

## New Algorithm for Detection of Intestinal Parasites

The Methodist Microbiology laboratory is streamlining stool parasite testing with new assays and new testing algorithms. The *Giardia* and *Cryptosporidium* antigen ELISA was recently brought in-house, and is the preferred initial test for intestinal parasites in patients without a significant travel history. The two most common intestinal parasites in the US are *Giardia intestinalis* (formerly *G. lamblia*) and *Cryptosporidium* sp.

***Giardia* sp.:** More than 2 million cases per year in the US. Spread is by contaminated water or food, or person-to-person. Major risk factors are daycare centers, camping (with ingestion of untreated water), travel to endemic areas, well water, men who have sex with men.

***Cryptosporidium* sp.:** Causes self-limited watery diarrhea. Risk factors include exposure to daycare centers, contaminated recreational water sources, immune compromise.

### **Other intestinal parasites:**

***Cyclospora* sp.:** Rare in the US, recent outbreaks have been associated with fresh produce. Requires special techniques to identify (Routine O&P, even with the *Crypto/Cyclospora* acid fast stain does not always detect the organisms). If prolonged diarrhea despite negative test for *Crypto/Giardia*, and/or diarrhea during a known outbreak, request "O&P Complete" with a comment to "Rule out *Cyclospora*".

***Enterobius vermicularis* (pinworm):** Common in children, not generally detected by routine O&P. Scotch tape prep is the test of choice for pinworm.

**Intestinal helminths:** Uncommon in the US. "Request O&P Complete" if appropriate travel/exposure history.

***Entamoeba histolytica*:** Uncommon in the US. Request "O&P Complete" if appropriate exposure/travel history.

**Tapeworms:** Suspected when patient passes tapeworm segments/proglottids. Request Parasite ID if suspected segment/proglottid is passed.

## Test Methods:

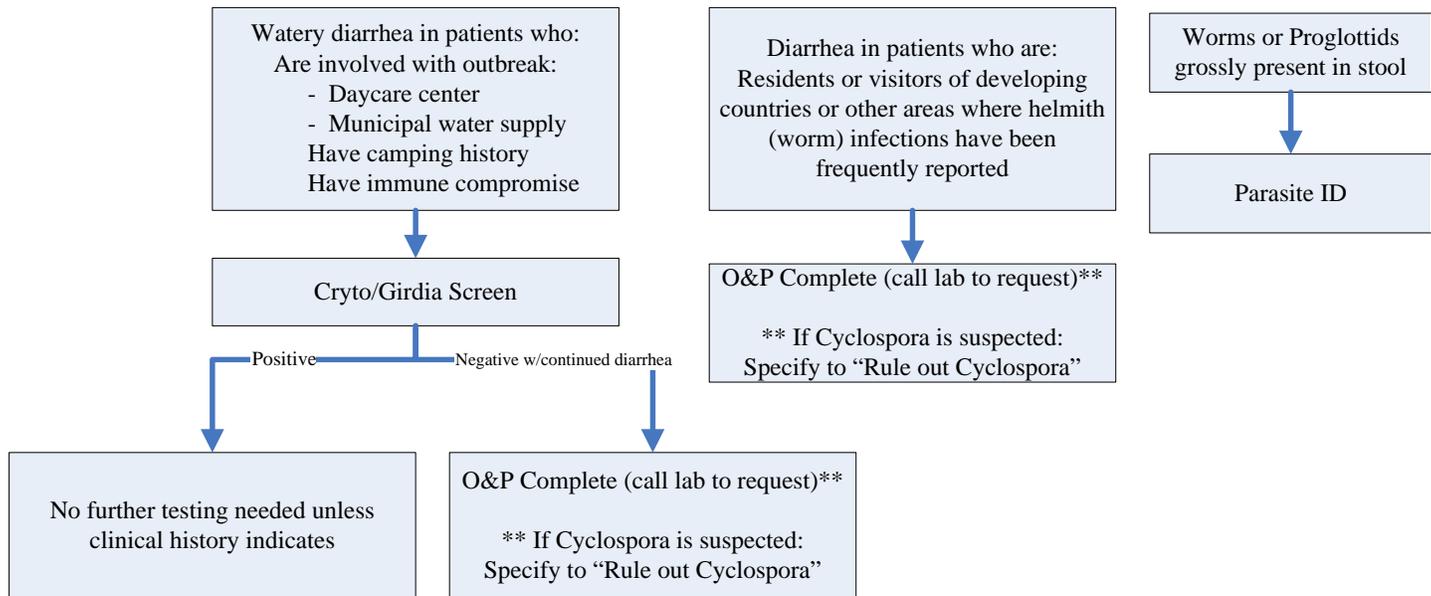
***Giardia* and *Cryptosporidium* Screen, Stool:** ELISA based test recently added to the menu of in-house testing. Highly sensitive and specific for the detection of *Giardia* and *Cryptosporidium*. **Test of choice for the two most common parasites in the US.**

### **Ova and Parasite (O&P) Complete, Stool:**

Traditional method for detection of stool parasites. Includes wet prep, concentration, trichrome stain, and *Crypto/Cyclospora* acid fast stain. This method is suitable for detection of many parasites, however this approach has several limitations:

- 1) Subjective because it is microscopy based
- 2) Sensitivity is limited by the technical ability of the technologist interpreting it
- 3) Less sensitive for *Giardia* and *Cryptosporidium*. Using O&P to rule out *Giardia* could require up to 7 stool specimens.

**\*\*\*This method will no longer be orderable through CPOE, although it will still be available by special request for patients with appropriate travel/exposure history. Please call the laboratory if a complete O&P is needed.**



**References:**

1. Ford, A. CAP today: What Happened When Lab Set Sights on Parasites. [http://www.cap.org/apps/cap.portal?\\_nfpb=true&cntvwrPtl%20actionOverride=%2Fportlet%2FcontentViewer%2Fshow&\\_windowLabel=cntvwrPtl&cntvwrPtl%207BactionForm.contentReference%207D=cap\\_today%2F0313%2F0313e\\_what\\_happened.html&\\_state=maximized&\\_pageLabel=cntvwr](http://www.cap.org/apps/cap.portal?_nfpb=true&cntvwrPtl%20actionOverride=%2Fportlet%2FcontentViewer%2Fshow&_windowLabel=cntvwrPtl&cntvwrPtl%207BactionForm.contentReference%207D=cap_today%2F0313%2F0313e_what_happened.html&_state=maximized&_pageLabel=cntvwr)
2. Mosli, M. et al. Nonutility of routine testing of stool for ova and parasites in a tertiary care Canadian centre. *Can J Microbiol.* 2012; 58(5):653-9.
3. Polage, C et al. Physician use of parasite tests in the United States from 1997 to 2006 and in a Utah *Cryptosporidium* outbreak in 2007. *J Clin Microbiol.* 2011; 49(2):591-6
4. Pritt, B. Mayo Medical Laboratories Hot Topics- Detection of Intestinal Parasites. <http://www.mayomedicallaboratories.com/articles/hottopics/2009-3a-intestinal.html>

**Scientific Information Contact:**

Dr. Tess Karre, Pathologist, Director of Microbiology (402)354-7842  
 Drs. A. Gholami, J. Jones, and R. Kotula – Physicians Clinic Infectious Diseases (402)354-1530  
 Drs. Robert Penn and Lou Safranek – Infectious Disease Associates P.C, NMH. (402)354-8155