PUBLIC HEALTH 2000: HEPATITIS C—THE SILENT EPIDEMIC

HEARING

BEFORE THE

SUBCOMMITTEE ON HUMAN RESOURCES

OF THE

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

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PUBLIC HEALTH 2000: HEPATITIS C—THE SILENT EPIDEMIC

THURSDAY, MARCH 5, 1998

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HUMAN RESOURCES,
COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:54 a.m., in room 2154, Rayburn House Office Building, Hon. Christopher Shays (chairman of the subcommittee) presiding.

Present: Representatives Shays, Towns, and Kucinich.

Also present: Representative Payne.

Staff present: Lawrence J. Halloran, staff director and counsel; Anne Marie Finley and Robert Newman, professional staff members; Jesse S. Bushman, clerk; and Cherri Branson, minority counsel.

Mr. SHAYS. I would like to call this hearing to order and welcome our witnesses and our guests to what I believe is a very important hearing.

The silent epidemic can remain silent no longer. Hepatitis C infection has now spread to an estimated 4 million Americans, more than 1 million of whom do not yet know that they have contracted a potentially fatal liver disease. These people need to be told. They need to be tested. Many will need treatment and many will need to learn how to prevent further spread of the disease.

Hepatitis C virus, HCV, poses a daunting challenge to public health. Chronic infection can linger without symptoms for more than 20 years, then produce profound health consequences, including liver failure and cancer. There is no preventative vaccine or generally effective treatment. It is estimated that up to 10,000 individuals each year will die from the disease.

That number could triple in the next two decades, according to the National Institutes of Health, NIH. Unless confronted boldly, directly, and loudly, the threat posed by Hepatitis C will only grow more ominous. But as we learned when the human immunodeficiency virus, HIV, breached our public health defenses, scientific uncertainty, cultural bias, and bureaucratic inertia can silence the early warnings of an elusive viral invader.

Since 1989 when hepatitis C virus, HCV, was first unmasked, Federal public health agencies have often pondered, but never implemented, a comprehensive response to this insidious infectious agent.

In testimony before this subcommittee in October 1995, Health and Human Services Secretary Donna Shalala committed that hep-

atitis C would be the top priority for the Department's new blood safety committees. Our 1996 oversight report on the safety of the blood supply called for broad HCV notification and public education efforts.

Yet, it was only this January that the HHS announced specific plans to notify those at substantial risk of HCV infection due to exposure through blood and blood products prior to 1990. Only in 1995 did NIH commit to HCV research on a level commensurate to the threat. Only recently was the Food and Drug Administration directed to give guidance to blood banks, plasma centers, and hospitals on tracing HCV-infected donations.

Why has the public health response to hepatitis C been so muted? As it lurked in the shadows of the AIDS epidemic, hepatitis C was too long characterized or marginalized as a disease confined to intravenous IV drug abusers, still the primary at-risk population.

But now we know too well that this is not just a disease of IV drug users. Anyone who received blood or plasma products before the 1990's is at risk. The disease can be transmitted from mother to child. Hepatitis C can also be contracted through high-risk sexual practices and occupational exposures to infected blood.

In about 30 percent of chronic cases, infection cannot be attributed to a known risk factor, suggesting an unknown transmission route. So continued silence only abets the spread and progression of the disease, prevents those at risk from taking prudent precautions, and contributes to justifiable public unease about a health problem increasingly evident in their midst.

What the public needs to hear are the sounds of their government taking acting against hepatitis C, effective look back in notification, outreach to affected minority populations, information for patients, education for physicians, research into prevention and treatment.

As an oversight subcommittee committed to proactive public health policy, we convene today's hearing seeking an open constructive discussion as to how Health and Human Services will take these steps to confront the threat of HCV more aggressively.

In that effort, we welcome the testimony of the new Surgeon General, Dr. David Satcher. When he was head of the Centers of Disease Control and Prevention, CDC, Dr. Satcher appeared before us on a variety of issues. His expertise, experience, and candor were of immense value to our work. We welcome his views today and look forward to a continued collaboration on this, and other, pressing public health matters.

Our other witnesses also bring important perspectives to this issue. The Departments of Defense and Veterans Affairs are charged with the care of many who will seek relief from the suffering caused by hepatitis C. Former Surgeon General Dr. C. Everett Koop will offer his characteristically unvarnished views on the problem and promise of our current HCV strategy.

Physicians and a patient will offer important insight into the human toll of hepatitis C. The voices of all of our witnesses today will break the silence masking the hepatitis C epidemic and convey vital information the public needs to protect their health.

At this time I call on Mr. Towns.

Mr. TOWNS. Thank you, Mr. Chairman, and let me begin by thanking you for holding this very important hearing today. Hepatitis C is an infection of the liver, caused by the hepatitis C virus and transmitted primarily through blood-to-blood contact. It has been estimated that hepatitis C virus is four times more prevalent than HIV and is the most common cause of chronic liver disease, cirrhosis, liver cancer, and liver transplants.

Unfortunately, African-Americans have the highest rates of infection. The Centers for Disease Control and Prevention has estimated that annually 35,000 to 150,000 Americans may be infected with Hepatitis C. This is a wide range. It is my understanding that this discrepancy may be explained by inconsistent methods of reporting.

It seems that some public health departments report all those who test positive for hepatitis antibodies, while other health departments report only those whose illness has been diagnosed and reported by physicians. Mr. Chairman, I believe that the Federal Government can, and should, standardize the reporting criteria for this disease.

Needless to say, consistent and accurate counting is mandatory in determining the spread of this disease and also to determine the amount of resources that are necessary to be able to combat this disease.

However, we should be mindful of other factors that interfere with the accurate counting of this disease. Reporting of hepatitis C may be hampered by the social stigma and discrimination suffered by those who have the disease. Because approximately 50 percent of hepatitis C in the United States is transmitted through intravenous drug use many who need help choose not to disclose their diagnosis. This disease spreads easily through contact with infected blood. Therefore, anyone who routinely comes in contact with blood or blood products could be at risk.

Health care workers and patients on long-term kidney dialysis have been found to be particularly susceptible to hepatitis C. I had hoped that the AIDS epidemic would have taught us that a virus does not discriminate and we should not discriminate against those who are affected.

In the 104th Congress, this subcommittee recommended that the Department of Health and Human Services ensure that the estimated 300,000 living recipients of blood and blood products, who may have been infected with the hepatitis C virus before 1990, be notified of their potential infection so that they might seek diagnosis and treatment.

Mr. Chairman, I am interested today in learning the outcome of that recommendation. Additionally, I should note that the fiscal year 1998 Labor HHS appropriations report suggested that the National Institutes of Health coordinate research to respond to the hepatitis C epidemic. I am interested in learning what actions, or plans.

Finally, let me say, Mr. Chairman, I look forward to hearing today's witnesses, and I want to especially note and applaud you on your superb judgment in having both the current and former Surgeon Generals here today to discuss this very serious issue. I applaud you for that. And anything I have said negative about you

in the years that have passed, I would like to withdraw them now. [Laughter.]

Mr. SHAYS. Actually, Dr. Satcher, we are partners in this.

Before I call on you, Dr. Satcher, and swear you in, as we swear in all of our witnesses, let me just invite Congressman Payne, who is a wonderful Member of Congress. We welcome you to our subcommittee. I know you would like to offer words of welcome to our witnesses.

Mr. PAYNE. Thank you very much, Chairman Shays and Ranking Member Towns, for allowing me to be here today to join in this very important hearing. As you may know, I formerly served on this committee and had the opportunity to chair the subcommittee several terms ago and so I still have an interest in the affairs of health as relates to America and African-Americans in general. In a town like Newark, NJ, where I live we have many, many serious health problems so I appreciate your indulgence to allow me to make a short statement.

Earlier this year the increasing problem of hepatitis C infection was brought to my attention. As many of you know, hepatitis C is the No. 1 reason for liver transplants, and the cause of death for an estimate 8,000 people annually. I was particularly alarmed to learn that the number is expected to triple in the next 10 to 15 years if intervention is not taken. However, what raised my concern the most was the high rate of infection among African-Americans. It is estimated that 3.2 percent of African-Americans are infected with hepatitis C, in comparison to only 1.5 in the general population.

Consequently, I, along with Congressman Stokes and Congressman Towns, contacted several institutes in the NIH urging them to increase their research efforts in the area of hepatitis C. Therefore I would like to commend both the chairman and the ranking member for bringing this matter to the attention of this subcommittee and Congress in general.

I am especially pleased that you have asked Dr. Carroll Leevy of UMDNJ in Newark, University of Medicine and Dentistry in Newark, to testify before this subcommittee today. Dr. Leevy is indeed one of the foremost physicians in the field of liver disease and is a leader in my community. His list of accomplishments in the area of liver disease is extensive and admirable. He was a Navy commander during the war in Vietnam, a one time associate of medicine at Harvard University, the founder of the International Hematological Information Group and recipient of countless awards and honors.

His commitment to improving the health of minorities has endured many, many years and has lead him to become one of the foremost experts in the field. Dr. Leevy is the director and one of the founders of the Sammy Davis Jr. Liver Clinic at the UMDNJ of New Jersey, of which I happen to be a participant in that organization, and he is a professor at the medical schools in Newark.

He has been one of the outspoken voices in educating the African-American community, and the larger population, about the dangers of hepatitis C infection.

In short, Dr. Leevy has dedicated much of his life to researching the cause of liver disease and helping treat those liver problems.

Therefore, it is my pleasure to have him with us here today and I am confident that he will supply you with very informative testimony regarding how hepatitis C is affecting my constituents and constituents all over America.

I commend you, Mr. Chairman, for having such an outstanding panel of witnesses. As indicated, to have two Surgeon Generals is probably a record, especially with someone like Dr. Leevy, so let me thank you again for this opportunity to express my sentiments.

Mr. SHAYS. I thank the gentleman.

Dr. Satcher, I just want to say to you that you do honor this subcommittee with your presence, as you have in the past, and to also say to you that this is the first time I've had to publicly congratulate you on your appointment as the Surgeon General and to say to you that I have tremendous respect for how you conducted yourself during the appointment process and the confirmation process and I think all Americans do as well.

You honor our country as you honor yourself, and if you would at this time, stand.

[Witnesses sworn.]

Mr. SHAYS. I note for the record we have five people who are accompanying you who have also responded in the affirmative. Thank you.

If we have to call on them, they will identify their name for the record, and thank you, I should have invited you all to stand at the time and thank you for doing that so I didn't have to administer the oath each time.

Dr. Satcher, I welcome your testimony; the subcommittee welcomes your testimony. And we are going to turn the clock on. I just want to explain, it will be a 5-minute clock but we will continue to roll it over. We just keep track that way, but you have as much time as you need. Your statement is very important to us.

STATEMENT OF DAVID SATCHER, M.D., SURGEON GENERAL OF THE UNITED STATES, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Dr. SATCHER. Thank you very much, Chairman Shays. I am delighted to be here and to the other members of the Subcommittee on Human Resources, I am David Satcher, the Surgeon General of the United States and the Assistant Secretary of Health in the Department of Health and Human Services.

I am here today to discuss a major public health crisis, the hepatitis C epidemic. Mr. Chairman, I know how much this issue concerns you and I commend you and your staff for your diligent pursuit of it. I also would like to add, if you don't mind, that I am very pleased that you have also invited some outstanding witnesses, including former Surgeon General C. Everett Koop who has done so much to protect and enhance the health of the American people, and, as Congressman Payne pointed out, Dr. Leevy who has taught so many generations of physicians about liver disease. I reminded him that 30 years ago when I was a medical student struggling to understand liver disease his paper on the differential diagnosis of jaundice was a major benefit to me and so many others.

Hepatitis C is a grave threat to our society. About 170 million people around the world are infected with it and at least 4 million

of them reside in the United States. About 85 percent of those infected develop chronic liver disease and about 10 to 20 percent eventually develop cirrhosis of the liver about 20 years after the onset of the infection.

Hepatitis C is the most common cause of liver failure in patients who require liver transplantation. Although the incidents of hepatitis C in the United States has declined by over 80 percent since the 1980's, there are still about 30,000 new cases each year and each year about 10,000 people in this country still die of hepatitis C. We conservatively estimate the total cost of hepatitis C to our society to be at least $600 million per year.

We estimate that there are 4 million infected individuals in the United States. It is based on tests of blood samples obtained during CDC's Third National Health and Human Nutrition Education Survey.

And I want to emphasize, Mr. Chairman, that I know that there is debate about numbers and so I want to take the time to at least explain how we derive our estimates and the first one is from the very important NHANES survey. This is a very extensive survey that the CDC conducts on a representative sample of the entire population of the United States.

The fourth NHANES survey, scheduled to begin later this year, will contain additional questions about potential risk factors for hepatitis C so that we can gain a more precise estimate of how this disease is actually transmitted in our society.

Now, the estimate that there are still about 30,000 new cases of hepatitis C each year is obtained from the sentinel county study of viral hepatitis that CDC has been conducting since 1979.

We know that many Americans infected with hepatitis C are unaware that they have the disease. Unfortunately, many of them cannot be readily identified because the disease does not cause symptoms until it is far advanced. However, there is one group that can be identified, the roughly 1 million people who have received blood from a donor who subsequently tested positive for hepatitis C. In 1996, this subcommittee formally recommended that steps be taken to ensure that these individuals be notified of their potential infections so that they might seek diagnosis and treatment. On January 28, after this issue had gone through the blood safety committee and the advisory committee on blood safety and availability, Secretary Shalala announced just such a plan to notify people who received blood from a potentially infected donor of their risk. I will be in charge of implementing this plan.

In accordance with the Secretary's directive, we will first attempt to notify directly those at greatest risk. They are roughly 300,000 people who have somewhere between a 40 and a 70 percent risk of hepatitis C. They have this risk because they received blood from a donor who later tested positive for hepatitis C, after June 1992, when an accurate screening test for hepatitis C was introduced. A guidance to industry from the FDA which will announce the details of this look back will be published soon in the Federal Register.

However, look back will not reach everyone at risk, no matter how diligent our efforts. For example, it will not reach the 20 percent of recipients whose donors never returned to give blood and are therefore never discovered to have hepatitis C. At the present

time we do not feel that look back would be an effective means of reaching those who received blood from a donor who was never tested directly for hepatitis C or who was only screened with a first-generation test which missed many who were truly infected and falsely identified even more who were not infected.

Finally, look back will not reach the large majority of those who acquired hepatitis C from sources other than blood. This is a particularly important consideration now because we have reduced, and I want to emphasize this, we have reduced the risk of hepatitis C from blood transfusions to less than 1 per 100,000 transfusions. And as you know, in the 1970's, that would have been 1 in 200 so the risk would have been 500 times greater in the earlier 1970's than today of transmitting this virus.

We expect this risk to decrease further in the future.

The procedure for eliminating hepatitis C virus from clotting factors was introduced over a decade ago, so we no longer have that risk.

For all these reasons, look back alone is not enough. I have therefore directed the CDC to lead the second component of our plan, which is to develop educational programs for health professionals and the public at large to support the recognition, the diagnosis, the counseling, and the testing of those at risk for hepatitis.

Our private partners, such as the American Liver Foundation and others, will play a critical role.

The third component of our plan is to evaluate carefully the success of our direct and general notification efforts and to take additional steps to address unmet needs as we identify them.

We have proposed an aggressive timetable for implementing these programs and we will actively monitor their progress at the highest level of the Department, through the Public Health Service blood safety committee, which I chair.

Secretary Shalala has made the Department's policy in this matter very clear and I want to state it very clearly. As she said on January 28 of this year, these steps are only the first phase of a comprehensive plan to address this significant public health problem. It is our intention to reach effectively as many people at risk as we can. I want to underscore those words. Everyone we believe to be at risk of having hepatitis C will be targeted by the Department's plan.

As part of the Department's effort to educate the public about risk of hepatitis, we must be aggressive about discussing prevention. Hepatitis C is transmitted by blood. Kidney dialysis patients are at risk of hepatitis C infection as are those who have used injection drugs, even if only occasionally and only in the distant past. Perinatal transmission occurs, though much less sufficiently that with hepatitis B or HIV.

Sexual transmission within a monogamous relationship appears to be very rare but there may be greater risk for those with multiple partners. The risk for transfusion is now very small. I will repeat, less than 1 in 100,000 transfusions, and we will take advantage of every opportunity available to reduce this risk even further.

As you know, Mr. Chairman, there is now no cure for hepatitis C, however treatment is improving. Recent experience with interferon alpha treatment indicates that more prolonged therapy

and the combination of interferon alpha with ribavirin may provide substantial additional benefits to certain patients.

Although these new treatments show promise, much better ones are needed. I am cautiously encouraged by the commitment of the pharmaceutical industry to the development of protease and helocase inhibitors of the hepatitis C virus.

What we really need, of course, is a vaccine against this disease. As you know, there are vaccines against hepatitis A and hepatitis B and there is ongoing work on a vaccine for hepatitis C. However, we cannot underestimate the complexity of this task, particularly because of the rapid rate at which the virus mutates, and we must nurture the basic and clinical research and the epidemiology that will be necessary to support vaccine development, and we will.

The research is the foundation of our struggle against hepatitis C and it is the basis of the plan that I have articulated. As you know, the hepatitis A and B virus were discovered at NIH. Dr. Baruch Blumberg, the discoverer of hepatitis B, received the Nobel Prize for this work.

This work led to the appreciation that there was at least one more hepatitis virus to be found. A major one of these, hepatitis C, was identified in 1989. The discovery of the hepatitis C virus permitted the development of progressively more sensitive tests for the presence of hepatitis C in human blood. The first blood donor screening tests were licensed in May 1990, only a year after the virus was identified. The test measured antibody to a single hepatitis C antigen. But this test only identified approximately 90 percent of the patients with transfusion associated non A and non B hepatitis.

However, this test has limitations, significant ones. Notably at least a 24-week window period between the time a subject was infected with hepatitis C and the time the test could detect antibodies to hepatitis C in a subject's blood.

The more effective blood donor screening test was introduced in June 1992. This second-generation test measured antibodies to three different hepatitis C antigens and reduced the window between infection and detection from 24 weeks to 12 weeks.

The date at which this test was introduced is the point in time around which our look back and public education efforts revolves.

Direct funding for research on hepatitis C among all the institutes of NIH will increase from approximately $25 million in 1997, and $29.8 million in 1998, to $34.4 million in 1999. At CDC, the 1999 figure is approximately $10 million for research and surveillance, so approximately $50 million is projected to be invested for research and surveillance of hepatitis C in 1999.

The NIH extramural program is focused on virologic, immunologic, and clinical studies which will support therapeutic and vaccine development as well as advancements of basic scientific knowledge.

Dr. Finestone of the FDA Center for Biologic Research and Review, who was also a member of the team that discovered hepatitis A, recently reported the construction of an infectious clone of hepatitis C, and I want to point out that this is an important step toward the eventual development of a vaccine.

Extramural programs include four newly established hepatitis C cooperative research centers which, among their work, will look at African-Americans, Native Alaskans, and children.

Finally, let me conclude by emphasizing that the Department of Health and Human Services joins in your concern regarding the impact of hepatitis C on our Nation's health.

I want to thank you for this opportunity to describe our efforts to control and ultimately eradicate this terrible disease and I would be delighted to answer any questions which you or the subcommittee may have.

[The prepared statement of Dr. Satcher follows:]

Good morning. I am David Satcher, the Surgeon General of the United States and the Assistant Secretary of Health in the Department of Health and Human Services. I am here today to discuss a major public health crisis: the hepatitis C epidemic. Mr. Chairman, I know how much this issue concerns you, and I commend you and your staff for your diligent pursuit of it.

Hepatitis C is a grave threat to our society. About 170 million people around the world are infected, and at least 4 million of them reside in the United States. About 85 percent of those infected develop chronic liver disease, and about 10 to 20 percent eventually develop cirrhosis of the liver, about 20 years after the onset of their infection. Hepatitis C is the most common cause of liver failure in patients who require liver transplantation. Although the incidence of hepatitis C in the United States has declined by over 80 percent since the 1980s, there are still about 30,000 new cases each year, and each year about 10,000 people in this country still die of hepatitis C. We conservatively estimate the total cost of hepatitis C to our society at $600 million dollars per year.

The estimate that there are 4 million infected individuals in the United States is based on tests of blood samples obtained during the CDC's Third National Health and Nutrition Examination Survey (NHANES). This is a very extensive survey that the CDC conducts on a representative sample of the entire population of the United States. The fourth NHANES, scheduled to begin later this year, will contain additional questions about potential risk factors for hepatitis C, so that we can gain a more precise estimate of how this disease is actually transmitted in our society. The estimate that there are still about 30,000 new cases of hepatitis C each year is obtained from the Sentinel Counties Study of Viral Hepatitis, which the CDC has been conducting since 1979.

We know that many Americans infected with hepatitis C are unaware they have the disease. Unfortunately, many of them cannot be readily identified, because the disease does not cause symptoms until it is far advanced. However, there is one group that can be identified: the roughly one million people who have received blood from a donor who subsequently tested positive for hepatitis C. In 1996, this Subcommittee formally recommended that steps be taken to ensure that these individuals be notified of their potential infection so that they might seek diagnosis and treatment. On January 28, Secretary Shalala announced just such a plan to notify people who received blood from a potentially infected donor of their risk. I will be in charge of implementing this plan.

In accordance with the Secretary's directive, we will first attempt to notify directly those at greatest risk. There are roughly 300,000 people who have somewhere between a 40 to 70 per cent risk of hepatitis C. They have this risk because they received blood from a donor who later tested positive for hepatitis C after June of 1992, when an accurate screening test for hepatitis C was introduced. A Guidance to Industry from the FDA which will announce the details of this lookback will be published soon in the Federal Register.

However, lookback will not reach everyone at risk, no matter how diligent our efforts. For example, it will not reach the 20 percent of recipients whose donors never return to give blood,

and are therefore never discovered to have hepatitis C. At the present time we do not feel that lookback would be an effective means of reaching those who received blood from a donor who was never tested directly for hepatitis C or who was only screened with the first generation test, which missed many who were truly infected and falsely identified even more who were not infected. Finally, lookback will also not reach the large majority of those who acquired hepatitis C from a source other than blood. This is a particularly important consideration now, because we have reduced the risk of hepatitis C from blood transfusion to less than 1 per 100,000 transfusions, and we expect this risk to decrease further in the future. The procedures for eliminating hepatitis C virus from clotting factors were introduced over a decade ago.

