

CDC *Vital Signs* Town Hall Teleconference

Hepatitis C: Testing Baby Boomers Saves Lives

May 14, 2013
2:00–3:00 pm EDT

Coordinator: Welcome, everyone, and thank you for standing by. At this time, I would like to inform all participants that your lines will be in a listen-only mode until the question and answer session of today's conference call.

If you would like to ask a question at that time, please press star 1 on your touchtone phone. Today's conference is being recorded. If you have any objections, you may disconnect at this time.

I would now like to turn the meeting over to our first speaker, Dr. Dan Baden. Thank you, sir, you may begin.

Dr. Dan Baden: Thank you, Bridgett. Good afternoon everyone. I'm sorry for the delay. I'm Dr. Dan Baden, the associate director for field services and outreach engagement in CDC's Office for State, Tribal, Local and Territorial Support. Welcome and I'm glad you could join us today.

We're going to discuss the latest *Vital Signs* report on hepatitis C today. Before I get started, I want to go over some housekeeping details. You can go online and download today's PowerPoint presentation if you don't have it already so you can follow along with the presenters.

The web address for that is www.cdc.gov/stltpublichealth, again, S-T-L-T public health. There's a link directly to the *Vital Signs* Town Hall website under Highlighted Products and Resources on the lower right-side of the page.

On this Town Hall page, you can also view bios for each of the presenters. This is where we'll have the audio recording and transcript from today's teleconference. They should be available next week.

Again, our topic, hepatitis C, it's an important public health topic because approximately 3 million adults in the US are infected, most are baby boomers. Up to three in four people infected don't know that they have hepatitis C, and they're not getting the necessary care. Over time, hepatitis C can cause liver damage and liver cancer, which can be severe or even fatal. Early treatment can help prevent this damage.

On today's call we're going to hear from three colleagues. They will recognize May as Hepatitis Awareness Month and promote May 19, 2013, as National Hepatitis Testing Day. Our STLT partners are state, tribal, local, and territorial partners, who are critical to helping us raise awareness about this disease, its risk factors, and the testing recommendations for those born during 1945 to 1965, the baby boomers.

First, we're going to hear from Dr. John Ward, director of CDC's Division of Viral Hepatitis in the National Center for HIV/AIDS, Viral Hepatitis, STD and TB prevention. He will provide a summary of this month's *Vital Signs* report.

Dr. Ward will hand the call over to Ms. Katherine Bornschlegel, the hepatitis B and C surveillance coordinator at the New York City Department of Health and Mental Hygiene. Ms. Bornschlegel will share information about

improving hepatitis C testing practices in New York City, including the “It Takes Two” clinician outreach project.

Ms. Bornschlegel will then turn the call over to Ms. Shauna Onofrey, who is a senior epidemiologist in the Division of Epidemiology and Immunization at the Massachusetts Department of Public Health. Ms. Onofrey will discuss increases of hepatitis C virus in adolescents and young adults in Massachusetts.

Please note there will be a time for questions after our presentations today. You can get in queue at any time to ask a question by pressing star 1 and recording your name when prompted.

And now, I'll turn the call over to Dr. Ward.

Dr. John Ward: Thank you Dan; this is John Ward here, and good day, everyone. As Dan mentioned, I'll give you a brief overview of the epidemiological rationale for CDC's recent recommendation extending a recommendation for hepatitis C testing to include persons born from 1945 through 1965, describe some of the surveillance data regarding the number of cases being reported among this age group, and among others.

And some of the areas of improvement that's needed in hepatitis C testing to actually detect HCV infection so as to give people the right information about the implications of their test results, positive or negative. And of those that are positive, linking them to appropriate preventive care, services, and treatment.

Beginning on slide 5, really describes the burden of hepatitis C morbidity, mortality in the United States. As Dan mentioned, we estimate from NHANES (National Health and Nutrition Examination Survey) data that

approximately 2.7 to 3.9 million persons are living with hepatitis C in the United States.

Many of those were infected decades ago before the virus was discovered in 1989 when they were young adults either through injection drug use, unscreened blood transfusions, or other exposures in the healthcare setting. Because about 70% of persons, once infected with the virus, remain infected essentially for life, you have this cohort of persons infected in the distant past, moving through time and becoming at increased risk for morbidity and mortality.

