Clinical Impact of the BIOFIRE® Joint Infection (JI) Panel

39 TARGETS
~1 hr
What’s the Problem?

Joint infections cause a tremendous burden for patients and society.¹,²

Septic arthritis is a medical emergency requiring prompt diagnosis and treatment. Delayed diagnosis is associated with permanent disability and increased mortality, which can be as high as 15%.³

Prosthetic joint infections (PJIs) are costly to treat and on the rise.⁴ The cost to treat a PJI is 3 to 6 times more expensive than the initial arthroplasty.⁴ When missed or undertreated, PJIs can lead to unnecessary surgical revisions causing poor function or disability, considerably impacting quality of life.⁵

Diagnosis of Joint Infections is Complicated

• Joint infection diagnostics lack standardization of specimen type and preparation, test media, and methods.⁴

• Culture negative PJIs occur in up to 35% of infections.⁶

• Joint infections are associated with difficult fastidious organisms, anaerobes, biofilm-forming organisms, and polymicrobial specimens.⁴

• Complex society-developed diagnostic criteria vary considerably in diagnostic agreement.⁶
The Right Test, The First Time
BIOFIRE’s syndromic approach combines several potential targets into one rapid test, helping clinicians identify pathogens that produce non-specific symptoms like red, hot, swollen joint(s) in a clinically actionable timeframe.

Faster Than Traditional Methods
Traditional methods require multiple tests and can take up to two weeks to provide a pathogen identification result. The BIOFIRE® Joint Infection (JI) Panel identifies target pathogens in about an hour using a single test.

Syndromic Testing
- 0.2 mL synovial fluid
- One comprehensive test
- Takes about an hour for results
- Multiple results in one report
- May improve patient management

Improved Diagnostic Yield
In prospective clinical trials, the BIOFIRE JI Panel detected an additional 76 confirmed organisms missed by routine culture. The BIOFIRE JI Panel detects fastidious organisms and difficult-to-grow anaerobes.\(^7\)

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Polymicrobial Detections

The BIOFIRE JI Panel prospective clinical trial demonstrated polymicrobial detections. Of the 242 positive specimens detected by the BIOFIRE JI Panel, 16 involved co-detections.\textsuperscript{7}

Demonstrated polymicrobial detections

Pathogen Guided Patient Management

Pathogen identification is a central component of septic arthritis and PJI treatment guidelines. The BIOFIRE JI Panel may aid in appropriate surgical decision making and reduce time to effective therapy through rapid pathogen identification.\textsuperscript{8-11}
BIOFIRE® Joint Infection Panel Targets

**GRAM-POSITIVE BACTERIA**
- Anaerococcus prevotii/vaginalis
- Clostridium perfringens
- Cutibacterium avidum/granulosum
- Enterococcus faecalis
- Enterococcus faecium
- Finegoldia magna
- Parvimonas micra
- Peptoniphilus
- Peptostreptococcus anaerobius
- Staphylococcus aureus
- Staphylococcus lugdunensis
- Streptococcus spp.
- Streptococcus agalactiae
- Streptococcus pneumoniae
- Streptococcus pyogenes

**GRAM-NEGATIVE BACTERIA**
- Bacteroides fragilis
- Citrobacter
- Enterobacter cloacae complex
- Escherichia coli
- Haemophilus influenzae
- Kingella kingae
- Klebsiella pneumoniae group
- Morganella morganii
- Neisseria gonorrhoeae
- Proteus spp.
- Pseudomonas aeruginosa
- Salmonella spp.
- Serratia marcescens

**YEAST**
- Candida spp.
- Candida albicans

**ANTIMICROBIAL RESISTANCE GENES**
- Carbapenemases
  - IMP
  - KPC
  - NDM
  - OXA-48-like
  - VIM
- ESBL
  - CTX-M

**Methicillin Resistance**
- mecA/C and MREJ

**Vancomycin Resistance**
- vanA/B

**Sample Requirements**
- 0.2mL of synovial fluid

**Overall Performance**
- 91.7% Sensitivity
- 99.8% Specificity

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**FDA-cleared**
References

    Epub 2018 Feb 26. 4.e2.
    Detection of Microorganisms and Antimicrobial Resistance Genes in Synovial Fluid
    Specimens. IDWeek 2020; Virtual.
    doi:10.1016/j.arth.2018.02.07
12. Overall performance based on prospective clinical study for the BIOFIRE® Joint
    Infection Panel, data on file, BIOFIRE Diagnostics.

Product availability varies by country. Consult your bioMérieux representative.