For all these reasons, lookback alone is not enough. I have therefore directed the CDC to lead the second component of our plan, which is to develop educational programs for health care professionals and the public at large to support recognition, diagnosis, counseling, and testing of those at risk for hepatitis.

The third component of our plan is to evaluate carefully the success of both our direct and general notification efforts, and take additional steps to address unmet needs as we identify them. We have proposed an aggressive time table for implementing these programs, and we will actively monitor their progress at the highest level of the Department through the Public Health Service Blood Safety Committee, which I chair.

Secretary Shalala has made the Department's policy in this matter very clear. As she said on January 28 of this year, "... these steps are only the first phase of a comprehensive plan to address this significant public health problem. It is my intention to reach effectively as many people at risk as we can." I want to underscore these words. Everyone we believe to be at risk of having hepatitis C will be targeted by the Department's plan.

As part of the Department's efforts to educate the public about risk of hepatitis, we must be aggressive about discussing prevention. Hepatitis C is transmitted by blood. Hemodialysis patients are at high risk of hepatitis C infection, as are those who have used injection drugs, even if only occasionally and only in the distant past. Perinatal transmission occurs, though much less efficiently than transmission of hepatitis B or HIV. Sexual transmission within monogamous relationships appears rare, but there may be greater risks for those with multiple partners. The risk from transfusion is now very small, less than 1 per 100,000 transfusions, and we will take advantage of every opportunity available to reduce this risk even further.

There is no cure for hepatitis C. However, treatment is improving. Recent experience with interferon alpha treatment indicates that more prolonged therapy, and the combination of interferon alpha with ribavirin, may provide substantial additional benefit to certain patients. Although these new treatments show promise, much better ones are needed. I am cautiously encouraged by the commitment of the pharmaceutical industry to the development of protease and helicase inhibitors of the hepatitis C virus.

What we really need, of course, is a vaccine against this disease. There are vaccines against hepatitis A and hepatitis B, and there is ongoing work on a vaccine against hepatitis C. However, we cannot underestimate the complexity of this task, particularly because of the rapid rate at which the virus mutates, and we must nurture the basic and clinical research that will be necessary to support vaccine development.

Research is the foundation of our struggle against hepatitis C. As you know, the hepatitis A and hepatitis B viruses were discovered at the NIH. Dr. Baruch Blumberg, the discoverer of hepatitis B, received the Nobel Prize for his work. This work led to the appreciation that there was at least one more hepatitis virus to be found. The major one of these, hepatitis C, was identified in 1989.

The discovery of the hepatitis C virus permitted the development of progressively more sensitive tests for the presence of hepatitis C in human blood. The first blood donor screening test was licensed in May 1990, only a year after the virus was identified. This test measured antibody to a single hepatitis C antigen. This test identified nearly 90 per cent of patients with transfusion-associated non-A, non-B hepatitis. However, this test had limitations, notably a 24 week window period between the time a subject was infected with hepatitis C and the time the test could detect antibodies to hepatitis C in the subject's blood.

The more effective blood donor screening test was introduced in June of 1992. This "second generation" test measured antibodies to three different hepatitis C antigens, and it reduced the window between infection and detection from 24 to 12 weeks. The date at which this test was introduced is the point in time around which our lookback and public education efforts revolve.

Direct funding for research on hepatitis C among all the institutes at NIH will increase from $25.3 million in 1997 to $29.8 million in 1998 and $34.4 million in 1999. A steering committee has recently been formed to provide more focused oversight of the hepatitis C research effort. The dollar amounts for NIH-sponsored hepatitis C virus research do not, of course, include funds spent on epidemiologic research by the CDC and funds spent on both basic and applied research by the FDA.

The NIH intramural program is focused on virologic, immunologic, and clinical studies which will support therapeutic and vaccine development, as well as the advancement of basic scientific knowledge. Dr. Stephen Feinstone of the FDA's Center for Biologics Research and Review, who was a member of the team that discovered hepatitis A, recently reported the construction of an infectious clone of the hepatitis C virus, an important step towards the eventual development of a vaccine. Extramural programs include four newly established Hepatitis C Cooperative Research Centers, which among their other works conduct studies of the natural history of hepatitis C in African Americans, Native Alaskans, and children. Studies of the natural history of hepatitis C after liver transplantation are also under way.

Let me conclude by reemphasizing that the Department of Health and Human Services joins in your concern regarding the impact of hepatitis C on our nation's health. I want to thank you for

this opportunity to describe our efforts to control and, ultimately, eradicate this terrible disease. I would be delighted to answer any questions the Committee may have.

Mr. SHAYS. Dr. Satcher, we're going to have a vote in 15 minutes, but we are going to try hard to ask you questions and then go to the next panel so you don't have to wait for us to return.

Dr. SATCHER. OK.

Mr. SHAYS. Let just begin by saying to you that when we began this process, this is the fifth hearing we've had on the safety of the blood supply, we all know that the blood supply is safe and that is the first thing we want to put on the record. It wasn't safe a few years ago.

Dr. SATCHER. Right.

Mr. SHAYS. Our guard wasn't up, we were very casual, and our first hearing was really on HIV AIDS and our focus was on that and why 22,000 people contracted it and while 10,000, half of them hemophiliacs who contracted the disease and many of them have passed away.

But in this process we then learned about hepatitis C and it kind of followed in HIV/AIDS' shadow and there was dialog going back and forth and I have to say our subcommittee probably has been a little more alert to really pushing this issue but it's a difficult issue. It is difficult because there are potentially a million people who have been exposed to tainted blood, blood products, and of those million, we think, about 300,000 have hepatitis C.

The question is, how do we go about notifying them and how do you see that happening in the weeks and months and years to come?

Dr. SATCHER. Well, the first part of this strategy, let's say we start with a million people, about 300,000 of those persons were exposed to blood from donors whom we know with some certainly were positive for hepatitis C because they were tested using the second generation test and confirmation after June 1992. So we will go back at least to June 1988, for people who were exposed to such persons who were donors. Either to 1988, or at least to a year before those persons had a negative test, so if a person tested positive in June 1992, and we see that when they were evaluated in January 1990, they were negative, then we will look at everybody who received blood from that person up until January 1989, a year before they became negative, because of the window.

That's the first step. We will aggressively pursue the people whom we are fairly certain have been exposed to positive donors based on an accurate test.

The other 700,000 people we will pursue through the CDC effort that I mentioned, working with providers, educating the general public and aggressively trying to get people in to be counseled and tested and whatever treatment is available.

As I pointed out, as you know, there are a lot of other people who were not exposed to blood who hopefully will also respond to this major educational program.

Now the third part, and I want to emphasize it, is when we go after the 300,000 people, obviously a lot of them we will not find because many of them will have passed on because of the reason that people get transfusions is, you know, many of them are already severely ill so you'd estimate that a half of the persons have deceased. And we will find as many of those who are still alive that we can find. What we learn from this first effort we will then apply

to the remaining population of persons who are at risk. So we are going to be aggressive about pursuing the ones that we know were exposed to a positive donor, very aggressive about a general look back in terms of education of communities and providers. We've already started it with the American Liver Foundation and CDC, and then we will evaluate those two efforts and then, based on what we have learned, intensify efforts in the future.

But this is within the next year, we will begin this. In fact, FDA will issue a guidance within the next 2 weeks, to blood banks and hospitals to begin this process.

Mr. SHAYS. I can see contacting physicians and the blood banks and so on, but I am having a difficult time visualizing how we contact the at-risk person. Is it by letter? How are we doing it? And I am having a less difficult time understanding what the letter will say because I think I am fairly clear what it should say. Just describe that process to me.

Dr. SATCHER. That is a very important point. We will use letters, we will work with blood banks and we will work with hospitals where the records are kept, where people received transfusions. People will be told that they received blood from a person who later tested to be positive for hepatitis C. Now, based on the accuracy of these tests, that means that their risk of having hepatitis C will be between 40 and 70 percent, which is a significant risk. And we will tell them that. It does not guarantee that they have hepatitis C, but they are at great risk for it. And so we will strongly encourage them to come in, to be counseled, to be tested to see if they, in fact, have hepatitis C, and then we will proceed from there with the clinical treatment of the problem. That's the first step.

Now the other 700,000, you understand, were exposed to blood from people who received the first generation test and because of the problems with that test in terms of false negative, many people were told they were not positive who were positive, and false positive people who were told they were positive who were not.

We will have a more general look back to that population, an aggressive general look back, working with providers in educating that community.

Mr. SHAYS. And suggesting that they have their blood tested?

Dr. SATCHER. Counseled. Tested. Treatment, yes.

Mr. SHAYS. Thank you. Mr. Towns.

Mr. TOWNS. Thank you very much, Mr. Chairman, and I agree with you we are not going to hold the Surgeon General, but I'd like to ask permission to submit some questions, Mr. Chairman, that he could sort of respond to in writing.

Let me begin, first of all, congratulations and welcome aboard.

Dr. SATCHER. Thank you, Congressman Towns.

Mr. TOWNS. It is my understanding that the reported cases of hepatitis C have increased over the last few years. However, I am disturbed that there seems to be no standard criteria for reporting. Some State health departments report based on blood tests. And some report only after a doctor's diagnosis. Because there is a high level of false positives on the blood tests and no standard case definition of doctors to follow it, seems that our statistics may be a little soft. Can you tell me, what can be done to standardize the reporting criteria for the disease so that we can develop a stronger

statistical base for prevention and treatment and, also, this goes with funding as well. Maybe we need to look at additional funding, but we need to have all of the information to be able to make the appropriate decision.

Dr. SATCHER. I can tell you what can be done, but I think even more important I can tell you what we are doing.

Let me just go over a couple of figures just so that everybody is together. We say there are an estimated 4 million people with hepatitis C. Now, that is the prevalence, the number of people. And we estimate that primarily from the NHANES survey, where we take a representative sample of the American population and when we do the survey we test them for hepatitis C. And on that basis, we extrapolate to the whole population and get 4 million people.

The other figure of 30,000 new cases a year, the incidence we call it in Public Health, is a very important figure because it says what is happening now in terms of people getting infected. From all the information available to us, that figure is decreasing, not increasing, and that is very important.

How do we get that figure? We get it from what we call our sentinel counties survey. We have identified what we call representative counties in the country and CDC has been following those counties with very reliable strategies since 1979.

What you point out is very important, is that this has been designated as a disease to be reported. The problem we have with the reporting now is outside of those sentinel counties, we have very little control over the way the laboratory tests are done, the fact there are still false positive, false negative, and the fact that some people get repeat tests without it being clear when they report it to the CDC, so this is what we are doing.

As this committee knows, we have established seven emerging infectious diseases research centers throughout the country, including one at Yale, New Haven, CT, and UCSF, in conjunction with Kaiser, where we have already started a major strategy for the accurate surveillance of hepatitis C. We are going to expand that to at least six of these emerging infectious disease centers that are representative of the population throughout this country. So we are going to have accurate reporting. We are going to model accurate reporting over the next few months and years for this disease. Because, as you point out, there are many problems now but I think we now have the technology to assure a more accurate reporting.

And the other thing that I want to point out and this relates more to the prevalence, the 4 million figure, of how do we make sure that is more accurate and also how do we know more about the risk factors?

Well the NHANES survey, and this is the fourth one that we are now gearing up for. The last NHANES 3 was from 1988 to 1994, we were just learning about hepatitis C so we didn't ask all of the questions in that survey that we should have. In NHANES 4 we will ask all the necessary questions to better define all of the risk factors for this disease.

We know that the major risk factor is injection drug use. We know that multiple sex partners is another major risk factor, but we need to find out and when we do NHANES 4 and not only test a representative sample of Americans for hepatitis C but pursue

more information that will allow us to better define the epidemiology of this disease.

Mr. TOWNS. Thank you, very much, Dr. Satcher.

Dr. SATCHER. Mr. Chairman, if you need me to wait until after the break, I will be happy to.

Mr. SHAYS. If you don't mind, I would like to do this. This is such an important issue.

Dr. SATCHER. I know how important this is.

Mr. SHAYS. Thank you very much. I think what we will do, we will recess and be back very quickly.

[Recess.]

Mr. SHAYS. I call this hearing to order. Thank you, Dr. Satcher.

I don't know what it is, somehow seeing you in a uniform makes me want to be very solicitous of you. [Laughter.]

So, I do appreciate your willingness to stay because that really is the right decision.

Dr. SATCHER. Thank you for your support in helping to get me in this uniform.

Mr. SHAYS. You are welcome.

I am going to ask a question that I just think needs to be asked and I am not throwing stones because I could throw them at myself as well, and ultimately it matters what we do from this point, but in the process of conducting hearings on the safety of the blood supply, I began to realize that we have a number of infectious agents that attack it, and we need to always be vigilant and we don't know what new agents may come our way.

We clearly were not alert as it related to HIV but then we began to realize it was a problem we needed to act more quickly. But here we are talking about a situation where an infectious agent got through our defenses and, one, we need to make sure it doesn't happen again. But then we have the problem when it gets through what is the protocol that is necessary to let people know? Even if there are a few people.

I get the sense, just trying to think about where I was coming from, it seemed like 300,000 was a small number, given the vast number of people who may have used blood products, transfusions, and so on.

But my question is this, once we had our hearing, once there was dialog, walk me through the process of why it has taken us so long to get to this point and then tell me if you think that will be the continual practice or if there is a new protocol that will make us be more alert.

Dr. SATCHER. I understand your frustrations of that and I appreciate your concern. Let me just say it is not an easy question to answer, but let me give it my best shot.

As I pointed out, NHANES 3, 1988–1994, was the survey that gave us information about the prevalence of hepatitis C. And, as I also pointed out, I pointed out the limitations of NHANES 3 and why NHANES 4 is going to be so much better. So that means NHANES 3 ended in 1994, because as you know the virus was only identified in 1989 and we didn't have an accurate test until June 1992. And then, of course, as you pointed out, 1995, when you had that very important hearing here and this committee, in 1996, made a very strong recommendation about the need to pursue. In

public health, I think we struggle with things like sensitivity and specificity of test results and what I am trying to say is we don't want to misinform people. If we tell somebody that they are at risk for having hepatitis C, we want to be fairly accurate. If we had done that on the basis of the 1990 tests, I could guarantee you that three out of four of the people that we told would have not had it.

So, you think about the harm that that does to individuals and families.

So, No. 1, we wanted to make sure that we had the kind of results that were accurate enough in terms of sensitivity and specificity, and, you know, specificity has to do with, if you say it's positive, it's positive. Sensitivity says if you say it is negative, it's negative, you're not going to miss people who have it.

So, the tests and accuracy of them and being able to relate that to a prevalence in society brought us to around 1995 when we had this discussion.

Now 1996 was when we started responding to the IOM recommendation and the Institute of Medicine, of course, the great thing about it is it brings together outstanding scientists in an area like this and they look at it very critically. They look at the tests, how accurate they are, they make recommendations and they made a recommendation and your committee, of course, strongly supported that and led to the blood safety committee being established in the Department with Phil Lee, Dr. Lee, chairing the committee and I served as a member of it.

It was that committee that first looked at the issue of doing a look back and what it would mean and then we put together the advisory committee, that took a year. This process does take too long, these processes of appointing committees and appointing advisory committees, getting them to meet, looking at the results of that meeting, reacting to it, and moving forward.

But I think the basic issue here is, in public health, we want to do good and not harm. And sometimes in an effort to do no harm, we do take longer than we would like to take.

But I believe that the technology is improving at such a rate and especially with our emerging infectious disease research centers and other things. And I forgot to mention something in response to Congressman Towns which is very important because this question is so critical. I mentioned what we are doing with the Emerging Infectious Disease Centers, and that is exactly right. They are the centers that are going to model the most accurate tests. But that is not all we are doing. As you know, we have now funded 30 States to improve their laboratories. Because what we found in 1993, of course, was that there were so many States in this country that could not diagnose E. coli 0157–H7, for example, and certainly couldn't give us an accurate diagnosis of hepatitis C.

So we have been working with them in trying to make the resources available. Our colleagues at the State level have a tough job and they do a great job. The Council on State and Territory Epidemiologists are the ones that define the notifiable diseases, and we have to followup and then try to make sure that the information we are getting is accurate information.

So, I think it took too long. I would agree with you on that. I think we ought to continue to find ways to make sure that it doesn't take that long in the future for those things.

Mr. SHAYS. You described the fact that committees have to be formed, and so on. We have ongoing committees now, I mean, is one of our needs just to make sure we stay current?

Dr. SATCHER. Yes, and I don't want to overemphasize the time it takes to form a committee, but it is true in terms of getting input from the public as to how we should deal with a very sensitive issue like this and how we should deal with uncertainty, for example in public health.

But the most important thing I want to point out is that we wanted to make sure when we told people they were at risk, that we were as accurate as we could be. That we didn't unnecessarily alarm people, and that we were prepared to act. And I think we are now. And, obviously, I wish we had done it more rapidly.

Mr. SHAYS. Thank you. Mr. Towns.

Mr. TOWNS. Thank you very much, Mr. Chairman, and thank you also for remaining. Currently there is a vaccine for hepatitis A and hepatitis B. Do you believe that we are near a vaccine for hepatitis C?

Dr. SATCHER. Tough question, Congressman Towns. Let me tell you what the problem is with hepatitis C. It is similar to HIV. You have a virus that mutates rapidly, a lot of variations of the genetics of hepatitis C virus. You know how long we have been struggling with the common cold and influenza and there are similar problems with a virus that changes rapidly.

So it is going to take a little longer with hepatitis C, but I think there are some other problems in terms of not having cell cultures. But now this clone that I mentioned, this infectious clone, will certainly help with the development of a vaccine, but the real problem with hepatitis C is the nature of the virus, the diversity of it, and its ability to change so rapidly. And we, as you know, are struggling with that with HIV.

Let me just make one point about that. When we talk about the amount of money that we spend for research, in some ways it is misleading because much of the money spent for HIV is basic research that is going to help us with hepatitis C and a lot of other viruses. It is not just going to help us with the AIDS virus because it is the kind of research that is broadly applicable to viruses, this kind of virus. And so, if you try to compare money spent for HIV with money spent for hepatitis C, it is not exactly appropriate because much of what we are doing in terms of basic research with HIV just is going to benefit our ability to deal with viruses in general.

Mr. TOWNS. Thank you very much.

Let me just go to another subject altogether different. I think it was in 1994, the Committee on Government Operations issued a report entitled, "Poison Control Centers: On the Brink of Extinction."

In that report, the Subcommittee on Human Resources and Intergovernmental Relations recommend that the Department of Health and Human Services develop a plan which would ensure universal access to quality Poison Control Center services. The sub-

committee advised the Department to put forth this plan within 6 months. Since that time, I have traded letters and phone calls with the Department and have not yet seen the development of a plan.

As the new Surgeon General, your role is to protect the public health. Can you tell us when you feel that a plan will be developed?

Dr. SATCHER. I believe you did change the subject on me there. [Laughter.]

But it's fair, it's fair.

Mr. SHAYS. I hope this was wired because otherwise I would declare him out of order. [Laughter.]

Mr. TOWNS. We don't get a chance to ask the Surgeon General a lot of questions, so when you get him, you have to ask him all you can, Mr. Chairman. So I am in order. [Laughter.]

Dr. SATCHER. Let me say why I think it is fair. I think as Director of the CDC, I was involved working with HRSA and the Poison Control Center Advisory Center, which Dr. Foege, the outstanding former Director of the CDC, chaired this advisory committee and that advisory group did, you know, they submitted recommendations to the Department about a year ago, March 1997, was when we received the recommendation.

Since that time, I believe that Secretary Shalala has convened an internal working group to discuss the recommendations contained in that report. And we are, I think, very close to coming out with the strategy we are going to use. You know it involves a lot of funding, which we don't have, but will have to be able to acquire to follow through on that. I agree with you, we agree with you that it is a very important issue. I think we are getting close.

I will do everything I can to move that issue forward.

Mr. TOWNS. Thank you very much and I look forward to working very closely with you. Thank you very much.

Mr. SHAYS. Dr. Satcher, let me just ask two other questions. You really are back on subject again. You responded to one, I think, in the sense that you talked about reaching out to the State health departments, but the CDC reporting protocol on hepatitis C is basically on acute cases. And if you could kind of sort that out. I don't know how much we should be focusing on acute versus nonacute.

Dr. SATCHER. The issue of which diseases are notifiable of course as you know comes from the Council on State and Territory Epidemiologists and they have, in fact, made hepatitis C a notifiable disease, not just acute hepatitis C, so it is reportable as both an acute and a chronic disease. And that is how we are dealing with it.

Mr. SHAYS. Are we collecting data on it?

Dr. SATCHER. Yes, we are.

Mr. SHAYS. OK.

Dr. SATCHER. The problem with it, as I pointed out earlier, the present data comes from laboratories that are not always reliable at this point in their development. They are not reliable because of false positives, false negatives. Sometimes it is not clear whether you are looking at a repeat, whether this is the first time this patient has been diagnosed or whether this is a repeat test. Those are the things that we are trying to iron out now to make that system more reliable.

But I hope you also heard me, because this is important, while we have trouble with this general system of reporting, at the same time we think we have a very accurate sentinel of six counties and we think that the emerging infectious disease centers' strategy is certainly going to help us have a representative sample from throughout the country.

And in time, I think, we will have an accurate reporting system for hepatitis C.

Mr. SHAYS. Let me just ask one other question, then I have another followup.

When we began to prepare for this hearing, it was my understanding that we really don't know the relationship of sexual transmission of hepatitis C. And in the guidelines for treatment of sexually transmitted disease by CDC, they did not really make reference to HCV cases being transmitted sexually.

And since then, just a few weeks ago, they have announced that 25 percent of HCV transmission may be through sexual activity. Could you comment on that?

Dr. SATCHER. Yes. And I must say that this is an area where we are getting new information every day, but one of the problems, as I pointed out earlier, is that while persons in NHANES 3 were asked about sexual partners, we did not do the kind of risk analysis in NHANES 3 that, if we had known more, we would have done and certainly we will do in NHANES 4.

So, the issue of the sexual transmission of hepatitis C is becoming clearer everyday but it is nowhere as clear as HIV or hepatitis B, for example.

