

## **AASLD 2013: Expanded Hepatitis C Screening Needed for Veterans, Baby Boomers, Pregnant Women**

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by Keith Alcorn ..

Two large studies of the "Baby Boom" generation in the U.S. suggest that at least 50,000 military veterans may have undiagnosed hepatitis C, and that around 80% of patients born between 1945 and 1965 receiving care through 4 large primary health care systems could be undiagnosed, according to presentations at the 64th AASLD Liver Meeting in Washington DC. Other research showed that screening pregnant women for hepatitis C on the basis of self-disclosed risk factors would have missed almost three-quarters infections in this population between 2003 and 2010.

A recommendation to screen all "Baby Boomers" born between 1945 and 1965 was issued by the U.S. Centers for Disease Control and Prevention (CDC) in 2012. Implementation has been uneven and will depend in part on initiatives like the recent New York state law requiring all health facilities to screen adults in this birth cohort starting January 2014, as well as on funding.

Several studies presented at the conference looked at the potential yield of more comprehensive age-based screening in various settings.

### Veterans

U.S. military veterans of the Baby Boom generation make up a population at higher-than-average risk for hepatitis C. HCV prevalence is higher among adults born between 1945 and 1965 due to higher levels of injection drug use and greater lifetime risk of exposure to blood products containing hepatitis C compared to those born after 1965.

Veterans may be at especially high risk of hepatitis C due to high levels of injection drug use among the population that served during the Vietnam War era and blood exposure in battle or medical settings. Tattooing and transmission through use of air-guns for vaccination during military service are difficult to quantify as sources of infection, but many veterans -- particularly those who did not see active service in Vietnam -- believe these routes may explain their infection.

Furthermore, the Veteran's Administration (VA) medical system may have an especially high prevalence of hepatitis C among its patient population because it has tended to retain in care veterans who have sought treatment for substance abuse through the VA system.

Lisa Backus from the Veteran Affairs Office of Public Health presented an analysis of the proportion of veterans receiving care through VA system who might remain undiagnosed.

The VA examined its database of 5.5 million veterans in care to determine what proportion of patients who attended a medical appointment during 2012 had been tested for hepatitis C between 1999 and 2012. The VA began risk-based HCV screening following a CDC recommendation in 1998.

The researchers found that 54% of all veterans had been screened for HCV at least once (42% of those born before 1945, 64% of those born during 1945-1965, and 58% of those born after 1965.)

Of those screened, 95% received confirmatory HCV RNA testing, yielding a chronic infection rate of just under 2% for those born before 1945, 10% for those born between 1945 and 1965, and 1% for those born after 1965. Hepatitis C prevalence among newly screened veterans declined with each year -- suggesting that those at greatest risk would have been tested earlier -- falling from 33% in 1999 to 6% in 2012.

Based on these rates of infection, the researchers estimated that if the remaining 905,000 veterans in the 1945-1965 birth cohort underwent HCV testing, an additional 51,000 veterans with hepatitis C would be identified.

### Emergency Rooms

Two other studies presented at the conference showed higher than expected prevalence of hepatitis C infection among emergency room attendees, among pregnant women and among adults in primary care, and demonstrated that relying on self-disclosed risk factors alone to prompt hepatitis C testing would result in the majority of infections going undiagnosed.

In many settings the emergency room may be the only site where adults -- especially men -- come into contact with health services, particularly if they are uninsured or have no entitlement to free health care. Studies in the U.S and Europe have shown that emergency services often provide care for people who are otherwise disengaged from the health care system. Emergency rooms also provide initial care for a disproportionate number of older people who present with acute conditions such as heart attacks and strokes.

A study conducted over a 2-week period in an emergency room in Alabama by researchers from the University of Alabama at Birmingham set out to provide a snapshot of the prevalence of undiagnosed hepatitis C among the 1945-1965 birth cohort.

During the study period 874 Baby Boomers were admitted, of whom 565 were willing and able to give consent for hepatitis C testing. Within this group 12% tested positive for HCV antibodies, of whom 71% were confirmed to have chronic with hepatitis C.

