

Open Forum Infectious Diseases

MAJOR ARTICLE



Effect of Hepatocellular Carcinoma on Mortality Among Individuals With Hepatitis B or Hepatitis C Infection in New York City, 2001–2012

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LIVER CANCER AND VIRAL HEPATITIS IN NYC

- First publication:
 - Moore MS, Ivanina E, Bornschlegel K, et al. **Hepatocellular Carcinoma and Viral Hepatitis in New York City**, *Clinical Infectious Diseases*, 2016;63(12): 1577-1583
 - Matched VHP surveillance data and NYS Cancer Registry data, 2001-2012
 - Examined all people with HCC (the most common form of liver cancer) and compared those who had HBV, HCV, both, or neither
 - This dataset alone cannot tell you how likely someone with HBV or HCV is to develop HCC, or what factors make them more likely to develop HCC
 - Also did not examine the role of HIV coinfection

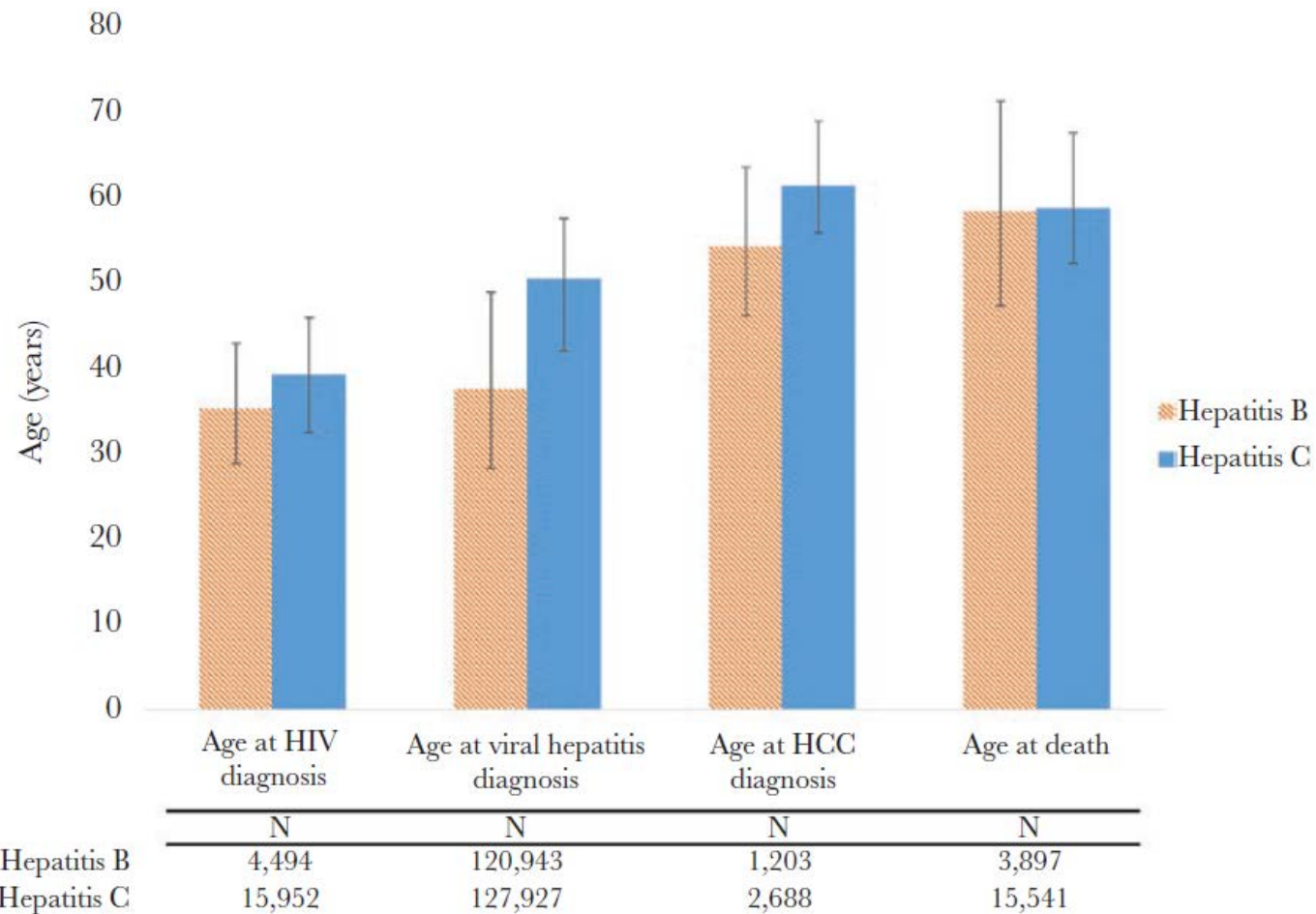
LIVER CANCER AND VIRAL HEPATITIS IN NYC

- Current study:
 - Moore MS, Bocour A, Tran OC, et al. Effect of Hepatocellular Carcinoma on Mortality Among Individuals With Hepatitis B or Hepatitis C Infection in New York City, 2001–2012, *Open Forum Infectious Diseases*, 5(7):ofy144
 - Used the same matched hepatitis-HCC dataset from the previous study
 - Also used a existing DOHMH PCSI (Program Collaboration and Service Integration) dataset of viral hepatitis cases matched to HIV cases and vital stats data
 - Matched these two datasets on the viral hepatitis cases to make a final dataset of all people with HBV and HCV in NYC from 2001-2012 with HIV, HCC, and vital status for each person

RESULTS

- 120,952 people with HBV from 2001-2012
 - 1,203 (1.0%) had HCC
 - 4,495 (3.7%) had HIV
 - 3,897 (3.2%) had died
- 127,933 people with HCV from 2001-2012
 - 2,688 (2.1%) had HCC
 - 15,958 (12.5%) had HIV
 - 15,541 (12.2%) had died