Let me just give you an example. In a monogamous relationship, where one partner has hepatitis C and the other doesn't, the risk of transmission of hepatitis C is very low. It is 1 percent or less; so low that many would argue that it is hard to separate from other risk factors. We know that, but at the same time we know that if you take individuals who have multiple sex partners and sexually transmitted diseases, they are at much greater risk for hepatitis C.

So that is where we are. We are still studying these issues very carefully and NHANES 4 will help.

Mr. SHAYS. Thank you. I would like to note for the record that you have made it very clear that the blood supply is very safe and that we are able to detect and prevent hepatitis C from getting into the blood stream.

Dr. SATCHER. Yes.

Mr. SHAYS. I would also like to note for the record that I sometimes would love to have a dialog with you about immune globulins, the whole issue of its shortages and concerns about that and also the institutional review boards. We've had hearings that really call into question how independent they are, or not; are their relationships with the research projects they oversee, are they properly guaranteeing that patients who are participating are being informed. These are very important issues that our committee is looking into and we'll be looking forward to having dialog with you on those issues.

Dr. SATCHER. Those are very important issues. I think the National Bioethics Advisory Committee is certainly going to help in

looking at the institutional review boards. That is a really critical issue.

Mr. SHAYS. You have your work cut out for you don't you?

Dr. SATCHER. No question about it.

Mr. SHAYS. But you wanted this job?

Dr. SATCHER. I sure did.

Mr. SHAYS. Dr. Satcher, you're doing a great job and we really appreciate your being here.

Dr. SATCHER. Thank you. Thank you very much.

Mr. SHAYS. We are going to go on to our next panel.

I call on John Mazzuchi. Dr. John Mazzuchi, Deputy Assistant Secretary for Clinical and Program Policy, Department of Defense, and Dr. Thomas Holohan, Chief Patient Care Services Officer, Department of Veterans Affairs. Dr. Holohan is accompanied by Dr. Gary Roselle, Program Director, Infectious Diseases.

If both of you would stand I will swear you in. If you think there is anyone else who might speak, and we might turn to—thank you very much. If you would all raise your right arm.

[Witnesses sworn.]

Mr. SHAYS. For the record we will note that everyone who stood answered in the affirmative and we will identify those individuals if they do, in fact, have to give testimony.

I would like, at this time, to just take care of one technical part of our business here and ask unanimous consent that all members of the subcommittee be permitted to place an opening statement in the record and the record remain open for 3 days for that purpose.

Without objection, so ordered.

I ask further unanimous consent that all witnesses be permitted to include their written statement in the record. Without objection, so ordered.

And submit in the record Council State and Territory Epidemiologists a statement from President Birkhead which will be submitted in the record as well.

Dr. Mazzuchi.

[The prepared statement of Mr. Birkhead follows:]

Statement of the Council of State and Territorial Epidemiologists Submitted to the House Subcommittee on Human Resources and Intergovernmental Relations Committee on Government Reform and Oversight Hearing on Hepatitis C March 4, 1998

State departments of health have responsibility for maintaining surveillance and coordinating prevention and control activities for communicable diseases of public health significance. Since the virus responsible for hepatitis C was first identified in 1989, it has been recognized as an emerging infectious disease of increasing public health importance. Unfortunately this has occurred at a time in which state and local health departments are struggling to deal with many other emerging infectious diseases following years of inattention to the public health infrastructure, particularly in regard to communicable diseases.

State health departments are responsible for a number of activities concerning hepatitis C. First and foremost of these is surveillance for hepatitis C. Surveillance is the foundation for developing a public health response to any infectious disease threat. Surveillance can be useful in:

- determining which groups are at highest risk;
- identifying changes in infectious disease rates;
- determining modes of transmission;
- identifying appropriate target groups for intervention; and
- planning and evaluating disease prevention and control programs.

Disease incidence figures, collected by the Centers for Disease Control and Prevention (CDC) as the national notifiable disease system, are voluntarily reported by the states. The legal authority for reporting rests entirely with the states, which determine independently which diseases or conditions shall be reported by all physicians, laboratories, or others to local health authorities, which in turn report to the state health departments. The state health departments report incidence data to CDC, which in turn reports selected diseases to the World Health Organization. In addition to the national notifiable disease system, CDC conducts sentinel disease surveillance (intensive surveillance for selected diseases, including viral hepatitis, in specific geographic areas (three counties in the case of viral hepatitis).

Hepatitis C was made specifically reportable in most states by 1996, recognizing its importance as an emerging infection. Health care providers are required to report all cases of hepatitis C to the local health department and specify whether the case is acute or chronic hepatitis C. Local health departments are required to report only cases of acute hepatitis C to state health departments. Current resources are insufficient for state and local health departments to collect reliable data or investigate the large volume of laboratory reports received. Thus, CDC has relied on sentinel disease and serologic surveillance to provide the data to estimate the acute and chronic disease/infection burden and to monitor trends in group-specific transmission. While such data have brought nationwide recognition of hepatitis C as a major public health problem, they are insufficient to determine public health need on a localized basis. **The Council of State and Territorial Epidemiologists (CSTE) recommends that resources be made available to state health departments for state and county surveillance activities to identify and investigate cases of acute and chronic hepatitis C.**

Currently there is not a national plan for prevention and control of hepatitis C. On August 22, 1997 the Public Health Service Advisory Committee on Blood Safety and Availability recommended to the Department of Health and Human Services that past recipients of blood transfusions be notified

of their risk of the need for testing for hepatitis C infection. On January 28, 1998 Secretary Shalala responded by announcing support of these recommendations and the intention to further develop a comprehensive plan to address the significant public health problem posed by hepatitis C. This was accompanied by a memorandum to state and territorial epidemiologists announcing CDC's intention to work with state health departments to develop approaches and identify resources to support the implementation of the committees recommendations in the public sector. However, resources to support this implementation are not currently adequate to meet the demand likely to be generated by a public notification of the risk of hepatitis C. A comprehensive plan for the prevention and control of hepatitis C would include:

- public education to reach the populations at current or past risk of infection, providing them with the opportunity to test for their infection status, to obtain information on preventing transmission to others, to undergo medical evaluation for chronic liver disease if infected, and to receive therapy if eligible;

- educational efforts directed to health care and public health professionals to improve the identification of patients at risk of infection and ensure appropriate diagnosis, treatment, and counseling;

- the development of community-based programs to prevent infection in high-risk groups; and evaluation of both education and prevention components.

Programs to support these activities must be established before this plan can be implemented. **CSTE recommends that resources be made available for: state based educational programs including dissemination of materials on hepatitis C for public health and health care professionals, policy makers, and the public, including high-risk groups testing and referral services in the public sector.**

Many of the risk factors for hepatitis C are the same as for human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) and for sexually transmitted diseases (STDs). Programs for evaluating risk behaviors, monitoring prevalence of infection, and conducting prevention activities have not been developed for hepatitis C, and have remained separate for HIV and STDs. Integration of programs for these diseases could increase their cost-effectiveness. **CSTE recommends that federal pilot project support be made available to state health departments for: integrating prevention of HCV infection into existing community-based programs targeted to high-risk groups; developing integrated community-based programs to monitor risk behavior and infection prevalence for hepatitis C, HIV and STDs.**

STATEMENTS OF JOHN MAZZUCHI, PH.D., DEPUTY ASSISTANT SECRETARY FOR CLINICAL AND PROGRAM POLICY, DEPARTMENT OF DEFENSE; THOMAS HOLOHAN, M.D., CHIEF PATIENT CARE SERVICE OFFICER, DEPARTMENT OF VETERANS AFFAIRS; AND GARY ROSELLE, M.D., PROGRAM DIRECTOR OF INFECTIOUS DISEASES

Dr. MAZZUCHI. Thank you, Mr. Chairman. It is my pleasure to appear before this subcommittee today. I will try to abbreviate my statement in the interest of time. I have given you my full statement for submission for to the record.

I will provide a brief overview of the epidemiology of hepatitis C in our military population. I am joined by Colonel Maria Sjogren, who is a Medical Corps officer, U.S. Army. She is the head of the clinical investigation program at Walter Reed Army Medical Center, and Major Lianne Groshel, who is the Deputy Director of our armed service blood program office.

They will be able to answer any specific question regarding either hepatitis C treatment or clinical trials or our blood program efforts.

Hepatitis C infection among military service members mirrors those observed in the United States' general population. As you know, an estimated 1.8 percent of the general population and between 0.1 percent and 0.6 percent of all blood donors in the United States have evidence of hepatitis C infection.

Several studies have been conducted to determine the prevalence and instance of hepatitis C infection among military members. Most of these studies were conducted shortly after the test for hepatitis C had become available so that we could determine if hepatitis C was present among our military members at different rates than the general population.

A study conducted in 1989 documented hepatitis C infection in a 0.3 percent of over 1,538 Navy and Marine Corps recruits upon their entry into service. Other studies in the general military population found hepatitis C infection at 0.2 percent of 5,719 military blood donors in 1990 and 1991; and 0.4 percent of 2,072 shipboard personnel in 1989 and 1990; and 0.2 percent of 2,875 Marines on Okinawa between 1988 and 1990.

Mr. SHAYS. Doctor, if I could ask you to do something—I am going to ask you to put down the mic just a little bit more and a little closer to you, if you don't mind. Then also I am going to let you know you have the time needed and you can slow down a little bit. I don't want to rush you here.

Dr. MAZZUCHI. Most recently, a study of over 100,000 donors of whom about 86 percent were military members at the military blood bank during 1996, 0.39 percent were reported reactive by the enzyme link immunoabsorbant assay or ELISA test for the antibody to hepatitis C during routine laboratory screening of donated blood.

The department has reviewed its accession and its retention policy with respect to all hepatitis, which would include hepatitis C. Whether the proceeding 6 months or persistence of symptoms after 6 months, objective evidence of impairment of liver function and chronic hepatitis were all disqualifying conditions for accession into the military service.

The disability and retention system standards identify hepatitis with persistent symptoms or persistent evidence of impaired liver function as disqualifying for retention into military service.

We do not presently test applicants for military service prior to enlistment or recruits during the training period for presence of hepatitis C infection and do not plan immediately to do so because of the low prevalence of these rates among our military population and the high cost of the serologic screening program.

However, as part of their medical evaluation, applicants and recruits are asked about any history of hepatitis prior to entry into service. We do not routinely test military members for evidence of hepatitis C infection.

The presence of hepatitis C infection is usually discovered when members donate blood or when there are clinical symptoms of the disease.

When clinically indicated, military members do receive testing and, if appropriate, treatment for hepatitis C infection. Similarly, military members found to be infected with hepatitis C during testing of their donated blood are evaluated and treated as appropriate. The presence of hepatitis C infection, by and of itself, does not render a military member unfit for continued military service under our disability and retention standard.

A major risk factor for hepatitis C infection, injecting drug abuse, is rather low among military members. Accession standards, including requirement to be free of HIV infections, and our urine testing program exclude most persons who previously or currently use illicit drugs. A 1995 Department of Defense survey of health behaviors among military personnel is an anonymous survey which has been conducted periodically among active duty service members since 1980.

Use of heroin or other opiates was reported by fewer than 0.2 percent of those surveyed military members. The prevalence of any illicit drug use among military members is one-third the rate reported in the age-matched civilian population.

Trends in illicit drug use in the military have dropped dramatically since the early 1980's.

Thank you for the opportunity to provide you with this information on hepatitis C and our programs related to it. I would like to emphasize that the military population is one of the few, or maybe the only one, that has mandatory HIV screening as well as a mandatory urinalysis program which I think goes hand-in-hand with our rather low rates of hepatitis C.

That concludes my statement, Mr. Chairman.

[The prepared statement of Dr. Mazzuchi follows:]

It is my pleasure today to provide testimony before this subcommittee regarding hepatitis C virus infection in the military. I will provide a brief overview of the epidemiology of hepatitis C virus in the military population and the related testing, treatment and research programs within the Department of Defense. I am joined today by Colonel Maria Sjogren, Medical Corps, U.S. Army, a gastroenterologist and the Chief, Department of Clinical Investigation at Walter Reed Army Medical Center, and Major Lianne Groshel, Biomedical Science Corps, U.S. Air Force, a laboratory officer and Deputy Director, Armed Services Blood Program Office. They will be able to answer any specific questions regarding the evaluation, treatment and clinical research for patients with hepatitis C infection and our hepatitis C testing as part of our blood donor programs, respectively.

Hepatitis C virus infections among military service members mirror those observed in the United States civilian population with the exception that few infections among military members are attributed to injecting drug use. As you know, between 0.2% to 1.0% of the general population and between 0.1% to 0.6% of blood donors in the United States have evidence of hepatitis C infection.

Among 120,343 donors (of whom 86% were military members) at military blood banks during 1996, 466 (0.39%) were repeatedly reactive by the enzyme linked immunoabsorbent assay (ELISA) test for antibody to hepatitis C during routine laboratory screening of donated blood. This rate among military blood donors is consistent with the experience in the United States population in general.

Several studies have been conducted to determine the prevalence and incidence of hepatitis infection, including hepatitis C infection, among military members over the past decade. Many of those studies were conducted shortly after tests for hepatitis C had become available so we could determine if hepatitis C was present among military members at a different rate than the general U.S. population. A study conducted in 1989 documented hepatitis C infection in 0.3% of 1,538 Navy and Marine Corps recruits upon entry to military service. Other studies in general military populations found evidence of hepatitis C infection in: 0.2% of 5,719 military blood donors in 1990 and 1991; 0.4% of 2,072 shipboard personnel in 1989 and 1990; and, 0.2% of 2,875 Marines on Okinawa between 1988 and 1990. Among 470 military personnel reporting to a sexually transmitted diseases clinic in the Western Pacific in 1990 and 1991, 1.1% had evidence of hepatitis C infection. Those studies found no evidence that foreign travel or other geographic risk factors placed military members at increased risk for hepatitis C infection. In a study conducted the Centers for Disease Control and Prevention and the Walter Reed Army Institute of Research, there was no serologic evidence of new hepatitis C infections among 513 soldiers who had deployed to Somalia in 1993.

The Department has reviewed its accession and retention policy with respect to hepatitis C. Hepatitis, which would include hepatitis C, within the preceding six months or persistence of symptoms after six months, with objective evidence of impairment of liver function, and chronic hepatitis are disqualifying conditions for accession. The disability and retention standards identify hepatitis with persistent symptoms or persistent evidence

of impaired liver function or the persistence of biochemical markers indicating chronicity as potentially disqualifying for retention.

We do not presently test applicants for military service prior to enlistment or recruits in training for the presence of hepatitis C infection. We do not plan to initiate testing because of the low prevalence of infection among our military population and the high cost of a serologic screening program. As part of their medical evaluations, applicants and recruits are asked about any history of hepatitis.

We do not routinely test military members for evidence of hepatitis C infection. The presence of hepatitis C infection is usually discovered when members donate blood and hepatitis C testing is conducted as a required part of the blood donor program or is discovered during a clinical evaluation for symptoms or signs of an illness.

When clinically indicated, military members do receive testing and, if appropriate, treatment for hepatitis C infection. Similarly, military members found to be infected with hepatitis C during testing of their donated blood are clinically evaluated and treated, as appropriate. For military members already on active duty, hepatitis C infection by itself does not render them unfit for continued military service. They will be evaluated to determine the severity of their infection and any related liver injury, and to determine if they warrant limitations on their duties during their treatment and follow-up care.

We have no evidence that military service places members at an increased risk of hepatitis C infection. Nationally, the most efficient modes of hepatitis C transmission are transfusion or transplantation from an infectious donor and injecting drug use. Healthcare workers are at increased risk of hepatitis C infection following needlestick injuries involving infectious patients. Sexual and household contacts of persons with hepatitis C infection are at increased risk for infection, but the magnitude of this risk is not well defined. Persons with multiple sexual partners are also at increased risk. Hepatitis C infection is more common among persons living in Southwest Asia, Africa, Asia, Eastern Europe, and South America, than among persons living in more developed countries.

The risk factor of injecting drug use is extremely low among military members. Accession standards, including the requirement to be free of HIV infection, and our drug testing programs exclude most persons who previously or currently use illicit drugs. The 1995 Department of Defense Survey of Health Related Behaviors among Military Personnel is an anonymous survey which has been conducted periodically among active duty military members since 1980. Use of heroin or other opiates was reported by 0.2% of the surveyed military members. The prevalence of any illicit drug use among military members was one-third the rate reported in age-matched civilian populations. Trends in illicit drug use in the military have dropped steadily since 1980.

Physicians at our military medical centers are conducting clinical research on hepatitis C. Those studies are addressing many of the research needs identified in the National Institutes of Health Consensus Statement, Management of Hepatitis C, 1997,

including: clinical treatment trials on interferon and combination therapies for hepatitis C, and studies to better elucidate the natural history of hepatitis C infection.

Thank you for this opportunity to provide you with information on hepatitis C infection and our programs related to its evaluation, treatment and control. If you have specific questions, Dr. Sjogren, Major Groshel, or I would be happy to answer them.

Mr. SHAYS. Thank you, doctor. Doctor Mazzuchi, is that how I say your name? I'm sorry I mispronounced it.

Dr. MAZZUCHI. No, you pronounced it correctly.

Mr. SHAYS. Dr. Holohan.

Dr. HOLOHAN. Thank you, Mr. Chairman, and members of the subcommittee. I am happy to appear today to discuss the Department of Veterans Affairs response to the health care challenges that are imposed by hepatitis C infection.

Since we previously have provided some written testimony in evidence, I will summarize a number of the activities of VA in this area of concern.

Hepatitis C infection is a difficult problem for the VA as well as the entire health-care community. The dramatic increase in information about this disease is fairly recent, however, and is in large part a result of the development of reliable laboratory tests to determine the presence of antibodies to hepatitis C in patients who have been infected.

The VA first attempted to estimate the extent of the clinical problem in our patients by mandating the aggregate tracking of the number of patients seen in VA facilities who were positive for the viral antibody.

Compliance with this program was 100 percent. Antibody tests first became generally available, the first generation, in 1990 and our initiative was begun in 1991 and has been continued on an annual basis. We've provided you data already that indicated that in 1991 there were slightly over 6,600 VA patients who tested positive for hepatitis C antibody. Those numbers increased to approximately 18,800 in 1994, and 21,400 in 1996. In the last 3 years, the rate of increase has diminished significantly, which may indicate a plateau of antibody positivity.

However, there are limitations of these data which should be appreciated and which effect our ability to draw conclusions about the meaning of those numbers.

First, each entry does not represent a unique individual since it is possible that some patients were tested more than a single time. Moreover, it is uncertain whether the data represent a true increase in prevalence or, alternatively, greater knowledge of the disease and the availability of antibody tests with subsequent increased utilization of testing over time.

Finally, since this was an observational study, and not a serologic survey, we cannot determine from these data what proportion of hepatitis C-infected VA patients were actually captured.

Because of those uncertainties, we have recently instituted an automated surveillance system that captures specified abnormal laboratory tests such as hepatitis C antibody testing and will also define unique patients and their medical characteristics more clearly.

Our early data indicate that 85 percent of all of our medical centers are now on line with this system and will be able to identify clinical attributes that are associated with the highest risk patient groups in VA.

We have also initiated efforts to increase the provision of information regarding hepatitis C to both patients and providers and

have emphasized face-to-face educational meetings with providers as well as publication and dissemination of our data.

In 1995, we established a formal look back program to deal with information brought forward by the pharmaceutical and biologic industries regarding potentially contaminated products. Our primary and ambulatory care strategic care health group is instructing providers to specifically question patients as to their pre-1990 transfusion exposure and to recommend testing for those deemed to be at risk.

Over the last decade, approximately 30 VA investigators have been funded for hepatitis C research projects. This represents about 137 individual projects with funding totaling $12 million, the majority of which has been committed over the last 5 years.

Moreover, the VA cooperative studies program is currently planning a large scale treatment trial to determine whether interferon can prevent progressive liver disease in veteran patients infected with hepatitis C. This study will include more than 500 patients at 17 VA medical facilities.

Finally, the VA and Department of Defense are planning to issue a joint request for proposals for studies on emerging pathogens which includes hepatitis C. Unfortunately, currently available treatment modalities for hepatitis C are of relatively poor efficacy. Interferon alpha, which is the only FDA-approved drug for treatment of hepatitis C, has a positive effect in only 15 to 25 percent of patients.

Preliminary information indicates that response rates may be greater with the addition of ribavirin and that 12 months of therapy may be superior to 6 months of treatment. However data are lacking with respect to whether biochemical or viral RNA marker improvement will ultimately translate into improved clinical outcomes, including quality of life and the presence or absence of disease progression.

Notwithstanding that, current information provides us a basis for cautious optimism that the natural history of hepatitis C may be positively affected by treatment. We agree with other witnesses that continued clinical studies and efforts to develop more effective antivirals and vaccines are of critical importance. VA will continue to participate in these important endeavors.

Chronic viral diseases are extraordinarily difficult to contain or eradicate and proof of therapeutic efficacy may require extended observation, particularly with hepatitis C where quiescent periods may be as long as 20 years and progression, when it occurs, may take a decade or more.

The VA must and will continue to make every effort to meet such challenges for our veteran patients.

That concludes my remarks, Mr. Chairman. I and my colleagues will be pleased to answer any questions you may have.

[The prepared statement of Dr. Holohan follows:]

Statement of

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For the

House Committee on Government Reform and Oversight

Subcommittee on Human Resources

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Mr. Chairman, and members of the Subcommittee, I am pleased to appear today to discuss the Department of Veterans Affairs response to the health care challenges posed by hepatitis C infection.

Hepatitis C virus infection presents a difficult problem for the entire health care community in the United States, including the Department of Veterans Affairs. Interestingly, the dramatic increase in information about this disease is based on the relatively recent development of a high quality laboratory test to determine the presence of hepatitis C virus antibody in persons who have been infected with this virus. The response of the medical community to this new data about the natural history of the disease is thus nascent.

For the Department of Veterans Affairs, there are at least four challenges and opportunities for dealing with this viral infection and the potential for consequent liver disease.

