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Enhancing Routine Screening and Care Linkage for Hepatitis C Virus in An Urban Safety-Net Health System

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Abstract

Objective: Hepatitis C virus (HCV) remains a significant public health concern globally. This study aims to evaluate an HCV screening and linkage-to-care program within an urban safety-net health system.

Methods: The program, implemented universal HCV screening across emergency department, inpatient, and outpatient settings, coupled with patient navigation services for positive cases. Data were collected , including patient demographics, risk factors, and outcomes such as screening numbers, test results, new diagnoses, navigation eligibility, and appointment attendance rates. Outcomes were also assessed based on patient knowledge of their infection.

Results: Among 21,018 individuals screened, 6% (1318/21,018) tested positive for HCV antibody, with 68% (878/1293) confirming positive HCV RNA results. Demographically, 68% were born between 1945-1965, 68% were male, and 65% were Black. Of those diagnosed, 55% were new cases, with risk factors including drug use (53%), unemployment (30%), and prior incarceration (21%). Among navigation-eligible patients (64%), 50% accessed imaging services, and 72% attended their initial medical appointment post-imaging.

Conclusion: Patient navigation significantly contributed to successful care linkage, yet ongoing financial sustainability for navigation services remains a challenge.

Keywords: hepatitis C, patient navigation, universal screening

Introduction

Hepatitis C virus (HCV) poses a significant public health challenge in the United States, with an estimated 2.4 million individuals infected during 2013-2016 and approximately 3000 new diagnoses annually. Many cases remain undiagnosed, despite the availability of curative treatments. Consequently, numerous healthcare settings have adopted HCV testing strategies, varying from targeted screening for specific populations (e.g., baby boomers, people who inject drugs, and HIV-infected individuals) to universal testing approaches. (Hofmeister et al., 2019)

Inspired by successful HIV navigation models, some healthcare providers have implemented HCV navigation programs to facilitate linkage to care for diagnosed individuals. Previous research has explored HCV screening procedures and linkage efforts across different settings but often lacked detailed descriptions of the navigation process or focused solely on specific demographics or settings, such as

university hospitals, outpatient clinics, federally qualified health centers, jails, or community testing sites. (Centers for Disease Control and Prevention, 2017)

The recommendation by the US Preventive Services Task Force in March 2020 to expand HCV screening to all adults is expected to increase the demand for HCV navigation services and necessitate guidance on implementing effective navigation programs. (Patel et al., 2016)

This study contributes to the existing literature on HCV navigation by focusing on an urban community safety-net teaching hospital, a setting that has not been extensively studied for HCV navigation programs. Moreover, the hospital's practice of routine HCV screening regardless of birth year or admission status is noteworthy, as this approach is uncommon among hospitals and adds to the uniqueness of our study. The objective of our research is to provide a comprehensive description of the HCV screening and navigation process and evaluate its outcomes within the context of an urban safety-net hospital. (Geboy et al., 2016)

Methods

Setting The study was conducted within a healthcare system serving resource-deprived communities in urban areas with large racial/ethnic minority populations . The healthcare system included an acute care community teaching hospital and an adult level-1 trauma center, as well as a community hospital, both equipped with emergency department (ED) facilities and offering inpatient and outpatient services.

A program to implement an HCV screening and patient navigation (linkage to care) initiative. The funding primarily supported the expansion of HCV testing as part of routine care and the provision of patient navigation services to facilitate linkage to the first medical appointment.

Screening Process The HCV screening program evolved through three stages:

1. Initial Stage (October-December 2014): Healthcare providers determined HCV screening based on patient age, risk assessment, and patient requests. Patients with positive HCV antibody test results underwent an additional RNA test. The patient navigator educated medical staff about HCV navigation, and patients were notified of positive results for further testing.
2. Second Stage (December 2014-August 2016): HCV screening criteria remained unchanged, but the system adopted reflex testing, performing RNA testing on the same specimen as the antibody test. The patient navigator assisted with result notification.
3. Current Stage (September 2016-August 2020): Routine HCV screening for all adults aged ≥18 admitted to the ED was implemented. The system utilized electronic medical record (EMR) standing orders for ED and inpatient units, while outpatient screening remained at the provider's discretion. Reflex RNA testing continued. The patient navigator conducted educational sessions for nursing staff and continued to assist with result notification.