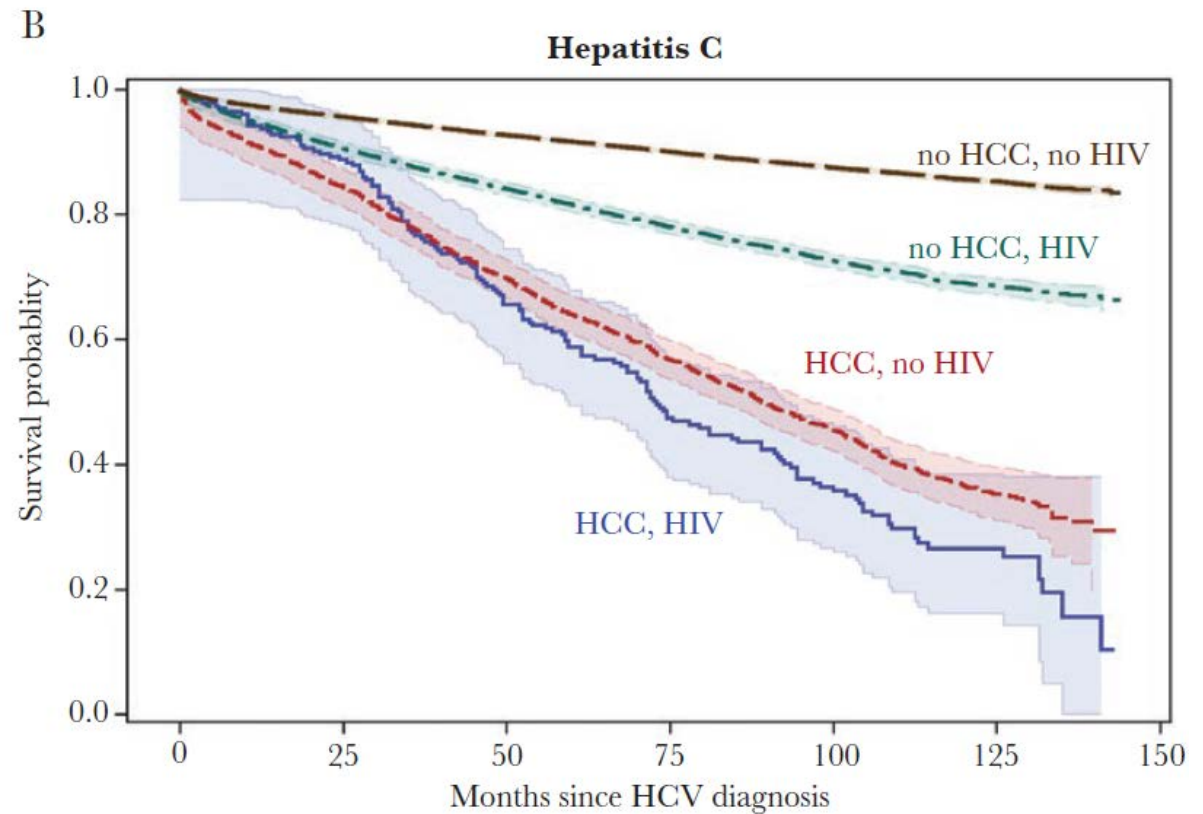
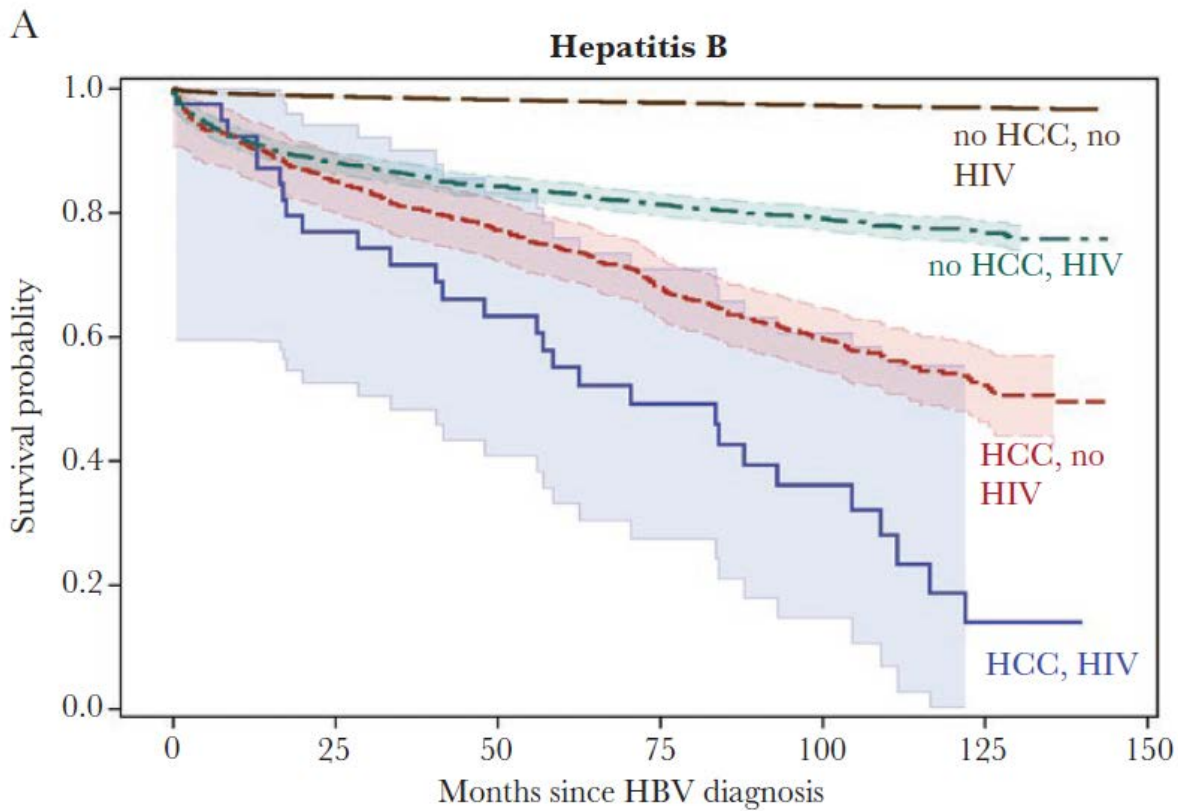
MEDIAN AGE AT VARIOUS STAGES FOR PERSONS WITH CHRONIC HEPATITIS B OR C



