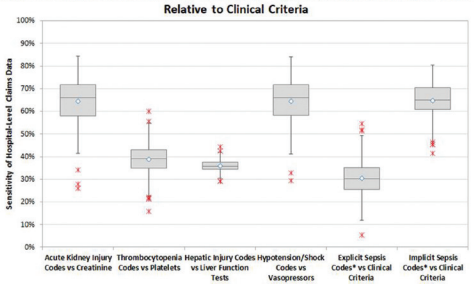
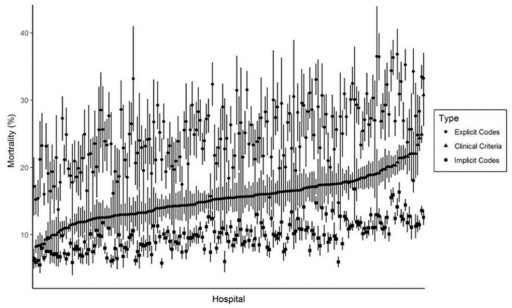
Figure 1. Variation in the Sensitivity of Hospitals' Organ Dysfunction and Sepsis Codes Relative to Clinical Criteria



*Explicit Sepsis Codes = Severe Sepsis (995.92) or Septic Shock (785.52) *(Primary Analysis)*
*Implicit Sepsis Codes = Infection AND Organ Dysfunction Codes *(Secondary Analysis)*

Boxes indicate the median hospital sensitivity (middle line), 25th quartile (lower box line), and 75th quartile (upper box line). Diamonds indicate the mean hospital sensitivity. Outliers are indicated by X (near outliers) and O (far outliers), as defined by values more than 1.5 times the interquartile range from the interior quartile boxes.

Figure 2. Hospital sepsis mortality rates ranked by clinical criteria and compared to claims data



Hospitals are ranked from left to right according to mortality rates for sepsis as defined by clinical criteria. For each hospital, the corresponding sepsis mortality by explicit sepsis codes (severe sepsis or septic shock – primary analysis) and implicit sepsis codes (infection + organ dysfunction codes – secondary analysis) is displayed. All mortality rates are reliability-adjusted.

Disclosures. **All authors:** No reported disclosures.

1663. Marked Improvement in Pandemic H1N1 Component Shedding and Immunogenicity in 2017–2018 Russian-Backbone Live Attenuated Influenza Vaccine (LAIV) in Gambian Children

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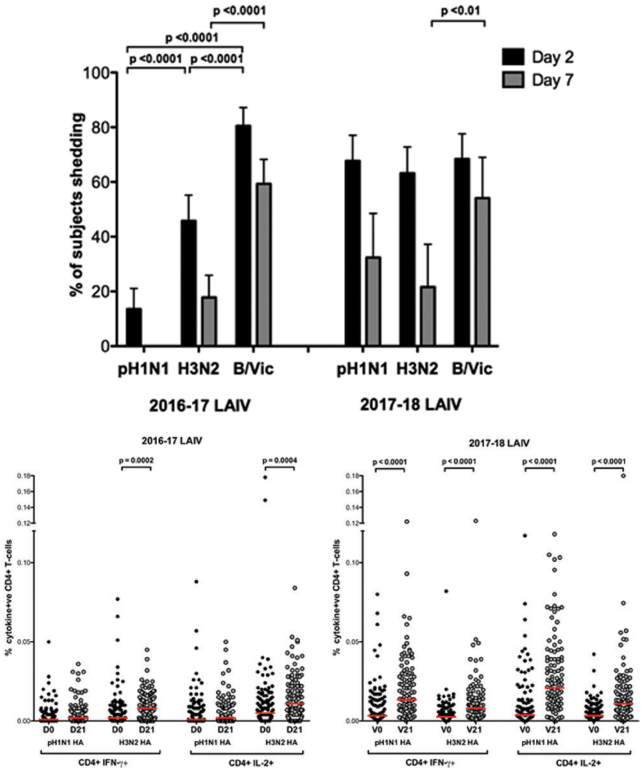
Session: 178. PIDS Featured Oral Abstract
Friday, October 5, 2018: 3:30 PM

Background. Recent observational studies in the United States have reported reduced effectiveness of the Ann Arbor-backbone live attenuated influenza vaccine (LAIV), coinciding with emergence of 2009 pandemic H1N1 (pH1N1). A recent RCT in Senegal of the Russian-backbone LAIV also showed no efficacy, with pH1N1 the predominant vaccine-matched strain circulating during the study. The reasons for this reduced effectiveness and efficacy are unclear but may involve pre-existing immunity or pH1N1 virus-specific factors. We explore these underlying reasons through an LAIV immunogenicity study in Gambian children across 2 influenza seasons.

