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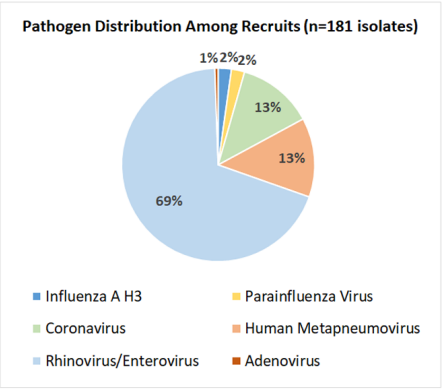
Background: Military recruits suffer high rates of influenza and influenza-like illness (ILI) during training. ILIs may lead to morbidity, lost training time, and hospitalization. We evaluated the incidence and clinical outcomes of ILI among recruits at Marine Corps Recruit Depot San Diego (MCRD-SD) in a prospective trial of influenza vaccine efficacy.

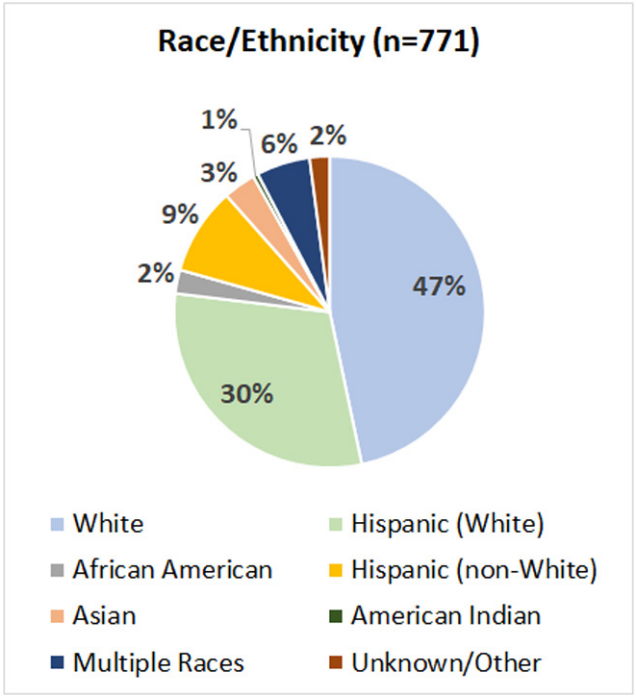
Methods: Recruits at MCRD-SD were enrolled to compare the effectiveness of 3 types of FDA approved influenza vaccine: Afluria®, an egg-based vaccine; Flucelvax®, a cell-culture-derived vaccine; and Flublok®, a recombinant vaccine. Four companies of recruits were enrolled sequentially from 28 November 2018 to 19 December 2018, then randomized in a 1:1:1 ratio. Participants were followed for 18 weeks at MCRD-SD and Camp Pendleton. All participants who presented with ILI symptoms at medical care sites underwent viral diagnostic testing in addition to immunologic studies. Recruits were excluded from participation if <18 years of age, if previously vaccinated in the 2018–2019 season, or if reporting allergy to the vaccines.

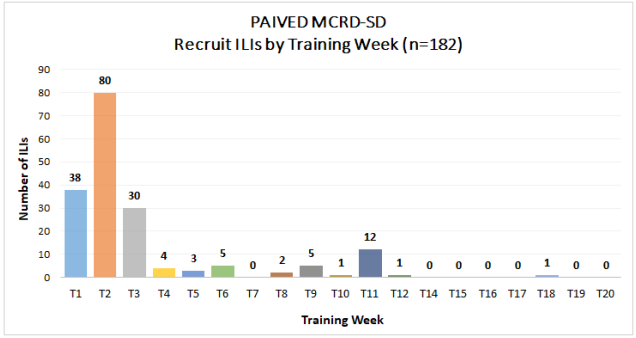
Results: Of 1338 recruits approached, 771 (57.6%) participants consented for enrollment. All recruits were men between 18 and 28 years. There were 182 ILIs amongst 177 recruits (23% of 771 recruits). Nasal swabs were obtained in 180/182 cases (99%). Mean duration of ILI symptoms was 7 days. Mean days of fever was 4. Subjects reported a total 168 days of reduced training (range 0–14 days; mean 0.9 days). There were 47 total days of missed training for all subjects (range of 0–4 days; mean 0.3 days/subject). There were no hospitalizations related to ILIs. Approximately 82% (148/182) of ILIs presented within the first 3 weeks of training; 44% (80/182) of ILIs occurred during the second week of training. PCR- nasal swabs results; race/ethnicity data, and frequency of ILI mapped to week of training are illustrated below.

Conclusion: ILIs can negatively impact training effectiveness. Days lost to training from ILIs and hospitalizations can prevent successful completion of training with impact on military readiness. PAIVED may inform the DoD on future strategies to minimize influenza and other respiratory threats in recruit military populations. Influenza vaccine effectiveness will be reported separately.



*Additional pathogens tested for that yielded 0 positives include: Influenza A H1, Influenza B, Respiratory Syncytial Virus, Human Bocavirus, Chlamydia pneumoniae, and Mycoplasma pneumoniae.





