POSITIVITY RATES AND GENOTYPE RESULTS IN "BABY BOOMERS" SCREENED FOR HCV FOLLOWING THE 2012 CDC CALL TO ACTION: RESULTS FROM A NATIONWIDE LAB TEST DATABASE

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ABSTRACT

Purpose: In August 2012, the Centers for Disease Control and Prevention (CDC) called for all Americans in the "Baby Boomer" generation (born 1945 - 1965) to have a one-time screening test for hepatitis C (HCV). We previously analyzed screening rates in >100,000 practices nationwide, and found that in the year following the CDC call, screening rates rose significantly (10 %) in the Baby Boomer cohort, but also decreased significantly (10 %) in the non-Baby Boomer cohort (screening rate/practice 4.17 vs. 4.58, p<0.001). In this study, we examined the positivity rates in screened patients, and viral genotypes found in HCV+ patients.

Methods: We defined the pre-call to action period as Aug 2011 – Jul 2012; the first year post- call as Aug 2012 – Jul 2013, and the second year post-call as Aug 2013 – Jul 2014. Using data from the nationwide Medivo Lab Value Exchange Database (Medivo Inc., NY, NY), we analyzed lab test results from 4,961,282 adults screened for HCV antibody (Ab) between Aug 2011 and Jul 2014; 1,529,916 (30.8 %) were Baby Boomers and 3,431,366 (69.2 %) were non-Baby Boomers. Logistic regression was performed to compare probability of having a + HCV antibody test among Baby Boomers vs. non-Baby Boomers in the year pre- CDC call to action and in years 1 and 2 post-call. Descriptive analytics was performed on HCV+ patients' genotype test results.

Results: Overall, the HCV antibody positivity rate was 8.54 %; 12.69 % among Baby Boomers and 4.4 % among non-Baby Boomers. Logistic regression analysis showed that Baby Boomers were 250 % more likely to have a + HCV antibody test than non-Baby Boomers (OR = 3.5, p < 0.001). However, over time HCV positivity rates among Baby Boomers fell compared to non-Baby Boomers. Statistical analysis showed that in the first year post-call, Baby Boomers were 21 % less likely to have a + HCV Ab result (OR = 0.79, p < 0.01), and in the second year post-call, Baby Boomers were 31 % less likely (OR = 0.69, p < 0.01) to test + on HCV screening. Descriptive analysis of HCV genotype test results shows that between Aug 2011- Jul 2014, 208,685 of the HCV+ patients had HCV genotype testing; 76.38 % had genotype 1, 10.92 % had genotype 2, 10.90 % had genotype 3 and 1.8 % had other genotypes.

Discussion: HCV positivity rates are significantly higher among Baby Boomers than among non-Boomers, but this rate is falling over time as more Baby Boomers are screened. Genotype testing shows that HCV genotype 1 continues to be the most common among US HCV+ patients. More study is needed to examine ongoing HCV screening and positivity rates across birth cohorts, and to determine if the population HCV genotype profile is changing over time.

INTRODUCTION

- People born between 1945 - 1965 (the "Baby Boomer" generation) account for 75 % of cases of chronic hepatitis C virus (HCV) infections in the US.[1] According to the Centers for Disease Control and Prevention (CDC), about 1 in 30 people in this birth cohort have HCV, but most are unaware of it and are therefore not being treated or monitored for HCV.[1]
- In August 2012, the CDC issued a call to action, recommending that all individuals born between 1945 and 1965 receive a one-time screening for HCV without previous ascertainment of HCV risk.[1] The CDC also notes that among known HCV+ individuals, 45 % report no known risk factors.[1]
- We previously analyzed screening rates in >100,000 practices nationwide, and found that in the year following the CDC call to action, screening rates rose significantly (10 %) in the Baby Boomer cohort, but also decreased significantly (10 %) in the non-Baby Boomer cohort (screening rate/practice 4.17 vs. 4.58, p<0.001).[2]

PURPOSE

- In this study, we examined positivity rates in >4,000,000 individuals screened in the US for HCV from 2012 to 2014, and the viral genotypes of the HCV+ subgroup.

METHODS

- At the time of analysis, the nationwide Medivo Lab Value Exchange™ Database (LVX™, Medivo Inc., New York, NY) included more than 30 million patients and over 200,000 practice locations.
- Using the August 2012 date of the CDC call to action as the reference point, we defined the pre-call to action period as August 2011 - July 2012; the first year post-call as August 2012 - July 2013, and the second year post-call as August 2013 - July 2014.
- Using data from the nationwide Medivo LVX, we analyzed lab test results from 4,961,282 adults screened for HCV antibody (Ab) between August 2011 and July 2014; 1,529,916 (30.8 %) were Baby Boomers and 3,431,366 (69.2 %) were non-Baby Boomers.
- Logistic regression was performed to compare probability of having a positive HCV Ab test among Baby Boomers vs. non-Baby Boomers in the year before the CDC call to action and in years 1 and 2 post-call.
- Descriptive analytics was performed on HCV+ patients' genotype test results.

