copies/mL. The results of the prospective study showed 6/102 (5.8%) patients had HAdV viremia, including 4 (3.9%) patients with a viral load ≥4 $\log_{10}$/mL, which might necessitate therapy.

Conclusion. The HAdV quantitative assay using the Luminex ARIES® system provides excellent performance for routine testing with the additional advantage of random access capabilities for urgent testing to identify patients at risk for disseminated disease.

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1774. Impact of a Multiplex Polymerase Chain Reaction Assay on the Clinical Management of Adults Undergoing a Lumbar Puncture for Suspected Community-Onset Central Nervous System Infections

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Background. Patients admitted from the community with a suspected central nervous system (CNS) infection require prompt antimicrobial treatment and diagnostic evaluation. Our health network recently implemented a multiplex polymerase chain reaction (PCR) assay in-house.

Methods. This was a pre-/post-intervention study evaluating the impact that a multiplex PCR assay had on the clinical management of patients ≥18 years of age admitted from the community with a lumbar puncture (LP) performed for a suspected CNS infection. The primary outcome was Herpes Simplex Virus (HSV) PCR turnaround time (TAT). Secondary outcomes included inpatient length of stay (LOS), total antimicrobial days of therapy (DOT), and antiviral DOT. Patients were excluded if an LP was performed after hospital day 3, if they were on a systemic antimicrobial for a non-CNS indication, if they were a neurosurgical patient, and if they had a fungal CNS infection.

Results. The pre- and post-intervention groups each had 57 patients. The average age was 51 and 52 years in the pre- and post-intervention groups, respectively. Four patients (7%) in the pre-intervention group were immunocompromised, compared with 9 (16%) in the post-intervention group. Four patients in the pre-intervention group had a positive PCR assay for either HSV or Varicella Zoster Virus (VZV), compared with 5 patients in the post-intervention group. Neither group had a positive cerebrospinal fluid culture, bacterial antigen assay, or bacterial PCR assay. The median (IQR) HSV PCR TAT was significantly longer in the pre-intervention group, 85 (78, 96) vs. 3.9 hours (2.9, 4.7), $P < 0.001$. The mean LOS was numerically greater in the pre-intervention arm (7 vs. 4.7 days, $P = 0.069$), as were the total antimicrobial DOT (9 vs. 7.4 days, $P = 0.279$) and antiviral DOT (3.9 vs. 2.7 days, $P = 0.136$). Pre-intervention antiviral DOT was significantly greater (3.1 vs. 1.6 days, $P = 0.011$) in patients without a positive HSV or VZV PCR.

Conclusion. Implementing a multiplex PCR assay for adults undergoing an LP for a suspected CNS infection significantly reduced the HSV PCR turnaround time. Antiviral DOT was significantly shorter in patients with a negative PCR result post-intervention. We also found a non-significant reduction in LOS, total antimicrobial DOT, and antiviral DOT.

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1775. A Community-wide Study to Evaluate the Accuracy of Self-testing for Influenza: Works in Progress

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Background. Seasonal influenza (flu) occurs annually, causing disease with substantial morbidity and mortality. Currently, flu is suspected from clinical features, but requires a laboratory test to confirm infection. No influenza tests in the United States are approved for use outside of clinical settings. We aimed to determine the accuracy of influenza self-testing using an at-home, app-guided, lateral flow assay compared with a molecular reference standard conducted at a laboratory among adults self-reporting influenza-like illness (ILI).

Methods. This is an observational study of individuals with self-reported ILI throughout the continental 48 United States recruited from the Flu Near You platform, online marketing, and clinics in the Seattle area. Recruitment took place from March 4 to April 26, 2019. Participants were directed to an iPhone App that determined eligibility, consent, and responses to symptom questions and risk factors. Individuals were mailed a commercially available CLIA-waived influenza lateral flow test to conduct at home, guided by the app, and returned the used test along with a second nasal swab collected in viral transport media to the research team. Influenza testing was performed by RT–PCR on the second nasal swab, as well as the residual fluid from the RDT. Accuracy of home test result (read by the participant), as well as image capture of the lateral flow test strip, were compared with the lab-based reference standard.