Indeed as you can see there, for this birth cohort, the prevalence is about 3.29% of ever having been infected with hepatitis C, fivefold greater than the prevalence for other adults. This is about 81% of all persons infected with hepatitis C chronically. Three out of every four persons who die of hepatitis C are in this birth cohort, with an average age of about 54 years.

When you look at national surveys like NHANES, 45% of persons who were infected, when you ask them a risk, do not have a risk for hepatitis C, such as injection drug use or history of blood transfusion. And multiple surveys have shown that a sizeable percentage, up to 75% of persons, are unaware of their status now, based on NHANES data—that's about 50%.

Slide 6 depicts the changes in hepatitis C related to mortality. And the tan line represents about a 50% increase in mortality from 1999 through 2007, as we described in a paper last year in the *Annals of Internal Medicine*.

In 2007, the number of deaths associated with hepatitis C surpassed the number of deaths associated with HIV. And that disparity has widened with

an additional year of data in 2008. The data are not shown here but are available.

Slide 7 describes the recommendations specifically from CDC. This recommendation was based on a grade-based review of evidence from which we drafted the recommendation. We then submitted that through multiple rounds of review, peer review, multiple rounds within the Department of HHS, a public commentary in May, and then, of course, through the *MMWR* editorial process.

The recommendation states that in addition to screening persons based on risk, adults born during 1945 through 1965 should receive one-time testing for hepatitis C without the need for a prior ascertainment of HCV risk factors. The harms identified to this approach were minimal based on public literature.

The benefits of this testing when linked to current treatment is that there's data that show that you can reduce the risk of liver cancer by 70% with viral clearance from therapy. And you can reduce the risk of all-cause mortality by 50%. We believe the benefits outweigh the risks.

Slide 8 shows the health benefits relative to the costs of this intervention. When fully implemented, we estimated that we could identify an additional 800,000 persons currently unaware of their status. Avert causes of morbidity are shown there. Avert over 120,000 deaths at a very favorable cost per quality gain. That's quality adjusted life year of \$35,700, which puts it in the range of other preventive services accepted now as routine practice, influenza immunizations of older adults, hypertension screening, breast cancer screening for women beginning at age 40, et cetera.

Next slide, we believe that the benefits of this intervention will increase over time because therapies for hepatitis C are becoming increasingly effective in clearing the virus which really represents a cure. And this is really, probably, the first chronic viral infection that is going to be readily curable.

Right now, the current regimen—which is a one direct acting agent specific for hepatitis C combined with pegylated interferon and ribavirin—has about a 70% likelihood of clearing virus, albeit with some considerable side effects requiring 24 to 48 weeks of therapy.

The new therapies, two of which have already been filed by the FDA as new drug applications, promise all oral regimens that can have up to a 90% cure rate with as short as 12 weeks of therapy with very few adverse events. So we're on the threshold of highly effective, safe, tolerable, curable regimens for hepatitis C.

And next, on slide 10 brings us to the *Vital Signs* report, where we reported on data that you'll be hearing a little bit more about. But New York City was involved with this where basically we looked at case reports of persons being reported with hepatitis C. And found that a sizeable percentage of persons were not getting the complete testing to diagnose their hepatitis C infection.

A determining active on current HCV, the infection requires first testing with an antibody test to detect that antibody that indicates that you've been exposed to the virus. That needs to be followed by an RNA test to document whether that virus is still present, i.e., current infection.

What we've found in this *Vital Signs* report of those persons who reported based on their HCV antibody test result, only half had a positive RNA test to

be indicative of current infection, with the remainder representing persons who may be unaware of their current infection status, positive or negative.

We did find in this report that the majority of the persons reported were those born between 1945 and 1965. This highly prevalent group that we're concerned about as being at increased risk for morbidity and mortality, that's the target of our most recent recommendation.

So, to emphasize the point—the reason for hepatitis C testing is to detect current infection because it is the virus that causes the disease. We proceeded with revising our testing algorithm which is used by public health laboratories and others as the scheme for testing. And I'll show you that in a moment.

On slide 11, it shows you just the percent of the cases reported based on antibody positivity that had a positive RNA test by site. So, that varies among those sites representing differences in follow-up testing, differences in reporting practices.

