



Clinical Impact of the BIOFIRE[®] FILMARRAY[®] Meningitis/ Encephalitis (ME) Panel

14

TARGETS

~1hr

BIOFIRE® Syndromic Testing

The right test, the first time

Distinguishing viral from bacterial meningitis based on clinical presentation is challenging. Patients often present with similar, flu-like symptoms.^{1,2,3} The right treatment depends on quick identification of the pathogen as bacterial, viral, or yeast.

Traditional testing methods

Traditional methods of pathogen identification can be time consuming and lack sensitivity.⁴



Multiple samples



Multiple tests ordered



Results take hours to days



Individual results in separate reports



May have longer patient length of stay

Fast. Easy. Comprehensive.

Syndromic testing provides a streamlined workflow and fast, comprehensive results.



0.2mL of Cerebrospinal Fluid (CSF)



2 minutes hands-on time



Results in about an hour



Comprehensive results in a single report



Fast results lead to reduced length of stay and improved therapy decisions.⁸

Who Should Get Tested

Meningitis and encephalitis can occur suddenly even in healthy people. Populations at higher risk include:⁵



Infants and children



College students



Travelers



Military personnel



Immuno-compromised

Superior Clinical and Economic Outcomes

Increase diagnostic yield



2.9x Overall increase
for adult patients⁶

2.3x Overall increase
for pediatric patients⁷

Shorten Time to Diagnosis

The use of the BIOFIRE® FILMARRAY® Meningitis/Encephalitis Panel in patients with suspicion of meningitis and/or encephalitis was associated with an earlier diagnosis of 3.3 days in patients with microbiological documentation compared with routine tests.⁸

Time to diagnosis—
adult patients⁸



**3.3-day
reduction**

Time to diagnosis—
pediatric patients⁹



**4-day
reduction***

*From time of initial presentation to Emergency Department

Improve Patient Management

Length of stay—
adult patients¹⁰



**2.2-day
reduction**

Length of stay—
pediatric patients¹¹



**3-day
reduction**

Aid Antimicrobial Stewardship



Both acyclovir and antibiotic duration—adult patients¹⁰



2-day reduction¹⁰

Both acyclovir and antibiotic duration—pediatric patients¹²

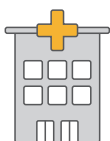


3X less likely to receive empiric acyclovir¹²

“Implementing the BIOFIRE ME Panel can assist healthcare centers with diagnostic TAT reduction, promotion of antimicrobial stewardship and controlling healthcare costs.”

Matthew A. Moffa, DO - Infectious Disease physician

Reduce Hospitalization Rate



32%

Reduction in Hospitalization Rate¹³

BIOFIRE ME Panel Potential Economic Outcomes

Author Country	Patient Population	Driver	Economic Impact
Cailleaux ⁸ France	Adult/Ped	Reduced LOS	€ 201/case savings; including capital purchase and reagents
Duff ¹⁴ USA	Peds	Economic model	USD 3,481/case saved by testing all USD 2,157/case saved by testing only pleocytosis
Duff ¹⁵ USA	Adults	Economic model	USD 2,213/case saved by testing all USD 812/case saved by testing only pleocytosis
O'Brien ⁹ Australia	Peds	Reduced LOS	AUS 1,168/case savings
DiDiodato ¹⁶ Canada	Adults	Reduced LOS	CAN 2,319/case savings
Mostyn ¹⁷ Ireland	Peds	Reduced LOS	€ 1,213/case savings

*Economic impacts reported are estimates and should not be considered a guarantee. The potential economic impact of a diagnostic test is subject to a variety of factors specific to different care settings and patient populations.

