

# NEW YORK STATE

## Parasitology Proficiency Testing Program

### News and Notes

Beginning with the May 2013 event a separate set of 3 samples were supplied for laboratories performing antigen detection. For this event those were samples 14I-K, 14I-L, and 14I-M. These are distinct from samples 14-K, 14-L, and 14-M and **cannot** be used interchangeably.

As molecular methods become increasingly common in the clinical parasitology lab, so does the necessity of knowing what preservative was used with the specimen. Preservatives commonly used for parasitology are not ideal for DNA extraction, and newly developed tests may only be approved for use with specific preservatives. For example, the assay may be approved for use with specimens preserved in 10% formalin but not SAF. Please remember to include the preservative information by filling out that section of the Infectious Disease Requisition, whenever submitting specimens to Wadsworth.

Please note that an unpreserved specimen should also be submitted, whenever possible, to maximize the likelihood of extracting good quality DNA.

The image shows a screenshot of a web form from [www.wadsworth.org/divisions/infdis/enceph/form.htm](http://www.wadsworth.org/divisions/infdis/enceph/form.htm). The form includes fields for "Submitting lab findings: Smear/Stain/Other results", "Specimen submitted on/in: Media", and "Preservative". The "Preservative" field is circled in red. Below the "Specimen submitted on/in" field, there are checkboxes for "Relevant Exposure: Contact known case", "Food/water", and "Nose".

### Parasitology Comprehensive 30 September 2014

The purpose of the New York State Proficiency Testing Program in the category of Parasitology - Comprehensive is to monitor the performance of applicant laboratories that detect and identify parasites in fecal emulsions, fecal smears, and blood films. Below please find the results for the September 2014 proficiency test in Parasitology - Comprehensive and Antigen Detection.

### 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 Wadsworth Center Parasitology Laboratory (NYSDOH), and were assayed for quality and confirmation of organisms. The supplying vendor also conducted extensive quality control tests and a detailed quality control report was submitted for inspection and verification. Samples were authenticated by at least 80% of participating laboratories and/or referee laboratories.

## 14-K (All Parasites)

Correct Identification: *Giardia lamblia*

### Results of Participating Laboratories

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
<i>Giardia lamblia</i>	90/90	100	10/10	Correct
<i>Entamoeba histolytica/dispar</i>	61	68	4	No Penalty
<i>Blastocystis hominis</i>	51	57	3	No Penalty
<i>Endolimax nana</i>	10	11	0	No Penalty
<i>Entamoeba coli</i>	9	10	3	No Penalty
<i>Entamoeba hartmanni</i>	2	2	0	Incorrect
<i>Cyclospora cayetanensis</i>	1	1	0	Incorrect

### Quality Control and Referee Information

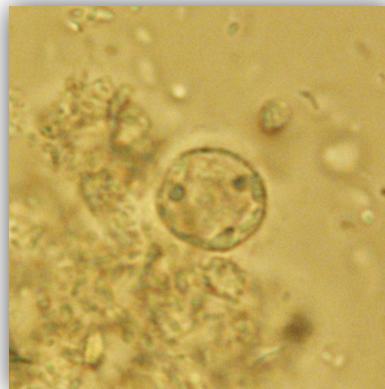
All participating and referee laboratories agreed that *Giardia lamblia/intestinalis* was the correct response. Quality control examination of 4% of the specimens showed a cyst in every 40X field. Other tests performed included a direct immunofluorescent assay, which was positive for *Giardia lamblia* and negative for *Cryptosporidium* species. In addition *Blastocystis hominis* and *Entamoeba histolytica/dispar* were observed in this specimen.

### Diagnostic Characteristics

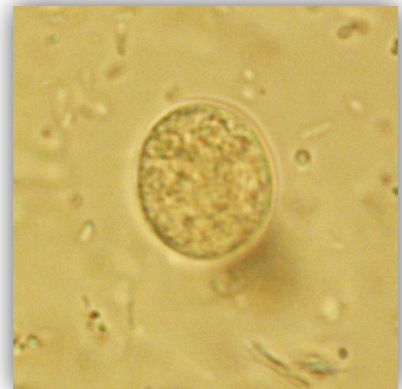
Cysts forms were predominant in this sample, although trophozoites were also observed in low numbers.