It was first necessary for the Department to identify the extent of the problem related to hepatitis C among its veteran patients. Therefore, in 1991, the Department began tracking, in aggregate, the number of persons seen in Veterans Affairs facilities who were positive for antibody to hepatitis C virus. This has subsequently been continued on an annual basis. It should be noted that at the initiation of this tracking system, availability of the antibody test for hepatitis C was limited, and information about the disease was just becoming available to the general medical community. In 1991, there were slightly over 6,600 persons in the VA system who tested positive for antibody to hepatitis C virus. This increased steadily and significantly over the subsequent years increasing to approximately 18,800 persons in 1994, and approximately 21,400 in 1996. Although the absolute numbers continued to increase, the rate of rise has slowed significantly over the last three years, and this may indicate a future plateau of antibody positivity. There are, however, limitations of these data that constrain conclusions about the actual number of infected veteran patients and rate of infection. First, it is important to note these data do not represent unique persons since some people may have been tested in more than one year. Moreover, it is unclear whether this six year trend represents a true increase in number of persons with hepatitis C antibody or whether the trend is due to the

improved availability of modern testing technology in the United States, and/or the increased information about the disease throughout the health care community. Finally, since this was not a serologic survey but rather a mechanism that simply recorded all persons who had a positive test for hepatitis C antibody, one cannot infer that this tracking has captured all patients in the VA system with hepatitis C virus antibody. Notwithstanding, this does represent a significant number of persons infected with hepatitis C virus in the VA system. It should also be appreciated that because most patients remain relatively asymptomatic (about 80% of cases), and because over a ten- to twenty year span 20-30% develop cirrhosis, our data do not imply that each of our antibody-positive patients has overt clinical liver disease related to hepatitis C virus infection. We also have found that these antibody-positive patients were widely distributed across the United States, with increases over time noted in many of the large metropolitan areas. Therefore, the Department was able to answer the first challenge in a timely manner by defining, in general terms, the extent of the problem within the veteran population served.

In an effort to disseminate this information to the VA and the health care community at large, these data have been presented at national and international meetings, and have recently been published in the Journal, *Military Medicine*.

While this sort of aggregate data defines the extent of the problem, it does not deal directly with the issue of the demographics of the persons who may be at highest risk for this infection. This information is critical for planning any future intervention, screening, or therapeutic trials. Therefore, the Department has recently instituted an automated surveillance system to define pertinent patient characteristics more clearly. Early data sets from this initiative indicate that this surveillance system is successful, in that approximately 85% of all our medical centers are "on line"; thus we believe we are able to identify the highest risk groups in the Department. These data can be used for the purpose of education, intervention, and future therapeutic trials, and will be disseminated to the wider health care community for informational purposes.

The second challenge for the Department has been to provide information regarding hepatitis C to both health care providers and veteran patients. The most efficient way to accomplish this goal is to educate the health care providers about hepatitis C, as they are the interface between the larger health care system and the individual patient. This has been done in a variety of settings, but emphasized in face-to-face educational meetings directly with providers, as well as through publication and presentation of VA data as previously mentioned. VA has also established a lookback program to deal with issues brought forward by the pharmaceutical and biological industries related to potentially contaminated products. Obviously, hepatitis C virus infection is not a specific VA

problem; instead, it is an emerging pathogen of national and international importance.

The third challenge for the VA is in the area of research. Critical components of the research agenda include the basic science of the hepatitis C virus and applied research directed toward the natural history of disease, prevention strategies, and therapeutic intervention. VA scientists have been very active in all areas. The number of grants on hepatitis C virology is variable since, on a recurring basis, some grants are funded while others come to conclusion. However, over the last decade approximately 30 VA investigators have received funding related to investigations of hepatitis C. This represents approximately 137 individual projects. VA funding for hepatitis C research totals nearly $12 million, but a number of our investigators also receive funds from other sources, such as the National Institutes of Health, the pharmaceutical industry, etc. In addition, other proposals with particular emphasis on defining treatment strategies for persons with hepatitis C virus disease and other co-morbidities, are currently under review. This is a group commonly seen in the VA and often not addressed in studies performed in the corporate or private setting.

The VA Cooperative Studies program is currently planning a large-scale treatment trial to determine whether interferon can prevent progressive liver disease in veterans infected with the Hepatitis C virus. The study will include more than 500 veterans at 17 VA medical facilities. Enrollment of patients is

expected to take 3 years, and each veteran enrolled will be treated for 4 years; thus, the total duration of the study is expected to be 7 years. Final review and approval of the study will be made at the May 1998 meeting of the VA Cooperative Studies Evaluation Committee. In addition, the VA in collaboration with the Department of Defense is planning to issue an RFP for studies on emerging pathogens including hepatitis C. We believe this to be a well-rounded portfolio in research on hepatitis C virus infection and disease.

The fourth challenge of hepatitis C virus relates to the relatively poor efficacy of currently available treatment modalities. The only FDA-approved drug for treating hepatitis C virus disease, interferon alpha, can be expected to have a long-term positive effect in approximately 20-25% of patients. While this is certainly disappointing, observation of some antiviral effectiveness does present a major opportunity for future improvements in care for patients with this illness. A recent National Institutes of Health Consensus Conference Panel statement recommended fairly narrow patient selection criteria for treatment for hepatitis C virus disease; moreover, selection generally required a liver biopsy prior to therapeutic intervention. This again points to the need for better therapeutic agents with greater efficacy, fewer side effects, and greater applicability to the patient population in general and the veteran patient population in particular. The VA is attempting to meet this challenge through its research funding mechanisms, such as the Cooperative Studies Program in which the VA has been a national leader over the past several years. The VA will continue to take

a major leadership role in the area of large studies evaluating treatment regimen to meet the needs of the veteran, and by extension, the population in general.

In conclusion, hepatitis C virus disease presents major challenges for the health care system in the United States and the world. The VA has dealt proactively with this problem in a number of critical areas including: studying the epidemiology of the disease in the veteran population; educating health care providers; researching the basic and clinical sciences on hepatitis C virus and hepatitis C virus infection; and by establishing a leadership role in studies designed to improve specific treatment interventions for patients with hepatitis C virus disease.

However, solutions will not be easily found. Chronic viral diseases are extraordinarily difficult to contain or eradicate, and proof of drug efficacy can require extended periods of time, particularly with hepatitis C virus disease where quiescent periods may last 20 years and progression of disease may take a decade or more. Therefore, the challenges will continue, and the Department of Veterans Affairs will make every effort to meet those challenges in an aggressive and innovative manner.

Mr. Chairman, that concludes my testimony and we will gladly answer any questions you or other Subcommittee members may have.

Mr. SHAYS. Thank you very much. I first want to have a clear sense of how large the Department health system is at DOD. That's a basic question I should have known before we started, but in comparison to VA?

Dr. MAZZUCHI. VA is larger. I think we have something in the order of 9 million beneficiary population, I'm not sure of the number. It is large but not as large as the VA.

Mr. SHAYS. The VA, what is your population, basically?

Dr. HOLOHAN. There are 25 million veterans that are potential patients of the VA. We treat annually an average of about 3 million, in round numbers, at about 170 separate medical facilities and a larger number of out-patient clinics.

Mr. SHAYS. DOD, you treat families, you treat active personnel and their families?

Dr. MAZZUCHI. Yes, we see active duty members, their families; retirees, and their families.

Mr. SHAYS. I would like to just have a sense of the situation, first off, with respect to the active duty soldiers in Vietnam. If they needed blood, the blood supply was from the United States in most instances?

Dr. MAZZUCHI. In most instances it was, but there were probably some transfusions from local foreign nationals. We have a much more robust blood program now that is more forward.

Mr. SHAYS. In the late 1960's and early 1970's, if a soldier was injured, he would be treated by the DOD doctors. At what point would that soldier become the concern of the VA? When they had left service? When would they become a concern of the VA?

Dr. MAZZUCHI. Basically, when they would either finish their tour in the Department of Defense and become VA eligible when they retire from the military or separated for a medical reason, if there is a medical separation, then they become the concern of the Department of Veterans Affairs.

For those who left the military and are not retirees and don't have any disability, they would not be VA beneficiaries unless they passed the means test with the VA. That's my assumption.

Mr. SHAYS. So, if soldiers had contaminated blood and contracted hepatitis C, they basically would really be the concern of the VA ultimately.

Dr. MAZZUCHI. Ultimately, they would if they were able to obtain care in the VA. There are rules and regulations about which military members, when they retire—all retirees and all those with medical benefits can go to VA subject to a means test.

Mr. SHAYS. I had a throat doctor dealing with cancer patients come in to my office in Bridgeport one time and he was an impressive person. He basically told me that we obviously encouraged people to smoke in World War I and World War II. The cigarette companies gave free cigarettes and he said the incidence of cancer was fairly level and then 20 years later it just went up almost vertically. And the same way 20 years later after World War II, it was just like this and it just went up like that.

Do we have the same challenge right now with veterans coming into our hospitals with serious liver complaints? Give me a sense of what is out there.

Dr. HOLOHAN. Do you want to direct that question to either one of us, specifically?

Mr. SHAYS. It would seem to me that in most instances, it would be the concern of the VA.

Dr. HOLOHAN. Right.

Mr. SHAY. Because it wouldn't show up quickly. My sense is, what I'm being told, is that we have mysterious incidences of chronic liver problems, and that hepatitis C is a factor in this concern.

Dr. MAZZUCHI. This is among Vietnam veterans?

Mr. SHAYS. Among Vietnam veterans, thank you.

Dr. HOLOHAN. I think that is absolutely correct. We don't know, and probably will never be able to determine the safety of blood products administered during the Vietnam era.

Those records are not available and the products are not available to be tested and, as you know, the test was only recently developed.

If a hypothetical patient was transfused and infected with hepatitis C during that era, it is likely that he would not have had specific symptoms at the time. Most patients with hepatitis C do not develop acute hepatitis and, up until a few years ago, if he developed progressive liver disease, for example, with cirrhosis, would be treated as either cryptogenic cirrhosis or as idiopathic liver disease. Part of the problem with the numbers is that the Vietnam era gave a bolus of potential veteran patients to the VA, that didn't exist before 1965 and didn't exist after 1972. And the real question is does it appear to be disproportionate and, at the present time, all we can say, and Dr. Rosselle can add his observations, is we don't know yet whether it is disproportionate in the Vietnam veteran-era patient.

Mr. SHAYS. As opposed to, what? The general population, or other soldiers in previous wars?

Dr. HOLOHAN. Other veteran patients.

Mr. SHAYS. I have a followup question, but Dr. Rosselle do you want to make a comment?

Dr. ROSSELLE. No, I think he is exactly correct. I think it is going to be very difficult to define that answer because of the timeframe since the activity in Vietnam and the difficulty with obtaining primary samples from them. So, I think we may be left with statistical approaches to try and get quality data on the—is there a disproportionate number of Vietnam—era veterans who have hepatitis C? We're trying to do that.

Dr. HOLOHAN. Mr. Chairman, one other comment about that. You talked about the fact that Vietnam veterans may have a higher rate of hepatitis C or a bolus of hepatitis C moving to the VA, I think it is most important to remember that other than transfusions, one of the difficulties encountered by the military during the Vietnam war was extensive needle drug use, which would also contribute, and that was the beginning of our urinalysis program, to control needle drug use and all drug use.

Mr. SHAYS. It's a valid point. I'm wondering if we're not in the same kind of problem that I sense with both departments as it relates to the whole issue of illnesses among our soldiers in the Persian Gulf, and by that I mean, what I hear you telling me, Mr.

Holohan, is that we do have a large population of infected veterans and your only distinction is that we don't know if it is any larger from those who served in Vietnam and those who didn't.

Dr. HOLOHAN. That's correct. Not yet.

Mr. SHAYS. And that obviously begs the question as to how we are going to find that answer and how soon. But even assuming we don't know the answer, we do know that we weren't screening the blood supply properly during that time. So, we do know that there is the likelihood that a disproportionate share of people who had blood transfusions, in particular, were at risk so I'd like to know, do we have a protocol in the VA right now that requires testing for hepatitis C?

Dr. HOLOHAN. I'm not sure how you mean that, Mr. Chairman. In what context?

Mr. SHAYS. A veteran comes, you are checking out his health, you ask questions in your protocol in terms of admittance: you were in Vietnam, you were injured, you had a transfusion, or, frankly, were you at any time involved with drugs that could put you at risk and we need to ask you this question because if you were, you are at risk and we need to do some testing.

Dr. HOLOHAN. The answer to that is yes. I mentioned in my testimony that the primary and ambulatory care strategic health group is instructing all of the people who are primary care providers in the VA to specifically ask questions about transfusion.

Mr. SHAYS. I'm not really comfortable with that answer, and maybe I should be, but let me just have you pin it down. Are you saying that you are now asking or that you have in place a protocol that's very clear, written down and available to all doctors that requires them to ask the question about transfusion and potential drug use when you have someone admitted?

Dr. HOLOHAN. Do we have it now? No. Dr. Rosselle and I are writing a clinical practice guideline on evaluation and screening, selection of patients for screening for hepatitis C, but it has not been published or distributed at this point.

Mr. SHAYS. So it is under consideration?

Dr. HOLOHAN. It's in progress.

Mr. SHAYS. OK. Before I go to Mr. Towns, I'd like to know when you think that in progress will be in fact.

Dr. HOLOHAN. Perhaps 3 weeks, 4 weeks. Within a month.

Mr. SHAYS. Now this is a very serious issue and I know that you know it is serious, but I don't want to be too casual here. Dr. Roselle, if you are working on it, I would like you to tell me what stage you are on this and when it will be done and how you will disseminate it and in what form it will be disseminated to doctors.

Dr. ROSELLE. Working, as you can imagine writing a guideline is not the simplest thing in the world. And to make it effective, it needs to be simple enough to be universally applicable and easily understood. So writing it takes a little time and the concurrence process and dissemination is really the most easy part. The VA is actually very good at that and I don't foresee any problems with that at all.

The real issue is getting the guidance in a format that is crystal clear and does what it is intended to do without any unintended consequences. So I think that can be done in a relatively short

term. I think a month is a reasonable estimate, but, again, it has to be written in a way that is most useful to the patients, and the administrative components of this is really the easy part.

Mr. SHAYS. OK, I am going to be real clear here. Writing it is going to take a month to conclude. Then what happens to this recommendation?

Dr. HOLOHAN. In this case, I would argue that it should go through the Under Secretary's office and be distributed under an information letter with a mandate to each of the 22 veterans' Integrated Service Networks that this be applied at their medical centers.

This isn't something that we haven't done on a, I won't say regular, but certainly a routine basis. We have, on the average, about 17 clinical practice guidelines in effect at each of the 22 networks in a number of areas of clinical medicine, including diabetes, emphysema, depression, substance abuse.

Mr. SHAYS. Is there any question that this should be done?

Dr. HOLOHAN. I don't think so, no. I agree. Of the liver transplants the VA has accomplished in the past 3 years, 52 percent have been in patients who have hepatitis C, so this is not a trivial issue to the VA.

Mr. SHAYS. I want to be respectful, and it is easy for me to throw stones here, but the answer comes across a little bureaucratic. From my standpoint, the doctor needs to know, when he admits the patient, that he needs to ask certain questions. And one of the questions is are they at risk of having hepatitis C and, it seems to me, two more questions obviously: did you have a blood transfusion, and, second, did you at any time have any drug use? And obviously there is a temptation on the patient's part to say no, so you have to make them understand why you are asking. "For your own health and safety, we need to ask you the following two questions, because we are concerned that you may be at risk and if you were in these two, we need to do some testing."

It doesn't seem to be such a long, difficult process, but I want to be sensitive if it is, where it would be difficult. The bottom line is, I am a doctor at West Haven—I'm not, but if I were, how soon would I get a new protocol that would be very clear to me? How soon would I get that protocol?

I got the first part. It takes a month to write. I'm just not sure how long it takes to get to me in one of the base hospitals.

Dr. HOLOHAN. That's probably the easiest part, the transmission is fairly rapid.

Mr. SHAYS. So, give me a time. I am going to be checking on this. I mean our staff is going to contact hospitals and find that this is happening and I'm not asking you to underestimate or overestimate. I'm just asking you to give me your good sense of when that would happen.

Dr. HOLOHAN. I think distribution could probably occur within 2 to 3 months.

Dr. ROSELLE. I should bring up. There probably should be more than two questions.

Mr. SHAYS. I agree.

Dr. ROSELLE. So, for instance, not what if you were in your duties, got blood on you that was neither a transfusion nor from injec-

tion drug use, which is not that uncommon in bad situations. So I think, again, that is why it takes a little longer.

Getting the distribution, is again, it may seem odd, but it's really not the difficult part.

Mr. SHAYS. Let me clear, though. In addition, since we've stated that you don't know if there is a higher incidence of Vietnam veterans——

Dr. ROSELLE. Correct.

Mr. SHAYS. [continuing]. But you are the health provider for veterans. They choose not to go to their own local hospital. So you also have a role that goes beyond Vietnam. You would be asking, it seems to me, whether someone had a transfusion, particularly before 1990, and had used any other blood byproducts, so I agree, there are other factors here.

Dr. HOLOHAN. That's true. I mean, this is not intended to be restricted to Vietnam-era veterans. Anyone who had a blood transfusion before 1992 is, at least theoretically, at risk.

Mr. SHAYS. I have a question as to why we aren't able to determine by now, given everything we know, why we don't seem to know more, if the Vietnam veteran has a higher incidence.

The alarming thing, and the word alarming is used not without reluctance, is that we do have a high incidence of liver problems with our veterans. That's a fact, correct?

Dr. HOLOHAN. That's true.

Mr. SHAYS. Mr. Towns.

Mr. TOWNS. Thank you, Mr. Chairman. It is my understanding that if you have hepatitis C, it makes one ineligible to serve in the military. Is that correct?

Dr. MAZZUCHI. No, it wouldn't make you ineligible. If you had persistent evidence of liver function damage, you would be ineligible to serve in the military. If you had history of hepatitis, you would be clinically evaluated, but just the presence of having had that infection would not automatically exclude you.

Mr. TOWNS. But it is my understanding that the military does not test for——

Dr. MAZZUCHI. No, it does not. It determines your—it asks a question on your physical about history of hepatitis, history of liver problems. We do not screen for hepatitis C specifically.

Mr. TOWNS. I wonder, wouldn't it be cost effective to do it?

Dr. MAZZUCHI. Well, with the prevalence being what it, most of our recruit population, since it is already screened for drug abuse and for HIV/AIDS we would be eliminating most of those who ever had a history of needle drug use or multiple sex partners. The incidence, I think, would be quite low. Right now it is not even 1 percent. It would be very expensive, plus the fact many people who would be coming in who might be denied entrance into the military would have an antibody to hepatitis C.

Mr. TOWNS. Even though you are screening for the other communicable diseases, it will, would cost?

Dr. MAZZUCHI. Yes, sir. My understanding it would cost about $5 per person for the ELISA test alone.

Mr. TOWNS. Is that a lot? Maybe I'm missing something.

Dr. MAZZUCHI. Well, there are many people coming into the military and when you have a population, where we have done some

epidemiologic screening and not only 1 percent are positive, yes, it would be a lot of money for a small return, for people who probably are not disqualifiable because they have an antibody to a disease that they may not develop any symptoms to for 20 years.

Mr. TOWNS. We're talking about a $180 billion budget, you know.

Dr. MAZZUCHI. Can't use it all for testing.

Mr. TOWNS. I know, but at $5 a person I don't think you would use it all.

Dr. MAZZUCHI. Again, I think the fact that the instance rate would be very low and the person would be able to have a successful military career, unless that person had clinical illness, is the reason why we do not test for it routinely. And, again, I want to emphasize the fact that since we already test for HIV and for drug use, our population at risk would be very small.

Mr. SHAYS. Would the gentleman yield?

Mr. TOWNS. I would be delighted to yield to the gentleman.

Mr. SHAYS. I get a sense that basically your view, and, therefore the Department's view, is that, the most at-risk persons are intravenous users, the drug users, and we had indication from the CDC that they think 25 percent is sexually transmitted. I am wondering if——

Dr. MAZZUCHI. No, I said that I understand that most of the disease is transmitted through IV drug use, not all of it. But, again, because we screen for the HIV virus, we pick both populations, those who would be most inclined to use IV drugs, those with multiple sex partners who would be HIV positive, do not come into the military. So I think, because of the way we screen for HIV and for illicit drug use with the urinalysis test, I think the pool of people who come have a much lower rate of prevalence than the general population.

Mr. SHAYS. I thank the gentleman for yielding.

Mr. TOWNS. Thank you very much, Mr. Chairman.

I know you have a lot of dialysis facilities. I know you might not know the number, but I would like to get that information for the record, Mr. Chairman. However, I am curious about the sterilization procedures that are used and what steps you have taken to assure that hepatitis is not being spread through the dialysis equipment.

Dr. MAZZUCHI. I'll be happy to provide that for you.

Dr. HOLOHAN. I think we probably have more dialysis facilities than DOD does. I will ask Dr. Roselle to comment, but I don't believe that hepatitis C in current dialysis facilities is as big a problem as it has been in the civilian sector in probably the past 10 years or so, in part because of different techniques and processes that we have used.

Mr. TOWNS. Such as?

Dr. ROSELLE. You are exactly right. This is a critical question and I think what has really brought the issue of care and use of dialysis equipment has been the HIV pandemic, where there has been a real emphasis on avoiding transmission of blood-borne pathogens of any type, including hepatitis B, which has been a major problem in dialysis units.

And dialysis machinery is cared for very stringently with disinfectants that kill blood-borne pathogens such as Clorox and other products such as that.

So, I think that is probably addressed from the area of blood-borne pathogens in general, rather than hepatitis C, specifically. And hepatitis C is not more difficult to kill than some of the other blood-borne pathogens.

Dr. HOLOHAN. Let me just elaborate on the issue a little bit. Hepatitis B was perceived as a major problem in dialysis patients recently, within the past 10 or 15 years, to the point where most patients on hemodialysis were hepatitis B surface antigen positive. The curious thing about that, was those patients didn't get terribly sick from acutely ill, from hepatitis B, it was the dialysis nurses who, if they caught hepatitis B from the patients, became very ill and, in a number of cases, had fomented courses leading to a very rapid death.

Because of the concern with hepatitis B in the dialysis population, the kind of infectious safeguards that Dr. Roselle talked about were instituted and have, indirectly, although fortuitously, been effective in reducing the transmission of hepatitis C as well as hepatitis B. I guess what I am saying is that B has been, up until the prevalence of the antibody testing, a surrogate marker for also non A, non B hepatitis and the incidence has gone down significantly certainly in the VA's dialysis population.

