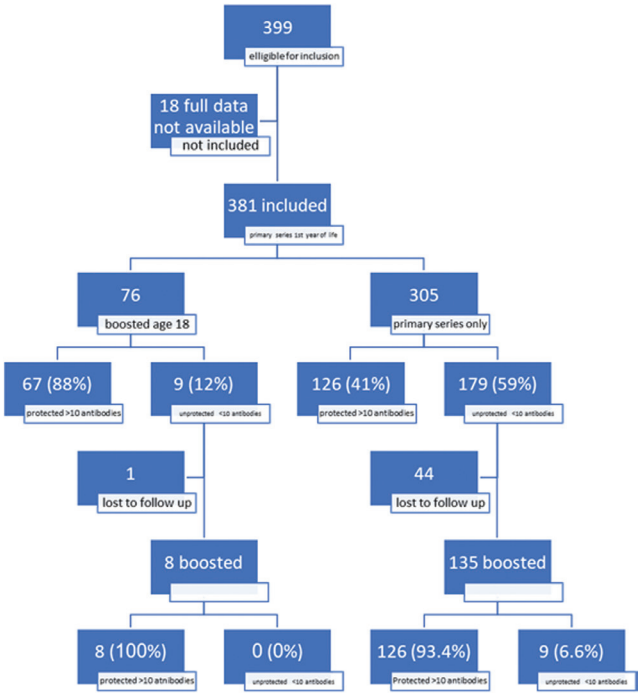

Figure 1. Flow chart of healthcare students monitored for HBV immunization status.

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

2284. Ten-Year Effectiveness of Live Virus Herpes Zoster Vaccine

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Session: 244. Miscellaneous Vaccines
Saturday, October 6, 2018: 12:30 PM

Background. Although recombinant zoster vaccine (RZV) is recommended preferentially in adults aged ≥50 years in the United States, zoster vaccine live (ZVL) remains a recommended vaccine in immunocompetent adults aged ≥60 years and is currently being used in many countries around the world. Assessing the long-term effectiveness of both vaccines is critical for determining vaccine policy, including the optimal age to begin vaccination and the need for and timing of revaccination. We evaluated the long-term effectiveness of ZVL in adults ≥ 60 years old in the United States.

Methods. We conducted a retrospective cohort study at Kaiser Permanente Southern California (KPSC). The exposed cohort included KPSC members ≥60 years vaccinated with ZVL during 1/1/2007- 12/31/2014. Three unvaccinated members were matched to each vaccinated member on age, sex, and length of membership. Individuals were followed to 6/30/2017. Electronic health records were used to identify incident herpes zoster (HZ). The effectiveness of ZVL and its 95% confidence interval (CI) at each year following vaccination was estimated.

Results. The number of HZ cases was 7,783 in 923,176 person-years (8.4 per 1,000; 95% CI, 8.2–8.6 per 1,000) among vaccinated persons and 26,813 in 1,964,974 person-years (13.6 per 1,000; 95% CI, 13.5–13.8 per 1,000) among unvaccinated persons. The HZ incidence rate ratio, comparing the vaccinated to the unvaccinated, was 0.62 (95% CI, 0.60–0.63). The effectiveness by year after vaccination decreased each year of follow-up from 65.8% (95% CI, 63.2%-68.2%) in the first year, 49.3% (95% CI, 45.7%-52.6%) in the second, 32.0% (95% CI, 24.1%-39.1%) to 36.8% (95% CI, 32.3%-40.9%) in the third - sixth year, and 22.0% (95% CI, -2.5%- 40.6%) to 23.6% (95% CI, 13.4%-32.7%) in the seventh - 10th year. A similar pattern was seen between those 60–69 years and ≥70 years of age.

Conclusion. The effectiveness of ZVL declined from 66% in the first year to 22% in the 10th year after vaccination. This 10-year effectiveness study of ZVL provides insights into a revaccination strategy and need for a more effective and durable vaccine. Studies of long-term effectiveness of RZV are also warranted.

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

2285. Burden of Invasive and Non-Invasive Group B Streptococcal Infections in Hospitalized Adults, Louisville, Kentucky: A Large Population-Based Study

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Session: 244. Miscellaneous Vaccines
Saturday, October 6, 2018: 12:30 PM

Background. Although Group B *Streptococcus* (GBS) has been recognized as an important cause of infections in adults, most studies have concentrated on patients with invasive disease. CDC estimates that there are >25,000 adult invasive cases in the United States/year. The objective of this study was to determine the burden of invasive and noninvasive GBS infections in hospitalized patients in Louisville, KY with the goal of determining the total burden of GBS infections in the United States.

