

**Methods.** A retrospective multicenter study involving 10 Houston area hospitals from 2008 to 2016. Data was gathered from 120 adults with culture proven community-acquired bacterial meningitis. An adverse clinical outcome was defined as a Glasgow outcome score of 1–4.

**Results.** There was a total of 120 patients enrolled; of which, 55% were male. Adjunctive intravenous steroids were administered in 82 (68%) patients with bacterial meningitis. The steroid median duration was 3.8 days. The average age of patients was 55.3 years (range 20–92). There was no difference in Charlson comorbidity score, immunosuppression, presence of sinusitis or otitis, fever, meningial signs or symptoms, abnormal neurological findings, Gram stain or severity of illness, based on Aronin score ( $P > 0.05$ ), between patients who received steroids and those that did not. Older patients, age  $>65$ , were less likely to receive adjunctive steroids ( $P = 0.028$ ). The most common organism isolated was *Streptococcus pneumoniae*, which occurred in 46 (38%) patients. An adverse clinical outcome was seen in 46 (38%) patients with no difference between groups ( $P = 0.819$ ). Delayed cerebral thrombosis was seen in a total of 9 (7.5%) patients with bacterial meningitis. Of these, 1 patient (2.6%) did not receive steroids and the remaining 8 (10.9%) patients received steroids ( $P = 0.158$ ). Five cases of meningitis that were complicated by DCT were caused by *Streptococcus pneumoniae*, 1 by *Listeria monocytogenes*, and 2 with *Staphylococcus aureus*.

**Conclusion.** Adjunctive steroids are being used in the majority of adults with bacterial meningitis but it is possibly associated with DCT, a devastating complication

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## 127. Retrospective Evaluation of Infants 1–60 Days Evaluated for Meningitis Using the FilmArray Meningitis/Encephalitis (ME) Panel

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**Background.** Bacterial meningitis is a serious infection in infants requiring emergent recognition. Viral encephalitides (excluding HSV) are usually self-limited and care is supportive. Young infants often undergo lumbar puncture to evaluate for infection, but identification of CNS pathogens can take 24–48 hours while they are hospitalized and empirically treated. Our objective was to study the potential effect of a rapid multiplex PCR for meningitis/encephalitis (ME) on the care of young infants.

**Methods.** A prospective clinical evaluation of the FilmArray ME Panel was conducted from 2/2014 to 9/2014 at 11 sites using residual CSF. FilmArray ME Panel results were compared with clinical reference standards but not shared with providers. In this current study, medical records for infants (1–60 days) enrolled at three sites were reviewed for potential management changes with rapid FilmArray ME Panel results.

**Results.** A total of 145 infants were reviewed. Median age was 25 days. Most were admitted to the hospital [132/145 (91%)], received antibiotics [123/145 (85%)], and almost half [71/145 (49%)] received acyclovir. Only one infant had a bacterial pathogen identified by PCR, and no infant had CSF positive for HSV. Of the 145 infants (25%) 36 had a viral pathogen detected; 35 (97%) by FilmArray ME Panel and 23 (64%) by conventional tests (2 by blood PCR only). Four (11%) had a concomitant bacterial infection [UTI (3); bacterial meningitis (1; diagnosed on a prior LP)]. Twenty infants (56%) had enterovirus detected and 10 (28%) were positive for human parechovirus. Four infants were positive for HHV-6. 33 infants (92%) with a virus detected from CSF were admitted to the hospital; median duration of hospital stay was 44 hours [IQR: 34–69]. Infants who were virus-positive by conventional testing (results known to the physician) had a median length of hospital stay of 44 hours [IQR: 32–48] while median length of stay was 72 hours [IQR: 41–109] for those that were virus-positive only retrospectively by FilmArray ME Panel.

**Conclusion.** The FilmArray ME Panel may play a role in the evaluation of young infants undergoing lumbar puncture to evaluate for infection. Results of rapid PCR may be used to guide management, possibly resulting in decreased LOS for infants with viruses other than HSV detected in CSF.

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## 128. A Single-center, Quasi-experimental Study to Evaluate the Impact of a Multiplex Polymerase Chain Reaction System Combined with Antimicrobial

## Stewardship Intervention on Time to Targeted Therapy in Patients with Suspected Central Nervous System Infection

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**Background.** Empiric treatment for central nervous system (CNS) infections consists of coverage with multiple antimicrobial agents that may be continued until a pathogen can be identified. Identification may take significant time to result, leading to extended durations of multiple antimicrobial agents, delays in targeted therapy and subsequent adverse effects, such as nephrotoxicity and *Clostridium difficile* infection. A multiplex polymerase chain reaction (PCR) system that can identify 14 pathogens responsible for community-acquired CNS infections in 1 hour was recently FDA-approved for cerebrospinal fluid (CSF) analysis. The objective of this study was to determine the effect of this PCR paired with antimicrobial stewardship (AMS) team intervention on the time to targeted therapy.

**Methods.** During the intervention (Int) phase (January 25, 2017–April 30, 2017), all PCR results were called to the AMS team, who reviewed clinical data and provided antimicrobial recommendations per pre-determined protocol. Recommendations consisted of de-escalation or addition of therapy. The pre-intervention (PI) group consisted of patients with CSF culture obtained between January 25, 2016 and April 30, 2016.

**Results.** A total of 138 patients were evaluated; 46 in the Int group and 92 in the PI. Of the 46 patients in the Int group, 25 had a negative PCR result and were never initiated on antimicrobials. One patient required antimicrobial escalation. Twenty patients were started on empiric therapy and were candidates for de-escalation. In the PI group, there were no patients with CSF cultures that required therapy escalation, while 33 patients were initiated on empiric antimicrobials. Results from the subgroup of patients in whom empiric therapy was started as shown in Table 1.

**Conclusion.** Implementation of a multiplex PCR with AMS intervention resulted in decreased time to targeted therapy.

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Table 1.

	Preintervention (n = 33)	Intervention (n = 21)	P-value
Time to targeted therapy, hours, mean ± SD	30.8 ± 38.2	15.4 ± 13.9	0.06
Average antimicrobial days of therapy per patient-days admitted	1.64 ± 1.6	0.52 ± 0.0	< 0.05
Time to organism identification, hours, mean ± SD	119.6 ± 25.0	3.9 ± 1.3	< 0.05

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## 129. How Do Advanced Molecular Tests Compare to Routine Clinical Laboratory Evaluation of CSF in Meningoencephalitis? A Study in 10 Urban Emergency Departments Across the USA

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**Background.** The EMERGENCY ID Net Study Group is investigating whether advanced molecular tests (AMT) increase the detection of causative agents in the CSF of patients presenting with meningoencephalitis (ME). We report findings from a pilot study using AMT on 18 CSF samples from 10 US Urban Emergency Departments. The purpose of the pilot was to compare the performance of these four AMT to established clinical laboratory methods.

**Methods.** We investigated four AMT: (1) BioFire FilmArray ME Panel targeting 14 causative agents; (2) an in-house target-directed next generation sequencing assay targeting 25 agents; (3) a microarray capable of detecting  $>2,500$  agents; and (4) deep metagenomic next generation sequencing. For targeted sequencing, loci from 12 DNA-based and 13 RNA-based pathogens were amplified from the extracts