Methods. Gambian children aged 24–59 months (n = 118) were given 2016–17 northern hemisphere Russian-backbone trivalent LAIV. Vaccine shedding, haemagglutinin inhibition (HAI) titre, influenza-specific T-cell responses, and mucosal IgA were measured using RT-PCR, HAI assay, flow cytometry, and ELISA, respectively. The following year, a further 127 children were given 2017–2018 formulation LAIV, where the pH1N1 strain was updated.

Results. In 2016–2017, significantly less pH1N1 shedding (13.6% children) was seen compared with H3N2 (45.8%) and B/Victoria (80.5%). Similarly, poor pH1N1-specific HAI (5.1% seroconversion), mucosal IgA (18.6% responders) and T-cell responses (<10% responses to pH1N1 HA) were seen, whereas significantly greater responses in ≥1 immune compartments were seen to H3N2 and B/Victoria. pH1N1 shedding was not related to pre-existing immunity in 2016–2017. Vaccination with 2017–2018 LAIV showed improvement in pH1N1 shedding with no significant difference between strains: 67.7%, 63.2%, and 68.4% children shedding pH1N1, H3N2, and B/Victoria at day 2 post-LAIV (see Figure 1). This was matched by enhanced pH1N1 HA-specific T-cell responses, with 47.1% children showing a $CD4^+IFNg^+$ and 54.4% a $CD4^+IL2^+$ response (see Figure 2). HAI and mucosal IgA data for 2017–2018 are currently being generated and will be presented, as well as key interactions between the parameters measured.

Conclusion. Our data suggest that poor pH1N1 A/California strain replication *in vivo* may explain recent suboptimal LAIV performance and suggest that an improvement can be expected with new pH1N1 strains included in current LAIV formulations.



Disclosures. **All authors:** No reported disclosures.

1715. A Randomized, Double-Blind, Placebo-Controlled Multicenter Phase 2 Trial to Examine the Effects of DAS181 in Immunocompromised (IC) Patients With Parainfluenza Virus (PIV) Lower Respiratory Tract Infection (LRTI) on Supplemental Oxygen (SO)

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Session: 199. Clinical Trials that May Change Your Practice
Saturday, October 6, 2018: 8:45 AM

Background. PIV infections are an important cause of morbidity and mortality in IC patients. DAS181, a sialidase fusion protein, has demonstrated activity in preclinical and clinical studies.

Methods. Adult IC patients diagnosed with PIV LRTI on chest imaging and required SO ≥ 2 L/minute were randomized 2:1 (stratified by mechanical ventilation [MV] at baseline) to nebulized DAS181 (4.5 mg in 3.5 mL/day) or matching placebo for up to 10 days. The primary endpoint was the proportion of patients reaching clinical stability survival (CSS, defined as alive, resolution of SO requirement, and normalization of vital signs) by Day 45.

Results. From 2014 to 2016, 110 patients were randomized and received study drug (74 DAS181 and 36 placebo). Median age was 57 years (range, 18–85). The majority were hematopoietic cell transplant (HCT) recipients (74), followed by hematological malignancy/solid tumor patients on chemotherapy (29), and lung transplant recipients (7). Day 45 CSS was achieved by 39.2% of DAS181-treated patients

compared with 31.4% of placebo (P = 0.29), while the proportion among non-MV patients was 45.0% vs. 31.0% (difference −14.0%, P = 0.15), respectively. Time to CSS in the non-MV stratum was shorter in DAS181-treated patients (figure). Median change in nasopharyngeal PIV viral load by Day 10 and median hospitalization days were −1.44 vs. −0.68 $\log_{10}$ (P = 0.51) and 13.5 vs. 21 days (P = 0.10) for DAS181 and placebo, respectively. Mean absolute increase from baseline FEV1% predicted was 16.82 for DAS181 vs. 2.02 for placebo (P = 0.001). Post-hoc analysis on the probability to return to room air (RTRA) suggested that DAS181 reduced SO need in the non-MV stratum after Day 21 (P = 0.09). HCT recipients within 360 days from transplant had a 40.8% treatment effect on RTRA at Day 28 (P = 0.04) and 36.7% on mortality at Day 45 when compared with placebo (P = 0.06). The rate of adverse events was similar in both treatment groups. Day 45 all-cause mortality was comparable in both groups (32.4% DAS181 vs. 31.4% placebo).