Methods. We conducted a population-based, observational study of all hospitalized adults with GBS isolated from cultures and clinical evidence of active infection from 2014 to 2016 in a well-defined catchment area. Data regarding demographics, medical history, infection sites and microbiology were extracted from medical records. If GBS was isolated from more than one clinical site, the most invasive or deepest site was considered the primary infected site.

Results. Of 1428 GBS isolations 352 were considered colonizations therefore 1076 infections were included; Fifty-one percent were males and the median age was 52 years. Twenty-four percent were black and 2% Hispanic. Sixty-six (6%) presented from a nursing home. The median length of hospital stay was 5.2 days and 31 (3%) died. Patients had the following comorbidities: 627 (59%) diabetes, 220 (21%) renal disease, 221 (21%) coronary artery disease, and 154 (14%) peripheral vascular disease. In 642 patients (60%) GBS was the only organism isolated (monomicrobial) and in 320 (30%) GBS was isolated from more than one clinical site. Two hundred and twelve (20%) of patients had isolates from normally sterile sites (invasive). The primary site of infection included 425 (39%) skin and soft tissue, 252 (23%) urinary, 173 (16%) bone or joint, 115 (11%) from blood, 57 (5%) respiratory, 26 (2.4%) cardiovascular, and 25 (2.3%) abdominal.

Conclusion. To our knowledge, this is the first study to determine the total burden of both invasive and noninvasive GBS disease among adult hospitalized patients in the United States. Our results suggest that only 20% of cases are invasive indicating that the burden of GBS is up to five times higher than estimates based on invasive infections.

Disclosures. **P. Peyrani**, Pfizer Inc.: Employee, Salary. **A. Quinn**, Pfizer Inc.: Employee, Salary. **D. L. Swerdlow**, Pfizer Inc.: Employee and Shareholder, Salary.

2286. Revisiting Immune Interference: Evaluation of Immune Response to Yellow Fever Vaccine at Various Time Points Following Live-Attenuated Influenza Vaccination

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Session: 244. Miscellaneous Vaccines
Saturday, October 6, 2018: 12:30 PM

Background. Due to concerns for immune interference, current recommendations are to avoid other live virus vaccines for 30 days pre- and post-mass vaccination campaigns leading to interruptions in routine vaccinations. During rapid preparations for Operation United Assistance (OUA) which supplied humanitarian assistance during the Ebola epidemic, mass yellow fever vaccine (YFV) administration to deploying personnel was needed during ongoing live-attenuated influenza vaccine (LAIV) administration. This study is the first to compare seroconversion rates for YFV when given per guidelines (VBG) to rates when YFV is given 1–29 days post-LAIV (NVBG).

Methods. All personnel who received LAIV concurrently or before YFV for OUA and had pre- and post-vaccination archived serum at the Department of Defense Serum Repository were included. VBG was defined as YFV given concurrently or ≥30 days after LAIV and NVBG as YFV given 1–29 days post-LAIV. YFV seroresponse was determined by screening ELISA followed by confirmation with plaque reduction neutralization testing (PRNT) on all positive samples. YFV PRNT ≥1:20 was considered positive. Exclusion criteria were prior YFV and pre-vaccination positive PRNT. Statistical analysis was performed using SPSS v22.

Results. During OUA preparations, 676 personnel were vaccinated with LAIV concurrently or before YFV. Sixteen were excluded due to positive pre-vaccination PRNT. Of the 660 who met inclusion criteria, 507 were VBG (482 concurrently and 25 vaccinated ≥30 days post-LAIV) and 153 were NVBG. Median age was 25 (IQR 22, 29) for both groups. Pre-vaccination serum was drawn 280 and 345 days for VBG and NVBG respectively ($P = 0.05$). Post-YFV serum was drawn a median of 154 days following YFV in both groups. Seroconversion rates were 98% for VBG and 95% for NVBG ($P = 0.15$). Median yellow fever titers were 320 (IQR 160, 640) in both groups post-vaccination. Seroconversion rates were 98% for those with LAIV and YFV concurrently ($n = 471$), 100%, 95%, 92%, 100%, and 100% for those with YFV on days 1–6 ($n = 18$), days 7–13 ($n = 42$), days 14–21 ($n = 66$), days 22–27 ($n = 8$), and ≥28 days ($n = 44$) post-LAIV respectively ($P = 0.12$).

