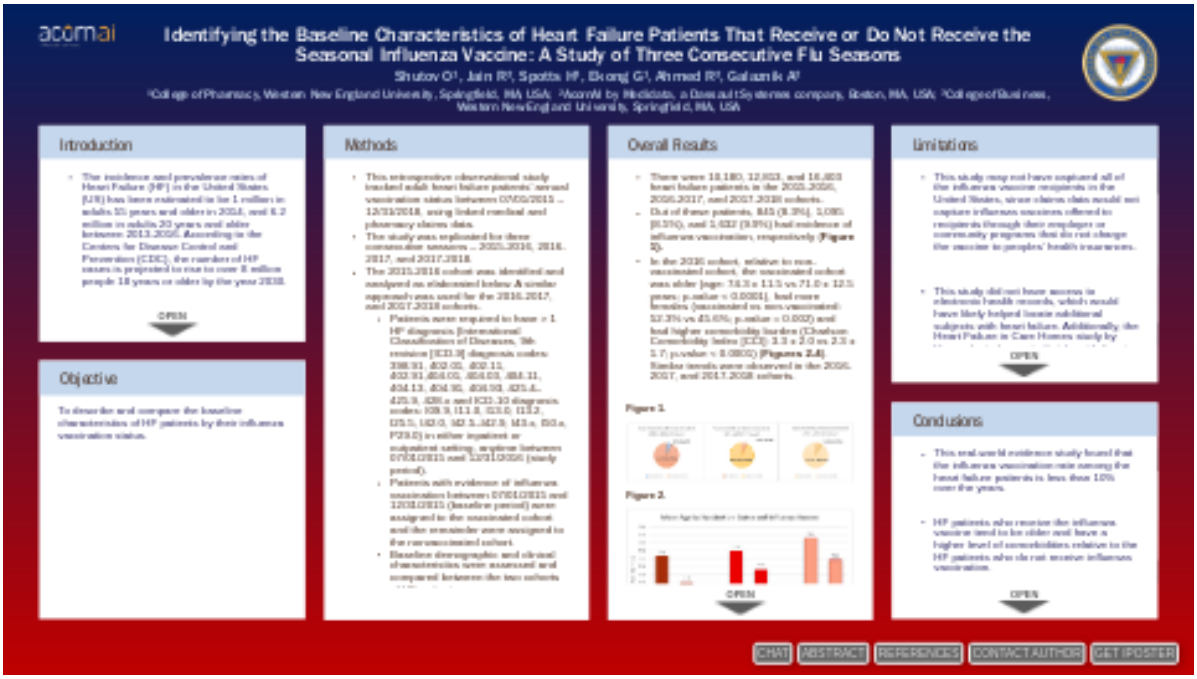
Identifying the Baseline Characteristics of Heart Failure Patients That Receive or Do Not Receive the Seasonal Influenza Vaccine: A Study of Three Consecutive Flu Seasons



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PRESENTED AT:

INTRODUCTION

- The incidence and prevalence rates of Heart Failure (HF) in the United States (US) has been estimated to be 1 million in adults 55 years and older in 2014, and 6.2 million in adults 20 years and older between 2013-2016. According to the Centers for Disease Control and Prevention (CDC), the number of HF cases is projected to rise to over 8 million people 18 years or older by the year 2030.

- The CDC's National Center for Health Statistics reports that in 2017, 1 in 8 deaths were attributed to heart failure.

- In 2012, the combined national cost of heart failure including cost of medications, outpatient visits, hospitalizations, other health care services, and days missed from work added up to $30.7 billion dollars.

- Per the CDC, people with heart disease have a heightened risk for complications from the flu, and the American Heart Association encourages people with cardiovascular disease to receive the influenza vaccine for secondary prevention.

- The CDC reported influenza vaccine effectiveness for the 2015-2016, 2016-2017, and 2017-2018 flu seasons to be 48%, 40%, and 38%, respectively.

OBJECTIVE

To describe and compare the baseline characteristics of HF patients by their influenza vaccination status.