On slide 12, as we pointed out in our discussion, other studies have looked at this issue, and we'll be getting a little bit more information about this from New York City, showing that sizeable proportions of persons who have a positive antibody test for HCV, do not receive that second test to tell them whether they're infected or not.

As I mentioned earlier, about 30% of persons clear the virus on their own. So it's important for them to know that they're no longer currently infected, while targeting those who are for additional services.

Slide 13 shows the new algorithm that was released last week. Specifically, it simplifies the algorithm to state that persons who have evidence of HCV

antibody on antibody testing should be tested for evidence of hepatitis C viral infection. So that's a nucleic acid test to detect the HCV RNA.

If they are negative on the antibody test, obviously that's the end of the story, unless they have some ongoing risks that one is concerned about. If they're positive, they're tested for RNA. If they're not detected, they can be told that they're not currently HCV infected.

If HCV RNA is detected, then that's indicative of current HCV infection and they should be linked to care and be considered for therapy as appropriate.

So, in summary, hepatitis C is a large health problem. It's a cause of increasing morbidity and mortality. Persons born between 1945 and 1965 represent the lion's share of that morbidity and mortality, and that's the reason for our new recommendation for a one-time test for that population.

Testing must be improved so that we not only test for evidence of infection exposure, antibody testing. But that positive antibody testing should be followed by tests for the HCV RNA to detect current HCV infection.

With that, I appreciate your attention and look forward to your questions. And I'll turn it over to Katherine now.

Katie Bornschlegel Okay, thank you, Dr. Ward. My name is Katie Bornschlegel and I'm from the New York City Department of Health. I want to start by thanking CDC for publishing the *Vital Signs* and the new screening guidelines. This will definitely help health departments who are working on hep C surveillance issues and lead to improved care for people living with hepatitis C.

For my talk today, I hope to provide some useful specifics about the need for RNA testing for hepatitis C diagnosis and how those challenges play out in our health department. First, I'll provide some background about how the hep C surveillance system is setup at our health department.

And then I'll summarize our data that illustrates the gap in RNA testing for people with a positive test for hep C antibody. After that, I'll share our recent experience trying to improve RNA testing for such patients. Last year we conducted a pilot and this year we evaluated it.

So in New York City we have eight million people. And we've estimated that 100,000 to 150,000 of them are living with chronic hepatitis C. So hepatitis C surveillance in New York City is definitely a high-volume operation. The goals of our surveillance system are first to describe the epidemiology of hep C in New York City to provide educational materials to people who are newly reported to the health department.

And a goal that we added recently is to monitor the proportion of hep C antibody persons who get the hep C RNA test and then to develop strategies to increase such testing. On slide 17, we describe an enhanced hep C surveillance project that we conducted for a few years. For this project, we investigated a random sample of 20 persons, newly reported, with a marker for chronic hepatitis C every two months.

We collected information from clinicians and from patients on demographics, health status, laboratory results, both positive and negative, and barriers to care. A key finding was that 33% of hep C antibody positive persons did not have the RNA test even after our investigator requested it. This meant, as John described, that their actual infection status remains unknown.

On slide 18, it shows a project that we developed on the basis of that finding. And this is called “It Takes Two” project. It’s a clinician outreach effort. The objectives of the project were to increase hep C RNA testing for hep C antibody positive patients. To identify clinicians and healthcare facilities who are not ordering RNA tests.

And to provide them with best practice guidelines for hep C diagnostic testing methods and to identify and assess barriers to ordering hep C RNA tests for patients with a positive hep C antibody. We looked at barriers at the clinician level and barriers at the level of the healthcare facility.

Slide 19, for this project, for the “It Takes Two” pilot, we started out by identifying hep C antibody positive patients in our surveillance database with no record of a hepatitis C RNA test. We did a mass mailing to the clinician who ordered the hep C antibody test and recommended that they order it.

We named the patients that needed the hepatitis C RNA test. And we recommended that if in the clinician’s judgment, if it was clinically indicated and feasible, that they go ahead and order the hep C RNA test for the patient. We didn’t perform any follow-up after the mass mailing to encourage a response.

