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CHANGES IN VIRUS AND CHLAMYDIA TRACHOMATIS CULTURES
Thomas Novicki, PhD, DABMM and Jason Campbell, MT(ASCP), MS - Microbiology Section

Marshfield Labs will no longer provide in-house testing of viral and Chlamydia trachomatis cultures. These cultures will be referred to Mayo Medical Laboratories. The decision to end cell culture work was made due to declining test volumes, the specialized nature and expense of cell culture work, and the increasing use of more rapid and sensitive nucleic acid tests (NATs). Note: Cytomegalovirus (CMV) is included in the new virus culture codes; therefore, CMV will no longer require a separate order.

The following is a partial list of infectious disease NATs that are performed in-house which may be considered in place of virus and C. trachomatis cultures.

<table>
<thead>
<tr>
<th>Test Code</th>
<th>Description*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABNAT</td>
<td>Influenza A&amp;B NAT (PCR)</td>
</tr>
<tr>
<td>ABRNAT</td>
<td>Influenza A&amp;B w/RSV NAT (PCR)</td>
</tr>
<tr>
<td>CH-NAM</td>
<td>Chlamydia Trach Nucleic Acid</td>
</tr>
<tr>
<td>HS12PCR</td>
<td>HSV by PCR</td>
</tr>
<tr>
<td>HSVZVP</td>
<td>HSV and Varicella NAT Panel</td>
</tr>
<tr>
<td>RSVNAT</td>
<td>RSV NAT (PCR)</td>
</tr>
<tr>
<td>VZVPCR</td>
<td>Varicella Zoster by Rapid PCR</td>
</tr>
</tbody>
</table>

*View our online directory at [www.marshfieldlabs.org/reference](http://www.marshfieldlabs.org/reference) for details on the acceptable body sources and specimens, collection information, and transport requirements.

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ORDERING INFORMATION

The new test codes and names are as follows:

<table>
<thead>
<tr>
<th>Test Code</th>
<th>Description</th>
<th>CPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPVSO</td>
<td>Culture, Viral Respiratory</td>
<td>87252, 87253, 87254</td>
</tr>
<tr>
<td>NRESVSO</td>
<td>Culture, Viral Non-Respiratory</td>
<td>87252, 87253, 87254</td>
</tr>
<tr>
<td>CTCXSO</td>
<td>Culture, Chlamydia trachomatis</td>
<td>87110, 87140</td>
</tr>
</tbody>
</table>

SPECIMEN REQUIREMENTS (SPECIMEN SOURCE IS REQUIRED)

Culture, Viral Respiratory

Specimen Type: Bronchoalveolar lavage or sputum
Container: Sterile container/vial
Volume: 1 mL
Transport/Stability: Refrigerated up to 7 days

Specimen Type: Throat/Nasopharyngeal
Container: Swab in viral transport medium (M4RT, M5, M6)
Volume: 1 swab
Transport/Stability: Refrigerated up to 7 days

Specimen Type: Tissue (Lung)
Container: Sterile container with 1-2 mL of sterile saline or viral transport medium (M4RT, M5, M6)
Volume: varies
Transport/Stability: Refrigerated up to 7 days

Culture, Viral Non Respiratory

Specimen Type: Body Fluid
Container: Sterile container/vial
Volume: 1 mL

Specimen Type: Ocular or rectal
Container: Swab in viral transport medium (M4RT, M5, M6)
Volume: 1 Swab

Specimen Type: Spinal fluid
Container: Sterile container/vial
Volume: 1 mL

Specimen Type: Tissue
Container: Sterile container/vial with 1-2 mL of sterile saline or viral transport medium (M4RT, M5, M6)
Volume: Entire collection/specimen
Specimen Type: Urine (mumps only)
Container: Sterile container/vial
Volume: 0.5 mL

Specimen Type: Stool
Container: Sterile container/vial
Volume: 5-10 g

Special Notes:
• Swabs with wood handles have been shown to be toxic to some viruses and are not acceptable for culture.
• Urine is acceptable ONLY for mumps culture.
• For requests for cytomegalovirus on bone marrow or urine specimens, see: LCMV/81240 Cytomegalovirus (CMV), Molecular Detection, PCR.