METHODS

- This retrospective observational study tracked adult heart failure patients' annual vaccination status between 07/01/2015 – 12/31/2018, using linked medical and pharmacy claims data.
- The study was replicated for three consecutive seasons – 2015-2016, 2016-2017, and 2017-2018.
- The 2015-2016 cohort was identified and analyzed as elaborated below. A similar approach was used for the 2016-2017, and 2017-2018 cohorts.
  - Patients were required to have > 1 HF diagnosis (International Classification of Diseases, 9th revision [ICD-9] diagnosis codes: 398.91, 402.01, 402.11, 402.91,404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 425.4–425.9, 428.x and ICD-10 diagnosis codes: I09.9, I11.0, I13.0, I13.2, I25.5, I42.0, I42.5–I42.9, I43.x, I50.x, P29.0) in either inpatient or outpatient setting, anytime between 07/01/2015 and 12/31/2016 (study period).
  - Patients with evidence of influenza vaccination between 07/01/2015 and 12/31/2015 (baseline period) were assigned to the vaccinated cohort and the remainder were assigned to the nonvaccinated cohort.
  - Baseline demographic and clinical characteristics were assessed and compared between the two cohorts of HF patients.
  - Chi-squared tests were used to assess for statistical significance.

OVERALL RESULTS

- There were 10,180, 12,813, and 16,403 heart failure patients in the 2015-2016, 2016-2017, and 2017-2018 cohorts.
- Out of these patients, 845 (8.3%), 1,095 (8.5%), and 1,632 (9.9%) had evidence of influenza vaccination, respectively (**Figure 1).**
- In the 2016 cohort, relative to non-vaccinated cohort, the vaccinated cohort was older (age: 74.3 ± 11.5 vs 71.0 ± 12.5 years; p-value < 0.0001), had more females (vaccinated vs non-vaccinated: 52.3% vs 45.6%; p-value = 0.002) and had higher comorbidity burden (Charlson Comorbidity Index [CCI]: 3.3 ± 2.0 vs 2.3 ± 1.7; p-value < 0.0001) (**Figures 2-4**). Similar trends were observed in the 2016-2017, and 2017-2018 cohorts.

Figure 1.

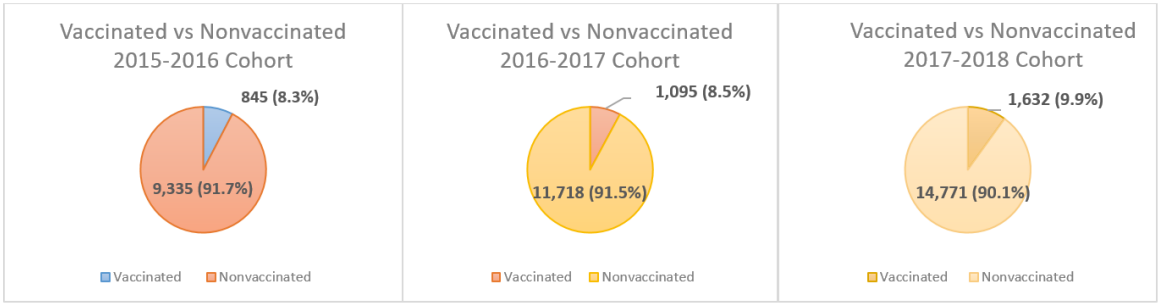


Figure 2.