RESULTS

- Overall, the HCV antibody positivity rate was 8.54 %; 12.69 % among Baby Boomers and 4.4 % among non-Baby Boomers. (Figure 1)
- Logistic regression analysis showed that Baby Boomers were 250 % more likely to have a + HCV antibody test than non-Baby Boomers (OR = 3.5, p < 0.001).
- However, over time HCV positivity rates among Baby Boomers fell compared to non-Baby Boomers. Statistical analysis showed that, compared with the year pre-call, in the first year post-call, Baby Boomers were 21 % less likely to have a + HCV Ab result (OR = 0.79, p < 0.01), and in the second year post-call, Baby Boomers were 31 % less likely to test + on HCV screening (OR = 0.69, p < 0.01). (Table 1, Figure 2)
- Descriptive analysis of HCV genotype test results shows that between August 2011 and July 2014, 208,685 of the HCV+ patients had HCV genotype testing; 76.38 % had genotype 1, 10.92 % had genotype 2, 10.90 % had genotype 3 and 1.8 % had other genotypes. (Table 2)

Figure 1: HCV Positivity Rates by Population

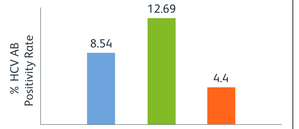

Figure 2: HCV Positivity Rates

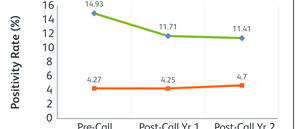

Table 1: HCV Antibody Screening Positivity Rates

Time Period	08/2011 - 07/2012 (Pre-Call to Action)		08/2012 - 07/2013 (Post-Call Yr. 1)		08/2013 - 07/2014 (Post-Call Yr. 2)	
Population	Baby Boomers	Non-Baby Boomers	Baby Boomers	Non-Baby Boomers	Baby Boomers	Non-Baby Boomers
Total # Screened	448,493	1,215,084	514,535	1,082,248	566,888	1,134,034
Change in Screening Rate vs. Previous Yr.	N/A	N/A	+14.7 %	-10.9 %	+10.2 %	+4.8 %
# HCV +	58,258	49,730	53,945	44,075	58,076	50,926
Positivity Rate	14.93 %	4.27 %	11.71 %	4.25 %	11.41 %	4.70 %

Table 2: HCV Genotype Test Analysis

Genotype	% of HCV+ Patients N=208,685	Baby Boomers (n)	Non-Baby Boomers (n)	Unknown (n)
Genotype 1	76.38 %	104,034 (65.3 %)	44,703 (28.0 %)	10.637 (6.7 %)
Genotype 2	10.92 %	10,315 (45.3 %)	8,543 (37.5 %)	3,870 (17.2 %)
Genotype 3	10.90 %	13,524 (59.5 %)	7,005 (30.8 %)	2,217 (9.7 %)
Other Genotypes	1.8 %	2,245 (59.8 %)	1,158 (30.8 %)	355 (9.4 %)

LIMITATIONS

- Rates of office visits by different patient cohorts during the time periods included in the analysis were not included in the study; these rates may impact testing rates and the potential differences in screening rates.
- Other population differences were not studied, including other patient demographics and comorbidities.

CONCLUSIONS

- HCV positivity rates are significantly higher among Baby Boomers than among non-Boomers, but this rate is falling over time as more Baby Boomers are screened.
- Genotype testing shows that HCV genotype 1 continues to be the most common among US HCV+ patients.
- More study is needed to examine ongoing HCV screening and positivity rates across birth cohorts, and to determine if the population HCV genotype profile is changing over time.

REFERENCES

1. Centers for Disease Control and Prevention. Recommendations for the Control of Chronic Hepatitis C Infection Among Persons Born During 1945-1965. *MMWR*. 2012; 61 (No. RR-4):1-32.
2. Smyth C, Bhan J, Sorokina T, et al. HCV screening of "Baby Boomers" increased significantly following 2012 CDC call to action, but screening rate fell in non-Baby Boomers: Results of a nationwide lab test database analysis [abstract 1447]. Presented at The Liver Meeting (AASLD), November 10, 2014, Boston, MA.
3. Medivo Lab Value Exchange Database, Medivo Inc., NY, NY. Data on file, 2011 – 2014.

ACKNOWLEDGEMENT

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DISCLOSURE STATEMENT

JB; co-founder of Medivo, Inc. CS, TS, AP; employees of Medivo, Inc. ASD and NR; nothing to disclose.

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