Results. To date, 1127 at-home flu tests were mailed to participants and 711 (63.1%) samples returned to the lab. There were 17 flu-positive results from the rapid diagnostic test for a flu positivity rate of 2.4%. Testing using the reference standard is currently in progress. We will share diagnostic accuracy results once testing of the reference standard is completed. Of the kits returned, 353 (49.7%)had an error recorded, which included errors in return packaging, reference standard, rapid test tube sample, or rapid test strip errors.

Conclusion. Overall, findings from this study will determine the accuracy of an at-home rapid diagnostic test, and inform more widely research design for evaluating smartphone-enhanced home tests for pathogens. Many samples returned to the lab had a recorded error, suggesting at-home testing requires additional feasibility testing and refinement of the current methods used.

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1776. Step-Wise Algorithm for the Detection of Respiratory Viruses: Integrating a Rapid Influenza A/B and RSV PCR with a Multiplex Respiratory Virus Panel to Target High-Risk Patient Populations

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Background. In clinical settings, multiplex molecular panels are becoming increasingly common for the detection of respiratory pathogens. Little evidence is available to guide appropriate use of respiratory multiplex panels, particularly with respect to the patient populations most likely to benefit from such testing.

Methods. During the 2018–2019 influenza season, all patients with a nasopharyngeal swab submitted for respiratory virus detection were initially tested on a commercial rapid PCR platform for influenza A/B and respiratory syncytial virus (RSV) (Cepheid GeneXpert, Sunnyvale, CA). Patients with negative swabs were reviewed by a laboratory physician based on pre-defined criteria (Table 1) for additional testing by a laboratory-developed multiplex assay for parainfluenza 1/2/3, adenovirus, and human metapneumovirus (hMPV).

Results. In total, 1144 nasopharyngeal swabs were tested. 287 (25.1%) were positive on the GeneXpert: influenza A (234, 81.5%), influenza B (13, 4.5%), and RSV (40, 13.9%). Of the patients who tested negative, 234 (27.3%) met criteria for further respiratory virus testing. The most commonly detected viral pathogens on the multiplex assay were hMPV (20/30, 66.7%), parainfluenza 3 (7/30, 23.3%) and adenovirus (3/30, 10%). The yield of the multiplex assay was highest for patients selected for antimicrobial stewardship (AS) criteria (13/56, 23.2%), followed by transplant (2/16, 12.5%), HIV (7/64, 10.9%), cystic fibrosis (2/19, 10.5%), critical care (6/68, 8.8%), and other/upon physician request (0/11, 0%). Of the patients who received multiplex testing for AS criteria and tested positive for a viral pathogen, only 3/13 (23.1%) had antibiotics discontinued by the medical team within 48 hours of the report.

Conclusion. Additional testing for respiratory viral pathogens had low overall diagnostic yield, and further refinement of the algorithm is needed to better target utilization of respiratory virus testing. The patient population with the highest yield (those who met AS criteria) failed to demonstrate consistent timely discontinuation of unnecessary antibiotics by the medical team. Implementation of respiratory multiplex panels would be strengthened by collaboration with AS teams.

Clinical Criteria for Additional Testing on a Multiplex Respiratory Virus Panel:

- Admitted to ICU
- Transplant patient (solid organ transplant and hematopoietic stem cell transplant)
- HIV positive
- Diagnosis of cystic fibrosis
- Meets antimicrobial stewardship criteria
  - Negative bacterial cultures on current admission,
  - Absence of new lobar consolidation or pneumonia as reported by radiologist on chest imaging (either chest x-ray or CT scan), AND
  - Started on antibiotics for possible community-acquired pneumonia

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1777. Metagenomic Approach for the Detection of Viruses in Stool Samples from Infants and Children with Acute Gastroenteritis in Kuwait

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Background. Metagenomics techniques are target-independent tools that enable the identification of uncommon disease etiologies and genomic characterization of all microorganisms present in a sample in less time and at a lower cost than previous sequencing techniques. In this study, we developed a metagenomic approach using next-generation sequencing technology to identify known and unknown viruses in stool samples from infants and children with acute gastroenteritis in Kuwait.

Methods. We have investigated 84 stool samples from infants and children aged one month to 10 years old with signs and symptoms of gastroenteritis who attended Mubarak Al-Kabeer and Al-Amiri hospitals in Kuwait from January to December 2017 using both multiplex real-time PCR and metagenomics sequencing (Illumina Miseq instrument) methods.