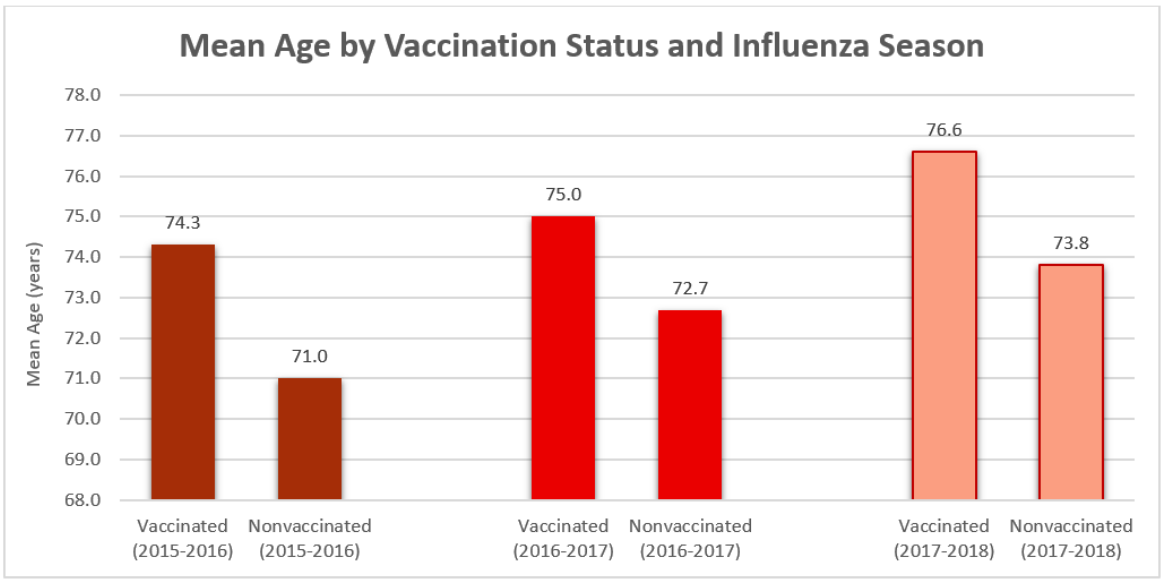


Figure 3.

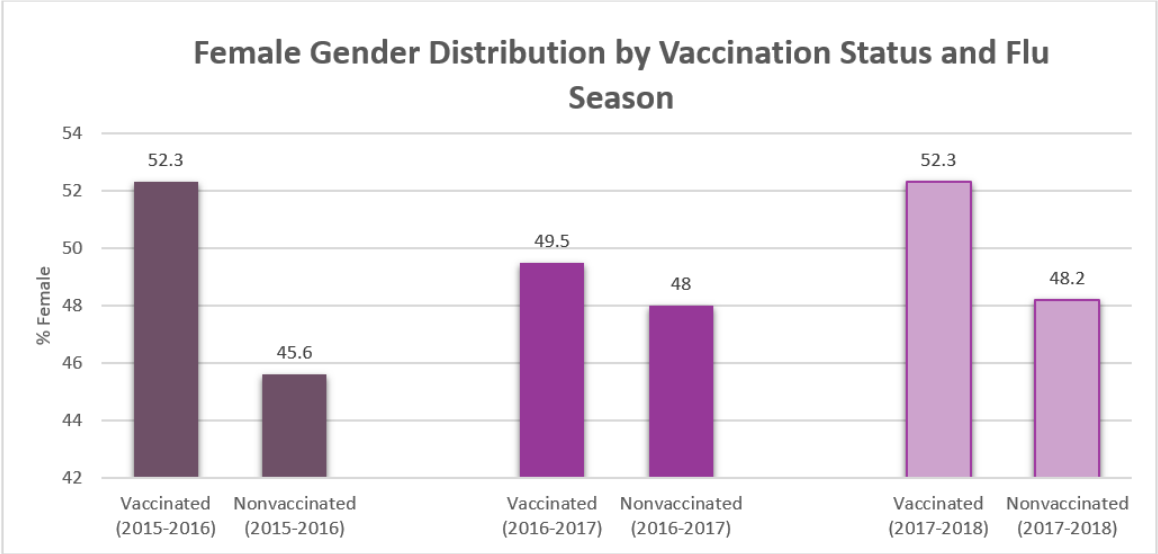
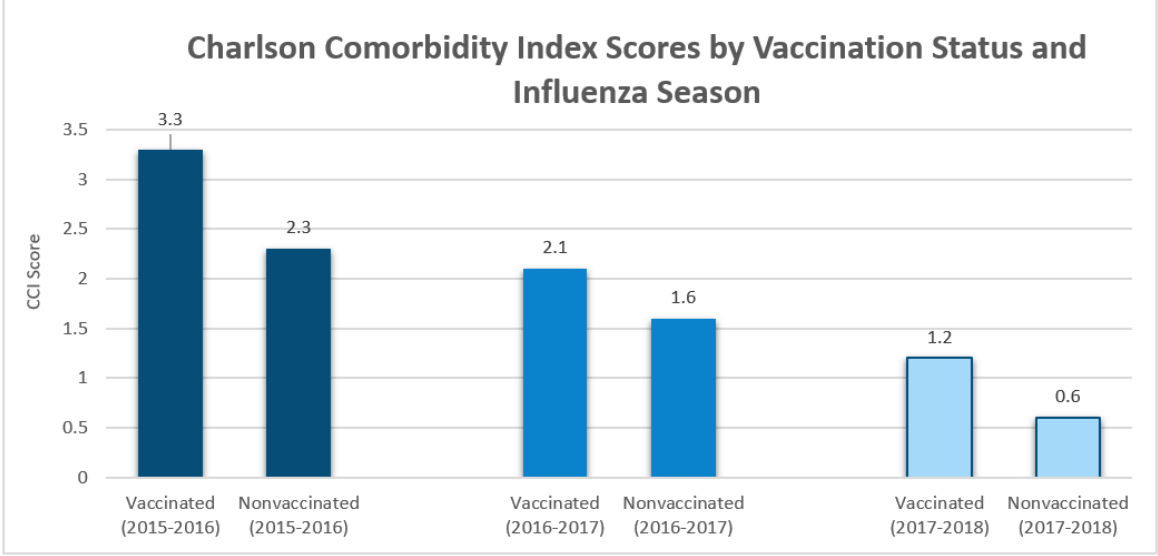