Mr. TOWNS. I am happy to hear that.

Just one more question, Mr. Chairman. We have heard that some State health departments use positive blood tests, while others use a doctor's diagnosis to track and to count the growth of this disease. I'm asking you to give us some pre-advice, some life-saving advice. If you had to track and count this disease. Which method would you use and why?

Dr. HOLOHAN. That's a softball change-up, Congressman. You have to use the antibody testing. Clinicians' judgment is a reed in the wind in some instances, and particularly in this case, where the significant fraction of the patients who contract hepatitis C never become acutely ill. They have absolutely no symptoms. So you really have to use the antibody testing.

Mr. TOWNS. Doctor?

Mr. MAZZUCHI. I complete agree. I mean I think antibody testing is the only way to really measure the prevalence of this disease and to identify people with it.

Mr. TOWNS. Thank you very much, Mr. Chairman.

Dr. HOLOHAN. Not to complicate the answer, but not just one antibody test either. Depending on whether the patient is a high, intermediate, or low risk, the VA routinely repeats every immunoassay, EIA, test, if it is positive. Every one that is positive is repeated to make sure that it is, in fact, really positive. And, depending on the category of the patient, you may follow that up with more advanced, and somewhat more expensive, testing.

Mr. TOWNS. Thank you very much, Mr. Chairman. I yield back.

Mr. SHAYS. I thank the gentleman. I just am going to make a request for an answer to this question in writing because I would like for you to provide more detail on page 4 on the second half of the page for your look-back plan for transfusion recipients, which you

talk about in your testimony. I would like to have you give us in writing a little more detail in your look-back plan.

We have great staff in this committee and we will be following up with you in terms of the protocol you are in the process of writing and expect to get out within 2 to 3 weeks to your doctors. I realize there will be other aspects to that protocol.

Dr. HOLOHAN. I assume, Mr. Chairman, that you misspoke when you said 2 or 3 weeks?

Mr. SHAYS. Two or three months, sorry.

Dr. HOLOHAN. Thank you.

Mr. SHAYS. Two or three months. I did misspeak. I am just going to make a comment. I welcome you to respond to this comment because it is a bit of a criticism. It seems to be that both the DOD and the VA have this extraordinary opportunity in terms of collecting health data because you have this universe, and, in the case of the military, you have this universe with career personnel and their families to have them in your system a long, long time.

And, in terms of the VA, once they have left service, you potentially have VA patients for years and years and years. One of the things that astounds me is the lack of coordination between these two gigantic departments, the unbelievable lack of data that accompanies patients, and, I really believe that one of the things our committee needs to do is have a hearing on why that is so and what should be done about it.

I think you both have a sense of what I am talking about. It just seems to me that data should be available. I realize in the thick of battle you are not going to know certain things, but records have been kept, they've just been destroyed? Are they somewhere and we don't know where?

So I am happy to have both of you comment about it.

Dr. MAZZUCHI. I'd like to comment on that. I certainly agree with your criticism. It certainly has been something the past that has haunted both organizations, particularly in the area of record-keeping and record sharing. Approximately a year ago, the Department began a dialog with the VA. We have meetings each month to look at a number of significant issues, one of which is record-keeping. Another issue is the common computerized patient record which I think is the answer to that particular problem. It looks at things like the physical examinations done at the VA, versus those done at DOD and why can't we have one single examination so our veterans won't have to repeat that examination and we have already corrected that problem.

We look at practice guidelines such as what we talked about here. We will be looking at that practice guideline. Along with the VA we share a number of issues in terms of specialized treatment services so we don't have redundant specialized services where we don't have enough of a population to do them well. There has been a much greater sharing of information and work with the VA over the past several years. I've been with the Department for more than 24 years and I have to say that that cooperation has been dramatically increased in the past year and I think one of the things that led to it was the establishment of the Interagency Persian Gulf Veterans Coordinating Board, where we looked at clinical protocols, research activities together, and compensation together.

That was a great catalyst in bringing us closer together and to working to resolve some of those difficult problems.

Mr. SHAYS. But with no disrespect, I think you are at the infant stage of this process. I just think you can make gigantic leaps here, and particularly as it relates to the protocol in terms of questions to patients, as it relates to, you know, blood transfusions, use of drugs, as it relates to hepatitis C. I am concerned that we are going to have incidents, we are going to have knowledge about individual patients and we are not going to be able to connect the dots.

I mean, the fact that we can say right now, given that the VA knows that we have serious problems with the deteriorating health, livers of veterans and it is disproportionate to the American population, but you can't give us a sense of whether it is more significant with a veteran serving in Vietnam versus someone who didn't. That to me is disappointing, to say the least, and an indication that we have a long ways to go.

So I hope in the process of requiring these questions to be asked that we are also gathering some data and we are able to keep it—oh, I don't want to get into it.

I will make that observation. I am happy to have you make a comment. I think we know what one of the hearings that we will be having here is to followup on that. We'll give you some time to think about, and to have dialog with the staff, but I think we will pursue that in terms of a more public dialog.

Is there any question that you wish we'd asked you that you like to comment on?

Dr. HOLOHAN. That's an interesting question.

Mr. SHAYS. I also want to know the question that we should have asked that might have embarrassed you, but I don't have enough sense to know we should have asked, but it was important.

Dr. HOLOHAN. How much did I pay for my suit? [Laughter.]

You didn't really ask about our liver transplant programs. I did, as you notice, unsolicited, mention the proportion of our patients who had hepatitis C. And you didn't ask about any other snapshot surveys. We have two where actually during a 6-month period, all in patients were tested for the presence of hepatitis C antibody. One was here in the Washington VA and that was 20 percent, 20 percent of the in patients during a 6-month period at the Washington, DC, Medical Center were positive for the hepatitis C antibody.

And at San Francisco, it was about 10 percent, so we have been aware that this is a major problem for some time. This isn't something that we just thought about today.

Mr. SHAYS. I hear you. The question is, knowing that, what are we doing and what information are you sharing with Congress that Congress needs to know to help provide resources and so on. So, there are lots of factors.

We are going to let you go. We are going to quickly vote and then we are going to empanel the third, get the third panel going.

I would like to thank you all very much for participating in this hearing.

[Recess.]

Mr. SHAYS. We are going to empanel, call our third panel and ask Dr. Everett Koop from the Koop Foundation; Theresa Wright, Dr. Theresa Wright, as well a doctor, University of San Francisco,

American Liver Foundation Hepatitis Advisory Board; Carroll Leevy, Dr. Carroll Leevy, director of Sammy Davis Jr. Liver Institute, University of Medicine and Dentistry of New Jersey, Newark; and Ann Jesse, executive director Hep C Connection, Denver, CO.

Do we have our other panelists here?

Mr. SHAYS. Dr. Koop, I know that we have kept all of our panel a long time and we have checked with everyone. You are the one who seems to have to get out of here pretty soon so we are going to let you do your statement, then we are going to questions and then let you get on your way.

Dr. KOOP. I appreciate that.

Mr. SHAYS. I would like to get our panelists here so we don't have to swear in people twice.

Well, we'll swear in afterwards, I guess. Is Dr. Leevy outside, by any chance?

If you would all stand, I will swear you all in.

[Witnesses sworn.]

Mr. SHAYS. Thank you. Dr. Koop, we are going to have you give your testimony, then we will have a few questions, then we will let you get on your way.

I apologize to all of our panelists for the delay. I guess you are not surprised, though are you?

STATEMENTS OF C. EVERETT KOOP, M.D., S.C.D., KOOP FOUNDATION; TERESA L. WRIGHT, M.D., CHAIR, MEDICAL ADVISORY BOARD, NORTHERN CALIFORNIA CHAPTER, AMERICAN LIVER FOUNDATION; CARROLL M. LEEVY, M.D., DIRECTOR, SAMMY DAVIS JR. LIVER INSTITUTE, UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY, NEWARK, NJ; AND ANN JESSE, EXECUTIVE DIRECTOR, HEP C CONNECTION, DENVER, CO

Dr. KOOP. Thank you very much. I am Dr. C. Everett Koop, medical doctor, former Surgeon General of the United States and I spearheaded the campaign to increase public awareness of the AIDS epidemic, as well as prevention, detection, and treatment of that disease. We sit at the present time, sir, on the edge of a significant public health challenge, a disease that is viral and affects millions of people and, sadly, few of them even know it.

A disease that they will carry for a decade or more and that can be spread to others before it surfaces as a threat to their health. It is also a disease that can be treated now to prevent, for many, a progression to very serious illness. It is also a disease about which we have, so far, not done as much, I think, as we could have.

Of the 4.5 million people with this disease, only about 5 percent even know they have it, and only 1 percent have ever sought treatment. This is a very large pool of infection that is in danger of being spread to others and I would remind you that there is no vaccine for this disease.

Unlike AIDS and many other viral diseases, hepatitis C can be cured. Treatment with Alpha Interferon can eradicate the virus in about 25 percent of the cases and that is no small accomplishment when you are dealing with the virus etiology.

New treatments are coming on line, for instance a combination of Alpha Interferon with ribavirin may increase that success rate

to as high as 50 percent and there are other treatments that I know are in the pipeline that are very promising indeed.

We have a present opportunity to make a big effort to respond to this disease and we can have a substantial impact on future rates of liver disease, but, I believe we must act now, and act on a number of fronts at once.

The HCV blood look back, the program of the Secretary of HHS is a very good first step. But I think there needs to be a broader effort across the range of Federal agencies that have programs with any bearing on hepatitis C. Overall, I am concerned that the Federal Government's posture on hepatitis C could be interpreted by some as one of reluctance to get involved. This caution may truly come from a desire not to panic the public, but nevertheless it is leaving millions of infected Americans needlessly at risk.

The Centers for Disease Control argues that virtually all of the risk factors for hepatitis C are known and all of the transmission of the disease can be accounted for. It isn't quite that clear to me, because they have changed their statements on significant risk factors.

For example, originally they said that 40 percent of those infected were unexplained as to origin. But now they say that 24 percent are transmitted sexually whereas previously they said that that number was insignificant. So I think there are a lot of transmissions out there that are still unexplained.

CDC also seems largely focused on new infection, resting somewhat on the fact that the incidence seems to be declining. Our biggest problem is not with new infection, but with existing HCV infection which will be the leading cause of liver disease in the future.

Prevention should focus on lowering prevalence, not merely reducing incidence.

The focus of most government efforts, thus far, have been on populations with very high risk behavior such as IV drug abuse, tattoos, body piercing, and this tends to marginalize the disease itself. I think we need to focus on mainstream populations that also have the disease.

CDC also monitors only acute hepatitis C because many new infections do not produce alarming symptoms, few cases are therefore reported and I think we don't collect the chronic cases from the States. It is very difficult to study this disease in its entirety.

I am particularly concerned about two classes of patients: women with a history of a C section delivery and young adults who were critically ill as newborns and usually were prematurely born.

In the 1970's and 1980's, studies show that during this time of high risk of HCV in the blood supply, about 20 percent of cesarean sections were given a transfusion, and that translates to about 8 to 10 percent of those C sections would have HCV infections.

And then, from the mid-1970's on, babies who were low birth weight or very critically ill were given small multiple transfusions while the blood supply was not being screened for HCV and these young people now would be anywhere between 5 and 25 years of age and the look back that is planned can miss many of those people. So, I think a governmentwide effort to control this disease would include the following.

First of all, public education, that means sponsoring and funding highly visible public education targeted at specific risk groups.

Two, primary care physician training. We must assist in training primary care physicians to recognize the disease in the first place and refer patients for diagnosis and treatment.

Third, CDC reporting. I think they have to begin collecting data on chronic infection from the States to better monitor hepatitis C and to prevent liver disease. As far as the military and veterans are concerned, you have heard about that this morning. Veterans have a high rate of disease, 50 percent by some studies, and I think military exit testing and veterans entrance screening are both needed to lower the rate of liver disease that is beginning to hit the VA.

Fourth, prisoners with hepatitis C. Prisons have very high rates of HCV, about 40 percent, and State prisons certainly need help in developing treatment approaches that can work for their inmates.

And, finally, the fifth issue would be AIDS and that would be to provide funding through the Ryan White Act for treating co-infections of HCV with HIV in order to make protease inhibitors work better than they do.

I think the Secretary of HHS, sir, does deserve great credit for taking the leadership to attack this disease, but we need a broad effort and we have only a brief time to stop some of the liver disease that may develop shortly.

My prepared testimony is much more complete, sir, but I would be pleased to try to answer your questions.

[The prepared statement of Dr. Koop follows:]

Statement of

C. Everett Koop, M.D., Sc. D.

Before the

Subcommittee on Human Resources
Committee on Government Reform and Oversight
U.S. House of Representative

March 5, 1998

Mr. Chairman and Members of the Committee:

My name is C. Everett Koop, M.D. I am the former Surgeon-General of the United States. During my tenure in the Reagan and Bush Administrations, I spearheaded the campaign to increase public awareness of the AIDS epidemic and encourage a comprehensive federal response to prevention, detection, and treatment of the disease. Now, over a decade later, the federal government is dedicating substantial resources to this disease, including public education, research on transmission, prevention, and treatment and to treatment itself. While more than 700,000 Americans are infected with HIV, new cases of AIDS are thankfully declining. Nevertheless, despite the billions spent on AIDS research, there is still no cure for AIDS.

Mr. Chairman, I would like to thank you for extending me an invitation to appear before you. I commend you and the Committee for your leadership on blood safety issues and in particular for your attention to the disease we are discussing today – hepatitis C.

We are at the edge of a very significant public health challenge – not unlike the AIDS epidemic. We have an infectious disease that is an undisputed threat to the public health. It is a viral disease that millions of people harbor without knowing they have it. It is a disease these millions will carry for a decade or more – possibly spreading to others -- while it develops into a serious threat to their health. We can treat the disease during this quiescent period and we can eliminate the infection for a large portion of the infected, preventing progression to serious disease. But we in the public health community have done practically nothing about it to date. We are starting with a blank slate, and we have a long way to go very quickly if we are to prevent the very serious public health consequences of this disease.

Hepatitis C – The Silent Epidemic

We call hepatitis C the "silent epidemic" because so many Americans have the disease (over 4.5 million), so few know they have it (only 225,000 or 5%), and such a small portion (40,000 or 1%) have had treatment for it.

Hepatitis C is a particularly insidious disease. It is a blood borne infection, easily transmitted through blood-to-blood contact. Those who are exposed usually get the disease. It rarely, however, appears as an acute infection. Instead, it develops into a chronic disease with few symptoms and lingers for 10 to 30 years before it results in permanent liver damage and, in many cases, liver cancer or liver failure. The disease is insidious for several reasons:

1. **The vast majority of people infected with HCV do not know it** -- most of the 4.5 million Americans infected with hepatitis C virus are not aware of their risk for the disease, nor do they experience any acute symptoms. Any symptoms they may have are often mistaken for flu symptoms. Their first awareness may come years later with liver dysfunction.

2. **There is a sizeable pool of HCV infected people** -- with over 4 million HCV-infected Americans unaware of their infection, there is a danger of unwitting spread of the disease.

3. **There is no vaccine for Hepatitis C** -- unlike Hepatitis A and B, there is no vaccine effective against C, and there is little chance that one can be developed.

4. **Much is still unknown about HCV** – Ten years ago we knew practically nothing about this disease. Effective tests for Hepatitis C only became available in this decade. As a result, there is still much that medical researchers do not know about how this disease is transmitted or how it progresses in an infected individual. We cannot, therefore, be assured that the means of transmission are clearly understood.

5. **Many with HCV have no reason to suspect they are infected** – Many of those at high risk are average people – middle-aged housewives who had a cesarean section delivery, young adults who had transfusions as high risk babies, or middle-aged men who served in Vietnam. The focus of the public health effort to date, however, has been on marginal populations (e.g. IV drug users, people with tattoos or body piercing). As a result, many average Americans with HCV infection do not suspect it and many may be discouraged from seeking medical attention if a stigma is attached to HCV infection.

Unlike many other viral diseases, hepatitis C, if detected and treated, can often be cured. I want to stress that there are very few viral diseases about which this can be said – certainly not AIDS. Treatment with alpha interferon over a period of 12 to 18 months will reduce the viral count or "load" below detectable levels for 25 percent of the treated population, and will improve liver functioning for another 25 percent who still have evidence of the virus. In addition, new combination therapies, such as alpha interferon with ribavirin, that are expected to be approved this year show promise of raising the "cure" rate to 45 percent or higher.

Hepatitis C is Not Just Another Hepatitis

One of the big problems we have with public awareness of hepatitis C is that it is often confused with other forms of hepatitis that are preventable and not as deadly. Unfortunately, this confusion is not helped by public education efforts that discuss hepatitis in general. We need to end this confusion. Hepatitis C – unlike other hepatitis -- is a very serious life-long infection for which there is no vaccine, that is not self-limiting, and that will, for many of those infected, lead to serious liver disease, organ failure, and premature death.

When most people hear the word "hepatitis," they think of hepatitis A. Hepatitis A is a food- or water-borne illness, usually transmitted through the contamination of food with fecal matter. It is a short term, acute disease, against which the body develops its own defenses. While there is an immunization for hepatitis A, there is no particular treatment, although the disease usually resolves itself within a month. Very few people die of hepatitis A. There are fewer than 150,000 new cases of hepatitis A per year.

Hepatitis B is another, very different form of hepatitis. Hepatitis B is, like C, a blood borne virus. However, B can be readily transmitted through exchange of body fluids. There is an effective vaccine for hepatitis B that is now being given to young children and to people who travel abroad. Hepatitis B usually appears in acute form, with over 70 percent of these cases resolved by the body's defenses. Only 20 to 30 percent of hepatitis B cases become chronic. There are between 150,000 and 300,000 new cases of hepatitis B a year. The sum of hepatitis cases other than C is fewer than a half a million.

Hepatitis C is a very different disease. The hepatitis C virus is not as easily transmitted as A and B. When there is an exposure, however, the patient almost always contracts the disease. There is no vaccine for hepatitis C and is not likely to ever be one. The body does not have natural defenses, so that the patient that contracts the disease develops it in chronic form and, without treatment will carry it for life. The only known treatment for it is alpha interferon, which is effective in eliminating the disease for about 20 to 30 percent who seek treatment. While there are fewer than 200,000 new cases of hepatitis C a year, there are a large number of people (over 4.5 million) who are carrying chronic HCV infections.

A Present Opportunity to Detect and Treat Hepatitis C

We stand at a critical point with hepatitis C. We have very sensitive and reliable screening available – and will soon have these in forms suitable for mass screening. We have a hope of curing the disease for some and improving liver functioning for others, and this hope is growing every day with new research and new treatments. We have a consensus in the medical community on management of the disease. We are still within the window of opportunity where we can head off serious liver disease for a large portion of the infected population. If we do not act, we will see a tragic increase in liver disease, the demand for liver transplants, and in the death rate from hepatitis-C related liver failure.

Education about the virus is key, for both the public and their doctors. Remarkably, virtually none of those who have this disease know they have it. We are in virgin territory. We can significantly increase recognition of the disease. We can vastly increase screening, detection, and treatment. We can have a significant impact, if we act now.

The U.S. Department of Health and Human Services is prepared, as you know, to launch its first serious efforts to fight this disease. Based on the recommendations of its Advisory Commission on Blood Safety and Availability, the Department is preparing to launch a substantial lookback to identify blood donors who were found to be HCV positive once screening became available and to notify anyone receiving blood from these donors in the period between 1987 and 1992. While this lookback will be a massive undertaking for the Department, we need to recognize that it will affect only a very small portion of those who are at risk for HCV infection.

The guidance currently being developed may limit the lookback population those who received blood from donors who were later confirmed HCV positive through two tests – and initial screening test and a confirmatory test. There are many more people infected through transfusions of blood from HCV positive donors whose donation predated the availability of screening in 1987, or whose blood was only screened once.

I commend the Secretary for her leadership in launching this initiative. It is good to have her interest, and that of her colleagues, on this issue.

A Reluctant Federal Response

The Department's leadership on Hepatitis C, however, does not reflect what I otherwise perceive to be a general reluctance in the federal government as a whole to address this issue. I am well aware of the concern with this disease – as there was with AIDS – that we approach it carefully so as not to panic the public. I believe this excess of caution is unnecessary and is putting millions of people who are infected with HCV needlessly at risk.

There are several places where I am concerned about the position the federal government is taking.

1. **Known risk factors** – the Centers for Disease Control (CDC) has taken the position that we can explain virtually all of the transmission of this disease, and therefore understand the risk factors. CDC contends that with transfusion risk reduced substantially as a result of improved screening, the major risk factor today is IV-drug use. While CDC previously stated that 40 percent of the transmission was unexplained, they now believe that many of these individuals were infected through IV drug use, which they now believe explains the majority of the cases of new infection. Yet we continue to have confusing information from the CDC about transmission. Just a few weeks ago, they announced that one-fourth of the transmission may be through sexual activity – a factor previously thought to be insignificant. The fact is we are not really certain how the disease is transmitted for a large portion of the cases.

2. **Focus on new HCV infection only** – CDC's focus on acute disease and the prevention of acute disease has led to a strange position on hepatitis C – which is rarely manifest in acute form. CDC has focused on the very tip of the iceberg, which is the incidence of the hepatitis C – the new cases of infection. Because this is a relatively small and declining number, the CDC has viewed this as a disease largely under control. However, there are over 4.5 million people currently infected, who will remain infected for decades. We have a coming tidal wave of liver disease. Our focus in prevention should be on preventing the liver disease and not just the HCV infection. I do not believe the CDC has begun to do enough to understand chronic HCV infection among the millions who have it.

3. **Focus on marginal populations** – The focus at the CDC on the causes of new infection has led them to view this as a disease of marginal populations who have high-risk behaviors (e.g. IV drug users). This misses the fact that among the millions who now have chronic HCV infection are many who got HCV through blood transfusions or other activity that was completely normal. The failure to acknowledge the more average characteristics of those currently infected marginalizes the disease and keeps people who have hepatitis C from recognizing they have it and seeking treatment.

