10X Essentials: Stool’s Out for Summer!

GML typically experiences increases in foodborne and waterborne infections each summer. Refer to the GML stool testing guide on page 2 for system algorithms devised for testing accuracy and laboratory stewardship.

The STCOM will identify all enteric bacterial pathogens; use this test (STCOM) for your stool cultures from now on. The STCUL option will soon be discontinued in favor of the comprehensive STCOM, as clinical symptoms cannot reliably distinguish Salmonella, Shigella, and Campylobacter spp. from other enteric pathogens. GML laboratories routinely identify all enteric pathogens listed, including a recent case of cholera.

Evidence-based Decision to Restrict Ova and Parasite Exams (OAP): GML encourages that you test OAP only after the following screening criteria are applied: 1) Relevant history*, 2) Soft-liquid stool. 3) Out-patient status or in hospital for < 3 days, 4) Negative bacterial stool culture (STCOM), and 5) Negative Giardia/ Cryptosporidium Antigen Tests (GEIA and CRYIA) on record. See page 3.

New Urine Culture Specimen Collection Guide:
Please refer to the ‘GML Best URINE Practices: Microbiology Specimen Collection Guide” for proper specimen collection for bacterial, AFB, fungal, viral, and parasite testing (page 4).

GML stepped up to the challenge presented by last year’s influenza strain!!!

Due to the highly publicized influenza vaccine miss last winter, our outpatient testing for Flu A/B and RSV (ABRP) rose by 52% compared to the testing performed in the prior year; yet, as a system, we achieved a 33% improvement in mean turn around time (TAT) for outpatients. For inpatients, including Emergency Department, the median TAT ranged between 3 and 4 hours collect to result, approximately a 25% reduction in TAT from 2014 (4-5 hrs median). See page 5.

Reduction in inpatient TAT for sites that began testing instead of transporting by courier to Danville reached nearly 80% reduction in TAT from 2014, freeing up Emergency Room space, and supporting bed management and infection prevention.

If you have any questions, please contact the Doctoral Directors, Donna Wolk, Ph.D., D(ABMM) at 570-271-7467 or Raquel Martinez Ph.D., D(ABMM) at 570-214-6587.

For newsletter questions, contact Christy Attinger at (570) 271-6338.
Stool Testing: Microbiology Specimen Collection Guide

**Potential for hospital-acquired or antibiotic induced diarrhea**

- **YES** Diarrhea < 3 days in hospital
  - **NO** Consider acute community-based GI illness

**Acute onset of diarrhea**

- **NO** Liquid stools
- **YES** Liquid stools

C. difficile/EPI PCR (CDIFP) x1 with no repeat within 5 days

**Sterile container at 2-8°C**

5 mL liquid stool in sterile specimen container. Must be received in laboratory within 2 hours of collection.

**C. difficile/EPI PCR (CDIFP) x1 with no repeat within 5 days**

- **Sterile container at 2-8°C**

**C. difficile/EPI PCR (CDIFP) x1 with no repeat within 5 days**

- **Sterile container at 2-8°C**

### Relevant History

- **NO**
- **YES** Ova & Parasite Study (OAP) x3 separate days

- **Culture, Stool (STCUL/STCOM) x1**
  - Salmonella spp., Shigella spp., Campylobacter spp., Enterohemorrhagic E. coli - (EHEC or Shiga Toxin), Yersinia spp., Aeromonas spp., Plesiomonas spp., Vibrio spp.

- **Giardia Antigen Test (GEIA) x1**
  - Cryptosporidium Immunoassay Test (CRYIA) x1

- **Alpha-Tec Enteric Transport Media (ETM) or Proto Fix-CLR**

- **Alpha-Tec Proto Fix-CLR**

### Routine Stool Cultures, Giardia and Cryptosporidium EIA negative? Other Risk Factors?

<table>
<thead>
<tr>
<th>Risk</th>
<th>Foodborne exposure with negative cultures</th>
<th>Immunocompromised</th>
<th>Viral risk group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnostic Test</strong></td>
<td>Cyclospora and Isospora Exam (CYISO) x 1-3 samples on separate days</td>
<td>Cyclospora and Isospora Exam (CYISO) x 1-3 samples on separate days</td>
<td>Recent group setting: Norovirus PCR</td>
</tr>
<tr>
<td><strong>Collection Device</strong></td>
<td>Para-Pak 10% Buffered Neutral Formalin</td>
<td>Para-Pak 10% Buffered Neutral Formalin</td>
<td>Immunocompromised: various agents, including Adenovirus 40/41 antigen</td>
</tr>
</tbody>
</table>

**Call Geisinger Medical Laboratories Client Services Department:**
1–800–695–6491 with questions.

**GEISINGER MEDICAL LABORATORIES**

**For additional information, refer to GML Test Catalog**
Click on address below to invoke hyperlink, and search on keyword or (test code)


DMW;RMM: revised 11/04/2014

GML stool collection.vsd

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*Please refer to GML Test Catalog for specific collection device information*
On May 1, 2015, OAP will be removed from EPIC Test preference list and replaced with Giardia and Cryptosporidium Antigen testing (GEIA and CRYIA).

