Bridging the Care Gap in Hepatitis C Screening

Ryan Erwin[1], Michael Dong[1], Abdul Kazi[1], Carmine Ballarano[1], Connor McLaughlin[1], Jonathan Fenkel[2]

[1]Thomas Jefferson University Hospital, Department of Medicine

[2]Thomas Jefferson University Hospital, Department of Gastroenterology and Hepatology

Background

Approximately 2.4 million Americans had active Hepatitis C (HCV) infection in 2013-2016, many are asymptomatic and otherwise unaware of their infection[1]. Chronic HCV infection can lead to serious complications such as cirrhosis, hepatocellular carcinoma, and need for liver transplant. Direct Acting Antiviral (DAA) agents have revolutionized the treatment of HCV and offer a cure to many patients before complications develop. The USPSTF recently updated HCV screening guidelines in March 2020 to include all adults aged 18-79 years old[2].

We hypothesized that eligible patients were not being properly screened at the Jefferson Hospital Ambulatory Practice (JHAP) resident clinic.

AIM

The aim of our project was to improve HCV screening rates at JHAP through an Epic-based "Care Gap" notification, which will alert providers when a patient is eligible for HCV screening. Our smart aim is to improve HCV screening rates by 30%.

Methods/Interventions

We implemented an Epic-based "Care Gap" notification for HCV screening to include updated screening guidelines (Figure 1), which went live on April 19th, 2021.

We conducted chart review of consecutive patient visits to the JHAP clinic three months prior to and three months after the Care Gap went live. All patients with an in-person office visit with a resident physician at the JHAP clinic were reviewed. We excluded patient who did not meet HCV screening criteria (age <18 years-old, age >79 years-old) and patients with prior screening or history of HCV infection.
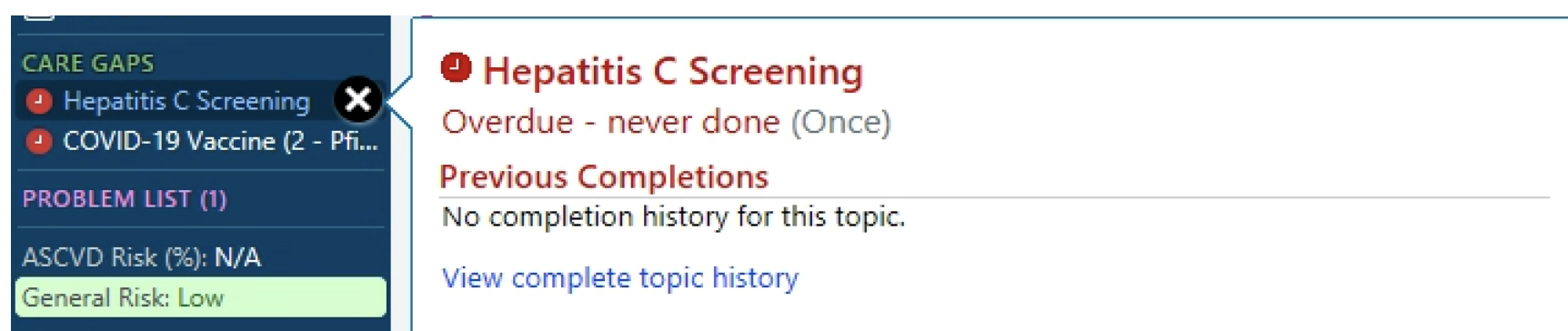

Figure 1: HCV Care Gap notification, which appears in Epic for patients eligible for HCV screening

Results

HCV Screening rate was increased by 52.6% after the Care Gap implementation (p < 0.00001).