*Giardia lamblia/intestinalis* cysts



*Blastocystis hominis*



*Entamoeba* cyst

## 14-L (Helminths Only)

Correct Identification: *Hymenolepis nana*

### Results of Participating Laboratories

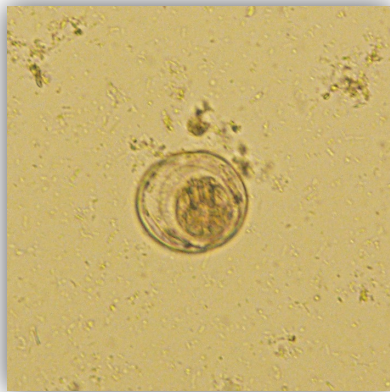
Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
<i>Hymenolepis nana</i>	90/90	100	10/10	Correct

### Quality Control and Referee Information

All participating and referee laboratories agreed that *Hymenolepis nana* was the correct response. Quality control examination of 4% of the vials for this sample showed 1-2 eggs per 10 fields at 20X magnification.

### Diagnostic Characteristics

Eggs were oval and measured 40 x 50 µm in size. The hooks in the oncosphere and the filaments in the space between the oncosphere and the outer wall are characteristic of *Hymenolepis* eggs.



## 14-M (Helminths Only)

Correct Identification: *Diphyllbothrium latum*

### Results of Participating Laboratories

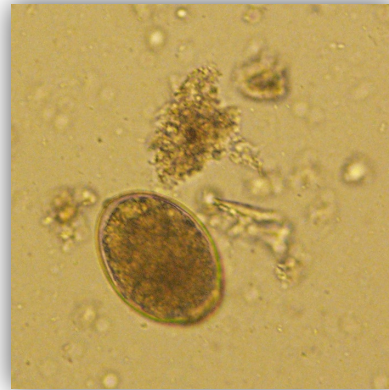
Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
<i>Diphyllbothrium latum</i>	90/90	100	10/10	Correct

### Quality Control and Referee Information

All participating and referee laboratories agreed that *Diphyllbothrium latum* was the correct response. Quality control examination of 4% of the vials for this sample showed 5-10 eggs per coverslip.

### Diagnostic Characteristics

Eggs observed consistently measured 65 x 45 µm in size. Internal structures showed multiple sacs and the eggs had a terminal knob as its operculum. The size and distinct features of the eggs are consistent with *Diphyllbothrium latum*.



## 14-N (All Parasites)

Correct Identification: *Endolimax nana*

### Results of Participating Laboratories

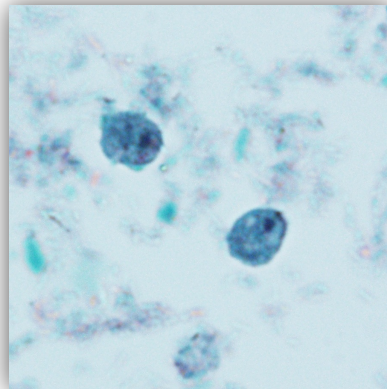
Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
<i>Endolimax nana</i>	84/90	93	9/10	Correct
<i>Blastocystis hominis</i>	58	64	5	No Penalty
<i>Dientamoeba fragilis</i>	4	4	1	Incorrect
<i>Iodamoeba butschlii</i>	3	3	1	Incorrect

### Quality Control and Referee Information

Participating and referee laboratories agreed that *Endolimax nana* was the correct response (93 and 90% respectively). Quality control examination of 4% of the slides for this sample showed 1-2 parasites per 20 100X fields. In addition *Blastocystis hominis* was observed in this specimen.

### Diagnostic Characteristics

Trophozoite forms were predominant in this sample, although cysts were also observed in low numbers. *Endolimax nana* cysts and trophozoites observed consistently measured 6 - 8  $\mu\text{m}$  in size.



Trophozoites

## 14-O (All Parasites)

Correct Identification: No Parasites Seen

### *Results of Participating Laboratories*

Organism reported	# of labs reporting	% of labs reporting	Referee results	Status
No Parasites Seen	83/88	94	10/10	Correct
<i>Babesia</i> sp.	3	4	0	Incorrect
<i>Plasmodium falciparum</i>	1	1	0	Incorrect
<i>Plasmodium vivax</i>	1	1	0	Incorrect

### *Quality Control and Referee Information*

Participating and referee laboratories agreed that **No Parasites Seen** was the correct response (94 and 100% respectively). Quality control examination of 4% of the slides for this sample showed no organisms present. The overall quality and staining of the slide was fair.

## Parasitology Antigen Detection

A separate set of samples (14I-K, 14I-L, and 14I-M) was sent for antigen detection. These results are reported below and show that the labs testing for *Cryptosporidium* and/or *Giardia* (97%, 94% respectively) obtained the correct answers for all three specimens.