4. **Inadequate monitoring of hepatitis C** – The CDC's focus on acute disease means that they do not permit reporting of chronic hepatitis C infection. Since hepatitis C rarely occurs in acute form, much of CDC's reporting of data is for a skewed population – those who show up with acute disease. While CDC does analyze data from sentinel county studies, and develops prevalence data based on cases in the Health and Nutrition Survey (HANES) with chronic disease, these data are limited and do not permit adequate tracking or analysis of chronic disease.

A Prescription for Action on Hepatitis C

If we are to get hepatitis C under control and prevent a huge increase in liver disease, the federal government needs to do several things:

* **Public Education** -- We need a very visible public education effort to alert people who are in the high risk groups about the consequences of the disease and the opportunities for screening, treatment, and management of hepatitis C.

* **Training of Primary Physicians** – Primary care doctors are our first line of defense against this disease. Because the symptoms are not always that apparent, many physicians miss the signs of the disease or misdiagnose it. CDC launched an effort this year to educate primary physicians. We need a far more extensive effort, and one that clarifies the tools available for detection and treatment.

* **Comprehensive Government-Wide Effort** – The Administration needs to assign overall coordination responsibility for federal programs in a number of federal agencies that can have a substantial impact on identification and treatment of hepatitis C. It is my understanding that there has been a lack of attention to this disease in the Department of Defense or in the Department of Veterans Affairs where rates of infection are likely to be high and where screening and treatment can have a positive impact.

* **Chronic HCV Reporting** – The CDC should revise their reporting forms to permit reporting of chronic HCV infection in order to improve monitoring and understanding of this disease. CDC currently proposes collecting data on liver disease. Chronic HCV infection precedes onset of liver disease and needs to be measured as part of an effort to prevent liver disease.

* **Proactive Strategies** – There are particular populations with unusually high rates of infection where an aggressive effort to seek out and eradicate the disease could substantially and immediately affect future liver disease rates and be beneficial to the public health. Specifically, we need to focus on the following populations:

    * **Veterans and Military Personnel** – In some studies of veterans entering the Department of Veterans Affairs health facilities, half of the veterans have tested positive for HCV. Some of these veterans may have left the military with HCV infection, while others may have developed it after their military service. In any event, we need to detect and treat HCV infection if we are to head off very high rates of liver disease and liver transplant in VA facilities over the next decade. I believe this effort should include HCV testing as part of the discharge physical in the

military, and entrance screening for veterans entering the VA health system.

* **Prisons** – About 40 percent of all prisoners in the U.S. – in federal and state prisons – are infected with HCV. These are alarming rates. In some prisons, the rate of infection has reached 80 percent – virtually saturation level. These prisons are a pool of infection that can affect the community health when prisoners are released into the community. The confinement of prison offers a suitable environment for treatment, and we should make every effort to testing and treat those who are infected.

* **AIDS** – a substantial portion of the HIV-infected population is co-infected with HCV. HCV co-infection interferes with the effectiveness of the protease inhibitors in the new HIV "cocktails." Screening and treatment for HCV should be an important part of the overall HIV treatment protocol. Specifically, the AIDS Drug Assistance Program, provided for in the Ryan White Act, may be more effectively utilized if HCV treatment was incorporated in the protocol.

* **Women with a History of C-Section Delivery** -- Women with no recollection of any history of high-risk activities are beginning to appear in middle age with symptoms of serious liver disease resulting from HCV infection. For a number of these, the trail leads back to blood transfusions they received unknowingly when they had Cesarean section surgery during childbirth. Studies in the 1970s and early 1980s indicated that during this time of high risk of HCV infection through the blood supply, as many as 20 percent of C-section patients were given transfusions. An estimated 8 to 10 percent of these women would have HCV infection today. This population needs a special effort because it is beginning to develop serious liver disease, and will fall outside the period of the HCV lookback.

* **Young Adults who were Critically Ill Newborns** -- The risk of hepatitis C virus (HCV) infection is also suspected to be unusually high among persons who were critically ill at birth. From the mid-1970s to the early 1990s, low birth weight and other critically ill babies were routinely given multiple transfusions of small amounts of blood during a period when the blood supply was not screened for HCV. These young people would now be between 5 and 25 years of age. With few exceptions, only the oldest would be experiencing symptoms of liver disease, making this a particularly consequential group for screening and treatment. Only a portion of this group will be identified through the HCV lookback.

I would like to close by again commending the Secretary of HHS for taking the leadership in making the blood lookback a priority. This will be a substantial and critical undertaking. We cannot afford, however, to get carried away with the lookback effort

and miss the imperative of addressing hepatitis C infection more broadly. We need a coordinated federal effort that reaches across the relevant agencies and identifies activities that can be significant in training physicians, raising public awareness, and seeking out target populations for screening and treatment.

I believe we have a 5-year window to identify and treat a significant proportion of the infected population if we are to head off the huge increase of liver disease I believe is ahead.

Mr. SHAYS. Thank you, Dr. Koop. As I said, we will be responding to your statement and then letting you get on your way.

I am intrigued by the fact that, obviously, we don't have the prison hospitals before us. I mean, that is a contained group just like the VA and DOD. In your work as Surgeon General, did you have oversight in any way over the prison——

Dr. KOOP. The Surgeon General, as the commanding officer of the commissioned corps of the Public Health Service, is responsible for health in the Federal Bureau of Prisons, but not in State prisons. We cooperated with them and many times taught them some of the things we learned about AIDS, for example.

Mr. SHAYS. Your sense of why we have a 50 percent larger population of hepatitis C in our veterans' facilities with our veterans is why?

Dr. KOOP. I wish I knew the answer to that question, sir. I think that probably between 30 and 40 percent of people infected where we do not really understand the mode of transmission. And that is why I think we need further studies on the epidemiology of this disease.

For example, we know that a very small percentage of people who end up HCV positive present with an acute illness. And many of those who do have an acute illness, say "I had the flu last weekend."

Those patients may be entirely different than those who don't have any prodromal symptoms and come down with hepatitis problems in the way of chronic liver disease 10 to 15 years later.

Mr. SHAYS. You weren't here for the testimony, I don't believe of the VA and the DOD, but one of the things that I am struck with, and then I am going to get to a specific question relating to your testimony, but one of the things that I am struck with is for some reason the VA and DOD have very poor recordkeeping. They seem to know incidents, but they don't seem to connect the dots, the incidents, and then be able to tell us, for instance, that a Vietnam veteran is more likely to have hepatitis C than someone who isn't. It would seem to me that that's kind of a no-brainer in that they should have an easy ability to do that.

Maybe you can give me a simple answer here as to why that is difficult. They have. I mean. I guess I'm getting the bias against the VA because it just strikes me that we just don't do things that we should be doing.

Dr. KOOP. Well, I don't want to be critical of the VA but there is a real difference between studying the incidence of a disease and its prevalence. And especially with hepatitis C where there are so few patients who are recorded as having acute hepatitis C, but we know there is a large group who have chronic hepatitis C and that is why I mentioned in passing that I think that CDC has to begin to study the prevalence. If you look at the sheet for reporting hepatitis C to CDC it says in bold letters: "Do not report chronic infections."

But if we don't report the chronic infections, we will never be able to answer your questions.

Mr. SHAYS. Say that again. What says do not report chronic infections?

Dr. KOOP. On the reporting sheet to let CDC know that there is a case of hepatitis in a doctor's practice, they only want reporting of the acute cases, and there are only about 4,000 of those reported each year when we understand that there are perhaps 4.5 million cases out there that are chronic. So unless we study the prevalence, we are not going to know what we have to know about this disease.

Mr. SHAYS. And tell me the logic for wanting acute versus chronic.

Dr. KOOP. What, sir?

Mr. SHAYS. Tell me the logic of why CDC would want acute and not chronic?

Dr. KOOP. I have never had a satisfactory explanation of that, except that the difference between acute and chronic is huge in numbers and I think it probably is a matter of funding.

Mr. SHAYS. But if it is a matter of funding then that is something that we should be——

Dr. KOOP. That is something that can be corrected, yes sir.

Mr. SHAYS. In your statement as well, I have been telling people, and this is the danger in my being someone who doesn't have enough knowledge to always connect the dots myself, but I have been telling people that our blood system is—We need to be constantly vigilant, that we don't know what viruses and infectious agents can attack it, what new ones are out there. I tell people that we have the ability to heal people, excuse me, the bottom line is with hepatitis C, once you have it, my sense is you've got it and yet, in your statement, some would call it remission and others, you would basically say you are cleared. And I don't understand that.

Dr. KOOP. Well, cured means different things perhaps to a laymen than it does to a physician. You know when it comes to cancer, and a patient has no evidence of the disease 5 years after diagnosis, that person is cured. Now in the minds of many physicians there are quotation points around cured because some people do have a relapse thereafter, but I think it safe to say about hepatitis C that it isn't too early to talk about a cure. Some of the people who have been treated with HCV have remained free of the virus for over 5 years, so that would put them in the same category of a cure.

Mr. SHAYS. What do you mean clear of the virus?

Dr. KOOP. That means that after the treatment has been given, that there are several tests that one does. One is a screening test and one is a test of the actual presence of virus which is called PCR. It is a very elegant test and more complicated and more expensive, but it does detect virus either in blood or in tissues of the patient. And if there is no sign of the virus in either blood or in the tissues of the patient, then that patient could be said to be clear of the virus. And that would be like being clear of cancer so I think it is perfectly legitimate to say after 5 years you can call it a cure.

Mr. SHAYS. You have been in this position yourself so you have a lot of sympathy with it, but it became very clear to our subcommittee really, when we were looking at the safety of the blood supply with respect to HIV/AIDS that there was this shadow disease, hepatitis C, that seemed to follow it and it was clear that a

million people, approximately, were put at risk before we had better screening, and 300,000 had, in fact, been infected.

And yet, we are still at a point where we haven't notified those infected individuals. What is your sense of why that happens and is it something that we should have? Bottom line is, I want to know why, in your judgment, and, two, what is the impact of our having waited this length of time before starting to begin to identify.

Dr. KOOP. Well, you stated correctly that we always have to be vigilant about new agents that infect our blood supply. We knew that there were, that hepatitis A and hepatitis B in the blood supply but we have tests for those and have since developed vaccines against them. And when the present disease which we now call hepatitis C was first picked up, we knew it wasn't A, we knew it wasn't B, so we called it non A, non B. And then we finally called it C.

But after we called it C, we still didn't know how to screen it out of the blood supply, so that didn't take place until 1990, 1992. There is always therefore a lag between knowledge of the presence of an organism in the blood supply and the ability to detect it and to screen it.

The result of that is that there is now a group of people, which I think you accurately estimated at about 300,000, who were infected by blood transfusion during that period of time when we were not screening blood.

And I think it is incumbent upon us, and I cannot think of anybody who should take the responsibility except the government, to try to find those people, notify them, so that they can change lifestyle and seek treatment.

For example, if you know you've got a liver that is in danger, you should not be drinking alcohol. But also, you can be treated and you have a chance, as I suggested in the beginning, 15 percent, maybe adding another viral agent, up to 35 percent, even 50 percent, so I think we have an obligation to those people.

Mr. SHAYS. Thank you. Mr. Towns.

Mr. TOWNS. I have no questions, Mr. Chairman. I would just like to thank Dr. Koop for coming and sharing and not leaving us alone. He still sort of provides us with information and I want you to know it means a lot. And I think as a result of this, you are saving a lot of lives. And I am happy to know that you are still out there on the battlefield.

Dr. KOOP. Thank you.

Mr. SHAYS. Dr. Koop, you are free to go and we do thank you for your testimony and we are sorry to all the panelists that we are starting so late. We had another committee use this room before and, in fact it was the full committee.

Dr. KOOP. I appreciate your concern about my time restraints, sir. Thank you.

Mr. SHAYS. We want you back again so we want to have credibility with you.

Dr. Wright, we are going to go with you, and Ms. Jesse, and then, Dr. Leevy, we are going to swear you in separately. No big deal but we've sworn in everyone else and we want to have you on the same footprint here.

Dr. Wright.

Dr. WRIGHT. Mr. Chairman, and members of the subcommittee, thank you for giving the American Liver Foundation the opportunity to present testimony to the subcommittee. We very much appreciate the leadership of Mr. Shays and the other members of the subcommittee which help communicate the urgency of the hepatitis C epidemic in the United States.

My name is Teresa Wright and I am a member of the Hepatitis Council of the American Liver Foundation and I chair the medical advisory committee of the American Liver Foundation's northern California chapter. I am also an associate professor of medicine at the University of California, San Francisco, and chief of the gastroenterology clinic at the San Francisco VA.

The American Liver Foundation is a national voluntary health organization dedicated to the prevention, and treatment and cure of hepatitis and other liver diseases through research and education. The American Liver Foundation has 25 chapters nationwide and provides information to 200,000 families.

Every month, the ALF receives approximately 15,000 calls requesting information about hepatitis and other liver diseases. Ninety percent of the calls are about hepatitis and 75 percent of these request information regarding hepatitis C.

Mr. SHAYS. Is that every week?

Dr. WRIGHT. Every month, sir. You have already heard about the magnitude of this epidemic. Hepatitis C disease is the leading indication for liver transplantation in the United States, accounting for nearly 1,500 transplants per year. Others with hepatitis C disease die awaiting liver transplantation or not considered suitable candidates for transplantation.

Currently, there are not sufficient numbers of liver organs to meet the demands of patients in need of liver transplantation. With hepatitis C infection as the leading indication for liver transplantation in the United States and the predicted number of patients with hepatic failure predicted to rise over the next 10–20 years, the current critical organ shortage will only worsen.

To add to this problem, even if patients with hepatitis C-related disease are able to undergo liver transplantation, infection recurs in the transplanted organ and may result over time in progressive liver injury and even loss of the organ.

Thus in the next 10–20 years, retransplantation for recurring hepatitis C disease may become an increasingly important indication for liver transplantation. The only FDA approved therapy for hepatitis C are inadequate. They are alpha interferon which result in initial improvements in hepatitis C RNA levels and liver enzymes in about half of those who were treated, but only half. And sustained responses off therapy range from 10 to 30 percent depending on the duration of treatment.

Additional agents, such as the oral drugs ribavirin and long-acting formulations of interferon are in phase 3 clinical development. But specific inhibitors of the hepatitis C virus replication cycle have not yet been tested in humans.

The burden of hepatitis C-related liver disease in the United States must be measured not only in the number of deaths every year from liver failure or liver cancer, but also in the morbidity

that this virus causes. While many have no clinical symptoms until liver disease is advanced, infected individuals can experience profound fatigue, muscle aches, arthritis, itching, skin manifestations, and, in some cases, kidney failure.

Symptomatic individuals may lose time from work and they need temporary or even permanent disability. Knowledge that this virus can be transmitted to others raises anxiety between sexual partners, and between couples who want children.

Individuals with hepatitis C may be denied life insurance and disability insurance and, in certain cases, they are even denied employment.

In addition, with complications of liver disease, such as bleeding, spontaneous infection, the cost of caring for these complications, many of which need management in intensive care units is largely unmeasured but potentially enormous.

There is currently little knowledge of the economic and psychological burden of hepatitis C in this country.

Finally, hepatitis C is an increasingly important cause of morbidity and mortality in those with HIV infection. As advanced in HIV therapy have prolonged the life expectancy of HIV-positive individuals, hepatitis C is becoming life determining in this population. Concerns about liver toxicity from HIV protease inhibitors are also limiting the use of these life-saving drugs in patients with hepatitis C and HIV. At the San Francisco General Hospital, a hospital which is world renowned for the treatment of AIDS, 30 percent of patients who are hospitalized have hepatitis C.

In March 1997, the NIH convened a conference to review the management of hepatitis C. An NIH consensus statement identified the most important area for future research for this emerging infectious disease. The American Liver Foundation has adopted these recommendations and proposes a 7-year research agenda for hepatitis C. Requested budget for the nine areas of research is $56 million in year one and $404 million total.

Due to the nature of hepatitis C, it is critically important that this strategy be carried out through collaborative efforts among institutes of the National Institutes of Health and the CDC.

At the NIH, NIDDK and NIAID should take the lead. However, it is very important that this comprehensive and coordinated effort includes the Veterans Administration, National Heart, Lung, and Blood Institute, and the National Institute for Drug Abuse, as well as other government agencies.

We have the opportunity to head off this major public health epidemic which is potentially as serious as AIDS and we have the benefit of lessons learned from the AIDS epidemic to help us do the job. Although grateful for the commitment of the CDC to fight hepatitis C, we recognize that the agency needs to be armed with an adequate level of funding.

Right now, through the American Liver Foundation and the American Digestive Health Foundation, the education outreach efforts have been overwhelmingly supported through private-sector funds.

Given the magnitude of the emerging hepatitis C epidemic, we need to create a true public-private partnership to achieve these goals.

In summary, the American Liver Foundation proposes that we provide $404 million for research over the next 7 years to the NIH, Department of Veterans Affairs and other government agencies, that we support an education outreach program which will be predominantly funded through the CDC for $35 million; that epidemiological studies and surveillance studies are put in place, again predominantly through the CDC.

And, finally, Mr. Chairman, I would like to compliment you for your interest in supporting and fully funding a program to identify individuals who have contracted hepatitis C through blood transfusions and may have the consequences of this disease.

Thank you.

[The prepared statement of Dr. Wright follows:]

Mr. Chairman and Members of the Committee, thank you for giving the American Liver Foundation (ALF) the opportunity to present testimony to this Subcommittee. We very much appreciate the leadership of Mr. Shays and the other members of the Subcommittee which will help communicate the urgency of the hepatitis C epidemic in America: The need for research and public awareness.

My name is Teresa L. Wright, MD, and I am a member of the Hepatitis Council of the American Liver Foundation and I Chair the Medical Advisory Committee of ALF's Northern California Chapter. I am also Associate Professor at the University of California San Francisco and Chief of the Gastroenterology Section at the San Francisco VA.

The American Liver Foundation (ALF) is a national voluntary health organization dedicated to the prevention, treatment and cure for hepatitis and other liver and gallbladder diseases through research and education. ALF has 26 chapters nationwide and provides information to 200,000 patients and families. Over 70,000 physicians, including primary care practitioners and liver specialists and scientists also receive regular information through the ALF scientific newsletter, *Liver Update.* ALF was founded 22 years ago by the American Association for the Study of Liver Diseases. In recent years, ALF has provided over $6 million to support liver research with guidance from our medical advisors.

The ALF Board of Directors is composed of scientists, clinicians, patients and other who are directly affected by liver diseases. Every month ALF receive approximately 15,000 calls requesting information about hepatitis and other liver diseases. Ninety percent (90%) of the calls are about hepatitis with more than seventy-five percent (75%) of those calls requesting information about hepatitis C. This distribution of calls reflects the significant health threat posed the emerging hepatitis epidemic that faces the Nation and, therefore, the public's interest in learning more about these health threats.

HEPATITIS C AN "EMERGING INFECTIOUS DISEASE"

Nearly 4 million Americans are infected with the hepatitis C virus (HCV). Currently HCV-related chronic liver disease is estimated to result in 8,000 to 10,000 deaths annually in the U.S. and without effective intervention, that number has been predicted to triple over the next 10-20 years. HCV disease is the leading indication for liver transplantation in the U.S. accounting for nearly 1,500 liver transplantations annually. Others with HCV disease die awaiting liver transplantation or are not considered suitable candidates for transplantation. Currently, there are not sufficient numbers of liver organ donors to meet the demand for patients in need of liver transplantation. With HCV infection as the leading indication for liver transplantation in the U.S., and the number of patients with hepatic decompensation from HCV disease predicted to rise, the current critical shortage of organ donors will only worsen. To add to this problem, even if patients with HCV-related disease are able to undergo liver transplantation, infection recurs in the transplanted organ and may result over time in progressive liver injury and even loss of the

organ. Thus, in the next 10-20 years, retransplantation for recurrent HCV disease may become an increasingly important indication for liver transplantation. The only FDA-approved therapies for hepatitis C are alpha interferons which result in initial improvements in HCV RNA levels and liver enzymes in only 50% of those treated, and sustained responses off therapy in only 10-30%. Additional agents such the oral drug ribavirin and long-acting formulations of interferon are in phase III development, but specific inhibitors of hepatitis C replication are not yet in clinical development. There are no effective treatments for post-transplantation HCV disease.

The burden of HCV-related disease in the U.S. must be measured not only in the number of deaths every year from liver failure or liver cancer, but also in the morbidity that this virus causes. While many have no clinical symptoms until liver disease is advanced, infected individuals can experience profound fatigue, muscle aches, arthritis, itching, skin manifestations and in some cases, renal failure. Symptomatic individuals may lose time from work and they need temporary or permanent disability. Knowledge that this virus can be transmitted to others raises major anxiety between sexual partners as between couples who want children. Individuals infected with HCV may be denied life insurance and disability insurance, and in certain cases they are even denied employment. In addition, when complications of liver disease such as variceal bleeding, spontaneous infection and hepatic encephalopathy develop, the cost of caring for these complications, many of which need management in intensive care units, is largely unmeasured, but potentially enormous. There is currently little knowledge of the economic and psychological burden of hepatitis C in this country.

HCV is predominantly transmitted by direct contact with blood. Although hepatitis C was first recognized because of its association with blood transfusion, illegal injection drug use has always accounted for a substantial amount of transmission. Many persons with persistent HCV may have acquired their infection 20 to 30 years ago as a result of occasional experimentation with illegal drug injection. Such individuals with a past history of "recreational" drug use may be unlikely to identify themselves readily as members of a high-risk group. Other direct exposures to blood have been associated with transmission of HCV in the United States including hemodialysis and occupational exposure to blood. Transmission of HCV may also occur by sexual and household exposure to an infected person, sexual exposure to multiple partners, and perinatal exposure, but the efficiency of transmission in these settings appears to be low. Initial studies from the CDC suggested that approximately 40% of persons with hepatitis C denied any of these recognized exposures. More recent data from their studies has shown that a documented source for infection could be identified in 90% after more intensive interviewing; most of these were associated with illegal drug use (60%) and high risk sexual exposures (20%)[3]. Similar results were found in a study of HCV-infected blood donors from

NIH[2]. Of those who initially denied a recognized risk factor for HCV infection and were reinterviewed, most had a history of high-risk drug or sexual behaviors. However, remote occult parenteral exposures may account for some of these infections which lack recognized risk factors.