Slide 20 lists the contents of the mailing to clinicians for the “It Takes Two” project. First was a cover letter explaining the purpose of the project and recommending a RNA test. We included the patient name and identifying information, a short questionnaire with four questions, guidelines published by our health department explaining why the hep C RNA test is needed for diagnosis and a return envelope.

There were 325 patients with a positive hep C antibody test first reported to us in April of 2012 which was our pilot month. We did the mailing in July and we sent out 325 questionnaires, one per patient. And these went out to 285 different providers so a few providers had more than one patient.

Our response rate was 39% on the questionnaire level and 37% on the provider level. So that 39% indicates 125 questionnaires returned to us. The next couple of slides show data from our evaluation. And most of the questions were analyzed at the patient level and is 125.

We asked the clinician if a RNA test was not ordered, why not. The most common reasons mentioned that the patient didn't return for follow-up, that the patient was referred to a different facility for the hep C RNA test, and other which was most commonly explained as the patient was no longer receiving medical care there.

Slide 21, we asked the clinicians whether they found this reminder helpful. We asked this question as it related to the specific patient so the end here again is 125. Starting about at 12 o'clock on the pie, it shows 5% found it helpful, 19% found it helpful and it was going to change their RNA ordering for this particular patient. Twenty-one percent said that it was helpful but it wasn't going to change whether they ordered the test for this particular patient.

Most often that was because the test had already been ordered or the patient was loss follow-up. So 34% didn't answer the question, and 17% found it frankly unhelpful. Summing together the three slices on the right, we see that for 45% of the patients, the clinicians found that the mailing was helpful in some way.

Slide 23, we asked the clinicians would you like more reminders from the health department like this one in the future? This question we analyzed on the provider level so the end here is 106. And we found that 52% wanted more reminders like this from the health department in the future. A quarter didn't answer the question and a quarter said no, they didn't want more in the future.

In the next part of the evaluation, we looked to see whether the mailing actually increased the number of positive RNA tests that ended up in our surveillance database. We waited a few months and then we compared the patients who were first reported in our pilot month, April of 2012, to those from flanking months which was two months before and two months after the pilot month.

So this table shows the percentage of who had a positive RNA test reported to our surveillance system within six months of the date of the first positive hepatitis C test which might have been an antibody or an RNA as the first positive. So in full is shown the pilot month, April 2012, and 56% of persons first reported to us in the pilot month did have a positive RNA test within six months of the date of their first positive test.

And this compares with 46% to 53% was the range for the flanking months. We compared the pilot month with 56% having a positive hep C RNA test within six months of the initial report to the four flanking months combined which averaged 49%. And we found that that was statistically significant.

So based on this, it does appear our mailing was effective in increasing the ordering of RNA tests for hep C antibody positive persons. And since overall the clinicians did find it useful, we're reorganizing this activity at our health department and continuing to evaluate it.

Slide 25, my last two slides outline a variety of possible strategies that health departments and other stakeholders can consider to increase the appropriate ordering of the hepatitis C RNA test. First is clinician education efforts such as the “It Takes Two” mailing project and the guidelines and algorithm just published last week by the CDC.

Another possible strategy is on a lab report for a positive antibody test; you add a clear statement adding that the RNA test is needed to determine hepatitis C infection status.

Another possible strategy is to ensure that sites that are doing antibody tests have the capacity to order the hepatitis C RNA test. This is a particular challenge at sites that are doing rapid antibody tests. And there is a need for adequate funding for the RNA tests as well as to have a phlebotomist on site to draw blood.

And the goal is to avoid referring patients to a different clinical care location for the blood draw because we’ve seen that so many patients do get lost to follow-up during the transition. Another possible strategy is education of antibody positive patients about the need for RNA test.

On the next slide, slide 26, additional possible strategies include the need also to understand and explore what are the barriers to RNA testing, for example at the level of the healthcare facility, in the laboratory, or because of the funding mechanism. And our “It Takes Two” project has been very useful in learning more about some of these barriers at different facilities in New York City.

Another possibility is a reflex RNA testing. And some of the big commercial labs very recently did start to offer hep C antibody tests with reflex to RNA. And we are hoping that becomes more commonly used by the clinicians who

are ordering these tests. The overall goal in the longer term would be to transition to reflex RNA testing as the standard of care for hepatitis C diagnostics as it is with HIV.