	Pre-Alert	Post-Alert
Total Reviewed	1045	1265
Excluded	691	984
Meets Inclusion Criteria	354	281
Ordered HCV Screening	19	163

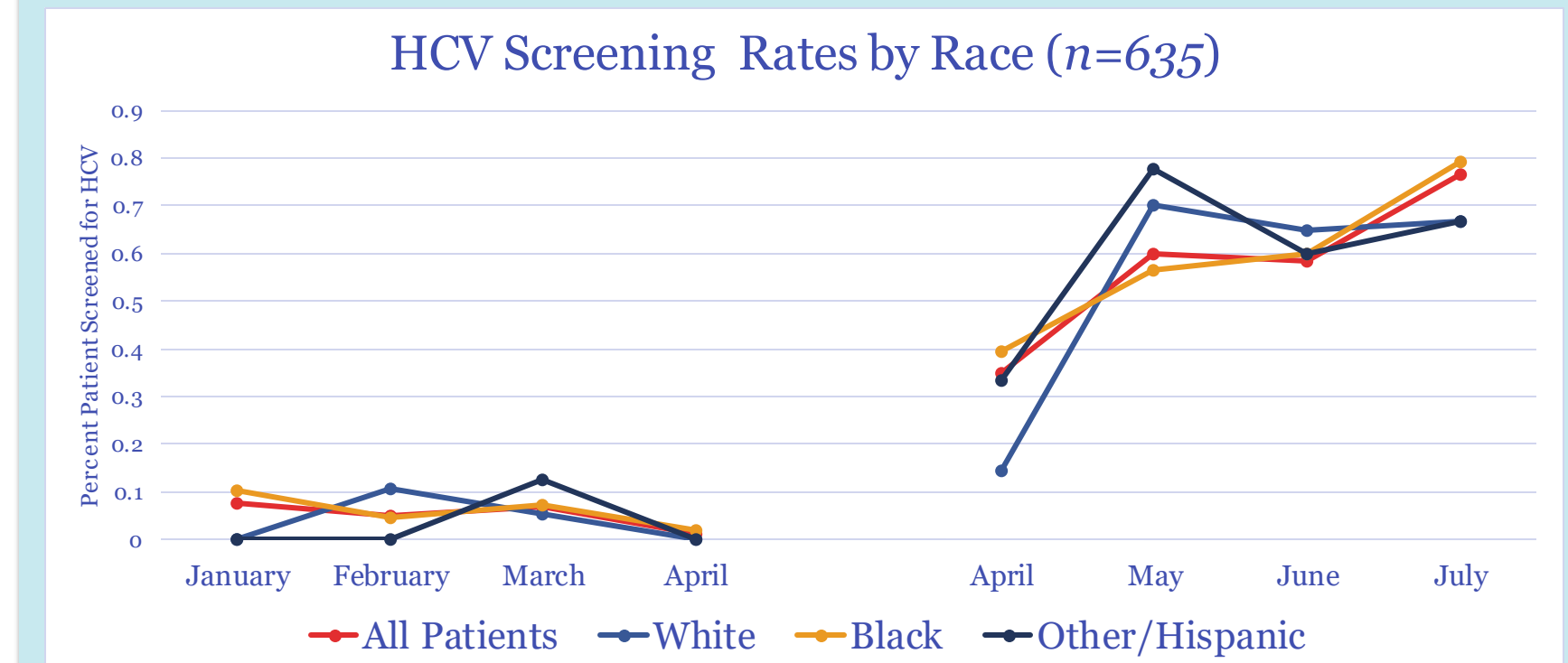|	Screening Rate Pre-Alert	Screening Rate Post-Alert	Relative % Change in Screening Rate	Odds Ratio	P-value
All Patients	5.4%	58.0%	+980.8%	24.4	(p<0.00001)
Male	9.2% (13/141)	59.1% (65/110)	+536.4%	14.1	
Female	2.8% (6/213)	57.3% (98/171)	+1934.5%	46.3	