Conclusion. DAS181 was well tolerated and showed a signal for clinical efficacy in IC patients with PIV LRTI. DAS181 was granted Breakthrough Therapy Designation for the treatment of PIV LRTI in IC patients and a phase 3 trial is being planned.

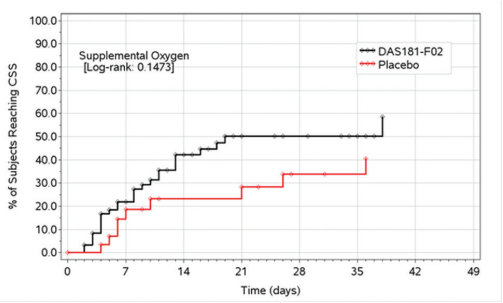

Figure. Time to Clinical Stability Survival Kaplan Meier Plot

Disclosures. **R. F. Chemaly**, Ansun Biopharma: Consultant and Investigator, Consulting fee and Research grant. **R. Moss**, Ansun Biopharma: Employee, Salary. **F. M. Marty**, Ansun Biopharma: Investigator, Research grant. **C. R. Wolfe**, Ansun Biopharma: Investigator, Research grant. **S. J. Lawrence**, Ansun Biopharma: Investigator, Research grant. **S. Dadwal**, Ansun Biopharma: Investigator, Research grant. **R. Soave**, Ansun Biopharma: Investigator, Research grant. **J. Hwang**, Ansun Biopharma: Employee, Salary. **S. Hawley**, Ansun Biopharma: Employee, Salary. **R. Routh**, Ansun Biopharma: Employee, Salary. **J. Ho**, Ansun Biopharma: Employee, Salary. **G. Wang**, Ansun Biopharma: Employee, Salary. **N. Chang**, Ansun Biopharma: Employee, Salary. **M. Boeckh**, Ansun Biopharma: Consultant and Investigator, Consulting fee and Research support.

1716. Results of the Respiratory Protection Effectiveness Clinical Trial (ResPECT)

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Session: 199. Clinical Trials that May Change Your Practice
Saturday, October 6, 2018: 8:45 AM

Results of the Respiratory Protection Effectiveness Clinical Trial (ResPECT)

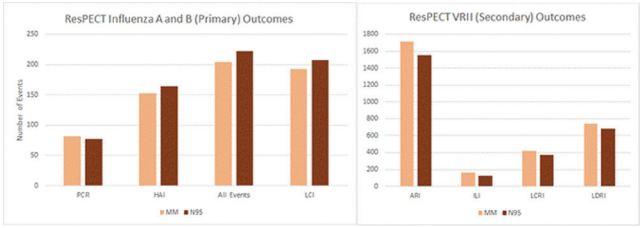
Background. Respiratory protection (RP) for healthcare personnel (HCP) is controversial and clinical studies are inconclusive about the effectiveness of N95 respirators (N95) and medical masks (MM) for protecting HCP from workplace viral respiratory infections and illnesses (VRII).

Methods. We conducted a cluster-randomized, investigator-blinded, multisite effectiveness study comparing N95 to MM in geographically diverse, high exposure outpatient settings between 2011 and 2016. Each year during VRII season, participants wore assigned devices when within 6 feet of patients with known or suspected respiratory illness. Respiratory swabs were collected from symptomatic and asymptomatic participants. Diaries detailed VRII exposures, influenza vaccination, adherence to RP and hand hygiene, and manifestations of illness. The primary and secondary outcomes were the incidence of laboratory-confirmed influenza (LCI) using polymerase chain reaction (PCR) and hemagglutinin inhibition assays (HAI), and acute respiratory illness (ARI), influenza-like illness (ILI), laboratory-confirmed respiratory illness (LCRI), and laboratory-detected respiratory infection (LDRI) (figure). Intervention protective effects were estimated using unadjusted odds and incidence rate ratios.

