

Prevalence of Diagnosed and Undiagnosed Hepatitis C in a Midwestern Urban Emergency Department



UNIVERSITY OF
Cincinnati

Michael S. Lyons MD, MPH¹; Vidhya A. Kunnathur MD²; Susan D. Rouster BS²; Kimberly W. Hart MA¹; Matthew I. Sperling¹; Carl J. Fichtenbaum, MD³;
Kenneth E. Sherman MD, PhD²

University of Cincinnati, 1-Department of Emergency Medicine; 2-Division of Digestive Diseases; 3-Division of Infectious Diseases

BACKGROUND

Hepatitis C (HCV) is an increasingly recognized public health crisis.

- Newer treatments are curative, yet most individuals are undiagnosed.
- Expanded screening is recommended to enable treatment to prevent cirrhosis, liver cancer, and further transmission.

Emergency departments (EDs) could be uniquely important for HCV screening given access to vulnerable and difficult to reach populations.

- Preventive intervention in the ED remains controversial and challenging.
- Better understanding of HCV epidemiology in EDs could motivate and guide screening efforts.

OBJECTIVES

- To determine the prevalence of HCV in an urban, Midwestern ED.
- To estimate the proportion of cases likely to be undiagnosed, require treatment, or be subject to birth cohort screening.

METHODS

Single-center, cross-sectional, observational study using a repository of de-identified blood samples and self-reported information populated between January 2008 and December 2009.

- ED of a Midwestern, urban, 700-bed, teaching hospital.
- Consecutively approached patients 18 to 64 years (inclusive of birth cohort). Duplicate enrollments excluded.
- Consent to a “study of diseases of public health importance” with compensation and assurance of sample de-identification.
- Age categorized to assist de-identification; values imputed for analysis.

Assay

- HCV antibody: Biochain ELISA kit for Human HCV
- HCV RNA: QIAamp UltraSens Virus kit and real time RT-PCR using BioRad CFX96 SYBR Green UltraFast program with melt curve analysis

RESULTS

There were 128/924 subjects found to have HCV antibody (13.9%, CI95 11.7%-16.2%) of which:

- 103 (80.5%, CI95 73.0%-86.6%) were also RNA positive
- 36 (28%) were estimated to be outside of the birth cohort targeted by CDC for universal HCV screening.

There were 48/924 (5.2%) who reported a prior diagnosis of HCV:

- 7 did not have HCV antibody detected.
- 41/128 (32%) had been previously diagnosed (self-report).

Tables do not include 2 subjects with HCV RNA but no HCV antibody.

Table 2. Demographics

	Negative (n=794)		Antibody Positive (n=128)		RNA & Antibody Positive (n=103)	
	N	(%)	N	(%)	N	(%)
Age						
18-29	255	(32.1)	10	(7.8)	7	(6.8)
30-39	160	(20.2)	10	(7.8)	4	(3.9)
40-49	184	(23.2)	34	(26.6)	28	(27.2)
50-64	187	(23.6)	74	(57.8)	64	(62.1)
Undocumented	8	(1.0)	0	(0.0)	0	(0.0)
African American	438	(55.2)	64	(50.0)	52	(50.5)
Female	412	(51.9)	45	(35.2)	35	(34.0)
Less than High School	232	(29.2)	53	(41.4)	43	(41.7)

Table 1. Self-Reported History of Injection Drug Use, Sexually Transmitted Infections, and Hepatitis

	Negative (n=794)		Antibody Positive (n=128)		RNA & Antibody Positive (n=103)	
	N	(%)	N	(%)	N	(%)
Injection Drug Use	19	(2.4)	51	(39.8)	41	(39.8)
Sexually Transmitted Diseases	266	(33.5)	59	(46.1)	48	(46.6)
Chlamydia	136	(17.1)	14	(10.9)	13	(12.6)
Gonorrhea	114	(14.4)	23	(18.0)	17	(16.5)
Trichomonas	90	(11.3)	10	(7.8)	6	(5.8)
Crabs	69	(8.7)	15	(11.7)	13	(12.6)
Syphilis	27	(3.4)	5	(3.9)	3	(2.9)
HPV / Cervical Dysplasia / Cancer	28	(3.5)	2	(1.6)	2	(1.9)
Cervicitis / PID	27	(3.4)	3	(2.3)	3	(2.9)
HIV	20	(2.6)	7	(5.5)	5	(4.9)
Genital warts	20	(2.5)	1	(0.8)	1	(1.0)
Genital Herpes	19	(2.4)	2	(1.6)	2	(1.9)
Urethritis / Epididymitis / Orchitis	11	(1.4)	2	(1.6)	1	(1.0)
Hepatitis Type C	7	(0.9)	41	(32.0)	34	(33.0)

CONCLUSIONS

A high proportion of both birth and non-birth cohort patients presenting to this ED were found to have HCV RNA positive infection.

- The ED is likely to be a uniquely important venue for HCV screening, and work to overcome the logistical challenges of screening in this setting is warranted.
- This should include not only implementation of birth cohort screening, but also targeted patient selection strategies applied to an expanded age range.

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