Men were more likely than women to test positive for HCV (16% vs 9%), as were people who either lacked health insurance or were reliant on Medicaid (17% vs 5.). There was no difference in the HCV positivity rate between African Americans and Caucasians (14% vs 10%).

## Prenatal care

The American College of Obstetricians and Gynecologists recommends HCV screening only for pregnant women with "significant risk factors." Analysis of 32,426,357 deliveries or miscarriages recorded in the U.S. Nationwide Inpatient Sample between 2003 and 2010 identified 28,663 mothers with HCV infection.

Patient records showed that almost three-quarters (72%) of women diagnosed with HCV at the time of delivery or miscarriage had no identifiable risk factors recorded in their medical records that might have prompted the offer of HCV testing. The risk factors analyzed in this study were HIV infection, ongoing substance abuse, and kidney dialysis.

HCV-infected women tended to be significantly older (by 1.7 years), more often Caucasian, less affluent, more likely on Medicaid, more often substance abusers, and have more medical comorbidities.

The study found that HCV infection was associated with a 3-fold higher risk of obstetrical pulmonary embolism, which is one of the most common causes of death among pregnant women around the time of delivery (adjusted odds ratio 3.05). The risks of early or threatened labor (adjusted OR 1.36), prepartum hemorrhage (adjusted OR 1.44), poor fetal growth (adjusted OR 1.61), and maternal thyroid dysfunction were also moderately increased in women with HCV infection.

## Primary Care

The recent CDC recommendations regarding birth cohort testing are most relevant for general practitioners, since they are the main providers of health care for the vast majority of people in the U.S.

To examine the scope for identifying previously undiagnosed HCV infections in general medical practices, researchers carried out an analysis of 209,076 patients from 4 sites who attended at least 1 medical appointment between 2005 and 2010.

They found that 17,464 (8%) had been tested for hepatitis C, with a positivity rate of just over 6%. Three-quarters of the patients who tested positive were born between 1945 and 1965.

Logistic regression analysis identified the following risk factors as significantly and independently associated with HCV positivity:

History of ever injecting drugs (adjusted OR 6.3);

1945-1965 birth cohort (adjusted OR 4.4);

Elevated alanine aminotransferase or ALT (adjusted OR 4.8);

Hispanic (adjusted OR 1.5) or black race/ethnicity (adjusted OR 1.9) compared with whites;

Widowed or divorced marital status (adjusted OR 1.5) or never married (adjusted OR 1.4) versus married status;

Male sex (adjusted OR 1.3).

Applying these risk factors to patients in the cohort who remained undiagnosed, the researchers estimated that if all 209,076 patients had been tested, a total of 6005 additional cases of HCV antibody positivity would have been identified, a predicted prevalence of 3%. They further estimated that 81% of HCV infections in the cohort remained undiagnosed.

LI Backus, PS Belperio, TP Loomis, et al. Hepatitis C Virus Screening and Prevalence among US Veterans in Department of Veterans Affairs Care in 2012. 64th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD 2013). Washington, DC, November 1-5, 2013. Abstract 21.

JW Galbraith, RA Franco, JS Rodgers, et al. Screening in Emergency Department Identifies a Large Cohort of Unrecognized Chronic Hepatitis C Virus Infection Among Baby Boomers. 64th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD 2013). Washington, DC, November 1-5, 2013. Abstract LB-6.

P Chen, BN Limketkai, B Kim, et al. Effects of Chronic Hepatitis C on Pregnancy and Perinatal Outcomes. 64th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD 2013). Washington, DC, November 1-5, 2013. Abstract 19.

AK Yartel, DB Rein, K Krauskopf, et al. Hepatitis C virus (HCV) Antibody Positivity and Predictors Among Adult Primary Care Patients: Cross-sectional Analysis of a Multi-site Retrospective Cohort Study. 64th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD 2013). Washington, DC, November 1-5, 2013. Abstract 24.