HCV Screening Rate by Sex
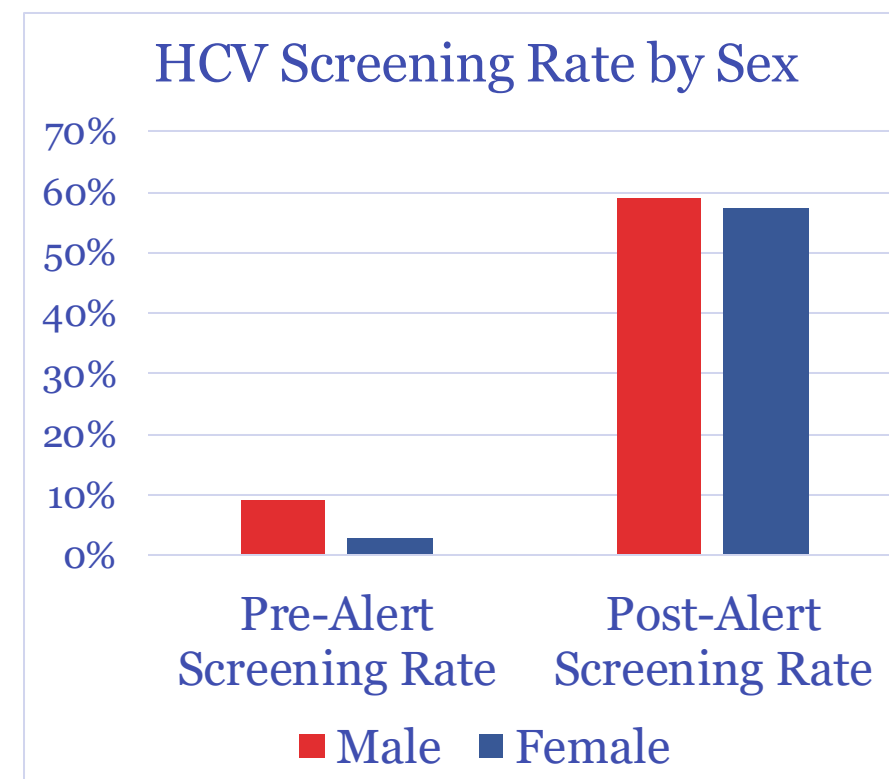
Prior to the Care Gap, there was a significant relationship between sex and HCV screening with a Chi square statistic of 6.94 and a p value of .008.

After the Care Gap, there was no significant relationship between sex and screening rates. Chi square statistic 0.087 And p value of .768.

HCV Screening Rate by Month
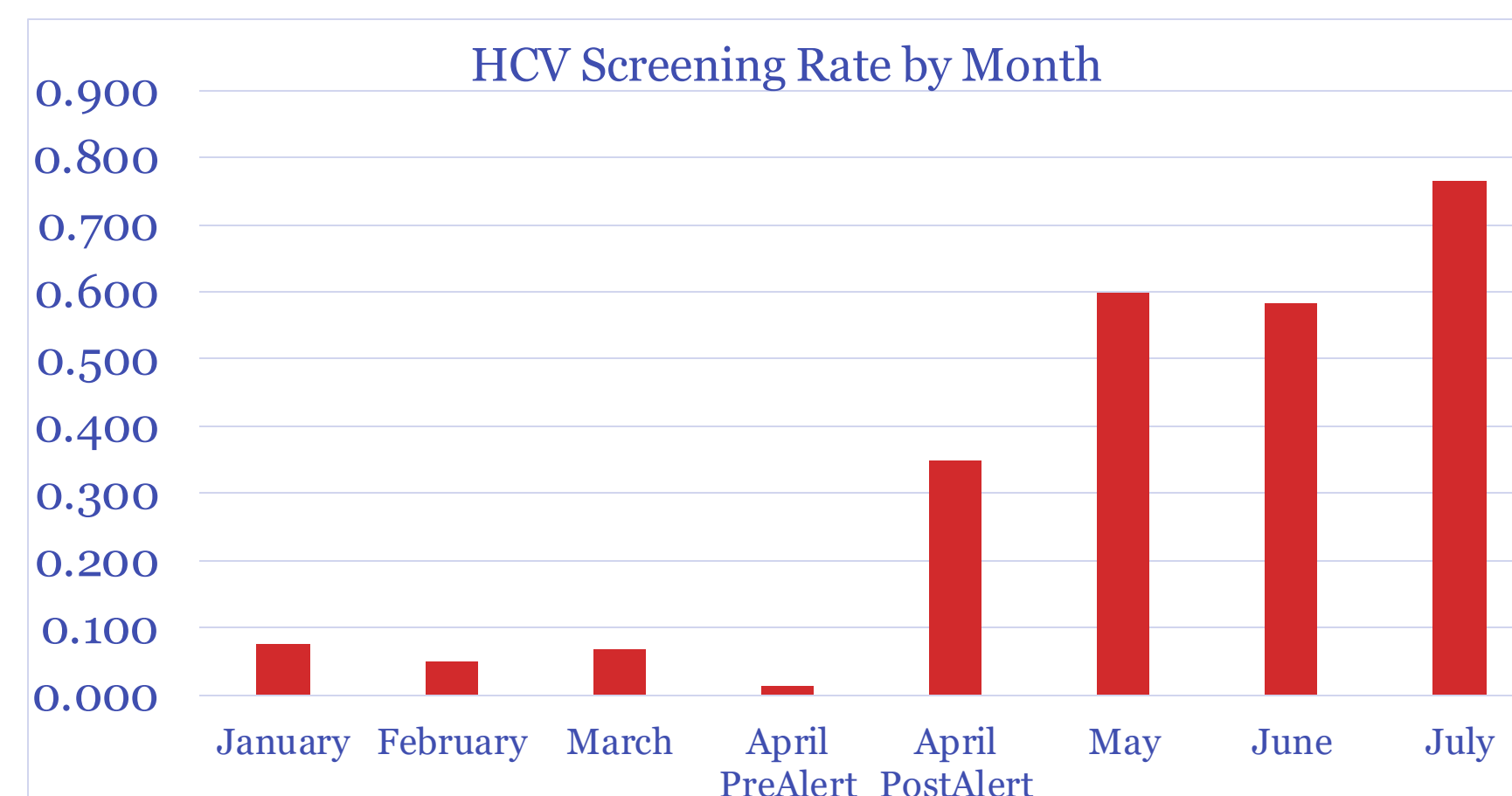
Linkage to Healthcare Disparities