Guidelines

- Tunkel, AR, Glaser CA, Block KC, *et al.* The management of encephalitis: clinical practice guidelines by the Infectious Diseases Society of America. *Clin Infect Dis.* 2008;47(3):303-327.
- Tunkel AR, Hartman BJ, Kaplan SL, *et al.* Practice guidelines for the management of bacterial meningitis. *Cin Infect Dis.* 2004;39(9):1267-1284.
- van de Beek D, Cabellos C, Dzunpova O, *et al.* ESCMID guideline: diagnosis and treatment of acute bacterial meningitis. *Clin Microbiol Infect.* 2016;22Suppl 3:S37-62.
- Boyles, T.H.; Bamford, C.; Bateman, K.; *et al.* Guidelines for the management of acute meningitis in children and adults in South Africa. *Journal of Epidemiology and Infection* 2013; 28(1):5-15.
- Solomon T, Michael BD, Smith PE, *et al.* Management of suspected viral encephalitis in adults—Association of British Neurologists and British Infection Association National Guidelines. *J Infect.* 2012;64(4):347-373.

References

1. <http://www.comomeningitis.org/facts-about-meningitis> Accessed August 21, 2022
2. NINDS. Meningitis and Encephalitis Fact Sheet. <http://www.ninds.nih.gov> Accessed August 21, 2022.
3. Bamberger DM, *Am Fam Physician* 2010. 82:1491-1498.
4. Cybulski RJ, *et al.* *Clin Infect Dis.* 2018;67(11):1688-96.
5. CDC. Bacterial Meningitis. <http://www.cdc.gov/meningitis/bacterial.html> Accessed August 21, 2022.
6. Ena J, *et al.* *Intern Emerg Med* 2021;16(5):1289-1295.
7. Posnakoglou L, *et al.* *Eur J Clin Microbiol Infect Dis* 2020;39(12):2379-2386.
8. Cailleaux M, *et al.* *Eur J Clin Microbiol* 2020;39(2):293-297.
9. O'Brien MP, *et al.* *Pediatr Infect Dis J.* 2018;37(9):868-871.
10. Moffa MA, *et al.* *Antibiotics* 2020;9(6):282.
11. Posnakoglou L, *et al.* *Eur J Clin Microbiol Infect Dis.* 2020;39(12):2379-2386.
12. Messacar K, *et al.* *Diagn Microbiol Infect Dis* 2020 May 17; 97 (4) 115085.
13. Péan de Ponfily G, *et al.* *J Infect* 2021; 83(6): 650-655.
14. Duff S, *et al.* *Future Microbio.* 2018;13:617-629.
15. Duff S, *et al.* *Infection.* 2019;47(6):945-953.
16. Diodato G., *et al.* *Open Forum Infect Dis.* 2019; Mar 5;6(4)ofz119.
17. Mostyn A, *et al.* *Infect Prev Pract.* 2020 Feb 11; 2(2):100042.
18. Overall performance is the aggregate of the prospective, archived, and seeded data from the clinical studies for the BIOFIRE® FILMARRAY® Meningitis/Encephalitis Panel. Data on file, BioFire Diagnostics.

Performance

94.2% sensitivity and 99.8% specificity¹⁸

Panel Specifications

Sample Type: cerebrospinal fluid (CSF)*

Sample Volume: 0.2 mL

*Do not centrifuge sample.



BIOFIRE® FILMARRAY® MENINGITIS/ENCEPHALITIS (ME) PANEL

1 Test. 14 Targets. ~1 Hour.

BACTERIA

Escherichia coli K1
Haemophilus influenzae
Listeria monocytogenes
Neisseria meningitidis
Streptococcus agalactiae
Streptococcus pneumoniae

VIRUSES

Cytomegalovirus (CMV)
Enterovirus (EV)
Herpes simplex virus 1 (HSV-1)
Herpes simplex virus 2 (HSV-2)
Human herpesvirus 6 (HHV-6)
Human parechovirus (HPeV)
Varicella zoster virus (VZV)

YEAST

Cryptococcus (*C. neoformans*/
C. gattii)

US FDA-cleared | CE₂₇₉₇

In the US for Nationally Notifiable Conditions please see <https://ndc.services.cdc.gov>.
Refer to your state health lab for requirements pertaining to state-reportable pathogens.

Product availability varies by country. Consult your bioMérieux representative.

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Learn more about the BIOFIRE range of
commercially-available panels for syndromic
infectious disease diagnostics.