Culture, Chlamydia trachomatis
Specimen Type: Swab (endocervical, urethral, conjunctival, rectal mucosa, nasopharynx/nasal, throat, vaginal, fresh unfixed tissue, pelvic washing, seminal fluid, peritoneal or ovarian abscess)
Container: Swab in viral transport medium (M4RT, M5, M6)
Volume: 1 Swab
Transport: Freeze immediately, ship frozen

INTERPRETATION
Reference Value: Negative.
If positive, virus identified.

CONTACTS
Interpretive or technical questions: contact Dr. Fritsche or Dr. Novicki at 800-222-5835.

NEW TEST ANNOUNCEMENT:
NUCLEIC ACID TEST FOR THE DETECTION OF SALMONELLA, SHIGELLA, CAMPYLOBACTER, & SHIGA TOXIN-PRODUCING ESCHERICHIA COLI INCLUDING SEROTYPE O157:H7

Thomas Novicki, PhD, DABMM; Mary Ellen Nedd, MT(ASCP); Tara Marti, BS;
Timothy Uphoff, PhD, DABMG, MLS(ASCP)CM - Division of Laboratory Medicine

Effective 01/13/2014, Marshfield Labs will offer the nucleic acid test (NAT) Fecal Bacterial Pathogens, NAT(Test Code SSCSNAT). As with routine fecal culture, this test detects the bacterial enteropathogens Salmonella, Shigella, Campylobacter, and the O157:H7 serotype of Shiga Toxin-producing Escherichia coli (STEC). Importantly, this test also identifies Shiga toxins produced by non-O157 STEC strains not now routinely detected in our laboratory. These non-O157 strains cause approximately 60% of all STEC disease in the US. The NAT has been shown to be more sensitive than culture for detection of these pathogens. Another benefit is a substantial reduction in analytical turnaround time, from five days to twenty-four hours. To provide enhanced service and the fastest results possible, Marshfield Labs will perform NAT testing Monday

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through Saturday. Antimicrobial susceptibility tests (AST) will continue to be available on request. Note: Marshfield Labs will continue to offer conventional feces cultures.

BACKGROUND
Acute bacterial gastroenteritis, often related to contaminated foods, accounts for a significant portion of all infectious diseases, with an estimated 3.6 million cases in the US alone in 2011. While at least 31 bacterial, viral, and parasitic enteropathogens have been identified, only a subset is commonly recovered in clinical labs by routine bacterial fecal culture: *Salmonella enterica* (>2000 serotypes), *Shigella* sp. (*S. boydii*, *S. dysenteriae*, *S. flexneri*, and *S. sonnei*), *Campylobacter* sp. (*S. coli*, *S. jejuni*) and *E. coli* serotype O157:H7. In addition, some clinical laboratories routinely employ a commercially available enzyme immunoassay (EIA) to detect non-O157 serotypes of STEC not identifiable by culture. However, recent data suggest that these EIAs may be only 29% sensitive when compared to molecular methods.

The Fecal Bacterial Pathogens, NAT utilizes an FDA cleared *Salmonella, Shigella, Campylobacter*, Shiga toxin (SSCS) real-time PCR assay kit. Marshfield Labs was part of a multi-center clinical trial comparing the performance of the NAT with routine culture and EIA in the examination of more than 1,100 stool samples. In this trial, culture for *Salmonella* species was shown to be only 67% as sensitive as the SSCS method. Conventional culture and EIA for other pathogens were inferior to the SSCS method as well (71% for *Shigella* sp., 77% for *Campylobacter* sp., and 53% for STEC). In the trial, the prevalence of these four pathogens was 5.64% using culture and EIA methods, but this prevalence increased by 32% to 8.33% when the SSCS method was employed. Discordant findings between conventional culture/EIA and NAT methods were resolved using DNA sequence analysis of independent targets.