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

2757. Pragmatic Assessment of Influenza Vaccine Effectiveness in the DoD (PAIVED): Immunogenicity Sub-Study

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Background: Despite greater than 90% of US active duty (AD) military personnel receiving influenza vaccination annually, vaccine effectiveness (VE) among AD members has been substantially lower than in groups with less vaccine uptake. The substrate used in vaccine production may impact immunogenicity and thus VE. The PAIVED study is investigating VE of 3 different influenza vaccine formulations; a sub-study assesses immunogenicity. This analysis compares demographic characteristics and influenza-like illness (ILI) experience among main and sub-study participants for the first year of PAIVED.

Methods: During the 2018–2019 influenza season, PAIVED enrolled participants at 5 military medical centers, recruiting sub-study subjects from the main cohort excluding marine recruits. All participants were randomized (1:1:1) to receive either egg-based, cell-culture based or recombinant influenza vaccine. At enrollment, participants provided key demographic and behavioral data. Weekly surveillance for ILI symptoms was performed electronically. Sub-study volunteers underwent an additional blood draw prior to and at 21–35 days post vaccination ± an optional buccal swab.

Results: 200 (23.5%) of 852 non-recruit PAIVED participants enrolled in the immunogenicity sub-study. Similar to the main cohort, 46% of sub-study volunteers were female, 85% were physically active, and 6% smoked tobacco. Sub-study participants were younger (47 ± 16 years vs. 51 ± 17 years, $P = 0.004$) and more likely to be AD (34% vs. 22%, $P = 0.001$). Although 70% of both groups identified as White, the percent African American (20% sub-study; 13% main), Asian (3%; 7%), multi-racial (2%; 5%), and unknown (6%; 4%) differed ($P = 0.02$). More sub-study participants developed an ILI (19% vs. 12%, $P = 0.02$).

Conclusion: The convenience sampling method used for recruitment into the sub-study was effective. The younger age and higher AD status in the sub-study group may be informative for evaluation of military readiness issues. The greater incidence of ILI in the sub-study increases the chance differences in immune response by vaccine type may be interpretable in the context of circulating influenza strains. Targeted efforts to enhance recruitment of a racially diverse sub-study cohort may be warranted.

Disclaimer
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The investigators have adhered to the policies for protection of human subjects as prescribed in 45CRF46.

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2758. Identifying Populations at High-Risk for Influenza-Related Hospitalization: A Real-World Analysis of Commercially Insured Population in the United States

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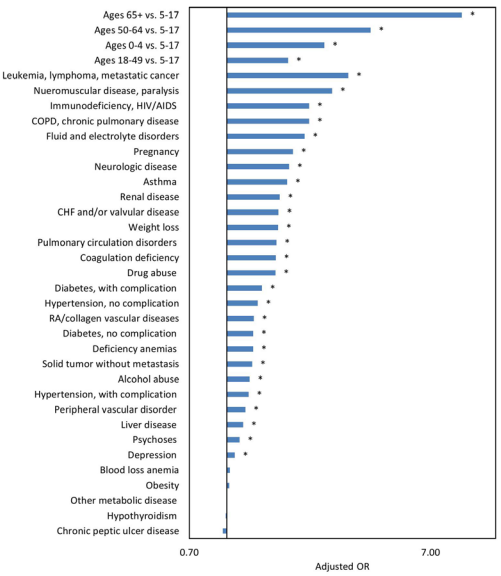
Background: The disease burden of seasonal influenza (flu) is high and contributes to morbidity, mortality and healthcare utilization. While only 1–2% of flu cases are hospitalized, these events are costly. The objective of this study was to describe and quantify risk factors for flu hospitalization.

Methods: Patients with 1 flu diagnosis (Dx) over 4 seasons (October 1, 2014–May 31, 2018) in IQVIA's Real-World Data Adjudicated Claims – US database were selected into the study; the earliest flu Dx was the index date. Patients were required to have ≥12 months continuous enrollment in their health plan before index (baseline), ≥30 days after index, and either a record of a flu test ± 14 days of index or a flu Dx in the primary position. Comorbidities during a fixed 12-month baseline period were categorized by AHRQ and CDC definitions. The study outcome of interest, flu-related hospitalization during the 30-day follow-up period, was defined as hospitalization with Dx of flu or a pre-defined flu-related complication in any position. A logistic regression model assessed the odds of flu-related hospitalization, adjusting for age, sex, region, payer, season of index Dx, evidence of flu vaccination, and comorbidities.

Results: More than 1.6 million medically-attended flu cases were identified, of which 18,509 (1%) had a hospitalization. 40% of patients were < 18 years of age, 47% were male, and 28%, 15%, 24%, and 33% were identified in the 2014–2017 flu seasons, respectively. More hospitalized patients were ages 50+ compared with non-hospitalized patients (57% vs. 20%) and 44% of hospitalized patients had 4 or more AHRQ/CDC comorbidities vs. 8% of non-hospitalized patients. In adjusted analyses, older age (65+ vs. 5–17; OR = 9.4, 95% CI 8.8–10.1) and leukemia/lymphoma/metastatic cancer (OR = 3.2, 95% CI = 2.9–3.5) were key drivers of hospitalization (Figure 1).

Conclusion: The risk of flu-related hospitalization is high for elderly populations and those with certain underlying co-morbidities among all age groups. While these findings reflect the burden of medically-attended flu in a younger, commercially insured population, additional research is needed to address the flu burden in high-risk populations.

Figure 1. Odds ratios for flu-related hospitalization from logistic regression model, adjusting for baseline characteristics and comorbid conditions



*p<.05

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

2759. Immunogenicity of Inactivated Influenza Vaccines Given Early vs. Late After Pediatric Allogeneic Hematopoietic Cell Transplantation

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