The patient population at JHAP is predominantly Black and of lower socioeconomic status. Previous studies have revealed higher prevalence of HCV infection in Black patients and patients with lower incomes[3,4]. Studies also show that patients with lower income and less education were less likely to receive HCV screening[5].

HCV Screening Rates by Race (n=635)

	Screening Rate Pre-Alert	Screening Rate Post-Alert	Relative % Change in Screening Rate	Odds Ratio
White Male	9.1%	50%	+450.0%	10
White Female	0%	65.2%	N/A	N/A
Black Male	11.1%	60.5%	+444.7%	12.2666666
Black Female	3.1%	57.9%	+1788.7%	43.5245283
Hispanic/Other Male	0%	72.7%	N/A	N/A
Hispanic/Other Female	7.7%	52.9%	588.2%	13.5

Discussion

- We surpassed our aim to improve HCV screening by 30% with the EPIC care gap. We achieved a 52.6% increase in screening rates. Patients were 24.4x more likely to get screened with the Care Gap.
- Women were being screened significantly less than men prior to the care gap. Afterwards, there was no significant relationship between sex and HCV screening. Black females were 43.5x more likely to get screened with the Care Gap.
- Future directions: Evaluating proper referral to specialists and treatment of Hepatitis C infections.

References

1. Hofmeister M.G. Rosenthal E. M. Barker L.K. Rosenberg E.S. Barranco M.A.Hall E.W.et al. Estimating prevalence of hepatitis C virus infection in the United States, 2013-2016. Hepatology. 2019 Mar; 69: 1020-1031
2. US Preventive Services Task Force. Screening for Hepatitis C Virus Infection in Adolescents and Adults: US Preventive Services Task Force Recommendation Statement JAMA. 2020;323(10):970–975. doi:10.1001/jama.2020.1123
3. Omland LH, Osler M, Jepsen P, et al. Socioeconomic status in HCV infected patients - risk and prognosis. Clin Epidemiol. 2013;5:163-172. Published 2013 May 31. doi:10.2147/CLEP.S43926
4. Hall, E.W., Rosenberg, E.S. & Sullivan, P.S. Estimates of state-level chronic hepatitis C virus infection, stratified by race and sex, United States, 2010. BMC Infect Dis 18, 224 (2018). https://doi.org/10.1186/s12879-018-3133-6
5. Nili M, Luo L, Feng X, Chang J, Tan X. Disparities in hepatitis C virus infection screening among Baby Boomers in the United States. Am J Infect Control. 2018 Dec;46(12):1341-1347. doi: 10.1016/j.ajic.2018.06.008. Epub 2018 Jul 14. PMID: 30017311.