### Immunoassay Results

<i>Cryptosporidium</i>	14I-K		14I-L		14I-M	
METHOD	-	+	-	+	-	+
MCC Para-Tect Cryptosporidium/Giardia DFA	0	1	1	0	0	1
Meridian ImmunoCard STAT Cryptosporidium/Giardia	1	22	23	0	1	22
Meridian Merifluor Cryptosporidium/Giardia	0	16	16	0	0	16
Meridian Premier Cryptosporidium	0	1	1	0	0	1
Remel ProSpecT Cryptosporidium EIA	0	11	11	0	0	11
Remel Xpect Giardia/Cryptosporidium	0	6	6	0	0	6
TechLab Cryptosporidium II ELISA	0	2	2	0	0	2
TechLab Giardia/Cryptosporidium Quik Chek (Alere)	0	8	8	0	0	8
TechLab/Wampole Test EIA	0	4	4	0	0	4

# of labs reporting	1/72	71/72	72/72	0	1/72	71/72
% of labs reporting	1	99	100	0	1	99
Status	Incorrect	Correct	Correct	Correct	Incorrect	Correct

<i>Giardia</i>	14I-K		14I-L		14I-M	
METHOD	-	+	-	+	-	+
MCC Para-Tect Cryptosporidium/Giardia DFA	1	0	0	1	0	1
Meridian ImmunoCard STAT Cryptosporidium/Giardia	22	1	0	23	1	22
Meridian Merifluor Cryptosporidium/Giardia	13	0	0	13	0	13
Meridian Premier Giardia	1	0	0	1	0	1
Remel ProSpecT Giardia EIA	19	0	0	19	1	18
Remel Xpect Giardia/Cryptosporidium	6	0	0	6	0	6
TechLab Giardia II ELISA	2	0	0	2	0	2
TechLab Giardia/Cryptosporidium Quik Chek (Alere)	8	0	0	8	1	7
TechLab/Wampole Test EIA	6	0	1	5	0	6

# of labs reporting	78/79	1/79	1/79	78/79	3/79	76/79
% of labs reporting	99	1	1	99	4	96
Status	Correct	Incorrect	Incorrect	Correct	Incorrect	Correct

## Scoring Information

### *Distribution of Scores      Parasitology - Comprehensive*

Score	# of labs	% of labs
100	76	84
90-99	4	4
80-89	9	10
70-79	2	2
60-69	0	0
0-59	0	0

### *Distribution of Scores      Parasitology - Antigen Detection*

Score	# of labs	% of labs
100	75	95
90-99	0	0
80-89	3	4
70-79	0	0
60-69	0	0
0-59	1	1

### *Answer Key      Parasitology - Comprehensive*

Sample	Correct Answer
14-K	<i>Giardia lamblia</i>
14-L	<i>Hymenolepis nana</i>
14-M	<i>Diphyllobothrium latum</i>
14-N	<i>Endolimax nana</i>
14-O	No Parasites Seen

### *Answer Key      Parasitology - Antigen Detection*

Sample	Correct Answer
14I-K	<i>Cryptosporidium</i> sp.
14I-L	<i>Giardia lamblia</i>
14I-M	<i>Cryptosporidium</i> sp. and <i>Giardia lamblia</i>



## Grading

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The answer key was derived from the response of all participating laboratories as per **CLIA Regulations**, CFR Title 42, Part 493, Subpart I, Section 493.917. These regulations can be viewed at [www.cdc.gov/clia/Regulatory/default.aspx](http://www.cdc.gov/clia/Regulatory/default.aspx). These regulations state that 80% or more of participating laboratories **or** referee laboratories must identify the parasite for it to be authenticated as a correct answer. Similarly, reporting of a parasite identified by less than 10% of the participating laboratories **or** referees is an incorrect response. Organisms that are not authenticated, but which were reported by more than 10% of the participating laboratories **or** referees, are "Unauthenticated" and are not considered for grading.

Credit is given according to the formula:

$$[\# \text{ of Correct Responses} / (\# \text{ of Correct Responses} + \# \text{ of Incorrect Responses})] \times 100$$

For example, if a sample contained one principal parasite and the laboratory reported it correctly but reported the presence of an additional parasite, which was not present, the sample grade would be:

$$1/(1+1) \times 100 = 50 \text{ percent.}$$

## Important Reminders

The next Parasitology Proficiency Test is scheduled for **February 3, 2015**. Participating labs will need to notify us **before February 10, 2015** if the samples are not received. Proficiency test results must be electronically submitted through EPTRS by **February 18, 2015** or the laboratory will receive a score of zero. This and additional information can be found in the NYS Proficiency Testing Program Guide provided by the NYS Clinical Laboratory Evaluation Program, which can be accessed via the Internet at:

<http://www.wadsworth.org/labcert/clep/ProgramGuide/pg.htm>