ANTIMICROBIAL SUSCEPTIBILITY TESTS
A potential drawback to the use of NATs in the microbiology lab is that no culture isolate is immediately available for AST. Given the poor sensitivity of conventional culture in comparison with NAT, an isolate of the disease causing microorganism may not be recoverable. Since AST is not routinely performed on fecal isolates, this should not pose a significant limitation. Note that AST will continue to be available on request for NAT-positive fecal specimens, if the enteropathogen can be isolated in culture.

ORDERING INFORMATION
- **Test Name**: Fecal Bacterial Pathogens, NAT, Stool
- **Test Code**: SSCSNAT
- **Synonyms/Keywords**: *Salmonella, Shigella, Campylobacter, Escherichia coli* O157:H7, STEC, EHEC, Shiga Toxin, Stool, Feces, Nucleic Acid Test
- **CPT Code**: 87798 x 5

SPECIMEN REQUIREMENTS
- Raw stool should be placed in Cary Blair or C&S Transport Medium within 2 hours of collection. Remove cap and place approximately 1 gram of the raw stool into the transport medium or a sufficient amount to bring the liquid level up to the “fill to here” line. Replace cap and tighten. Agitate the vial to permit adequate mixing of the specimen with the transport medium. Send refrigerated.
- **Minimum**: 1 gram raw stool.
- **Storage**: Refrigeration.
REJECTION CRITERIA
The following are not acceptable:
- Rectal swabs.
- Feces at room temperature equal to or greater than 12 hours old.
- Feces refrigerated equal to or greater than 24 hours old.
- ParaPak C&S filled to fill line, equal to or greater than 120 hours old.
- Feces in ParaPak Enteric Plus transport media

AVAILABILITY
Test is set up Monday through Saturday; analytic time of 1 day.

QUALITATIVE INTERPRETATION
Positive or Negative.

CONTACTS
For clinical consultation, contact Dr. Thomas Novicki or Dr. Thomas Fritsche.
For technical information, contact Dr. Timothy Uphoff.
They can be reached at 800-222-5835.

REFERENCES
2. CDC. Recommendations for diagnosis of Shiga Toxin-producing Escherichia coli infections by clinical laboratories. MMWR 2009 58:RR-12.

ALBUMIN ASSAY CHANGES
Annu Khajuria, PhD, Section Head, Chemistry 24 Hour Services

Effective December 2, 2013, the current method used for the Albumin assay performed at the Marshfield Center was replaced by a bromocresol green method.

Adult reference intervals were changed from 3.3-5.0 g/dL to 3.5 -5.0 g/dL.
There will be no changes for pediatric (0-12 months) reference intervals, which will remain 2.4 -4.6 g/dL.

For queries and additional information please call 800-222-5835 and ask for:
Annu Khajuria, Section Head, Chemistry 24 Hour Services
or
Bryan Robeson, Technical Manager, Chemistry 24 Hour Services.

**NEW TEST CODE FOR CA 19-9, BODY FLUID**

Annu Khajuria, PhD, Section Head, Chemistry 24 Hour Services

Effective December 16, 2013, a new test code for CA 19-9 Body Fluid was introduced for ordering CA 19-9 on pancreatic cyst fluids as well as other body fluids.

**Test Name:** CA 19-9, Body Fluid

**Test Code:** CA19-9O

CA 19-9 is used as an adjuvant to cytology and imaging studies to differentiate between nonmalignant and malignant causes.

For queries and additional information please call 800-222-5835 and ask for:
Annu Khajuria, Section Head, Chemistry 24 Hour Services
or
Bryan Robeson, Technical Manager, Chemistry 24 Hour Services.