Results. 210 urine samples were tested. After 3 hours of incubation on the BacterioScan, 70 (33.3%) and 140 (67.7%) urine samples were reported as positive and negative for bacterial growth, respectively. 136/140 (97.1%) of the negative samples were either no growth (67.6%) or insignificant (32.4%) growth by culture. The remaining 4 (2.9%) were catheter (3) or surgical (1) samples that grew <10^4 CFU/mL unspun urine. Without and with the assay ID and CMV qPCR, 216x UT System was tested on the 216x AST System; 37/52.9% samples limited by curve analysis showed no or questionable significant growth by culture. Comparator data were available for 26/33 samples. Amoxicillin and ceftriaxone demonstrated categorical agreement of 100%, while vancomycin and ciprofloxacin had 96% and 88% agreement, respectively, with 4% major errors for cefazolin and 12% minor errors for ciprofloxacin.

Conclusion. The 216x UT System could be utilized as a screening platform to rule out UTIs within 3 hours, with AST available after an additional 2–6 hours for suspect UTI positive samples. This could potentially prevent unnecessary antibiotic therapy. Preliminary data are promising but testing of additional clinical samples is warranted.

Disclosures. A. Tomaras, BacterioScan, Inc: Employee, Salary Achaogen: Employee, Salary; Karius, Inc: Employee, Salary; University of California, San Francisco, San Francisco, California, San Francisco, California, Employee, Salary.

2093. The DISCOVER Trial: Development and Characterization of a Synthetic DNA, NuVersa, to Be Used as a Standard in All Quantitative PCR Reactions for Molecular Pneumococcal Serotyping

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Background. Identification of Streptococcus pneumoniae (Snp) and its more than 90 serotypes is routinely conducted by culture and Quellung reactions. Quantitative (q)PCR technology was developed for molecular, including detection, in which one or many targets are sequenced and analyzed. However, for SNP targets, a library of targets for each serotype needs to be made. This study describes the development, validation and application of SNP (serotypes/serogroups) reactions to increase molecular detection to 94 pneumococcal serotypes.

Methods. Single-plex qPCR reactions (N=11) that detect 16 pneumococcal serotypes/serogroups were developed and concentration of primer and probe optimized to obtain minimal detection limit (MDL) of 0.023 genome equivalents (i.e., genome equivalents) of pneumococcal serotypes. Specificity of these new reactions was confirmed, and after optimization, single-plex qPCR reactions to increase molecular detection to 94 pneumococcal serotypes.

Results. Specificity of these new reactions was confirmed, and after optimization, the obtained limit of detection (LOD) was between 2 and 20 genome equivalents. Specificity for the target serotype/serogroup of these new reactions was investigated using a collection of strains belonging to our laboratory and strains kindly donated by the "StepLab" at CDC. A synthetic DNA (NuVersa, ~8.2 kb) was then engineered to contain all available qPCR targets for serotyping and lytA assay, and assays targeting 78 serotypes. Reactions require genomic DNA from every target to prepare standards, which can be time consuming. In this study we developed a synthetic DNA molecule as a surrogate for genomic DNA and present new usable-plex qPCR reactions to increase molecular detection to 94 pneumococcal serotypes.

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2094. Fulfillment of Center Score (CS) for Predicting Group A Streptococcal (GAS) Pharyngitis in an Adult Hyper-endemic Native American (NA) Population

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Background. Prevalence of GAS pharyngitis among adults is 5% to 15% in the general population. Methods using clinical criteria and laboratory testing to diagnose GAS have not been evaluated in Native American (NA) populations with a higher prevalence than the general population.

Methods. Prompted by an apparent increase (10-15× above national rates) in incidence of GAS pharyngitis in the NA population, we conducted a retrospective chart review at a single NA tribe. Part of this evaluation included GAS pharyngitis. From January to March 2017, we collected a Centor score (CS), throat swab for culture and rapid antigen test (RAT) for all adults ≥18 years presenting with sore throat. For comparison, we also reviewed our electronic health record (EHR), identifying all adults with RAT on file from July 1 to December 2016.