HEPATITIS C: A RESEARCH AGENDA

In March 1997, the NIH convened a conference to review the management of hepatitis C. The NIH Consensus Statement identified "the most important areas for future research" for this "emerging infectious disease". The American Liver Foundation has adopted these recommendations and proposes a seven year research agenda for hepatitis C. Requested budget for the nine areas of research is $56 million in year one and $404 million total. Due to the nature of hepatitis C, it is critically important that this strategy be carried out through collaborative efforts among institutes of the NIH and the CDC. At NIH, NIDDK and NIAID should take the lead. However, it is vitally important that this be a comprehensive and coordinated effort including the Veterans Administration, NHLBI, HRSA, National Library of Medicine, NIDA and other government agencies. This plan is intended to stimulate significant commitment to the major public health problem presented by chronic hepatitis C.

The American Liver Foundation and the ALF's Hepatitis Council have developed a research agenda which is based fundamentally on the recommendations of the NIH Consensus Development Conference. The ALF's Hepatitis Council is comprised of specialists in hepatology and infectious disease who are involved in both the practice of medicine and biomedical research.

Specifics of the American Liver Foundation's Research Agenda are as follows:

1. Epidemiologic Studies Continued monitoring of the epidemiology of acute and chronic hepatitis C is necessary. Additional studies of the specific mode of transmission in minority groups, institutionalized individuals, and injection and intranasal drug users are needed, as well as more information on sexual, household, occupational, nosocomial and perinatal transmission. These studies should be led by the CDC. $5 million is requested for the first year, and $35 million for the seven year period.

2. Multicenter Hepatitis Cohort Studies Large-scale, long-term studies are needed to define better the natural history of hepatitis C and especially identify factors associated with disease progression to cirrhosis. The natural history of HCV disease can be highly variable, yet factors predictive of disease progression, other than excess alcohol use, are largely unknown. Studies of the natural history are needed in special groups such as minorities, children, those over the age of 60 years, HCV-infected individuals with persistently normal liver enzymes, HCV-infected individuals coinfected with HIV and injection drug users. There are cumulative data that the natural history of HCV is accelerated in those

with HIV coinfection compared with those who have HCV infection alone. Moreover, coinfection with these two viruses is common due to shared parenteral and sexual risk factors for these viruses. With advancing therapy for HIV disease, HCV infection is becoming an increasingly important cause of morbidity and mortality in those with HIV. Moreover in patients with HCV/HIV coinfection, the treatment of HIV disease with anti-retrovirals and protease inhibitors, in complicated by the potential hepatotoxicity of these drugs. Thus aggressive therapy for HIV may be impaired because of concomitant HCV disease. These multicenter hepatitis cohorts may also provide important information about the role of ultrasound and alpha fetoprotein monitoring for early detection of hepatocellular carcinoma in patients with chronic hepatitis C. These cohort studies should also include those at risk for hepatitis C who are not yet infected as well as the small number who have been exposed and have naturally cleared infection. These cohorts of non-infected individuals will provide an important resource for testing of vaccines when available as well as for understanding the immune mechanisms of viral persistence and viral clearance.

The American Liver Foundation recommends that the NIAID and NIDDK coordinate the establishment of these cohorts with a requested budget of $10 million in the first year and $70 million for the seven year period.

3. Basic science studies Studies are needed on the recovery from and persistence of viral infection as well as the pathogenesis and mechanism of liver injury by HCV. Is damage due to the cytopathic effects of virus on the liver cell, or is it immunologically mediated? What is the mechanism of hepatic fibrosis and can fibrosis be separated from inflammation and necrosis of the liver? Such studies would be greatly facilitated by development of suitable animal and cell culture models. the mechanism of development of hepatocellular carcinoma in patients with hepatitis C needs elucidation.
The American Liver Foundation recommends the following government agencies with the following budgets to coordinate these efforts:
a) Studies of recovery from persistence of viral infection should be led by NIAID with a first year budget of $4 million and a seven year budget of $28 million
b) Studies of the pathogenesis and mechanisms of liver cell injury should be led by NIDDK with an initial budget of $5 million and a seven year budget of $35 million
c) Studies of the mechanisms of development of hepatocellular carcinoma should be led by the NCI with an initial budget of $3 million and a total budget of $21 million.
d) Studies of viral persistence and immune response to infection in chimpanzees should be led by NIAID an initial budget of $1 million and a total budget of $7 million.
e) Establishment of tissue culture systems and small animals of HCV should be coordinated by NIAID with an initial budget of $3 million and a total budget of $21 million.

4. Development of effective antiviral agents Given the large number of persons who are already infected with HCV, there is an urgent need for effective antiviral therapeutics capable of inhibiting viral replication and stopping or delaying the progression of liver disease. A major hurdle to drug discovery is the absence of a readily available cell culture system that is fully permissive of viral replication. Thus, development of such systems should be high priority. An improved understanding of the molecular virology of HCV is also critically important to antiviral drug development. These studies should include the development of infectious molecular clones that are produce high level replication, and which would in turn allow analyses of structure-function relations among HCV nonstructural proteins that participate in the viral life cycle. This effort should be led by NIAID with the budget described above in 3e.

5. Alcohol and hepatitis C Alcohol ingestion clearly worsens the course of hepatitis C, but the reasons for this interaction are unknown. Studies of the interaction between HCV and obesity, diabetes mellitus, iron, and medications are also needed. This effort should be coordinated by NIAAA with an initial budget of $3 million and a total budget of $21 million.

6. Development of improved and standardized testing for HCV Unresolved questions remain regarding the diagnostic tests for hepatitis C. What is the prevalence of significant liver disease among RIBA-positive, HCV RNA-negative individuals? What should be the gold standard for HCV RNA assays? What is the frequency of intermittent viremia in untreated patients? What are the criteria for selecting patients for, or withdrawing patients from, treatment? How can the reliability of HCV RNA tests be improved? How can the dynamic range and intra-assay variability of the HCV RNA test be improved? This strategy will need a combined effort by FDA/NIAID/NIDDK with an initial budget of $3 million and a total budget of $21 million.

7. Therapeutic trials of HCV Future clinical trials should expand the range of outcomes studied to include quality of life from the patient's point of view, as well as costs and survival. In addition, those trials should include minorities, patients over age 60, patients under age 18, HIV-coinfected patients, and liver transplant patients. We need to identify effective, nontoxic therapeutic agents. Clinical trials are also needed to identify optimal treatment regimens for those who do not respond to interferon therapy, or who relapse following interferon therapy. Prospective studies are needed to identify and test prospectively the factors that predict response to therapy. In addition, studies are needed of possible drug interactions, especially between the antiretroviral drugs used to treat HIV infection and those drugs used to treat hepatitis C. This Hepatitis Clinical Trial Group should be coordinated by NIDDK/NIAID with an initial budget of $10 million and a total budget of $70 million.

8. Vaccine Development Although continued education of risk groups and screening of blood, organs, tissue, and semen remain vitally important, the key to prevention is development of an effective and safe

vaccine for hepatitis C. This will require a better understanding of the molecular determinants of both cellular and humoral immunity to HCV, the nature of antigenic variation as related to viral quasispecies diversity, and the mechanism(s) by which HCV regularly eludes the host immune system and established persistent infection. Vaccine development should be coordinated by NIAID with an initial budget of $3 million and a total budget of $33 million.

9. Targeted education/information to at-risk populations Strategies should be developed to educate at-risk groups concerning transmission of disease, as well as provide access to diagnosis and treatment. It would be helpful also to evaluate the role of intranasal cocaine use as a possible route of infection. The CDC should lead this effort with an initial budget of $5 million and a total budget of $35 million.

In summary, the American Liver Foundation strongly recommends full implementation of the Consensus Conference research and public health education recommendations. The sense of urgency is due to the fact that over the past 30 years, 4 million Americans have contracted chronic hepatitis C and the health outcome of these people, 1.8% of the Nation's population, is an unanswered question. Development of an effective vaccine to prevent HCV in those who are at risk, is unlikely within the next five years because hepatitis C is a highly mutable virus, and the immune response to primary infection is inadequate for viral clearance in the vast majority who are exposed. Moreover, current therapies suppress viral replication in only approximately 50% of treated individuals, and current therapies clear virus in an even smaller proportion. Antiviral agents which inhibit specifically the viral life cycle are in preclinical development but none have yet been tested in man. Even when these agents are developed, lessons from HIV tell us that multidrug therapy will be likely, that treatment will be prolonged and that drug resistance will be an issue.

HEPATITIS C: EDUCATION AND OUTREACH

For the past three years, ALF and its chapters have been engaged in a broad based strategy to inform the American public about the threat posed by hepatitis C. This strategy, called "**T.H.I.N.K. Hepatitis**," is designed to provide **T**he **H**epatitis **I**nformation you **N**eed to **K**now."

ALF has mounted two nationwide, broad based hepatitis C awareness campaigns, "Get Hip to Hepatitis." These featured print ads in national magazines, billboards, bus posters, pubic service announcements with Naomi Judd and blues artist Robert Cray, and even a special blues album on CD with liner notes containing hepatitis C information. The arresting imagery of faces with yellow eyes on a blue background featured in most of this campaign captured the attention of many people at risk of

hepatitis. These materials were developed with technical support and guidance from the Hepatitis Branch of the Centers for Disease Control and Prevention (CDC).

Approximately 75% of the calls to ALF's information hotline are related to hepatitis C. Prior to ALF's awareness campaigns, hotline calls averaged 2,500 per month. During the second campaign last spring and summer ALF's hotline registered its highest level of calls ever with 19,000 incoming calls in June.

Current Activities

In order to expand these efforts ALF launched an alliance with the American Digestive Health Foundation, composed of three medical societies involved in the study and treatment of hepatitis. The ADHF/ALF Viral Hepatitis Education Campaign unites the lay, medical and scientific communities in the battle to increase awareness of hepatitis C and improve its diagnosis, prevention and treatment.

The Campaign is enlisting the aid of national networks of organizations including health and human service agencies, trade and civic associations, medical societies and labor unions to reach the millions of Americans who have hepatitis C and don't know it, many of whom contracted this potentially fatal disease through blood transfusions and other blood products given prior to 1992.

In November the Campaign established a National Hepatitis Advisory Panel of leadership groups to help organize a National Hepatitis Summit on February 24 attended by 150 key national organizations who committed themselves to help the Campaign educate their constituencies about the risks of hepatitis C and the need to get tested.

These organizations are helping the Campaign to develop effective methods of communicating vital, life-saving information to their widely diverse range of constituencies at high risk of hepatitis. Special efforts are being made to overcome cultural and lifestyle barriers to reaching African Americans, Hispanics, Asian/Pacific Islanders, teens, gay men, baby boomers and former and present drug users. Educational tools are being developed to arm these and other organizations in this battle. In this area too the CDC provided invaluable insights and guidance.

These activities are made possible through the generous corporate support joining in partnership with the non-profit voluntary sector and professional societies.

CDC is integrally involved in this partnership with Hepatitis Branch Chief, Hal Margolis, MD as a member of the Campaign's Scientific Advisory Committee. CDC also has a seat on the National Hepatitis Advisory Council. In addition, CDC increased the reach of the National Hepatitis Summit by arranging for a satellite link to air the proceedings live in 64 communities through public health

departments. The CDC is also providing financial support to expand special outreach materials and efforts to high risk groups including gay men, drug users and teens.

Future Needs

The National Summit last week taught us that there is much more to be done to overcome the health education challenges inherent in combating the emerging epidemic of hepatitis C. We heard about the great difficulty in penetrating various ethnic, cultural and lifestyle groups with this important message. We learned about the pressing need to tailor messages, materials, and communications vehicles to meet the special needs of diverse groups and overcome barriers to persuasively communicating these life saving information. We learned that the resources we have available and the programs we have planned are only a drop in the bucket of need that exists in this country.

We have the opportunity to head off this epidemic which is potentially as serious as the AIDS epidemic, and we have the benefit of the lessons learned in the AIDS epidemic to help us do the job. We need to stimulate more private/public partnerships through encouraging collaborations and providing financial incentives for working in this manner. Although grateful for the commitment of the CDC to fighting hepatitis C, we recognize that the agency needs to be armed with an adequate level of funding with which to do the job. Right now, through the ALF and ADHF the education and outreach efforts have been overwhelmingly supported through private sector funds. Given the magnitude of the emerging hepatitis C epidemic, we need a significant infusion of public resources to attack this public health threat. We need to create a true public/private partnership to get the job done.

Blood Transfusion Transmitted Hepatitis C

Lastly, with respect to the 300,000 people infected with hepatitis C due to pre-1992 blood transfusions, much more needs to be done. An extensive public and physician education campaign is imperative to reach those people who are no longer reachable through hospital and blood bank records. We must find the best ways of informing these blood transfusion recipients whether it is by "look back" or broad based public education. The methods proposed must be evaluated for maximum effectiveness. We urge that the recommendations of the Advisory Committee on Blood Safety and Availability be fully funded and aggresively implemented as a public/private sector partnership as soon as possible. Lives are at stake.

HEPATITIS C: ALF SUMMARY RECOMMENDATIONS

- **RESEARCH** provides $404 million dollars (NIH, DVA and other government agencies) over 7 years to support the "research agenda for 4 million Americans".
- **EDUCATION AND OUTREACH** provides $35 million dollars (CDC) to support education, prevention, and outreach.
- **EPIDEMIOLOGIC STUDIES AND SURVEILLANCE** provides $35 million dollars (CDC) over 7 years.
- **BLOOD TRANSFUSSION ASSOCIATED HEPATITIS C** fully fund amount needed to support public and physician education and other methods e.g., targeted "look back".

References

1. Alter MJ. Epidemiology of Hepatitis C. Hepatology 1997;26:62S-65S.
2. Conry-Cantilena C, VanRaden M, Gibble J et al. Routes of infection, viremia, and liver disease in blood donors found to have hepatitis C virus infection. N Engl J Med 1996;334:1691-6.

Mr. SHAYS. Thank you, Dr. Wright.

Ms. Jesse, rather than going to you next, I think I will swear in Dr. Leevy right now and then we will have a nice dialog when all three of you are done.

Dr. Leevy, if you will just stand a raise your right hand. Thank you. We swear in all of our witnesses, including Members of Congress, if they testify.

[Witness sworn.]

Mr. SHAYS. Note for the record that Dr. Leevy responded in the affirmative. Dr. Levy, you're on.

Dr. LEEVY. Yes, thank you very much, Chairman Shays. I want to thank Representative Payne for his kind introduction this morning.

Mr. SHAYS. I want you to know he was trying to encourage us to move along so he could hear your testimony as well, so I am just sorry he is not here now, but we are a little later than we expected.

Dr. LEEVY. And, second, Representative Towns who has played a very important role in educating the public about hepatitis C. I met with him at a conference sponsored by the Medical Herald at the Pratt Institute in Brooklyn last fall. I know he is committed to identifying better methods for preventing and treating hepatitis C across all segments of society.

Further, he has joined Representatives Payne and Stokes in contacting the Director of the National Institutes of Health about the need for additional research for hepatitis C.

I will focus on two essentials in our effort to conquer hepatitis C: the critical need for preventive initiatives, including efforts to identify and treat hepatitis C, particularly among underserved populations; and the imperative for expanded research on HCV infection, along with public education relating to hepatitis C. This should be undertaken by the Centers for Disease Control and Prevention which should collaborate, where possible, with the American Digestive Health Foundation, the American Liver Foundation, National and Spanish Medical associations, and other private sector groups that are attempting to educate the public and physicians about this disease.

It is essential to target educational efforts to the medically underserved. Many minorities, or disadvantaged Americans, have no access to routine lay education or health care programs. Public meetings of the health care providers, clergy and patients are particularly important in helping identify and giving them the kinds of emphasis necessary for testing.

The Centers for Disease Control and Prevention sentinel survey sites have played a major role in determining the magnitude of the hepatitis C epidemic; these sites should be expanded. Additional resources are now needed to improve the reliability of reported test results and monitor treatment outcomes in association with health departments and academic centers conducting basic and clinical research on hepatitis C.

Special measures are needed for minorities and lower socio-economic groups who have a two to threefold increase in the disease. Arrangements are needed for all subjects who have used IV drugs or have other factors which are responsible, as far as we know, for this disease.

Thirty to forty percent of patients with this disease, at least among suburbanites with whom we have worked, do not have known risk factors. It is desirable to routinely provide screening tests without penalty to identify carriers. Infected persons should promptly consult a physician and obtain treatment for hepatitis to prevent its progression to cirrhosis and cancer. In interrupting the epidemic of hepatitis C, a public safety net must be provided to help the most needy in the country. Our present health care climate makes it necessary to include the poor, disadvantaged and uninsured who have chronic hepatitis C. For those who have access to federally funded health care programs, it is important to be sure that patients infected with hepatitis C are managed in the manner recommended by the NIH Consensus Development Conference. This would include Medicare and Medicaid as well as the health care programs of the Department of Veterans Affairs and the Department of Defense.

In March 1997, the NIH sponsored a consensus conference on the management of hepatitis C and this report expressed grave concern about the large numbers of Americans infected with the virus, noting that this disease leads to complications and is a major reason for liver transplantation, as you have heard.

The report emphasized the absence of a vaccine against hepatitis C and noted that while Interferon A therapy is effective in some cases, most patients do not respond and have a subsequent relapse. The report outlined nine important areas of further research, which have been incorporated in my written report, and should be followed with the additional changes which have occurred since this meeting.

In summary we have a long way to go, much work to do, and, if we are to gain the upper hand in the battle against hepatitis C, it is necessary for patients to keep in mind that they need to be tested and evaluated appropriately in order to make a diagnosis. We have the scientific tools to conquer hepatitis C and other infectious diseases, but a special, well-funded research initiative is needed if we are to succeed.

To effectively pursue the hepatitis C research agenda which has been outlined here today, and previously, it is first necessary to obtain additional dollars and should not be mounted at the expense of existing research on other serious diseases. I believe the Congress should call upon the NIH Director to use his discretionary fund transfer authority to provide support for research for hepatitis C.

In my opinion, the National Institutes of Diabetes, Digestive, and Kidney Diseases should play a leading role in this project to ensure that research focuses on the basic and clinic research questions underlying the disease.

The NIH Office of Research for Minority Health should be involved in all aspects of the initiative to ensure special impact maintenance of the required minorities as a focus of clinical research efforts.

Little is known about the natural history of hepatitis C in minorities, and other at-risk groups that have a disproportionate high incidence of this infection. Additional NIH institutes and entities should also be involved in hepatitis C research programs, including

the National Cancer Institute, Institute of Allergy, Heart and Lung, and the National Institute of Drug Abuse. Collaboration with the research programs of the Department of Veterans Affairs and the Department of Defense should be pursued wherever possible.

Let me close by thanking the subcommittee again for bringing the spotlight of congressional attention to the threats to human health posed by the hepatitis C virus. I hope you will move forward with research initiatives that can lead us to a protective vaccine and more effective therapy for hepatitis C; with an effort to assure the appropriate medical management of hepatitis C in Federal health care facilities; and with a public educational program that can serve to prevent further spread of the disease.

[The prepared statement of Dr. Leevy follows:]

Good morning, Chairman Shays and members of the Subcommittee. I am Dr. Carroll Leevy, Distinguished Professor of Medicine at the University of Medicine and Dentistry of New Jersey and Director of the Sammy David, Jr. Liver Institute. I am pleased to have the opportunity to participate in this hearing to bring public attention to the serious health threats posed by the hepatitis C virus and to consider the response of Federal health agencies to the increased incidence of hepatitis C infection.

Let me begin by applauding you, Chairman Shays, and the members of this Subcommittee for holding this important hearing. As you know, nearly four million Americans are infected with hepatitis C, and it is expected that the death rate for the disease will triple over the next twenty years. Nevertheless, the public remains largely unaware of the virus or the illness and death that it causes. I hope and expect that this hearing will bring focussed attention to the need for research, prevention strategies, and efforts to educate and inform the general public.

I would also like to recognize Representative Towns for the role that he has played in educating the public about hepatitis C and its particular impact on minorities. As you may know, while the virus infects 15 percent of non-Hispanic whites, over 3% of African Americans are infected as are 2.1% of Mexican Americans. I had the pleasure of joining Mr. Towns at a public meeting at the Pratt Institute in Brooklyn last fall, and I know how committed he is to identifying better methods for preventing and treating hepatitis C across all segments of our society. Further, Representative Towns joined Representatives Payne and Stokes in contacting the Director of the National Institutes of Health about the need for additional research on hepatitis C. I will focus the remainder of my statement on these two essential tools in our effort to conquer hepatitis C:

- the critical need for prevention initiatives including efforts to identify and treat hepatitis C particularly among underserved populations, and
- the imperative for expanded research on HCV infection.

Preventing and Treating Hepatitis C

There is a critical need for public education related to hepatitis C. This should be undertaken by the Centers for Disease Control and Prevention, which should collaborate where possible with the American Digestive Health Foundation, the American Liver Foundation, the National and Spanish Medical Associations, and other private sector groups that are attempting to educate the public and physicians about this disease. It is essential to target educational efforts to the medically under served. Many minority or disadvantaged Americans have no access to routine lay educational health care programs. Public meetings of health care providers, clergy and patients such as the one I attended last fall with Representative Towns are important vehicles. It is essential to identify each of the over four million Americans infected with the hepatitis C virus and **interrupt its transmission to others** while instituting treatment. The Centers for Disease Control and Prevention sentinel survey sites have played a major role in determining the magnitude of the hepatitis C epidemic, and these sites should be expanded. Additional resources are needed to improve the reliability of reported test results and monitor treatment outcomes in association with health departments and academic centers conducting basic and clinical research on hepatitis C.

Special measures are needed for minorities and lower socio-economic groups who have a 2-3 fold increase in the disease. Arrangements are needed for all subjects who have used IV drugs or have other risk factors to obtain a diagnostic serologic test for hepatitis C. Since 30 to 40% of patients with the disease do not have known risk factors, it is desirable to routinely provide such tests without penalty. Persons infected should promptly consult a physician and obtain treatment to prevent its progression to cirrhosis and cancer. In interrupting the epidemic of hepatitis C, a public safety net must be provided to help the most needy in the country. Our present health care climate makes it desirable to include the poor, disadvantaged and uninsured who have chronic hepatitis C.