Before I close, I want to also mention the need for added focus on the next steps that occur after a person gets their positive RNA test and their diagnosis of hep C infection. And we're exploring what health departments can do to improve options for medical care and antiviral treatment for people with hepatitis C and other strategies to really decrease the chance that a person will progress to serious liver disease.

That's it, at this point, I'll turn it over to Shauna Onofrey from the Massachusetts Department of Health.

Shauna Onofrey: Thanks so much Katie, and thank you to both you and Dr. Ward for the really interesting presentations. I also wanted to thank the CDC for giving us the opportunity to talk about this topic today.

My presentation is going to be a little bit of a detour from the *Vital Signs* report. I'm really going to talk about the continued importance of risk-based screening in addition to the age-based screening recommendations from CDC and 2012. And, to highlight this, I'm going to talk about the outbreak that we've been seeing here in Massachusetts of hepatitis C virus among adolescents and young adults in the state.

On slide 28, I just want to talk a little bit about the surveillance system for hepatitis C in Massachusetts. In Massachusetts, hepatitis C infection has been reported since 1992. And since really 2006, most laboratory evidence has been reported automatically through electronic laboratory reporting.

And that system has improved for us here in the state from 2006 through today and really continues to improve. We get more labs on electronic reporting all the time which really, in looking at some of our data, has improved the completeness of laboratory reporting for us.

We're also really fortunate here in Massachusetts to have the Massachusetts Virtual Epidemiology Network, which is an integrated web-based, person-based disease surveillance system. That allows us to do a lot of things with our data that really wasn't possible before, including automating some of the de-duplication of multiple pieces of paper or multiple pieces of information about a single person so that we can look at a person's history over time in terms of their testing for hepatitis C and other diseases.

We get about 7,000 newly reported cases annually. And that trend has continued since 2002. And that really represents 12,000 to 15,000 laboratory and case reports that are sent to us every year and that are sorted through in our system. About 65% of those have some sort of confirmatory test, be that a RNA positive or a RIBA positive, or a high signal to cutoff ratio.

And looking over some of what Katie just presented on, we've actually also been looking at the number of our cases that RNA tests are done. And between 2007 and 2010, about 55% of our cases had RNA tests of some type reported to us. And interestingly enough, if you look at the cases that had both an antibody test and RNA test reported to us, about 11% of those had a two-year gap between the antibody test and the RNA test.

So, you know, certainly some of what Katie was getting at there at the end with concerns about access to care, I think that's a concern in many of our jurisdictions. I also wanted to mention that we were recently funded by CDC to continue and improve our overall surveillance efforts for viral hepatitis and

to collaborate with them on viral hepatitis surveillance matters, which has certainly allowed us to take a close look at our data.

We're actually in the process of overhauling our whole system because this is a really complicated issue in terms of really understanding what's going on with folks with hepatitis C in the state.

Moving onto slide 29, we first noticed an increase in hepatitis C infection in adolescents and young adults in the state in 2006. And that was due to some conversations we had with our community partners who were really at the frontline mentioning that they were really seeing a lot more cases of hepatitis C in the youths they were interacting with.

So looking at our data, we saw that this was indeed the case statewide that we were seeing a large number of 15 to 25, really 15 to 30 years old, who were testing positive for hepatitis C and B and being reported to us. So in 2007, we started enhanced surveillance for reported hepatitis C infection in adolescents and young adults.

We provided a clinical advisory to let folks know about the epidemic in the state. Over 1,000 cases of hepatitis C infection are reported annually among those 15 to 25 since 2007. And more than 50% of the cases in this age group are female, which is different from the rest of our cohort here, where typically about 30% of the cases reported to us are female.

And certainly this brings up some other concerns that I will talk about in a little bit. But the main one being that 15 to 30 year olds are obviously women of child-bearing age. And we are seeing some increase in the number of infants being reported with positive tests for hepatitis C.

Available race and ethnicity data—for these cases, we'll complete a case report form—indicate that 80% of the cases are white and that 90% identify as not Hispanic. And this matches with some of the data that one of our community partners, Dr. Arthur Kim, has presented on what he's seen in the prisons here in the state. The race and ethnic information is similar although our data are far from complete.

