Katelyn Levy, MD[1]; Belinda Lao, MD[1]; Mitchell Berman, MD[1]; Joseph Jean, MD[1]; Sejal Patel, PharmD[2]; Benjamin Slovis, MD[1]; Scott Sutherland, MD[1]; [1] Thomas Jefferson University Hospital, Department of Emergency Medicine, 111 S 11th St Philadelphia, PA 19107, [2] Jefferson Methodist Hospital, Department of Emergency Medicine, 2301 S Broad St, Philadelphia PA 19148

Problem Definition

- Hepatitis A (HA) outbreaks in the United States have typically been associated with foodborne transmission but more recent outbreaks have occurred in high-risk populations such as the homeless and drug users.
- In May 2019, the PDPH identified a large outbreak of HA endemic among the homeless and drug users in Philadelphia
- In August 2019, the PDPH declared a public health emergency after reporting 176 confirmed cases of HA.
- In 2017, San Diego suffered from a similar HA outbreak and found that a focused vaccination campaign in high-risk populations to be effective at stemming outbreaks
- Prior studies found that a one-time dose of the single-antigen HA vaccine (HAV) elicits a protective response in 95% of healthy individuals up to 11 years, with two doses 6 months apart providing life-long immunity.

Aims For Improvement

Increase the rate of hepatitis A vaccination in high-risk patients (homeless and drug users) who present to Thomas Jefferson University Hospital and Jefferson Methodist emergency departments over a 5 month period starting on 9/4/2019.

Intervention

- On 9/4/2019, we implemented a clinical decision support tool that generated clinical alerts to the provider to order HAV for high-risk patients
- We trained providers on indications for vaccination and ordering procedure in EPIC
- We collected data on the number of vaccines ordered and performed a subgroup analysis to estimate the number of vaccines administered

Hepatitis A Vaccines Ordered
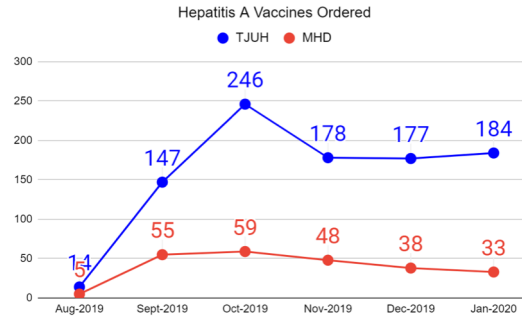
Measurement and Results

This study measured the number of times that the CDS tool was triggered in Epic and the number of times that HAV was ordered after this tool was implemented

- We found that the support tool fired 8,113 times on 3,007 encounters after being put into effect 9/4/19
- 82.8% of the time it was cancelled

This study measured the number of times providers ordered the HAV on high-risk patients and the disposition of the patients.

- The vaccine was ordered on 1165 patient encounters over a 5-month period. Unfortunately, we are unable to determine the number of vaccines administered given limitations of Pyxis/EPIC technology

We performed a subgroup analysis looking at 2-months of data from Jefferson Methodist Hospital that showed ~85% patients with a HAV ordered received the vaccine

- 69/81 cases (85%) – received HAV
- 11/81 cases (14%) – declined HAV
- 1/81 case (1%) – order discontinued

We found that ⅔ of high-risk patients were ultimately discharged from the Emergency Department (ED)

Patient Disposition
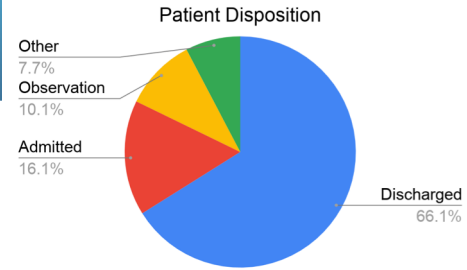
Discussion and Next Steps

- The ED provides a health care access point for many patients who are at risk for HA and are more likely to have limited contact with the healthcare system-at-large
- Our study shows that the rates of HAV administration increased after the implementation of a clinical decision support tool and successfully caught many high-risk patients who were ultimately discharged
- Overall, this project demonstrates how the ED can be used to supplement public health intervention for high-risk populations
- Limitations of our study mainly encompassed data collection
  - Our data collection ended in February 2020 due to the onset of the COVID-19 pandemic
  - We are unable to collect data on the number of vaccines administered given limitations in Pyxis/EPIC technology
- Next steps include expanding the clinical decision support tool to include other high-risk groups identified by the CDC and investigate why patients declined the vaccine

References

1. Philadelphia Department of Public Health Division of Disease Control. Health Alert Public Health Emergency: Hepatitis A Outbreak among At-Risk People in Philadelphia. August 8, 2019.
2. Philadelphia Department of Public Health Division of Disease Control. Hepatitis A Outbreak Response Update Report. January 23, 2020.