Results. From July 2016 to December 2017, 224 (33.5%) adults with sore throat had a positive RAT. From January to March 2017, 268 adults had RAT and culture performed: 86 (32.1%) and 83 (31.7%) were positive by RAT and culture, respectively. Comparing adults 18–44 years and ≥45 years, odds of culture positive GAS pharyngitis for young age group were 2.00 (CI 1.06–3.88, P = 0.023). RAT alone was 75.4% sensitive and 88.0% specific. Comparing adults18–44 years to ≥45 years, RAT alone was less sensitive (70.1% vs. 94.4%) and less specific (86.6% vs. 90.6%) in the younger group. While using RAT plus CS (≥3) alone, the addition of CS did not significantly change specificity (91.3% vs. 88.0%) or sensitivity (74.7% vs. 75.3%). A higher CS increased the odds of a positive GAS culture. Tonsillar exudates (89.9%) and fever (51.9%) were the most and least sensitive criteria, respectively. Absence of cough (50%) and absence of tonsil exudates (33.3%) had the most and least specificity, respectively.

Conclusion. GAS was confirmed in >30% of cases by RAT on both retrospective review of the EHR and prospectively via RAT or culture. These rates are significantly higher than what is reported in general population. Young age was associated with culture positive GAS. The high sensitivity of exudates and high specificity of absence of cough indicates these criteria may be helpful in deciding which adults are most likely to have GAS. Higher CS did increase odds of GAS positive culture, but the addition of CS to RAT did not significantly alter sensitivity or specificity in this population.

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born between 1945 and 1965 (the Baby Boomer "birth-cohort"). Limited data exists addressing testing strategies in primary care settings. This study aims to describe the experience of universal hepatitis C testing in the birth-cohort in six large primary care setting clinics.

Methods. We performed a cross-sectional study of universal hepatitis C testing in the birth-cohort in six different primary care sites. Of those who had at least one hepatitis C test, 61.8% were male and 58.7% were African American. Of those tested 322 (7.2%) had a positive antibody result. One-third of patients (1452, 32.8%) had more than one hepatitis C antibody test. Duplicated testing was found to be more common in male than female patients (37.6% vs. 29.9%, P < 0.001) and more common in White than Black or Asian patients (40.8% vs. 27.5%, 24.7%, P < 0.001). Among those receiving duplicate testing, only 8 (0.5%) were newly diagnosed with infection. 58 (4%) patients had an unnecessary test as defined as the patient already having received a positive hepatitis C antibody result.

Conclusion. We screened more than two-thirds of the birth-cohort for hepatitis C antibody at six primary care sites. High seroprevalence in the birth cohort validates current CDC recommendations for hepatitis C screening. However duplicate testing was not uncommon and, of those receiving duplicate testing, the serocrossover rate was low. This confirms one-time screening as an adequate strategy in the birth-cohort. With the availability of new and effective oral hepatitis C treatment regimens, one-time universal screening will be an important, economical component of linking hepatitis C patients to the care they need.

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2096. Impact of Clinical Pathway and Rapid Direct Influenza Polymerase Chain Reaction Test Introduction on Readmissions Among Non-Hospitalized Children with Influenza-Like Illness

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Background. Diagnosing influenza is challenging in children as influenza-like illness (ILI) symptoms are nonspecific. A clinical pathway was introduced in the emergency department (ED) of a large pediatric hospital to screen and treat patients at high risk of influenza-related complications. A new highly accurate, rapid polymerase chain reaction (PCR) test was introduced to the ED to measure the impact of the pathway and new PCR test on rates of hospitalization.

Methods. We conducted a retrospective cohort study of non-hospitalized children with ILI discharge from the ED. The intervention period.

Results. Among 10799 children with ILI, 6.1% had an ED readmission and 2.5% had a hospital admission within 2 weeks of an initial ED visit. Overall rates of ED readmission or hospitalization did not differ significantly by study (5.7% vs. 6.5% vs. 6.1%, P = .041, and 2.9% vs. 2.4% vs. 2.3%, P = .036). In multivariate analysis, pathway introduction alone was not associated with likelihood of ED readmission or hospitalization. However, rapid PCR test introduction with the pathway was associated with lower odds of hospitalization (aOR 0.70, 95% CI 0.51–0.97). High-risk status was associated with higher odds of ED readmission (aOR 1.42, 95% CI 1.21–1.68). High-risk status and severity of illness at the initial ED visit were associated with higher odds of hospitalization (aOR 1.51, 95% CI 1.13–2.03; aOR 10.66, 95% CI 6.05–18.79).

Conclusion. Clinical pathway and rapid PCR test introduction does not decrease all-cause ED readmissions but does decrease all-cause hospital admissions in children with ILI. Clinical factors such as severity of illness and high-risk status play a large role in determining outcomes.