And the risk data that we are able to collect on these folks consistently link to increased injection of heroin as being the main risk that's driving this. On Slide 30, you can see the rates of hepatitis C infection. This includes our confirmed and probable cases reported among cases aged 15 to 29 years old, which is really the full peak.

And you'll see that when I show a later slide of our age breakdown and all other age groups in Massachusetts from 2002 through 2011. And you can see that the rate per 100,000 population in this age group has surpassed the rate that we're seeing in other age groups in the state. Of course, this may change with the risk-based screening if we get more reports from the baby boomer population. It's possible that it's an artifact of testing.

Slide 31 shows the graph that was published in our work with CDC and the *MMWR* that came out in May of 2011 talking about this issue in Massachusetts. The left-half of the slide, 2002, shows kind of that bell-shaped curve that we expected in terms of the age breakdown of the cases reported in Massachusetts. That's what the data looked like in 2002.

And in 2009, you can see the very different picture. But the other thing I wanted to highlight on this slide is this peak you'll see circled in red. Where we, in addition to seeing more youths and young adults testing positive for

hepatitis C, we were also getting a larger number of suspect infant cases reported to us. And that trend has continued.

That's something we're looking more closely at in Massachusetts now, trying to understand the testing that's happening for those cases. And it does look like the infants and young children who are being tested are those who are born to hepatitis C infected mothers.

So this is what the data looks like in 2011 on slide 32. This data is as of February of this year. 2012 data is not quite complete yet which is why we looked at 2011. And you can see that the trend has continued. We still do have this peak in infants as well although, like I said, we are taking a closer look at some of that testing.

We get a lot of infants who are reported to us with antibody testing, which isn't really recommended prior to 18 months of age due to the potential circulating maternal antibodies. But the cases that are listed here are actually cases that would be RNA positive.

But you can see the distribution of male and female as well as the age distribution. And you can see that females really seem to be driving that peak in the use in young adults that are being reported to us.

On slide 33, I wanted to talk a little bit about the enhanced follow-up that we did with these young people in August of 2011 through February of 2012. We were funded to do an extended questionnaire with folks. We made 573 phone calls, which resulted in 63 interviews with cases 18 to 24 years of age.

This is a very difficult group to reach by phone. We did have some success with actually using some text messaging to try to reach out to folks and get

them to answer our calls because many of them would not answer the phone when we called.

The result of these interviews, however, was really interesting. Eighty-seven percent reported IV drug use; 65% reported injecting drugs, most frequently injected heroin only. Females are more likely to be introduced to injecting by and continuing to inject with a sex partner. And they reported all injecting equipment was shared, including syringes, despite really pretty wide syringe access here in Massachusetts.

We don't have a lot of syringe exchange programs—we only have five in the state. But we do have pharmacy access to syringes. So folks can get clean needles without a prescription at pharmacies here in Massachusetts.

And while this is interesting, I don't know if any of it was necessarily surprising for us. I think it kind of supported a lot of what we already thought was going on with this population.

There are of course limitations to surveillance data. The data reported here only represent those folks seen by a medical provider, tested, and reported to MDPH, and we're on slide 34. Negative tests are not currently reportable in Massachusetts although we are changing our regulations so that negative tests will be reportable. And we'll capture them in our surveillance system which should give us some additional information as well.

As I mentioned, we have limited data on race and ethnicity. And the risk history is also something we're trying to improve our data collection on. Despite strong evidence for high rates of transmission, we historically have been able to confirm very few acute cases.

With some of the changes that have recently been made to the acute case definition by CDC, we do expect that this number which is currently about 25 annually, should jump by about 200 due to not needing the negative A and B test results. We have a number of cases reported to us every year, approximately 200 that meet the acute case definition but didn't have those negative hepatitis A and B test results.

And the impact of this data here in the state, we have managed to fully integrate hepatitis C into all our HIV prevention and screening programs. We have 34 statewide. We continue to work with community partners to increase education about and awareness of the situation in the state.

We published *Shifting Epidemics* that was released in 2012, I believe. It's an overview of injection drug user health and hepatitis C and HIV infection in Massachusetts. We continue to enhance our surveillance efforts and analytics to better characterize this population and the recognized need for enhanced expanded prevention efforts in the state in light of the continued large number of reported cases.

So that's all I have. And I'll hand it back to Dan.