Conclusion. In this healthy, adult population, YFV provided high levels of protection regardless of timing following LAIV.

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

2287. Recently Approved HEPLISAV-B(R) [Hepatitis B Vaccine (Recombinant), Adjuvanted] Shows a Higher Proportion of Subjects Achieving Seroprotection With a More Consistent Immune Response Compared With Engerix-B(R) [Hepatitis B Vaccine (Recombinant)] in Three Comparative Trials

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Session: 244. Miscellaneous Vaccines
Saturday, October 6, 2018: 12:30 PM

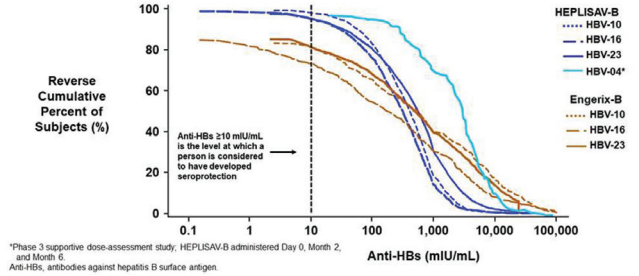
Background. HEPLISAV-B® [hepatitis B vaccine (recombinant), adjuvanted] uses a cytidine phospho-guanosine (CpG) oligonucleotide or "1018," a Toll-like receptor 9 agonist, as an adjuvant. Engerix-B® [hepatitis B vaccine (recombinant)], as well as other hepatitis B vaccines, use alum. HEPLISAV-B, a 2-dose vaccine given at Weeks 0 and 4, was recently approved for use in adults ≥18 years for the prevention of hepatitis B. Approval of HEPLISAV-B was based on three pivotal phase 3 noninferiority trials, comparing it with Engerix-B, a 3-dose vaccine given at Day 0, Day 30, and 6 months. Immunogenicity and safety results for these trials, HBV-10, HBV-16 and HBV-23, have been published previously; the safety of HEPLISAV-B was generally similar to Engerix-B.

Methods. The 3 randomized trials were observer-blinded and collectively included subjects aged 18–70 years. Immunogenicity analysis based on antibody against hepatitis B surface antigen (anti-HBs) levels were based on the per-protocol analysis. Presented here are reverse cumulative frequency plots of anti-HBs serum concentrations for the 3 trials.

Results. Across the trials, reverse cumulative frequency plots of anti-HBs concentrations showed a higher proportion (>90%) of HEPLISAV-B subjects developed a seroprotective antibody level (anti-HBs levels ≥10 mIU/mL) compared with Engerix-B subjects (80% to ~90%). A higher proportion of HEPLISAV-B subjects had anti-HBs levels between 10 mIU/mL and 1,000 mIU/mL. While a higher proportion of Engerix-B subjects had anti-HBs levels >1,000 mIU/mL, a significantly higher proportion of Engerix-B subjects did not develop seroprotective antibody levels. The response curves indicate a more consistent immune response with a higher percentage of subjects achieving seroprotection with less variability for HEPLISAV-B compared with Engerix-B, which showed a more variable response and fewer subjects achieving seroprotection.

Conclusion. HEPLISAV-B, using a CpG adjuvant, results in a higher percentage of persons achieving seroprotection and produces a more uniform and consistent induction of protective antibody levels than Engerix-B, an alum-adjuvanted vaccine.

Reverse Cumulative Frequency Plot of Anti-HBs Concentration for HEPLISAV-B Week 24 and Engerix-B Week 28 in HBV-10, HBV-16, and HBV-23 (Per-Protocol Populations)



Disclosures. **R. N. Hyer**, Dynavax Technologies Corporation: Employee and Shareholder, Salary and Stock options. **R. Janssen**, Dynavax Technologies Corporation: Employee and Shareholder, Salary and Stock options.

2288. Adherence to Hepatitis B Screening and Treatment Guidelines in Oncology Patients Starting Anti-CD20 Therapy

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Session: 244. Miscellaneous Vaccines
Saturday, October 6, 2018: 12:30 PM

Background. Hepatitis B virus (HBV) reactivation is a common complication in the treatment of oncology patients when using anti-CD20 monoclonal antibodies (MABs) such as rituximab, obinituzumab, and ofatumumab. In such patients, the reaction of HBV is seen in up to 70% who are HBV DNA positive. Antiviral therapy in high-risk patients has been shown to improve outcomes.