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2097. Performance of Routine Rapid Antigen Diagnostic Testing and Bacterial Cultures for the Detection of Group A Streptococcal Pharyngitis

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Background. Rapid antigen detection tests (RDT) and bacterial culture are the current standard of care for diagnosing Group A Strept in pediatric patients. Polymerase Chain Reaction (PCR) tests offer improved turn-around-times at the point-of-care (POC) or in the laboratory. PCR has demonstrated improved sensitivity over reference culture in previous studies.

Methods. The performance of the QuickVue Strep A test (RDT) and bacterial culture for the detection of group A Streptococcus was evaluated during the fall and winter seasons of 2016/17 at a pediatric primary care clinic. Concordant PCR results from the cobas Liai Strept A test (a POC PCR assay (POC PCR)), Solana GAS Assay (a lab based PCR assay (Lab PCR)) were used as the reference method. Two hundred and sixty-eight throat samples from children 18 years of age were prospectively collected. RDT and POC PCR were conducted in the physician office, culture was conducted in the laboratory and Lab PCR was conducted on banked specimens. Final performance analysis of RDT, POC PCR, culture and LAB PCR included 246 patients.

Results. The prevalence of Strep A in this population was 23.7% (99/268). RDT demonstrated sensitivity of 88.9% (89/99) and specificity of 92.8% (132/147) compared with PCR. Of 11 RDT false-negative samples 2 were positive by culture. The 15 RDT false-positives were all negative by culture. Culture demonstrated a sensitivity of 77.8% (77/99) and specificity of 100% (147/147) compared with PCR with a median turnaround time of 2 days. Of the 222 RDT-negative results 20 were RAP false-negative culture results. Twenty-two subjects were excluded from the analysis due to discordant PCR results. A statistically significant relationship was found between CT values for POC PCR positive samples and discordant results. The average CT value of PCR and culture concordant positive results was 21.5; PCR and culture discordant results 27.6 and PCR discordant results 30.6.

Conclusion. In this population false-positive RDT results were higher than expected and most false-negative RDT results would not be identified through routine diagnostic culture. Following current guidelines, these results would likely result in miss-diagnosis. PCR can offer simplification of testing and provide sensitive and specific results at the point-of-care.

Disclosures. U. Cowen, Roche Molecular Systems: Employee, Salary; S. Tang, Roche Molecular Systems: Employee, Salary; D. Duncan, Roche Molecular Systems: Employee, Salary; J. Sickler, Roche Molecular Systems: Employee, Salary.

2098. Optimizing Test Ordering Language to Minimize Group A Streptococcus Reflex Culture for Adults

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Background. Group A Streptococcus (GAS) is a predominant bacterial cause of acute upper respiratory tract infections, with the greatest incidence of pharyngeal infection occurring in children. According to guidelines from the Infectious Diseases Society of America, negative results from rapid antigen detection testing (RDT) for GAS should be followed with reflex to pharyngeal culture for children but not generally for adults. Following current guidelines, several departmental policies were found to routinely order reflex culture for detection of GAS in adults (>17 yo). 86% of RDT-negative reflex cultures were negative for GAS, as well as Groups C/G, which supports the notion that these culture back-ups are unnecessary cultures.

Methods. In November 2016, a change in ordering language was implemented in the emergency department (ED), which was found to have the highest frequency of reflex culture orders for adults. To differentiate the two testing routes for children and adults, the word “peds” was added for RDT with reflex culture orders, and the word “adult” was added for RDT without reflex culture. At the commencement of the intervention, both education on the change in ordering language was provided to physicians by one of the ED providers. From November 2016 to April 2017, the number of GAS culture orders for adult patients in the ED was tracked. These were compared with data from the 1-year period prior.

Results. Pre-intervention, the average number of GAS reflex cultures per month was 66, which fell to 34 following the change to ordering language. The percentage of total RDT tests that underwent reflex culture changed from 99.5% to 49.0% before and after the intervention. Conversely, the number of RDT tests with no reflex culture ordered showed a positive culture result, 13 were RDT and GAS cultures were not being ordered through a different route, the number of add-on culture orders was also tracked, with no marked increase in these orders during the intervention period.

Conclusions. While this notable decrease in reflex culture ordering following negative RDT is promising, there is ongoing room for improvement, which could be addressed by additional reminders to physicians within the ED. If successful, similar interventions will be implemented in other departments.

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