	1
Remel ProspecT Giardia EIA	27	0	27	0	27	0
Remel ProSpect Giardia EZ	2	0	2	0	2	0
Remel Xpect Giardia	2	0	2	0	2	0
Remel Xpect Giardia/Cryptosporidium	5	0	5	0	5	0
TechLab/Wampole Test EIA	9	0	9	0	9	0

Distribution of Scores

Score	# of labs	% of labs
100	121	89
90-99	1	1
80-89	11	8
70-79	1	1
60-69	1	1

Answer Key

Sample	Correct Answer	Points
10-A	No Parasites Seen	20
10-B	*Diphyllobothrium latum*	20
10-C	*Schistosoma haematobium*	20
10-D	*Dientamoeba fragilis*	20
10-E	*Babesia* sp.	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, reporting of a parasite identified by less than 10% of the participating laboratories **or** referees is an incorrect response. (I think this phrase should come out, or else I don't understand this statement)Organisms reported by more than 10% but less than 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:

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

Important Reminders

The mailout dates for Parasitology have been changed from the first Monday of February, June, and October to the first Tuesday.

The next Parasitology Proficiency Test is scheduled for **June 1, 2010.** You are responsible for notifying the New York State Parasitology Unit **before June 8, 2010** if you do not receive your test. Proficiency test results must be electronically submitted through EPTRS by **June 15, 2010** 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, and can be accessed via the Internet at: http://www.wadsworth.org/labcert/clep/ProgramGuide/WebGuide.pdf

News and Notes

Beginning with the February 2009 proficiency exam, the **grading policy has changed**. In order to make the score on the NYS Parasitology PT exam more accurately reflect laboratory performance, and be more consistent across categories, a new scoring system is in effect. Under the new scoring system, grades will be based only on the specimen or organism types processed by your laboratory. Laboratories that process all of the types of samples included in the exam will not observe any changes in scoring method.