Hepatitis C Epidemiology at the Dallas County Jail: A Changing Demographic

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Background

People involved in criminal justice (CJ) are disproportionately impacted by inequities along racial, economic, and social lines. These all cumulatively contribute to poor health outcomes, as demonstrated by Hepatitis C (HCV) infection rates. Nearly 1 in 3 people living with HCV pass through the CJ system each year. As a result, the CJ system is a crucial location for HCV screening, education and linkage to care.

Objectives

1) Identify the prevalence and incidence of HCV
2) Evaluate HCV demographic characteristics at a large urban jail

Methods

Universal opt-out HCV testing was offered in four separate testing cycles from 2015 to 2019 to any individual undergoing a routine blood draw at the Dallas County Jail (N=14490). HCV antibody (Ab) assay (LabCorp) was used with reflex RNA testing incorporated in 2017. Demographic variables were extracted from the electronic medical record, risk factors were collected from those who tested positive for HCV Ab (HCV Ab+), and multivariate logistic regression was performed. Prevalence ratios were calculated as the prevalence in a demographic group divided by the prevalence in the overall population for a given year of birth.

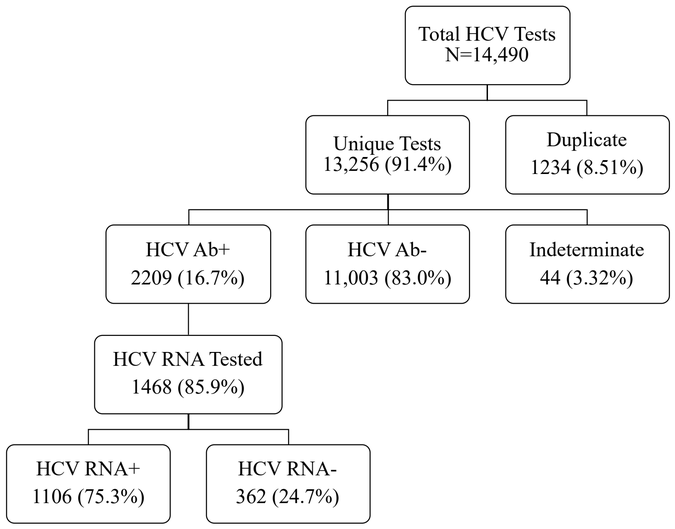

Figure 1. HCV Ab and HCV RNA positivity among people screened for HCV in the Dallas County Jail from 2015 to 2019 (N=14490).

Results

	HCV Ab+ n=2209	Total Tested N=13212	p-value	Multivariate Analysis n=7916 aOR (95% CI)	p-value
Age (n=13209)	47.0 ± 12.2	38.0 ± 11.8	<0.001	1.07 (1.06-1.08)	<0.001
Gender			0.181		0.003
Female	447 (26.2%)	2535 (24.9%)		1.24 (1.08-1.44)	
Male	1261 (73.8%)	7648 (75.1%)		Referent	
Race/Ethnicity			<0.001		
Non-Hispanic White	862 (39.0%)	3799 (28.8%)		2.08 (1.80-2.41)	<0.001
Hispanic White	378 (17.1%)	2296 (17.4%)		1.83 (1.53-2.20)	<0.001
Non-Hispanic Black	948 (42.9%)	6967 (52.8%)		Referent	
Other	20 (0.9%)	140 (1.1%)		0.73 (0.34-1.59)	0.415
Year of Test			0.003		
2015-2016	500 (22.6%)	3019 (22.9%)		---------	
2017	720 (32.6%)	3905 (29.6%)		Referent	
2018	639 (28.9%)	3976 (30.1%)		1.05 (0.91-1.21)	0.499
2019	350 (15.8%)	2312 (17.5%)		0.94 (0.79-1.12)	0.526
Birth Cohort (1945-65)			<0.001		<0.001
Yes	912 (41.3%)	2027 (15.3%)		1.79 (1.44-2.23)	
No	1297 (58.7%)	11185 (84.7%)		Referent	
Months in Jail (n=7925)	2.43 ± 2.35	2.63 ± 2.91	0.002	0.97 (0.95-0.99)	0.029
Release to			<0.001		
Prison	479 (43.7%)	2297 (36.6%)			
Not Prison	618 (56.3%)	3975 (63.4%)			

Table 1. Demographic predictors of HCV Ab+ among those undergoing routine blood draws from 2015-19 at the Dallas County Jail (AIC 7041; BIC 7048; df 10; p<0.001).

