Trend analysis in hepatitis C testing, OptumLabs® Data Warehouse, 2011–2017

Jane Sullivan[1], Jae Eui Soh[2, 3], Mohammed A. Khan[2, 3], William W. Thompson[3], Noele P. Nelson[3]

[1]OptumLabs, Eden Prairie, Minnesota, United States, [2]Emory University, Atlanta, Georgia, United States, [3]Division of Viral Hepatitis, Centers for Disease Control and Prevention, Atlanta, Georgia, United States

Objective

Using administrative claims for privately insured and Medicare Advantage enrollees from a large, private, U.S. health plan, we estimated the prevalence of hepatitis C testing among individuals who were recommended to be tested (i.e., baby boomer cohort born between 1945 and 1965) by the CDC and United States Preventive Services Task Force. This panel will discuss strengths and weaknesses for monitoring hepatitis C testing using alternative data sources including self- reported data, insurance claims data, and laboratory testing data.

Introduction

Hepatitis C virus (HCV) infection is the most common blood-borne disease in the US and the leading cause of liver-related morbidity and mortality. Approximately 3.5 million individuals in the US were estimated to be living with HCV in 2010 and approximately half of them were unaware that they were currently infected. Among HCV infected individuals, those born between 1945 and 1965 (usually referred to as the baby boomer cohort) represents approximately 75% of current cases. Because of the substantial burden of disease among this age group, CDC expanded its existing HCV risk-based testing recommendations to include a one-time HCV antibody test for all persons born between 1945-1965. The United States Preventive Services Task Force (USPSTF) subsequently made the same recommendation in June 2013.

Methods

We obtained health plan enrollment information and claims data from the 2011 - 2017 OptumLabs® Data Warehouse, and utilized data from patients enrolled in either commercially insured programs or Medicare Advantage. We examined trends in HCV testing for the birth cohort born between 1945 and 1965 and compared their trend in testing to individuals who were not in the birth cohort. We developed two different estimates for HCV testing incidence in order to make comparisons to other commercial claims datasets. The denominator for both estimates was the number of adults continuously enrolled in one or more health plan(s) in a given calendar year (allowing up to a 45-day gap in coverage). The numerator for the first estimate was the number of people receiving any HCV related test in the current calendar year who had not received any HCV related test including HCV antibody test, HCV RNA test or HCV genotype test in the previous calendar years. The numerator for the second estimate was the number of people who were given an HCV antibody test (CPT: 86803 and 80074) in a given calendar year, irrespective of previous testing history.

Results

During the study period 2011 - 2017, there were 20,332,848 unique adults who met the inclusion criteria in the OptumLabs® data. Approximately 7.1 million (35.0%) of these individuals were born between 1945 and 1965. On average, there were approximately 2.8 million birth cohort enrollees for any given calendar year. For the birth cohort, the annual incidence of HCV testing was about 2% per year during the time period between 2008 and 2011 (data not shown). In general, between 2011 and 2017, the trends in testing rates were consistent across both estimation methods. Specifically for the birth cohort, the HCV testing rate increased substantially between 2012 and 2017, peaking in 2017 at 8.56% [95% CI: 8.53-8.59%] and 10.24% [95% CI: 10.21-10.27%]. The greatest increase occurred between 2016 and 2017 when the testing rate almost doubled. In contrast, for the non-birth cohort, the HCV testing rate started in 2012 at a rate similar to the birth cohort but did not increase in a similar fashion and did not see a substantial increase in HCV testing in 2016 or 2017.

Conclusions

Since CDC and USPSTF recommended universal testing for the birth cohort in 2012 and 2013, respectively, hepatitis C testing rates have been increasing across all age groups. The rate of increase for the birth cohort was substantially greater than that for the non-birth cohort. CDC and USPSTF recommendations are likely a strong contributing factor impacting hepatitis C testing rates in the US. Efforts to promote hepatitis C testing should continue.
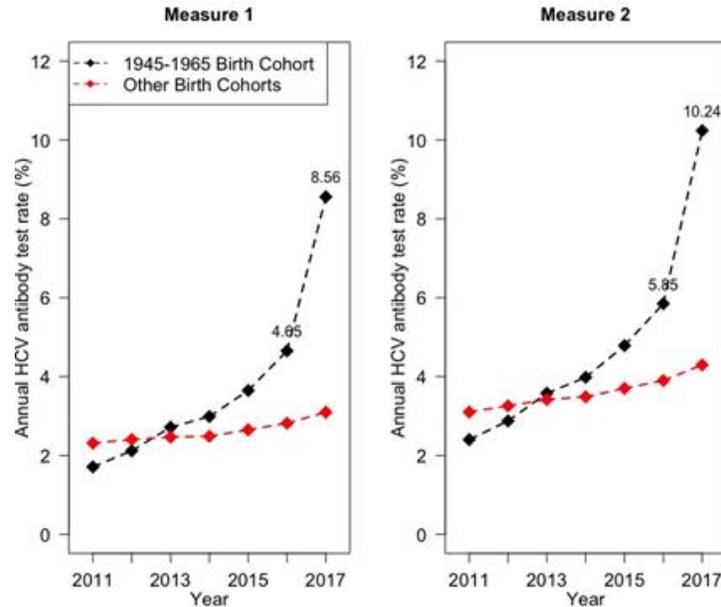
Figure 1. Annual hepatitis C virus (HCV) antibody test rate by birth cohort, OptumLabs®, 2011-2017

Table 1. Annual hepatitis C virus (HCV) antibody test rate by birth cohort, Optum, 2011-2017

Year	1945-1965 Birth Cohort	# Cases (%; 95% CI), Measure 1	# Cases (%; 95% CI), Measure 2	Other Birth Cohorts	# Cases (%; 95% CI), Measure 1	# Cases (%; 95% CI), Measure 2
2011	2,821,115	48,290 (1.71; 1.70-1.73)	67,787 (2.40; 2.39-2.42)	4,106,323	94,924 (2.31; 2.30-2.33)	127,347 (3.10; 3.08-3.12)
2012	2,818,707	59,734 (2.12; 2.10-2.14)	81,084 (2.88; 2.86-2.90)	4,792,744	115,334 (2.41; 2.39-2.42)	156,156 (3.26; 3.24-3.27)
2013	2,831,810	76,904 (2.72; 2.70-2.73)	101,366 (3.58; 3.56-3.60)	4,906,456	121,066 (2.47; 2.45-2.48)	167,680 (3.42; 3.40-3.43)
2014	2,536,225	75,782 (2.99; 2.97-3.01)	100,983 (3.98; 3.96-4.01)	4,651,235	115,690 (2.49; 2.47-2.50)	162,187 (3.49; 3.47-3.50)
2015	2,703,076	98,599 (3.65; 3.63-3.67)	129,394 (4.79; 4.76-4.81)	5,066,428	134,287 (2.65; 2.64-2.66)	187,532 (3.70; 3.69-3.72)
2016	3,128,298	145,562 (4.65; 4.63-4.68)	183,002 (5.85; 5.82-5.88)	5,719,535	161,164 (2.82; 2.80-2.83)	223,024 (3.90; 3.88-3.92)

| 2017 | 3,290,050 | 281,595 (8.56; 8.53-8.59) | 336,838 (10.24; 10.21-10.27) | 6,061,195 | 187,659 (3.10; 3.08-3.11) | 260,427 (4.30; 4.28-4.31) |