Patient Navigation Process The patient navigator's primary role was to facilitate linkage to care and address barriers. They identified patients with positive HCV antibody results, educated patients, collected demographic and risk factor data, and initiated necessary tests and referrals. For patients with positive RNA results, the navigator facilitated appointments and provided support throughout the linkage process, including assistance with paperwork, addressing barriers like transportation or insurance, and ensuring follow-up care.

Participants and Measures Data collection . Measures included screening outcomes (number of tests, positive results), differences in outcomes by demographics and risk factors, and navigation outcomes (education provided, navigation eligibility, appointments facilitated). Statistical analyses were conducted using Stata version 14.

Patient Navigators Patient navigation services were provided by dedicated full-time employees, with training in HCV infection and navigation techniques. They maintained patient records in a secure database and collaborated with healthcare providers to ensure comprehensive care.

Results

During the study period, a total of 21,018 individuals underwent HCV screening, with 31% in the cohort (born 1945-1965) and 69% outside the cohort. Of these screenings, 6.3% tested positive for HCV antibody, with significantly higher rates among the cohort (13%) compared to the noncohort (3%). Among the

positive antibody tests, 68% were RNA-positive, with a higher proportion in the cohort (68%) compared to the noncohort (32%).

Demographically, among the 878 patients with positive HCV RNA results, 68% were male, and the majority were Black (65%), followed by Latino (19%) and White (14%). About 45% of patients knew about their infection, while 55% were new diagnoses. Common risk factors included past or current drug use (53%), unemployment (30%), ever being incarcerated (21%), past or current alcohol use (14%), unregulated tattoo or piercing (13%), homelessness (8%), and mental health illness (8%).

Further analysis revealed significant differences between patients with known infections and new diagnoses, with known infections more likely to report drug use, unemployment, incarceration, unregulated tattoo/piercing, mental health issues, and homelessness.

Of the 878 RNA-positive patients, 36% were ineligible for patient navigation services. Among the eligible patients, 50% were navigated to elastography, and 72% attended their first medical appointment. Ultimately, 23% of RNA-positive patients were linked to a medical appointment.

The average time from diagnosis to imaging (elastography) was 63 days, with a median of 39 days. The average time from imaging to the first medical appointment was 112 days, with a median of 59 days.

Discussion

Our study is among the first to delineate the process of HCV screening and subsequent linkage to care within an urban safety-net hospital with routine screening. While there have been a few similar studies, the majority of them were conducted in academically affiliated settings and focused on specific cohorts or locations, making direct comparisons challenging due to differences in screening protocols, patient demographics, and definitions of linkage. (Taylor et al., 2016)

For instance, in a safety-net study conducted in Texas, the majority of participants were Hispanic, whereas in our study, we had a significant proportion of Black and Hispanic participants. Despite these differences, our study achieved notable successes in providing education and facilitating the completion of imaging services and initial medical appointments for a substantial portion of patients with positive HCV RNA test results. (Castrejón et al., 2017)

The challenges faced by our patient population are emblematic of broader social determinants of health issues prevalent in medically underserved communities. Factors such as unemployment, homelessness, substance use, and limited access to resources significantly impact patients' ability to engage in healthcare services, including attending medical appointments. While our patient navigators are dedicated to overcoming these barriers, they underscore the need for comprehensive strategies to address the multifaceted challenges faced by our patients. (Bourgi et al., 2016)

Another critical aspect affecting linkage to care is the eligibility criteria for treatment, particularly concerning Medicaid coverage. Historically, restrictions on access to direct-acting antivirals based on liver fibrosis stage posed significant barriers to timely treatment initiation. However, policy changes in 2018 expanded access to treatment, highlighting the dynamic nature of healthcare policy and its impact on patient care pathways. (Ramirez et al., 2016)

Despite these challenges, our program has successfully identified a substantial number of new HCV diagnoses and facilitated linkage to care for many patients. The pivotal role of patient navigation in achieving these outcomes cannot be overstated, yet securing sustainable funding for navigator positions remains a challenge. Exploring avenues such as the 340B drug pricing program and partnerships with payers for funding navigation services could offer potential solutions. (Schoenbachler et al., 2016)

In conclusion, while our study has made significant strides in HCV screening and linkage to care, future research should delve deeper into understanding the HCV treatment cascade and navigation outcomes. Additionally, strategies to engage and support populations served by safety-net health systems, along with securing stable funding for patient navigators, are crucial for improving healthcare access and outcomes in these communities. (Rushovich et al., 2018)

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