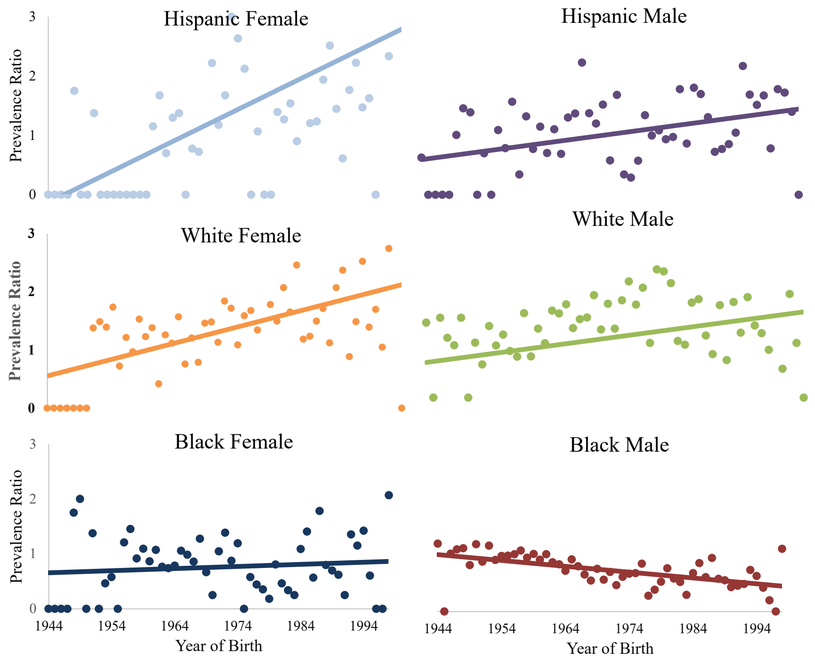

Figure 2. Demographic characteristics in HCV prevalence by year of birth among people at the Dallas County Jail screened from 2017-2019 (N=10183). Demographic groups were created by gender, race and ethnicity to demonstrate demographic trends over time. Prevalence ratios by birth year were calculated (prevalence ratio= proportion with disease/proportion with exposure).

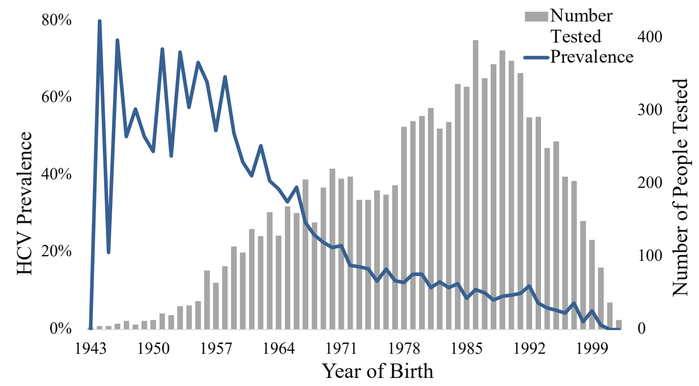

Figure 3. Hepatitis C Antibody prevalence and number of people tested for HCV by birth year among people at the Dallas County Jail screened from 2017-2019 (N=10183).

Conclusions

- Dallas County Jail has a high incidence (13.5 cases per 100,000) and prevalence (16.7%) of HCV Ab+.
- Older age, female gender and Hispanic and non-Hispanic white race were associated with HCV-Ab+.
- Among persons born in more recent decades, those with a positive HCV Ab were more frequently non-Hispanic and Hispanic white women, while among those born before 1965, those with HCV Ab + were more frequently Black men.
- Our work highlights the importance of universal HCV screening in concordance with the 2020 USPSTF guidelines.

Future Directions

Epidemiological analysis of HCV Ab positivity identifies a changing demographic where young individuals with exposure to HCV are more often white or Hispanic females compared to the general population. Demographic characteristics offer valuable insight into developing risk reduction, linkage to care and treatment interventions.

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