Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology

1. **Blood cultures**
   - **If surgical excision of valve performed**
     - **PATHC / Pathology Consultation**

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Directed testing based on histopathology findings

- **Acute inflammation**
  - **BRBPS / Broad Range Bacterial PCR and Sequencing**

- **Chronic inflammation with macrophage predominance**
  - **PAS-D histopathology stain**

- **No evidence of inflammation or microorganisms**
  - **Consider noninfectious etiologies**
    - **BRBPS / Broad Range Bacterial PCR and Sequencing**

1. Per American Heart Association, European Society of Cardiology, and British Society for Antimicrobial Chemotherapy guidelines, 2 (or more) blood cultures should be positive for a typical microorganism consistent with infective endocarditis (ie, viridans group streptococci, *Streptococcus gallolyticus*, HACEK group bacteria, *Staphylococcus aureus*, community-acquired *Enterococcus* species in the absence of a primary focus) to define a positive result.

2. *C burnetii* anti-phase I IgG antibody titer ≥1:800 is considered indicative of *C burnetii* endocarditis.

3. The sensitivity of *T whipplei* PCR from blood in endocarditis is unknown; a negative result should not be used to rule out *T whipplei* endocarditis.

4. Histologic examination is used to evaluate for infectious and noninfectious etiologies and correlate with microbiology test results.

5. If surgery is not performed, consider testing for noninfectious etiologies.

6. Ideally, a representative sample of valvular tissue should be collected specifically for molecular testing in the operating room in a sterile fashion.

7. If sufficient valvular tissue is available after sampling for histopathological and molecular (microorganism-specific and broad range) testing, consider culture and Gram stain. Due to the low sensitivity and specificity of culture, molecular testing should be prioritized over culture.

8. **PAS-D**, periodic acid Schiff with diastase. Macrophages infected with *T whipplei* will stain PAS positive following diastase digestion. Specialty stains are ordered as appropriate by the reviewing pathologist.