For those who have access to Federally funded health care programs, it is important to assure that patients infected with HCV are managed in the manner recommended by the NIH Consensus Development Conference. This would include Medicare and Medicaid as well as the health care programs of the Department of Veterans Affairs and the Department of Defense.

An Aggressive Research Initiative on Hepatitis C

In March of 1997, the NIH sponsored a consensus development conference on the management of hepatitis C also known as HCV. The report of that conference expressed grave concern about the large number of Americans infected with the virus, noting that hepatitis C leads to cirrhosis of the liver in 20% of cases, is the leading reason for liver transplantation in this country, and is associated with increased risk of liver cancer. The report emphasized the absence of a vaccine against hepatitis C infection and noted that while interferon-A therapy is effective in some cases, most patients do not respond or experience a subsequent relapse. The report outlined nine important areas for further research that must be undertaken if we are to have any chance of reducing the devastation of the hepatitis C virus. Of particular interest, the report noted the need for:

- continued epidemiological studies with a particular focus on minorities and lower socioeconomic groups;
- research to define the natural history of Hepatitis C with a focus on identifying the factors associated with progression to cirrhosis;
- research on how the virus results in liver cell injury or liver cancer;
- basic science to develop the cell culture system necessary to develop effective antiviral therapies that will inhibit the replication of the virus and stop or delay the progression of liver disease;
- studies of the interaction between hepatitis C and other diseases such as diabetes mellitus;
- clinical research to develop new diagnostic tests for HCV infection;
- clinical trials to identify optimal treatment regimens for those who do not respond to interferon therapy;

- research to develop a safe and effective vaccine; and

- research to identify the most effective strategies for educating at-risk groups and assuring access to diagnosis and treatment.

In summary, we have a long way to go and much work to do if we are to gain the upper hand in the battle against hepatitis C. However, please keep in mind that we have developed vaccines and effective treatments for both hepatitis A and hepatitis B. We have the scientific tools to conquer hepatitis and other infectious diseases, but a special, well-funded research initiative is needed if we are to succeed.

To effectively pursue the hepatitis C research agenda outlined at the NIH Consensus Conference, I recommend a multi-Institute initiative at the National Institutes of Health in collaboration with the Centers for Disease Control and Prevention. First, let me emphasize that this effort requires **additional dollars** and should **not** be mounted at the expense of existing research on other serious diseases. I believe that Congress should call upon the NIH Director to use his discretionary fund and transfer authority to provide support for research on hepatitis C. In my opinion, the National Institute of Diabetes and Digestive and Kidney Diseases should play a leading role in this project to assure that the research focuses on the basic and clinical research questions underlying the disease caused by HCV infection. In addition, the NIH Office of Research on Minority Health should be involved in all aspects of the initiative to assure that the special impact on minorities is a focus -- particularly of clinical research efforts. Little is known about the natural history of hepatitis C in minorities and other at-risk groups that have a disproportionate incidence of this infection, and as outlined in the NIH Consensus Conference report, research programs are needed to identify effective strategies for educating these groups and assuring access to proper diagnosis and treatment.

Additional NIH institutes and entities should be involved in a hepatitis C research initiative as follows:

- The National Cancer Institute should be involved in studies relating to the risk of liver cancer associated with hepatitis C.

- The National Institute of Allergy and Infectious Diseases should be engaged in aspects of the initiative pertaining to transmission of HCV and vaccine development.

- The National Heart, Lung, and Blood Institute should be involved in research related to protecting the blood supply from contamination with HCV.

- The National Institute of Drug Abuse should be involved in research related to the transmission of HCV among drug users.

Collaboration with the research programs of the Department of Veterans Affairs and the Department of Defense should be pursued wherever possible.

Let me close by thanking this Subcommittee again for bringing the spotlight of Congressional attention to the threats to human health posed by the hepatitis C virus. I hope you will move forward with research initiatives that can lead us to a vaccine or effective therapy for hepatitis C, with an effort to assure the appropriate medical management of hepatitis C in Federal health care facilities, and with a public education campaign that can serve to prevent further incidence of the disease.

I would be happy to respond to questions.

Mr. SHAYS. Dr. Leevy, thank you very much, and also Dr. Wright. Ms. Jesse, you are kind of the clean-up hitter. I usually try to practice having people who are in a sense, a victim, and I use that word advisedly, but someone who is faced with some challenges, I usually have them speak first and kind of set the stage, but sometimes I don't always get my way, even in this subcommittee.

Why don't you make your testimony, and then we will have a little dialog here.

Ms. JESSE. It is an honor to be in a position to share my story with you today.

Mr. SHAYS. It is an honor to have you here.

Ms. JESSE. My name is Ann Jesse and I am director of the Hep C Connection, the National Hepatitis C Network and Support System. Our organization is exclusively focused on patient support.

I appear before you today, one of our Nation's many hepatitis C-challenged individuals to sound a very personal alarm. Are you aware that viral hepatitis C is an equal opportunity infector that has the potential of wreaking havoc on people of all ages, genders, races, and sexual orientation? Beware, for my story could be yours.

In February 1994, stunned by my brother's sudden death from a galloping viral pneumonia, I made an appointment for an overdue routine check-up. In short order, I was informed by my internist, via impersonal voice mail, that I had tested positive for hepatitis C.

He urged me to return for more tests and warned my husband to use condoms, and this was quote unquote. This was by no means an optimum way to be informed that I was infected with a chronic, incurable liver disease—a disease that I had never heard of until I had that abrupt telephone alert. This is about as devastating as wake-up calls get.

A quick review of my past medical records convinced me and my primary care physician that a planned surgical procedure involving massive blood transfusions in 1973 was the probable contraction culprit. If this indeed was the case, by this time my liver already had been under viral siege for 25 years.

Although my liver enzymes were extremely high at this time, I was feeling perfectly well and was symptom free. Little did I dream what an earth-shattering impact our Nation's tainted blood supply would have on my life. In fact, I appear before you as a living example of why the proposed look-back program should certainly go way back.

Remember, I am a 1973 transfusion victim.

Although I am an innocent transfusion victim, I don't like that word much myself, the victim one——

Mr. SHAYS. No, I am just grateful that you used it because I felt very guilty that I had. I think challenged is a good word.

Ms. JESSE. OK. In what has become my family's hepatitis C saga, I quickly decided that the victim role would not cut it for me. My approach, therefore, to making lemonade out of this lemon was, first, to research appropriate lifestyle modifications to promote liver wellness, to learn all I could about available treatment for hepatitis C, and ultimately, to pioneer the establishment of a much-needed hepatitis C network and support system.

The organization that I envisioned following my diagnosis in 1994 took flight. The Hep C Connection has assumed a national thrust and now features an 800 number called Hepatitis HelpLine. That number is 1–800–390–1202.

Mr. SHAYS. Given that you have waited so long, if you want to give that No. three more times during the course of this hearing. [Laughter.]

Ms. JESSE. 1–800–390–1202.

This line primarily responds to the special needs of blood bank donors who have tested positive for hepatitis B and C.

Although my life has, in many ways, been turned upside down by hepatitis C, there is good news on my horizon. The organization I worked hard to get off the ground, now meets the needs of thousands of hepatitis C challenged individuals nationwide.

Also, I learned a great deal about my liver and my disease. My high liver enzymes in 1994 were literally giving my doctor nightmares. I had held off on treatment and he said, I'm dreaming about you. We have got to get you on treatment.

My husband, an Episcopal priest, looked on nervously while this was going on. My first attempt at treatment failed. However, I have had the opportunity to undergo treatment again. I am participating in an Intron A ribavirin treatment as I speak and am happy to report that I am responding to this new combination treatment. I have been virus free for the past 6 months of this 1-year trial, but I must say I am cautiously optimistic.

Just for the record, I am still on treatment for another month and fatigue, muscle weakness, and aching joints aside, I appear to be up to today's congressional hearing challenge. But, believe me, I am one of the lucky ones. Most of the hepatitis C victims do not even know they are infected, few have received even one course of treatment and many did not respond to treatment.

Many more do not have the energy to stand up and be counted. And I want to emphasize that. It is very true.

These are the individuals who are counting on the government to take a more active role in combating this often misunderstood public health threat.

Rest assured there is much work to be done in the hepatitis C trenches. Physicians across the country must receive hepatitis C education and be prepared to test patients at risk for the hepatitis C virus, having first been brought up to speed on disease risks, symptoms and available treatment options. And, please, no more diagnosis alerts by voice mail.

In addition, a concerted effort must be made to clean up our Nation's blood supply. I urge you all to take advantage of my wake-up call. Time is of the essence as viral hepatitis C threatens more and more unsuspecting U.S. citizens.

Thank you.

[The prepared statement of Ms. Jesse follows:]

Congressional Hepatitis C Hearing
March 5, 1998
Ann Jesse, The Hep C Connection

TESTIMONY

My name is Ann Jesse and I am the Director of the Hep C Connection, a national hepatitis C network and support system. I appear before you today--one of our nation's many hepatitis-C-challenged individuals--to sound a very personal alarm. Are you aware that viral hepatitis C is an equal opportunity infector that has the potential of wreaking havoc on people of all ages, genders, races and sexual orientation? BEWARE, for my story could be yours.

In February 1994, stunned by my brother's sudden death from galloping viral pneumonia, I made an appointment for an overdue, routine checkup. In short order, I was informed by my internist--via impersonal voice mail communiqué--that I had tested positive for hepatitis C. He urged me to return for more tests and warned my husband to use condoms. This was by no means an optimum way to be informed that I was infected with a chronic, incurable liver disease--a disease that I had never heard of until that abrupt telephone alert. This was about as devastating as wakeup calls get.

A quick review of my past medical records convinced me and my primary care physician that a planned surgical procedure, involving a massive blood transfusion in 1973, was the probable contraction culprit. If this, indeed, was the case, my liver had already been under viral siege for 25 years. Although my liver enzymes were extremely high, I was feeling perfectly well and symptom-free in February 1994, little did I dream what an earth-shattering impact our nation's tainted blood supply would have on my life. In fact, I appear before you as a living example of why the proposed "look back" programs should certainly go back beyond 1990. Remember, I am a 1973 transfusion victim!

Although I am an innocent transfusion victim in what has become my family's hepatitis C saga, I quickly decided that the victim role would not cut it for me. My approach, therefore, to making lemonade out of this lemon was:

- To research appropriate lifestyle modifications to promote liver wellness
- To learn all I could about available treatment for hepatitis C
- To pioneer the establishment of a much needed hepatitis C network and support system.

The organization I envisioned took flight. The Hep C Connection has assumed a national thrust and now features an 800 number hepatitis Help Line. That number is 1-800-390-1202. This line primarily responds to the special need of blood bank donors who have tested positive for hepatitis B and C.

Although my life has, in many ways, been turned upside down by hepatitis C there is good news on my horizon. The organization I worked hard to get off the ground now meets the needs of thousands of Hep C-challenged individuals nationwide.

I also learned a great deal about my liver and my disease. My high liver enzymes were literally giving my doctor nightmares. My husband, an episcopal priest, looked on nervously. My first attempt at treatment failed. However, I have had the opportunity to undergo treatment again. I participate in an INTRON A/ribavirin treatment protocol and am happy to report that I am responding to the new combination treatment beautifully, I have been virus-free for the first 6 months of this one-year trial. Needless to say, I am cautiously optimistic.

Just for the record, I am still on treatment, and fatigue, muscle weakness and aching joints aside, I appear to be up to today's Congressional Hearing challenge. But believe me, I am one of the lucky ones. Most hepatitis C victims do not even know they are infected, few have received even one course of treatment and many did not respond to therapy. Many more do not have the energy to stand up and be counted. These are the individuals who are counting on the government to take a more active role in combating this often-misunderstood public health threat.

Rest assured there is much work to be done in the hepatitis C trenches. Physicians across the country must receive hepatitis C education and be prepared to test patients at risk for the hepatitis C virus, having first brought these individuals up to speed on disease risks, symptoms and the available treatment opinion (and PLEASE no more diagnosis alerts by voice mail!) In addition, a concerted effort MUST be made to clean up our nation's blood supply.

I urge you all to take advantage of MY wake-up call. Time is of the essence as viral hepatitis C threatened more and more unsuspecting U.S. citizens. Thank you.

Mr. SHAYS. Thank you very much. I would like for you first to comment on anything you heard in the other two panels that you would either want to amplify or take issue with.

Ms. JESSE. I think the ground has been very adequately covered today. I feel very strongly about the blood supply issue and that certainly has been addressed. I just feel like we are finally going to get this out in the view of the public, where it needs to be because this is a much misunderstood disease.

Mr. SHAYS. I will just parenthetically say that the problem is, you learned, when did you get that voice mail message?

Ms. JESSE. February 1994.

Mr. SHAYS. So you became aware of something in 1994 and you started to do this work to learn about how you could empower yourself to deal with this and that is why victim isn't always a good word because sometimes people who are victims don't think they can do anything about it. So you stepped forward.

You must have become aware that the government had information about a large number who had been exposed and 300,000 who were infected by this, who weren't notified. I mean, did you start to have feelings that the government needed to step forward here a little sooner?

Ms. JESSE. I did as I moved along and got myself better informed. You know, when I got that first call, I knew nothing about this problem, nothing. And, as I said, now I've become more of an expert than I wished I had to be. I even know where my liver is now. [Laughter.]

I mean, there is upset. There is a lot of work to be done but I hope that this hearing today is going to push us along. I think it is a very significant thing that you are doing.

Mr. SHAYS. Dr. Leevy, Dr. Wright. Any reaction today to any of the testimony that you might have heard earlier today? Positive or negative?

Dr. LEEVY. I think Dr. Satcher's indication that they were going to work closer with State and other departments of health so that one could refine and improve the testing for hepatitis C is a very, very important move because there are States and geographic areas in the country where one does not have the kind of funding that permits needed expertise. This is an age of break-throughs. Such support would allow every American to have the same opportunity as those in States already able to obtain a precise evaluation for the presence of the disease.

Mr. SHAYS. Interesting point. Dr. Wright?

Dr. WRIGHT. I just want to address the issue of therapy and our lack of systems to develop new drugs for hepatitis C. The current therapies are inadequate, they are suspect, and there are additional drugs in development, as Ms. Jesse is on ribavirin, but, again, it is unlikely that more than half the individuals with hepatitis C are going to benefit permanently from those drugs.

We lack a cell culture system for hepatitis C, we lack animals to test hepatitis C drugs, and without those systems in place, it makes it very difficult to get specific inhibitors to the hepatitis C virus.

The other issue relates to the vaccine development of hepatitis C. I just want to emphasize that many of the problems which we

have run into in HIV vaccine development apply directly to hepatitis C. It is a highly mutable virus. There is an inadequate protective immune response against the virus so you can take animals and infect them with hepatitis C and when they cure the infection naturally, they can be rechallenged and reinfected. That leaves us with a major problem, which is very different from hepatitis B or hepatitis A in preventing this disease.

Mr. SHAYS. As a physician, Dr. Wright, how do you determine the risk factors for someone with hepatitis C?

Dr. WRIGHT. That is a very good question. The majority of the patients I take care of have a history of injection drug use. It may be a very remote history of injection drug use, it may have been for a very brief period of time. Many of these individuals are now in, if you like, mainstream American society. As we heard from Ms. Jesse, it is an equal opportunity virus.

So clearly injection drug use is by far the most common risk factor, transfusion accounts for the minority, but it may be people who were transfused many years before and we lack good natural history data on what to tell people.

We can tell them overall it is a slow virus, but there is clearly a great deal of variability in the history of hepatitis C with some people progressing much more quickly than other people. When I speak to an individual patient, it is very hard for me to tell that patient whether they are at risk for progression or not, and that obviously will determine their need for treatment or not.

Other risk factors that have been identified have been intranasal cocaine use in certain studies, as well as tattoos and acupuncture although that tends to be overwhelmed by injection drug use. It is found in univariate, but not multivariate analysis and very high-risk sexual activity is clearly associated.

I do believe there are still a small proportion of patients who are unaccounted for by the classical risk factors for hepatitis C and I go back to some of the testimony early from the VA. When I ask Vietnam veterans what were their exposures, many of them have used injection drugs, many of them have been transfused. But they are clearly people, patients I have known for many years who have none of the classical risk factors but who will tell you that they were exposed to blood in helicopters in Vietnam, as their only potential risk factor, or who will tell you that they were immunized when they were inducted into the Army and it was not clear they were using disposable needles. So there was a potential for cross-contamination amongst people 20 years ago. I do think we have to be very concerned that there are additional risk factors that are currently unidentified, although it is in the minority of people.

Mr. SHAYS. Dr. Leevy, when we talk about, basically what is the cost to determine if someone has hepatitis C? What would be the drug cost?

Dr. Leevy you have a wonderful, rich voice and I can still pick you up in the mic, but I want you to pull the mic a little more close to you. I was thinking you are probably one of the few people who have testified here who hasn't had to be closer to the mic. You've got a great voice.

Dr. LEEVY. Well, first, as you know, a large number of individuals have other diseases, with which liver disease is associated and

discovered. Many of the patients Dr. Wright is talking about, already have HIV. We have dealt for many, many years with alcoholics with alcoholic liver disease. We now know that about a third of those people who have cirrhosis, we really didn't know that the hepatitis C virus was involved. Really it is this combination which is responsible.

Then, a large number of individuals go for a regular medical check-up, an evaluation for insurance, or to donate blood and are found to have abnormal liver function tests or, in the case of blood banks, a positive hepatitis C antibody test.

When the hepatitis C antibody test is positive, one has to confirm that it has been done correctly as indicated by the Surgeon General. We are now able to quantify the amount of virus present, using the polymerase chain reaction, or PCR, or the branch DNA test. These tests allow identification of the virus and determine how much is present.

Then you are able to follow the level of the virus to determine what is really happening to the person.

Mr. SHAYS. How could we improve the, first of all, I want to nail down this issue with any of the three of you. I am not certain what we are talking in terms of costs to do a test, a test of someone——

Dr. LEEVY. Well, a cost they have cited for doing a RBA is $5.

Mr. SHAYS. When I hear the $5 fee——

Dr. LEEVY. $400 if you do PCR or something like that, depending on where you are, so that is a very——

Mr. SHAYS. So, in other words to determine the amount of virus or what? You are talking to someone who——

Dr. LEEVY. To identify the virus and its genotype a PCR test is usually obtained, although it is as yet not FDA approved, because of the marked variation in results of available tests.

Mr. SHAYS. I've got to stop you. I've got to take control of this thing. If I am asking a dumb question, you can just tell me I am asking a dumb question. I just want to have a sense, there is a whole group of people out there, a million at risk, 300,000 that have it just from contaminated blood supply. I want to know, are we talking big dollars to go and have a test?

Dr. LEEVY. ELISA? No, I think it is the $5 test which the Veterans Administration——

Mr. SHAYS. But you are saying that in terms of a treatment program, to determine what is an effective program can be quite expensive. Is that——

Dr. LEEVY. In general, if this $5 test is positive, then the next thing would be to order a PCR test to find out if there is viremia or the positive antibody reflects healed disease.

Mr. SHAYS. And that is more expensive? So the first test is the gateway and you don't need to walk in the door if you don't have it but if you've got it then you need to do further tests.

Dr. LEEVY. That's right.

Mr. SHAYS. OK. But the initial test shouldn't be all that expensive.

Dr. LEEVY. No.

Mr. SHAYS. Let me ask you, Dr. Leevy, how can compliance with treatment programs be improved, or Dr. Wright, either one. Ms.

Jesse if you have a response to this as well. How could compliance with the treatment programs be improved?

Dr. LEEVY. Well, first I think there are a lot of people right now who can't be treated, depending on where they are located because of alpha Interferon which is used is expensive. They will give you ribavirin at the moment, but if it is approved, it will be expensive. And so that even managed care programs would prefer a patient not having to go through this or have that kind of patient because it is very, very expensive to treat someone for a year with these drugs.

As one gets more drugs and larger numbers of patients, market forces will drive down costs. There are two objectives. One must treat and eliminate viremia. This may not be possible because of a low platelet count or some other abnormality which prevents use of interferons or other antiviral drugs.

Second, most patients who come with middle-to-moderate stages of the disease, and certainly those who come at its end stage, will need special treatment for manifestations of their chronic liver disease. Their bleeding, fluid retention, and mental changes must be controlled. Transplantation may be necessary. All of this becomes very expensive.

So, ideally, one would discover the disease very early, have the correct viricidal agent to eliminate viremia and effect a cure.

Mr. SHAYS. That really is one of the reasons obviously we need to get on with it and it is one of the reasons why it is unfortunate that we have waited the amount of time we have.

Dr. LEEVY. Yes.

Mr. SHAYS. Are there any closing comments that any of you would like to make? And then I will adjourn this hearing.

Dr. WRIGHT. You asked about compliance with therapy. I think education of primary care physicians is essential. There is a lot of misunderstanding about this disease in primary care providers, not just the treatment options, but also with transmission and counseling people regarding their natural history.

So, I think physician education at the primary care level is essential. The other issue relates to patient compliance and I think Interferon is not an easy drug to take. It has to be to be given by injection. It has side effects. And patient compliance could be greatly enhanced if we had an oral agent which was effective.

Dr. LEEVY. Yes, I would like to add to what Dr. Wright said. Some years ago I was a member of the cancer training committee and people were sort of afraid of cancer and not talking about its presence. We talked the Cancer Institute into giving very small training grants of $25,000 a year to each medical school so that they would then have a program and they would train and teach each new graduate, and also the house staff, would be exposed to it. It seems to me that hepatitis C falls into that category now. If we start special training programs for medical students, house officers, and practitioners who come in, you will then at least have a very good group of people who will then be knowledgeable about it.

At the same time, of course, while providing training about the biological aspects, you need to train them about the social and cultural aspects. These people are sick. In addition to being sick patients may be underfunded. One, therefore, has to be able to deal

with different cultures, different languages, etc., in handling this in our very diverse population.

So, it would seem to me that changes in both medical training and cultural competence become important.

Mr. SHAYS. Thank you, Dr. Leevy. Ms. Jesse? Any closing comments? OK.

We appreciated your testimony. Very valuable testimony. I thank all three of you for being here and have a nice afternoon.

We adjourn this hearing.

[Whereupon, at 2:05 p.m., the subcommittee adjourned subject to the call of the Chair.]