Methods. This retrospective review evaluated patients at Thomas Jefferson University Hospital who received rituximab, obinituzumab, or ofatumumab as a component of hematologic malignancy therapy between 2013 and 2016. We determined the number of patients who had appropriate HBV testing prior to therapy, the number who received appropriate antiviral therapy, and the number who developed reactivation of HBV and their outcomes.

Results. 402 patients received one of the above anti-CD20 MABs between November 2013 and December 2016. Of these 402 patients, 52 (13.4%) did not have either HBsAg or HBcAb performed prior to anti-CD20 therapy. 39 (9.7%) patients had positive HBsAg or HBcAb prior to therapy. Of these 39 highrisk patients, only 16/39 (41.3%) were placed on appropriate antiviral therapy. Two of the 39 high-risk patients (5.1%), who were not started on antiviral therapy, developed HBV reactivation as a complication of anti-CD20 MAB therapy.

Conclusion. A significant number of patients were not appropriately screened with HBV markers prior to anti-CD20 therapy for hematologic malignancies at our institution. In addition, less than half of highrisk HBV patients received appropriate antiviral therapy. System-wide changes are anticipated to improve this process at our institution.

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

2289. Accuracy of a Rapid Multiplex PCR Plus a Chromogenic Phenotypic Test Algorithm for the Detection of ESBL and Carbapenemase-Producing Gram Negatives Directly From Blood Cultures

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Session: 245. Molecular & Sequence Based Diagnostics
Saturday, October 6, 2018: 12:30 PM

Background. We studied the multiplex PCR panel (BioFire Blood Culture ID panel, "BCID") with phenotypic testing using the Rosco Diagnostica Rapid ESBL Screen kit 98022 (RE) and the Neo-Rapid CARB kit 98024 (RC) for extended-spectrum β-lactamase (ESBL)/carbapenemase producing Gram negative bacilli (CPGNB) detection directly from blood culture bottles, in patients with Gram negative bacteremia.

Methods. The RE and RC kits were evaluated in a verification phase with 98 blood cultures, comprising 43 spiked with GNB: 23 *Escherichia coli*, 9 *Klebsiella pneumoniae*, 7 *Enterobacter cloacae*, 2 *Serratia marcescens*, one *Pseudomonas aeruginosa*, one *Acinetobacter baumanii* complex with varying resistance genotypes (11 CTX-M-15, 5 CTX-M9, one SHV-18, one SHV-3, one TEM-10, 3 IMI, 4 IMP, 4 KPC, 2 NDM, one OXA-23+OXA-51-like, 3 OXA-232, one OXA-48, one SME-1, 2 VIM-1, 2 AmpC from reference and clinical isolate banks, and ATCC 25922), and 54 clinical blood cultures with GNB (5 phenotypic ESBL-positive, one KPC, 48 no known β-lactamase). In a prospective phase, a further 123 clinical blood cultures positive for GNB were tested simultaneously with the BCID, RE and RC kits.

Results. In the verification phase, the RE kit detected 24/25 of ESBL-positive samples (sensitivity 96%, specificity 99%). The RE kit did not detect the 2 AmpC-producers, and was positive for a *K. oxytoca* isolate, which are known to produce chromosomally encoded β-lactamases. The RC kit detected 11/22 of CPGNB (sensitivity 50%, specificity 100%). It missed IMI, OXA-23+OXA-51-like, OXA-232, OXA-48, SME-1 and VIM CPGNB (weak carbapenemases), but detected NDM, KPC, IMP. In the prospective phase, the RE kit detected 20/20 ESBL-positive blood culture samples (sensitivity 100%). The single OXA-48 positive sample was detected by both the RE and RC kits. The 123 blood cultures had a total of 125 panel-represented targets detectable by BCID. The BCID detected 124 /125 (missed one *K. pneumoniae* in a polymicrobial bacteremia), and there were 2 *Proteus* false-positives (sensitivity 99%, specificity 98%). No KPC-positive samples were detected by BCID.

Conclusion. An algorithm comprising the BCID and the RE/RC kits applied to positive blood cultures allows both rapid and accurate pathogen identification and detection of ESBLs and some carbapenemases (e.g., KPC, NDM, IMP). This may allow the institution of timelier, directed therapy.

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2290. Identification of Pathogens in Synovial Fluid Samples With an Automated Multiplexed Molecular Detection System

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