Figure 4.



LIMITATIONS

- This study may not have captured all of the influenza vaccine recipients in the United States, since claims data would not capture influenza vaccines offered to recipients through their employer or community programs that do not charge the vaccine to peoples' health insurances.

- This study did not have access to electronic health records, which would have likely helped locate additional subjects with heart failure. Additionally, the Heart Failure in Care Homes study by Hancock et al. reports that heart failure is often asymptomatic in the early stages and detection may be hindered by comorbidities, polypharmacy, and other relevant factors, which results in misdiagnosis and underdiagnosis of HF patients. Therefore, this study is representative of the diagnosed heart failure population.

CONCLUSIONS

- This real-world evidence study found that the influenza vaccination rate among the heart failure patients is less than 10% over the years.

- HF patients who receive the influenza vaccine tend to be older and have a higher level of comorbidities relative to the HF patients who do not receive influenza vaccination.

- More research is needed to understand the reasons behind and the implications of low vaccination rates in this elderly and high-risk patient population.

ABSTRACT

Identifying the Baseline Characteristics of Heart Failure Patients That Receive or Do NOT Receive the Seasonal Influenza Vaccine: A Study of Three Consecutive FLU Seasons

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OBJECTIVES: Heart failure (HF) patients are recommended by the American Heart Association (AHA) to receive an annual influenza vaccine to reduce the likelihood of infection that may cause serious complications. The aim of this study was to describe and compare the baseline characteristics of HF patients by their vaccination status.

METHODS: This retrospective, observational study tracked adult HF patients' annual vaccination status between 07/01/2015 – 12/31/2018, using linked medical and pharmacy claims data. Patients were required to have > 1 HF diagnosis in an inpatient/outpatient setting anytime between 07/01/2015 and 12/31/2016 (study period). Patients with evidence of vaccination between 07/01/2015 and 12/31/2015 (baseline period) were assigned to the vaccinated cohort and the remainder to the non-vaccinated cohort. Baseline demographic and clinical characteristics were assessed and compared between the two cohorts of HF patients. Chi-Squared tests were used to assess for statistical significance. The study was replicated for three consecutive seasons (2016-2018).

RESULTS: There were 10,180, 12,813, and 16,403 HF patients in the 2016, 2017, and 2018 cohorts. Out of these patients, 845 (8.3%), 1,095 (8.5%), and 1,632 (9.9%) had evidence of influenza vaccination, respectively. In the 2016, relative to non-vaccinated cohort, there were more females (vaccinated vs non-vaccinated: 52.3% vs 45.6%; p-value=0.002) and older (age: 74.3±11.5 vs 71.0 ±12.5 years; p-value<0.0001) and sicker patients (CCI: 3.3±2.0 vs 2.3±1.7; p-value<0.0001). Similar trends were observed in the 2017 and 2018 cohorts.

CONCLUSIONS: This real-world study found that the vaccinated patients tend to be older with more comorbidities. Additionally, less than one in ten HF patients received the AHA recommended influenza vaccine. Although some patients may have received vaccination outside of their health coverage, the vaccination rate is lower than expected. More research is needed to understand the reasons behind and the implications of low vaccination rates in this elderly and high-risk patient population.

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