Algorithm for Fecal Parasite Testing

1. Is your patient...
   1) an outpatient with >3 stool/24 hr or
   2) inpatient for <3 days with voluminous diarrhea?
   
   - NO: Standard practice: Do not order OAP testing (Ref 1)
   - YES: Have medications, bacterial pathogens and Giardia/Cryptosporidium ruled out (with stool culture Giardia/Cryptosporidium EIA, respectively)?

   2. If NO, order stool culture and/or Giardia and Cryptosporidium EIA (these two parasites account for >99% of all parasites found in the GHS catchment area for 2011-2014).

   3. If YES, consider pinworm smear (PINW) and OAP for D. fragilis if diarrhea persists.

   4. Special considerations:
      For immunocompromised patients or public health foodborne outbreaks, Laboratory Medicine or Infectious Disease Consult is required for Cyclospora, and Isospora and/or microsporidia testing, respectively.

   - Is this a pediatric patient suspected of having pinworms (or proven) or lives in poor sanitary conditions?
     - NO: Does the patient have recent travel history with exposure risk or recently lived in tropical or underdeveloped regions?
       - YES: Consider OAP or E. histolytica antigen if diarrhea persists.
       - NO: Is the patient disabled and living in a group home?
         - YES: Consider OAP or E. histolytica antigen if diarrhea persists.
         - NO: Do NOT order OAP Testing without following these guidelines; Laboratory Doctoral Consult or Infectious Disease Consult is required for OAP testing.

   - Notes:
     1. When symptoms occur within 6 hours of eating, ingestion of proformed toxin of S. aureus or Bacillus cereus should be suspected, diagnostic testing is recommended, unless there are >3 loose stool/24 hrs.
     2. Viruses account for the majority of acute diarrhea cases.
     3. The incidence of hypervirulent C. difficile associated colitis is an emerging problem even in outpatient settings; however, the prevalence of community-acquired strains in the GHS catchment is low.
     4. GHS Stool culture (STCOM) includes detection of nearly all culturable enteric pathogens: Salmonella, Shigella, Campylobacter Antigen, STEC Antigen, Yersinia, Vibrio, Aeromonas and Plesiomonas.
     5. Infection with HIV is also a common cause of diarrhea, as are many common medications.

References
1. Wolk, DM, Martinez, RM. 2011-2014 parasite survey Geisinger Health System
### GML Best URINE Practices: Microbiology Specimen Collection Guide

<table>
<thead>
<tr>
<th>Test Request</th>
<th>SOURCE</th>
<th>TRANSPORT DEVICE</th>
<th>SPECIMEN STABILITY</th>
<th>Parasites:</th>
<th>Viruses:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culture Quantitative Urine:</strong></td>
<td>Clean catch, Catheterized urine, nephrostomy, urostomy, vesicostomy or ileostomy</td>
<td>C&amp;S preservative tube filled to minimum fill line recommended.</td>
<td>C&amp;S preservative tube: 0-48 hrs at room temperature.</td>
<td>Microsporidia®, Schistosoma spp.#, Trichomonas vaginalis</td>
<td>PCR for send out: CMV, BK, and JC</td>
<td>Mycoplasma culture, Ureaplasma culture</td>
</tr>
<tr>
<td><strong>AEROBIC Bacteria, Mycobacteria (AFB), and Fungal</strong></td>
<td>Suprapubic, renal pelvis, ureter or kidney/bladder tap</td>
<td>Anaerobic Transport Media (ATM) is preferred.</td>
<td>Universal Transport Media (UTM). Use 1:1 ration of UTM to urine.</td>
<td>- with long term immunosuppression from transplant&lt;br&gt; - with travel history and activity risks</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>ANAEROBIC</strong>*</td>
<td>Urine</td>
<td>Universal Transport Media (UTM). Use 1:1 ration of UTM to urine.</td>
<td>Sterile specimen container or 15 mL aliquot (2 mL minimum).</td>
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<tr>
<td>*Anaerobic studies are performed only on request.</td>
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**NOTE:** Cleanse area prior to collection to minimize contamination with bacteria that colonize the urethra.

**NOTE:** First void (patient has not urinated for several hours prior to specimen collection) is recommended. First void urine is more concentrated, thus more likely to contain large numbers of microorganism(s). Random urine from children under 7 is acceptable.

**NOTE:** Specimens for viral studies must be received by reference laboratory by 96 hrs of collection.

**NOTE:** The Aptima molecular probe can be utilized for C. trachomatis, N. gonorrhoeae, and Trichomonas vaginalis detection. Urine collection device pictured below.

[Universal Transport Media (UTM): 48 hrs refrigerated 2-8°C.](http://www.geisingermedicalabs.com/10xEssentials/GML_GC_CT_specimen%20collection%20guide.pdf)

[Sterile specimen container: Send immediately to laboratory (room temperature).](http://www.geisingermedicalabs.com/10xEssentials/GML_Tvag_Collection.pdf)

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dmwolk, rmmartinez: 6/22/15
Respiratory OP Samples Tested vs Mean TAT
2014-2015

33% decrease in TAT

in the face of 52% increase in samples tested

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
<td># Samples</td>
<td>681</td>
<td>1322</td>
</tr>
<tr>
<td>Mean TAT</td>
<td>7.6</td>
<td>5.8</td>
</tr>
</tbody>
</table>