RISK FACTORS FOR HCC

- For both those with HBV and HCV
 - Men more likely than women to have HCC
 - Risk of HCC increases with increasing age at hepatitis diagnosis
 - Suggests that those with a delayed hepatitis diagnosis more often develop HCC
 - Those with HIV less likely to be diagnosed with HCC
 - HIV not likely protective for HCC; more likely, people with HIV more often die before developing HCC, or providers miss opportunities for HCC screening because of competing HIV-care needs

SURVIVAL BY HCC, HIV STATUS



UNDERLYING CAUSE OF DEATH

Hepatitis B
(n = 3897)

Hepatitis C
(n = 15 541)

Rank	Cause of Death Category	Hepatitis B (n = 3897)			Hepatitis C (n = 15 541)			
		No.	%	Median Age at Death (IQR), y	Cause of Death Category	No.	%	Median Age at Death (IQR), y
1	Nonliver cancers	833	21.4	59.0 (48.7–69.2)	Cardiovascular disease	3458	22.2	60.0 (52.5–72.6)
2	Cardiovascular disease	803	20.6	65.6 (53.7–77.4)	Nonliver cancers	2312	14.9	57.8 (51.9–66.4)
3	HIV/AIDS-associated	594	15.2	42.8 (37.7–49.6)	HIV/AIDS-associated	1939	12.5	48.8 (43.6–53.7)
4	Hepatocellular carcinoma	493	12.7	52.7 (45.3–61.5)	Other causes	1723	11.1	54.3 (47.1–64.6)
5	Other causes	421	10.8	54.1 (42.6–71.4)	Hepatitis C-associated	1536	9.9	54.7 (49.5–61.4)
6	Hepatitis B-associated	184	4.7	53.9 (46.2–64.8)	Drug/alcohol-associated	1357	8.7	47.2 (40.9–52.4)
7	Respiratory disease	188	4.8	68.4 (55.6–77.9)	Hepatocellular carcinoma	1152	7.4	59.2 (53.1–67.6)
8	Liver disease (noncancer)	133	3.4	53.8 (47.3–63.7)	Respiratory disease	804	5.2	58.6 (51.5–70.0)
9	Diabetes-associated	115	3.0	62.8 (54.6–71.1)	Liver disease (noncancer)	746	4.8	54.6 (48.9–61.4)
10	Drug/alcohol-associated	95	2.4	41.2 (35.9–48.7)	Diabetes-associated	450	2.9	58.0 (51.6–68.3)

IMPLICATIONS FOR HEPATITIS B CARE

- HCC is a significant contributor to mortality for people with hepatitis B
- Routine screening for HCC is critical
 - Active efforts for linking and retaining people in care
 - Treatment where indicated

IMPLICATIONS FOR HEPATITIS C CARE

- Mortality is high overall for people with HCV, and they are at high risk of HIV infection and HCC diagnosis
 - Harm reduction
 - HCV treatment before the development of liver disease/cirrhosis is important for reducing the risk of HCC
 - Increase in HCV in younger population—these people face the risks described here unless linked to care and promptly treated

QUESTIONS?

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