Results. 5,180 HCP seasons enrolled and randomized (2,243 to N95 and 2,446 to MM), with 4,689 (91%) completing the study. In the intention-to-treat cohort (ITT), among participants in the N95 and MM groups, respectively, 207 (8.2%) and 193 (7.2%) were diagnosed with LCI (odds ratio [OR] 1.14, 95% confidence interval [CI] 0.93–1.40); 1,556 (61.9%) and 1711 (64.1%) were diagnosed with ARI (relative risk (RR) 0.99, CI 0.92–1.06); 128 (5.1%) and 166 (6.2%) were diagnosed with ILI (RR 0.87, CI 0.68–1.10), 371 (14.8%) and 417 (15.6%) were diagnosed with LCRI (RR 0.97, CI 0.84–1.12); and 679 (27.0%) and 745 (27.9%) were diagnosed with LDRI (RR 0.99, CI 0.89–1.09). The adjusted ITT and per-protocol analyses yielded similar results.

Conclusion. In this outpatient-based, cluster-randomized, controlled trial, neither N95 nor MM resulted in superior protection from LCI or VRII.

Figure: ResPECT Outcomes. (A) Influenza Incidence and Primary Outcomes Panel. (B) Secondary Outcomes



Disclosures. **C. Gaydos**, BioFire: Consultant, Consulting fee. Cepheid: Speaker's Bureau, Speaker honorarium. Becton Dickinson: Speaker's Bureau, Speaker honorarium.

1717. The Impact of Routine Molecular Point-of-care Testing for Gastrointestinal Pathogens in Adults Hospitalized With Suspected Gastroenteritis: Results of a Pragmatic Randomized Controlled Trial (GastroPOC)

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Session: 199. Clinical Trials that May Change Your Practice
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Background. Adults hospitalised with diarrhoea are routinely isolated as an infection control measure, but many have non-infectious etiology. Side room facilities are a limited resource in hospitals. Routine laboratory testing takes several days to generate results but rapid molecular platforms can test comprehensively for GI pathogens and generate a result in 1 hour, making them deployable as point-of-care tests (POCT). POCT could reduce unnecessary isolation facility use in addition to other benefits.

Methods. In this pragmatic, pilot randomised controlled trial, adults hospitalised with suspected gastroenteritis were recruited and randomised 1:1 to receive either POCT (using the FilmArray GI panel) or routine clinical care. Results of POCT were communicated directly to clinical and infection control teams. The primary outcome was duration of time in a side room and secondary outcomes included turnaround time, proportion of patients with a pathogen detected, proportion of patients correctly de-isolated, time to de-isolation, antibiotic use and length of hospital stay.

Results. 140 patients were recruited. Groups (n = 70) were well matched in terms of baseline characteristics. The median [IQR] turnaround time for results was 1.7 [1.6–2.3] hours in the POCT group and 61 [49–84] hours in the control group, P < 0.0001. Pathogens were detected in 44% of patients in the POCT group and 23% in the control group; P = 0.012. Overall the duration of side room isolation was 1.9 [1.0–2.9] days in the POCT group compared with 2.7 [1.8–5.1] days in the control group; P = 0.001. For those testing negative for pathogens this was 1.3 [0.8–2.5] days in the POCT group versus 2.7 [1.8–5.0] days in the control group, P < 0.0001. 63% of pathogen-negative patients were correctly de-isolated in the POCT group versus 28% in the control group, P = 0.0012. Antibiotic use and length of stay data will be available subsequently.

Conclusion. POCT using the FilmArray GI panel resulted in a substantially reduced turnaround time for results and an increase in the proportion of patients with pathogens correctly detected. POCT was associated with a reduction in the duration of unnecessary side room use. If these benefits are confirmed in further studies and cost effectiveness is demonstrated, molecular POCT for GI pathogens should replace current diagnostic pathways.

Disclosures. **T. Clark**, BioFire LLC: Collaborator, Research support and Speaker honorarium. NIHR: Grant Investigator, Grant recipient.