Memorandum - Immunology #21

To: UNC Health Attending Physicians, Faculty Practice Physicians, Housestaff, Clinical Nurse Coordinators, Department Heads and Supervisors

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Subject: Tick-borne Infection Testing

Effective March 21,2024 McLendon Clinical Laboratories will offer a new Tick-Borne Illness Panel (see the table) as the preferred laboratory test for tick-borne infections in North Carolina. The panel order includes tests for IgG antibody to *Ehrlichia chaffeensis*, IgG antibody to Spotted Fever Group Rickettsia and total antibody (IgG and IgM) to *Borrelia burgdorferi*. Additionally, the panel will include a blood PCR test for *E. chaffeensis* that is the preferred test during the acute phase of illness (<7 days from symptom onset). These tests will use current methodology in the Clinical Immunology and Molecular Microbiology laboratories. This panel is offered in response to evolving epidemiology of tick-borne infections and to promote appropriate testing (see Brown-Marusiak. 2022. JAMA Netw Open). The panel is the preferred order for patients with suspected tick-borne infection although each test can be ordered individually.

An additional change to *E. chaffeensis* and Spotted Fever Group Rickettsia IgG tests has been made. Currently, samples are tested at a 1:64 dilution and titered to endpoint if positive. As of March 21, 2024 acute samples will be tested for IgG antibody at a 1:128 dilution and reported as positive (>1:128) or negative (<1:128). Acute samples will not have an endpoint titer determined unless a convalescent sample (collected 2 to 3 weeks after the acute sample) is received. Upon receipt of a convalescent sample both the acute and convalescent samples will be titered to endpoint in order to assess seroconversion or the presence of a four-fold increase in titer which indicate recent infection.

Tick-Borne Illness Panel components

		Tests Performed		
Test*	**Method**	**Acute sample^**	**Convalescent Sample#**	**Comments**
E. chaffeensis PCR	Whole Blood NAAT	Yes	No	Performed only in first week after symptom onset
Lyme disease Serology	Serum CLIA	Yes	Yes (only if Acute is negative)	Positive samples reflexed to confirmatory Western blot
Spotted Fever Group Rickettsia IgG	Serum IFA	Yes	Yes (includes titer of acute and convalescent sera)	Acute sample screened at 1:128 only. Acute and convalescent samples titered to endpoint only if convalescent sample received
Ehrlichia Antibody (IgG)	Serum IFA	Yes	Yes (includes titer of acute and convalescent sera)	Acute sample screened at 1:128 only. Acute and convalescent samples titered to endpoint only if convalescent sample received

*Additional test information is available on the McLendon Clinical Laboratories test menu through the hyperlinks above.
NAAT = nucleic acid amplification test; CLIA = chemiluminescent immunoassay;
IFA = indirect fluorescent antibody test
^sample must be collected <7 days from symptom onset
#sample must be obtained 2-3 weeks after acute sample

The Tickborne Illness Panel can be ordered by searching Tick or Tickborne (panel code O1239000003). Ordering staff will need to select **Acute** or **Convalescent** panel type. For Acute panels, all four tests will be automatically checked. Testing that is not warranted can be unchecked. Convalescent panels will not auto-populate testing. For Convalescent panels, tests will need to be checked accordingly.

For questions about antibody testing please contact the Clinical Immunology Laboratory (984-974-1815). For questions regarding Ehrlichia NAAT testing please contact the Molecular Microbiology Laboratory (984-974-1820).