Evaluation of Hepatitis C Screening Practices Through the Orthopedic Medical Optimization Program (OMOP) to Improve Care and Surgical Outcomes in Patients who Undergo Joint Replacement Surgery (JRS)

Isabelle Mulango, MD; Jesse Thompson, PhD; Jami Pincavitch, MD;
John Guido, MD; Kayleigh Burner, APRN; Nicole Bryan MD, PhD

BACKGROUND:

- Chronic Hepatitis C infection is an established risk factor for poor surgical outcomes in patients undergoing elective joint replacement surgery (JRS).
- The rate of Hepatitis C in West Virginia in 2020 was 5.3 cases per 100.000 population, the highest rate in the US as reported by CDC.
- Treatment with direct acting antiviral medications, with cure rates >95%, can substantially reduce the risk of perioperative.
- The WVU Medicine Center for Joint Replacement has an Orthopedic Medical Optimization Program (OMOP).

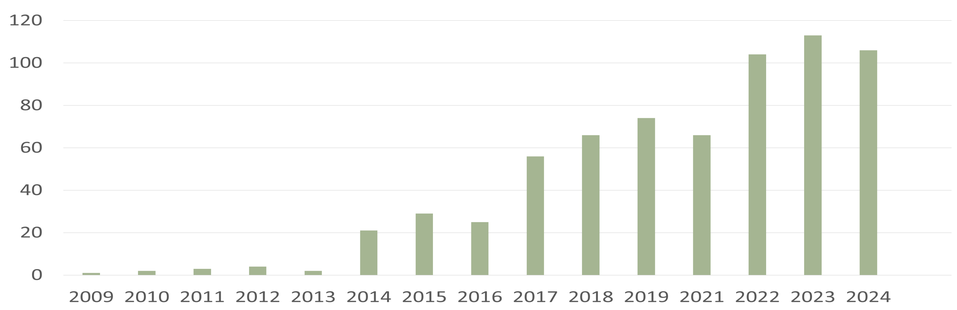
OBJECTIVE:

- For this QI project, we evaluated the Hepatitis C screening rate of individuals undergoing elective JRS who participated in the OMOP program.

IMPROVEMENT ACTION PLAN

- Retrospective study between January 2019 and December 2024.
- Chart review to determine patients who had pre-operative assessment through OMOP.
- We examined all individuals in the study group if they had a Hepatitis C screening antibody test performed prior to their surgical date.
- Any patients who did not meet the above definition were excluded

Figure 1. OMOP Hepatitis C screening by year (N= 760) 2009 - 2024



RESULTS:

- A total of 2,122 individual procedures were performed on 1,755 patients.
- 59.9% of patients underwent a total knee arthroplasty while 40.1% underwent a total hip arthroplasty.
- 553 (31.5%) patients had a Hepatitis C screening antibody test prior to the surgical date.
- There was no significant difference found between individuals who underwent Hepatitis C screening and those who did not with regards to age, BMI, median A1C level, smoking status, or anemia.

Table 1: Baseline Patient Characteristics

	Screened (N=553)	No screening (N= 1202)	P Value
Age, median (IQR; range)	67 (61, 72)	67 (59, 74)	0.14
BMI, N, median (IQR; range)	520; 32.3 (28.9, 37.2)	978; 32.4 (27.8, 36.7)	0.90
A1c, N, median (IQR; range)	497; 5.5 (5.30, 5.9)	928; 5.6 (5.4, 6)	0.11
Hemoglobin, N, median (IQR; range)	550; 13.1 (11.7, 14.40	1,194; 12.8 (11.4, 14.1)	0.004
Tobacco status (N, %) Never Quit Active Unknown	 304 (55) 205 (37.1) 39 (7.1) 5 (0.9)	 658 (54.7) 398 (33.1) 84 (7) 62 (5.2)	 0
Type of procedure Knee Hip	 338 (61.1) 214 (38.9)	 708 (59) 493 (41)	0.42
Day of screening prior to surgery N, median (IQR; range)	553; -1,036 (-1,837, -456)	209; 461 (176, 812)	0

SCALE UP PLAN:

- Hepatitis C infection is a modifiable risk factor.
- Patients who are found to have chronic Hepatitis C infection will continue to be referred to the WVU Medicine Infectious Disease clinic for treatment prior to undergoing elective surgical joint replacement.

SUSTAINABILITY PLAN:

- Given the high rates of Hepatitis C infection in WV, we will utilize the EMR to develop a clinical decision support tool to incorporate Hepatitis C screening into the workflow of the OMOP clinic.

LESSONS LEARNT:

- There was an increasing trend in the number of Hepatis C screening tests performed over time.
- Only 32% of individuals who underwent elective joint arthroplasty surgery at the WVU Medicine Center for Joint Replacement had Hepatitis C screening test prior to undergoing their surgical procedure.